ANALYSING PSYCHOSOCIAL AND CONTEXTUAL FACTORS UNDERPINNING BULLYING AND CYBERBULLYING

EDITED BY: Eva M. Romera, Rosario Ortega-Ruiz, Grace Skrzypiec and Rita Zukauskiene

PUBLISHED IN: Frontiers in Psychology and Frontiers in Education

frontiers Research Topics

frontiers

ISSN 1664-8714
ISBN 978-2-88963-344-9
DOI 10.3389/978-2-88963-344-9

About Frontiers

Frontiers is more than just an open-access publisher of scholarly articles: it is a pioneering approach to the world of academia, radically improving the way scholarly research is managed. The grand vision of Frontiers is a world where all people have an equal opportunity to seek, share and generate knowledge. Frontiers provides immediate and permanent online open access to all its publications, but this alone is not enough to realize our grand goals.

Frontiers Journal Series

The Frontiers Journal Series is a multi-tier and interdisciplinary set of open-access, online journals, promising a paradigm shift from the current review, selection and dissemination processes in academic publishing. All Frontiers journals are driven by researchers for researchers; therefore, they constitute a service to the scholarly community. At the same time, the Frontiers Journal Series operates on a revolutionary invention, the tiered publishing system, initially addressing specific communities of scholars, and gradually climbing up to broader public understanding, thus serving the interests of the lay society, too.

Dedication to Quality

Each Frontiers article is a landmark of the highest quality, thanks to genuinely collaborative interactions between authors and review editors, who include some of the world's best academicians. Research must be certified by peers before entering a stream of knowledge that may eventually reach the public - and shape society; therefore, Frontiers only applies the most rigorous and unbiased reviews.
Frontiers revolutionizes research publishing by freely delivering the most outstanding research, evaluated with no bias from both the academic and social point of view. By applying the most advanced information technologies, Frontiers is catapulting scholarly publishing into a new generation.

What are Frontiers Research Topics?

Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: researchtopics@frontiersin.org

ANALYSING PSYCHOSOCIAL AND CONTEXTUAL FACTORS UNDERPINNING BULLYING AND CYBERBULLYING

Topic Editors:
Eva M. Romera, Universidad de Córdoba, Spain
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain
Grace Skrzypiec, Flinders University, Australia
Rita Zukauskiene, Mykolas Romeris University, Lithuania

Citation: Romera, E. M., Ortega-Ruiz, R., Skrzypiec, G., Zukauskiene, R., eds. (2020). Analysing Psychosocial and Contextual Factors Underpinning Bullying and Cyberbullying. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-344-9

Table of Contents

frontiers in Psychology

EDITORIAL
published: 19 November 2019
doi: 10.3389/fpsyg.2019.02602

Editorial: Analysing Psychosocial and Contextual Factors Underpinning Bullying and Cyberbullying

Eva M. Romera[1]*, *Rosario Ortega-Ruiz*[1], *Grace Skrzypiec*[2] and *Rita Zukauskiene*[3]

[1] Universidad de Córdoba, Córdoba, Spain, [2] Flinders University, Adelaide, SA, Australia, [3] Mykolas Romeris University, Vilnius, Lithuania

Keywords: bullying, cyberbullying, risk and protective factors, psychosocial, context variables

Editorial on the Research Topic

Analysing Psychosocial and Contextual Factors Underpinning Bullying and Cyberbullying

Studies about bullying have identified it as a public health problem, with serious academic and psychosocial consequences. The extant literature defines bullying as an intentional phenomenon, repeated over time, which is sustained by the relational dominion-submission model established between victims and aggressors, and that is generally maintained by a lack of bystander intervention and indifferent bystander attitudes. This behavior pattern of aggressive interaction has been further broadened and diversified through the use of information and communication technologies (ICT) that has given rise to what is commonly known as cyberbullying.

Although the multicausal nature and negative effects on the well-being of those involved in bullying and cyberbullying have been clearly identified, high levels of involvement in such negative behavior remain. In the study of bullying and cyberbullying, the implication to cognitive, social, and moral competencies, which young people display in interpersonal situations, and which denote aspects of their social personality, have also been examined. Moreover, contextual dimensions, such as social status, group norms, and school climate have been identified as elements associated with the risk of school children becoming victims or aggressors and with the possibility of such behavior reoccurring.

INDIVIDUAL RISK AND PROTECTIVE FACTORS

Although bullying and cyberbullying have been widely studied throughout the past decades, there are still many gaps in our knowledge regarding individual and contextual factors that could potentially be the cause or consequence of this aggressive behavior (Zych et al., 2018). The objective of this Research Topic is to advance many of the research areas that still need to be addressed.

More than half the studies published in this Research Topic have paid attention to individual characteristics as explanations for involvement in bullying and cyberbullying. Predominantly moral beliefs and values have been underscored as important. Four studies have highlighted the moral domain as a relevant variable in understanding involvement in peer violence. In a 1-year longitudinal study with 1,250 Swedish children from fourth to fifth grade, Thornberg et al. have contributed to this Research Topic using multilevel analyses that have shown that children with little individual moral disengagement, as well as strong defender self-efficacy, are less inclined to be involved in bullying perpetration. A comparable analysis of 2,000 adolescents from Italy and Greece by Lazuras et al. found that engagement in cyberbullying was associated with moral disengagement, while hierarchical linear regression analyses revealed cross-national differences in the mediating variables of this relationship. Examining data from 1912 Spanish students aged 14 to 18 years, the

OPEN ACCESS

Edited and reviewed by:
Douglas F. Kauffman, Medical University of the Americas – Nevis, United States

***Correspondence:**
Eva M. Romera
eva.romera@uco.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *03 October 2019*
Accepted: *04 November 2019*
Published: *19 November 2019*

Citation:
Romera EM, Ortega-Ruiz R, Skrzypiec G and Zukauskiene R (2019) Editorial: Analysing Psychosocial and Contextual Factors Underpinning Bullying and Cyberbullying. Front. Psychol. 10:2602. doi: 10.3389/fpsyg.2019.02602

role of moral disengagement was shown by Cuadrado-Gordillo and Fernández-Antelo, to mediate the perception of cyberbullying and involvement in cybervictimization. Finally, Romera et al. used stick-figure cartoons representing bullying with 1,150 schoolchildren between the ages of 6 and 11 years and showed that school children interpret and evaluate aggressive bullying behavior as a moral transgression associated with emotions such as guilt, shame, and indifference. This study made it clear that moral attributions of the phenomenon depend on one's perspective, especially when children have had an experience of being involved as victim or aggressor.

Social motivation has also been recognized as a significant factor associated with bullying and cyberbullying. Cognitive representations about the desired outcome in social interactions help us to understand why some children and adolescents are involved in risky behavior (Romera et al., 2017). In this research domain, Graf et al. used structural equation modeling with data collected from Austrian students to show that sensation seeking is an important element for explaining cyberbullying.

Along with other variables, Internet use was identified as a risk factor for bullying, cyberbullying and cyberhate by Blaya and Audrin who studied 1,889 young French individuals aged 12–20 years. Structural Equation models in their study showed that cyberhate perpetration was related to time spent online, victimization, belonging to a deviant youth group, as well as having positive attitudes toward violence and racism. A multiple mediation analysis further suggested that trust in institutions diminished the tendency to perpetrate hateful aggression. Meanwhile, Felipe-Castaño et al. analyzed data from 1,108 university students and showed that Internet use and the presence of psychopathological symptomatology varied according to the intensity of the cyberbullying and cyberaggression.

Furthermore, gratitude and physical activity were identified as protective factors by Rey et al.. With data from a total of 1,617 Spanish adolescents, Rey et al. showed that gratitude moderated the relationship between bullying victimization and suicide risk, particularly in girls. Additionally, among 1,248 adolescents aged 11 to 18 years, Méndez et al. showed that the practice of non-competitive physical activity is related to low involvement in aggression and deviant behavior.

CONTEXTUAL RISK AND PROTECTIVE FACTORS

On another level, contextual factors have been shown to be essential in the prevention of aggression and victimization, as research has confirmed the influence of the peer group on the perceptions, attitudes and behavior of children and adolescents (Salmivalli, 2010). The social and developmental mechanisms associated with peer influence are paramount for understanding bullying for two main reasons. Firstly, the influence is social because bullying is identified as a group phenomenon in which a large number of people are directly and indirectly involved. Secondly, the influence is developmental because the peer group exists for children and adolescents in one of the most influential contexts of their development and learning.

In this Research Topic different studies have explored the role of the peer group. Garandeau et al. used multilevel regression analysis with data from ∼3,000 students from Netherlands and Austria to show that classroom size was negatively related to bullying. The association was mainly due to differences in the level of popularity of victims and aggressors in large and small classes. Likewise, the socio-ecological aspects of children's lives were examined by Foody et al.. With data from 2,400 Irish 12 to 15 year old students, and using regression models, they showed that friendship quality within the context of cyberbullying might be highly influential in determining psychological well-being. Meanwhile examining data from 3,407 primary school students, Moyano et al. showed that low negative relationships and the sense of social integration mediated the relationship between the type of school and involvement in different forms of bullying—particularly relational bullying.

Scientific advances have also explored the influential role of adults, parents and teachers, in children's social development. For example, parenting styles have been widely studied in association with involvement in bullying (Gómez-Ortiz et al., 2015), and cyberbullying (Gómez-Ortiz et al., 2018). The studies presented in this Research Topic advance the research field concerning the role of parents and teachers. Brighi et al. using structural equation modeling with data obtained from 3,602 students from Italian Secondary Schools found that low levels of parental monitoring and negative emotional symptoms were risk factors for cyberbullying perpetration and problematic internet use. Cybervictimization was also examined by Álvarez-García et al.. Using path analysis with a sample of 3,360 Spanish adolescents aged 11 to 18 they found that parental control had an indirect protective effect on being involved in cyber-victimization, and this was mediated by impulsivity and high-risk internet behavior. Path analysis was also used by De Luca et al. who studied 120 teachers and 1,056 students of secondary school. They showed that teachers who perceived themselves as more competent and who were satisfied with their job, were more prone to intervene in cases of bullying and victimization.

CROSS-CULTURAL COMPARISONS

Cross-cultural comparisons in the level of bullying and associated variables were undertaken by Rodríguez-Hidalgo et al. and by Samara et al. with large samples of adolescents in two separate studies. Using multiple linear regression analysis, Rodríguez-Hidalgo et al.. highlighted that ethnic-cultural victimization and aggression were associated with bullying aggression and victimization.

In their study, Samara et al. examined data from a total of 3,186 school children aged 12–15 years from four countries (Israel, Palestine, Germany, and Greece) and five different ethnic groups. This large cross-ethnic and cross-country study showed that bullying and victimization rates can only be compared if structural equivalence and structural isomorphism are validated. Results of this research evidenced that students may perceive the

meaning of bullying in a different way, so comparisons between rates are not valid.

The meaning of bullying, the way it is measured and the way that children and adolescents understand it has been debated and analyzed in previous studies with quantitative data (e.g., Skrzypiec et al., 2018). In this Research Topic, O'Brien reviewed qualitative studies and showed that young people have different perceptions of bullying, both in the understanding of the behavior as well as the impact it has on individuals. Furthermore, this study alluded to the complexity and interexchange of roles that may occur within bullying.

IMPLICATIONS OF THE FINDINGS

Studies in this Research Topic advance our knowledge of the interactive dynamics of psychological and contextual factors and their relationship to bullying and cyberbullying. The focus has included individual and contextual characteristics, particularly how these are understood either as risk factors or as consequences of student involvement in bullying and cyberbullying. Through diverse methodological designs, studies in this Research Topic have presented evidence that psychosocial, moral, motivational and emotional elements, and the peer and adult contexts are important for understanding this complex behavior. The studies highlight that understanding bullying and cyberbullying requires that we globally address the different factors of influence identified by the scientific literature. The manuscripts included in this Research Topic update the body of knowledge that provides relevant information for identifying conditions associated with bullying and cyberbullying and that interfere with the safety of children at school.

The results provided through the studies in this Research Topic are useful for designing educational cross-cultural programs aimed at preventing bullying and cyberbullying. Strengthening the social structure of the peer group would allow teachers, practitioners, and policymakers to improve social relationships among their students and in doing so prevent such damaging phenomena.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

ACKNOWLEDGMENTS

We acknowledge all the authors who have participated in this Research Topic and children, teachers and families who have participated in the different studies.

REFERENCES

Gómez-Ortiz, O., Del Rey, R., Romera, E. M., and Ortega-Ruiz, R. (2015). Los estilos educativos paternos y maternos en la adolescencia y su relación con la resiliencia, el apego y su implicación en violencia escolar. *Anal. Psicol.* 31, 979–989. doi: 10.6018/analesps.31.3.180791

Gómez-Ortiz, O., Romera, E., Ortega-Ruiz, R., and Del Rey, R. (2018). Parenting practices as risk or preventive factors for adolescent involvement in cyberbullying: contribution of children and parent gender. *Int. J. Environ. Res. Public Health* 15:2664. doi: 10.3390/ijerph15122664

Romera, E. M., Herrera-López, M., Casas, J. A., Ortega-Ruiz, R., and Gómez-Ortiz, O. (2017). Multidimensional social competence, motivation, and cyberbullying: a cultural approach with Colombian and Spanish Adolescents. *J. Cross Cult. Psychol.* 48, 1183–1197. doi: 10.1177/0022022116687854

Salmivalli, C. (2010). Bullying and the peer group: a review. *Aggress. Violent Behav.* 15, 112–120. doi: 10.1016/j.avb.2009.08.007

Skrzypiec, G., Alinsug, E., Nasiruddin, U. A., Andreou, E., Brighi, A., Didaskalou, E., et al. (2018). Self-reported harm of adolescent peer aggression in three world regions. *Child Abuse Neglect* 85, 101–117. doi: 10.1016/j.chiabu.2018.07.030

Zych, I., Farrington, D. P., and Ttofi, M. M. (2018). Protective factors against bullying and cyberbullying: a systematic review of meta-analyses. *Aggress. Violent Behav.* 45, 4–19. doi: 10.1016/j.avb.2018.06.008

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 22 March 2019
doi: 10.3389/fpsyg.2019.00643

Children's Social Integration and Low Perception of Negative Relationships as Protectors Against Bullying and Cyberbullying

Nieves Moyano[1], Ester Ayllón[1], José Luis Antoñanzas[2] and Jacobo Cano[3]*

[1] Facultad de Ciencias Humanas y de la Educación, Departamento de Psicología y Sociología, Universidad de Zaragoza, Huesca, Spain, [2] Facultad de Educación, Departamento de Psicología y Sociología, Universidad de Zaragoza, Zaragoza, Spain, [3] Facultad de Educación, Departamento de Ciencias de la Educación, Universidad de Zaragoza, Zaragoza, Spain

The aim was to investigate the factors associated with the diverse bullying forms suffered by a victim (relational, aggressive and cyberbullying) by considering the mediating role of the quality of coexistence in school: social integration and perception about relationships among peers. We evaluated data about 42 schools (79.5% public) in a sample of 3,407 students (47.6% boys and 52.4% girls) from the Primary Education. The mediational analyses indicated that, to predict all the bullying forms, a greater sense of social integration and a perception of low negative relationships were mediators, and social integration was the factor that most strongly correlated with bullying, especially relational bullying. We found that the number of good friends and negative relationships together predicted social integration, and the school type predicted negative relationships and number of good friends. The implications for education programs and policy are discussed.

Keywords: coexistence, bullying, cyberbullying, social integration, negative relationships

OPEN ACCESS

Edited by:
Rita Zukauskiene, Mykolas Romeris University, Lithuania

Reviewed by:
Olga Gómez-Ortiz, Universidad de Córdoba, Spain
Marta Soler-Gallart, University of Barcelona, Spain

****Correspondence:***
Nieves Moyano
nmoyano@unizar.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *13 December 2018*
Accepted: *07 March 2019*
Published: *22 March 2019*

Citation:
Moyano N, Ayllón E, Antoñanzas JL and Cano J (2019) Children's Social Integration and Low Perception of Negative Relationships as Protectors Against Bullying and Cyberbullying. Front. Psychol. 10:643. doi: 10.3389/fpsyg.2019.00643

INTRODUCTION

School bullying research has focused mainly on the analysis of risk factors (see Saarento et al., 2015; Moore et al., 2017; Zych et al., 2018). Therefore, protective factors have often been neglected. While risk factors are crucial for the design of prevention programs, the study of protective factors would help us to better provide intervention programs based on fostering supportive friendships and adjustment (Ttofi et al., 2014; Brendgen and Poulin, 2018). In this sense, some protective factors such as social integration and the quality of school coexistence are seen as a key to reduce school bullying (Méndez et al., 2017) and to prevent children from bullying and its consequences (Zych et al., 2017).

Research on bullying has often been approached by the ecological framework of Bronfenbrenner (1979) (Swearer et al., 2010; Hong and Espelage, 2012; Espelage, 2014). Evidence from this model indicates a high explained variance for bullying behaviors (Lee, 2011). On the other hand, and due to recent evidence which highlights that the quality of relationships plays a relevant role in school bullying, other theoretical models have been provided. In particular, the "Model for Building Coexistence" integrates diverse mechanisms to facilitate coexistence and the quality of relationships by focusing on students (Córdoba et al., 2016; Ortega-Ruiz and Córdoba, 2017). Together, both standpoints are useful for the purposes of the present study.

The ecological model is defined by several systems. However, we aimed to focus on the microsystem level as this level comprehends the most proximal factors to bullying: individual and school environment factors, of which the latter are of relevance for both theoretical models. In particular, we focus on individual factors such as gender and age, and parents-related variables such as their education and nationality. On the other hand, school environment factors such as their social integration, friendships, and perceptions toward positive or negative interactions among peers are included. For example, previous research on individual's variables indicate that boys are more often victims (Cook et al., 2010) but this depends on the bullying type (Baldry et al., 2017). Regarding age, in Spain the stronger school violence lies between 11 and 13 years (46% of the reported cases) (ANAR Foundation, 2016). Considering parent's factors, level of education is associated with their children more likely being victims (Von Marées and Petermann, 2010). Parents' nationality is also relevant. Previous studies show that the children who belong to an ethnic minority are more likely to be victimized (Vervoort et al., 2010; Rhee et al., 2017). In line with this, immigrant parents face some challenges such as adjustment to a different culture and promoting their children's integration (Pottie et al., 2015). This may be the reason why some immigrant parents may feel that it is more difficult to take part in educational activities (Delgado-Gaitan, 1991; Waasdorp et al., 2011), probably due to language barriers, cultural values or education which can, in some ways, be linked to the disconnection and isolation of their children in the school system to a certain extent.

School environment is relevant for children and adolescents' socialization, where their psychosocial adjustment is built (Sigfusdottir et al., 2016). Schools are sometimes a hostile place for students who, when they do not feel part of it, are likely to suffer from the passivity of school (Molina and Vecina, 2015; Martínez-Otero, 2017). Therefore, friendships – often measured by the number of good friends- has been shown as a protective factor against diverse physical, verbal and relational manifestations of bullying, but its relationship with cyberbullying is not clear (Cerezo et al., 2018; Konishi et al., 2018). Thus, students who feel more integrated in their education community tend to report lower school violence because they believe they form part of their school and feel less threatened by violence and bullying (Gendron et al., 2011; Klein et al., 2012). These aspects may also be influenced by other socio-demographic aspects linked to school, such as the number of years/courses enrolled in the same school is considered a facilitator for social integration. Students who have spent less time at the same school, that is, new students, are often the target of interventions to reduce bullying, as they are outside the social network and at the bottom of the power hierarchy (Mehta et al., 2013).

Our study aimed to make the following contributions: (a) Previous research has focused mostly to separately analyze relational bullying, aggressive bullying and cyberbullying. Therefore, an integrative study in which all these different forms of bullying are analyzed is needed; (b) It is likely that both protective factors and the absence of some risk factors play an important role in the decline of bullying, and that this phenomenon could be better examined by the interdependent associations between individual and contextual factors (see Espelage, 2014). Therefore, based on the review about school bullying in adolescents (Álvarez-García et al., 2015), the authors indicate these four types of predictors for being a bully: individual, family, school and community. Thus our study combines the variables from these main indicators: individual (gender, age); ethnicity, family (education, employment), school (climate, coexistence) and community (number of good friends), among others; (c) school environment factors concerning climate are documented to play a mediational role (Acosta et al., 2018). Thus our statistical approach to better understand diverse bullying forms was a mediational analysis (Hayes, 2012).

Recent research conducted across several countries indicates that the bullying phenomenon has declines somewhat in the last few years, probably due to the fruitful effects of intervention programs (Finkelhor, 2013; Zych et al., 2018). However, the reasons underlying this remain unknown. Therefore, the goal of the present study was to examine the following predictors: (a) the individual factors (gender, age, parents' education and nationality); (b) socio-demographic school-related factors (number of courses enrolled at school and number of good friends). For this model, we investigated the mediating role of school-environment factors, such as quality of coexistence at school, measured by the sense of social integration and perception about positive or negative relationships among peers. Diverse bullying forms suffered by victims were taken as the outcome variables, namely relational or indirect, physical aggression or direct and cyberbullying.

MATERIALS AND METHODS

Participants

We collected data from students from 42 schools in the Autonomous Community of Aragon (Spain). In this Autonomous Community, bullying rises to 13.4%, the fifth highest in Spain (PISA report, 2015). We recruited data from 3,490 boys and girls. After eliminating some cases in which individuals did not complete at least 75% of the survey, or due to some technical problems while filling them in, we examined data from 3,407 participants (47.5% boys, 52.4% girls) whose mean age was 11.04 (SD = 0.83). As seen in **Table 1**, as indicated by most participants, both the parents' nationality was Spanish (80.2%) and with a high education, as 71.3% of fathers and 50.9% of mothers had a university degree. Approximately 89.6% indicated having 4–5 good friends at school. Regarding quality of coexistence, overall the students felt that they were socially integrated and they perceived relationships more positively than negatively. The frequency they reported having been bullied was low, and values came close to the lower limit of the range of scores.

Measurements

- A socio-demographic background questionnaire with questions about gender, age, course, Spanish nationality (both parents, one parent or none, respectively, with 1, 2, and 3), level of education,

TABLE 1 | The socio-demographic characteristics of the sample (N = 3,407).

	n (%) / *M (SD)*
Gender	
Boys	1.622 (47.6)
Girls	1.785 (52.4)
Age	11.04 (0.83)
Course	
Year-5 Primary	1.717 (50.4)
Year-6 Primary	1.690 (49.6)
School type	
Public	2.708 (79.5)
State-funded school	699 (20.5)
Parents' nationality	
Both Spanish	2.731 (80.2)
One Spanish	75 (2.2)
Neither was Spanish	601 (17.6)
No. of courses enrolled at school	7.43 (2.42)
Father's education	
University degree	2.431 (71.3)
None – Secondary	976 (28.6)
Mother's education	
University degree	1.039 (50.9)
None – Secondary	1.033 (49.1)
No. of good friends at school	
None	97 (2.8)
1–2	82 (2.4)
3–4	176 (5.2)
4–5	3.052 (89.6)
Quality of coexistence	
Social integration (range 3–12)	10.53 (1.62)
Perception of positive relationships (range 3–12)	8.03 (1.51)
Perception of negative relationships (range 3–12)	6.25 (2.40)
Bullying	
Relational (range 6–24)	7.11 (2.22)
Aggressive (range 6–24)	6.31 (1.17)
Cyberbullying (range 7–28)	7.28 (1.15)

school type (public or state-funded school) and number of good friends at school (from 0 to 4–5 friends).

- Quality of coexistence was measured by three components: Social integration and perceptions of relationships among peers, both positive and negative. It comprises nine items previously used in national studies, supported by the Spanish Ministry of Education about school coexistence and bullying (Díaz-Aguado et al., 2010). Three of the nine items were about social integration: "I easily make friends," perception of positive relationships or relationships based on cooperation:"students help each other, but are not friends" (three items) and perception of negative relationships or conflicts (3 items): "fights occur among students." The scores from these three items should be inverted to obtain an overall score by summing all the item scores. The answer scale ranged from 1 to 4, with 1 meant "completely disagree" and 4 denoted "completely agree." Higher scores indicated greater social integration and better quality coexistence at school. We performed a confirmatory factor analysis (CFA) to examine the factorial structure. We obtained optimum values by the goodness-of-fit indices: χ^2/df = 4.75; p = 0.000; RMSEA = 0.033; GFI = 0.99; TLI = 0.97. Cronbach's alpha for this study was 0.69, with 69, 0.56, and 0.70, respectively, for each subscale: social integration, positive perception of relationships and negative perception of relationships.

- Bullying and Cyberbullying. In order to measure student bullying, we administered the self-reported measure previously used by Díaz-Aguado et al. (2013). The instructions for this measure indicate: Think whether you have suffered any of the following situations and mark the frequency you have suffered it in the last 2 months. It comprised 19 items answered on a 4-point Likert scale ranging from 1 (never) to 4 (many times). It provided scores for several bullying types: Relational Bullying: victims of situations of social exclusion or humiliation, measured by six items. For example "My schoolmates ignore me." Physical Aggressive Bullying: it consists of six items that describe situations of aggression, such as "They hit me." Cyberbullying: victims of violence related to social networks or technology; for example, Have any schoolmates recorded you by a mobile phone or video to go against you? (seven items). Although it goes beyond the scope of the present study, as no previous research has provided evidence for content validity regarding this three-factor structure, we performed a CFA with our data. The goodness-of-fit indices were adequate: χ^2/df = 24.55, p = 0.000; RMSEA: 0.08; GFI: 0.88; TLI: 0.84. In order to improve these values, the modification indices indicated correlating errors from some of the items belonging to the same factor. However, no indications about either changes in items to another factor or eliminating any items that would jeopardize the theoretical subcomponents, were yielded by the analysis. Therefore, we completed this psychometric analysis by examining the internal consistency of the subscales. Cronbach's alphas for all three bullying subtypes were 0.85, 0.77, and 0.76, respectively.

Procedure

From the Regional Government of Aragon, diverse schools were selected by quota convenience sampling in the Autonomous Community of Aragon. An invitation letter was sent to schools to collaborate, in which information on the main study goals and the need for parental authorization and informed consent was established. A timeline reflecting the research phases was attached. Data were collected from March to April 2018 with the collaboration of the Principal and teachers. This phase was coordinated and supervised by research team members, who were working in each city/town by keeping in touch with each school personally and by telephone. Once consent from each school was confirmed, the schools to take part in the study received each user's code and passwords to access the online survey. The students from each school completed the survey under similar conditions during school time in a laboratory using computers and with privacy. Some teachers accompanied the students to support them. Anonymity and

confidentiality were guaranteed. The survey was completed in approximately 25–40 min.

This study was carried out following the recommendations from the Council of the British Educational Research Association of the Ethical Guidelines for Educational Research (British Educational Research Association [BERA], 2011), given that in Spain there is no ethical committee in educational research. Even though approval by an Ethics Committee was not required as per applicable institutional and national guidelines, the protocol was approved by the academic doctoral committee in a session held on 2014. This academic committee belongs to the University of Zaragoza, and it is not exclusively an ethics committee, but a scientific evaluation committee which incorporates the review of data collection procedures, including the ethical dimension. Also, this research is part of the Aragon I Plan against School Bullying (Order ECD/715/2016), which also financially supported the project.

Regarding the information about the families, after the consent from the educational centers that made us able to carry out the activity of data collection during the class schedule, all the families were informed about the objectives of the study and the voluntariness of the participation. Therefore, written informed consent was obtained from the parents of all participants. Those who did not agree to participate were not evaluated. This procedure is appropriate when the data collection is conducted within the classroom schedule. Anonymity and confidentiality was assured. Finally, the centers who took part in the study received a report with the main findings. This procedure does not involve experimentation with students, but rather a collection of data for educational and research purposes.

Statistical Analyses

We first conducted zero-order correlation analyses to examine the association among the variables. We also performed a mediation analysis (Hayes, 2012) following the recommendations of Walters and Mandracchia (2017). Therefore, causal order and direction were previously established, and the model was tested by a confirmatory model in which both the direct and indirect effects were examined. Several mediation analyses were conducted, in which the following predictor variables were included: gender, age, parents' education and nationality, and also type of school (public or state-funded school, number of courses enrolled at school and number of good friends at school). We tested the mediation effect of the quality of the coexistence subcomponents: social integration, and positive and negative relationships among peers. As dependent variables, we included: relational bullying, aggressive bullying and cyberbullying. Analyses were carried out using the macro PROCESS (Preacher and Hayes, 2008) in SPSS, which allows several mediator factors to be simultaneously analyzed (Hayes, 2012). These analyses were performed by a bootstrap analysis with 5000 samples, and a 95% confidence interval. Finally, we performed *structural equation modeling* (SEM) to confirm the adjustment of the models. These analyses were conducted using Mplus v. 6.1 (Muthén and Muthén, 2010a).

RESULTS

First at all, zero-order correlation analyses were performed to examine the association among the measured variables (see **Table 2**). The strongest significant correlations were found between the subscales of quality of coexistence (social integration, positive and negative relationships) and the three bullying types. The correlation between negative relationships among peers and being victims of bullying was positive.

We conducted mediation analysis (Hayes, 2012), following recommendations from Walters and Mandracchia (2017). Therefore, causal order and direction were previously established, and the model was tested by a confirmatory model in which both direct and indirect effects were examined. Several mediation analyses were conducted in which the following predictor variables were included: gender, age, parent's education and nationality, and also type of school (public or state-funded school, number of courses enrolled at school and number of good friends at school). We tested the mediation effect of all the quality of coexistence subcomponents: social integration, and the positive and negative relationships among peers. As dependent variables, we included: relational bullying, aggressive bullying and cyberbullying. Analyses were carried out using the macro PROCESS (Preacher and Hayes, 2008) in SPSS, which allows several mediator factors to be simultaneously analyzed (Hayes, 2012). These analyses were performed through the bootstrap analysis with 5000 samples, and a 95% confidence interval.

The variables that mediated the relationship between predictors and bullying were social integration and perception of negative relationships among peers. However, perception of positive relationships among peers did not enter the model as no significant relationship was found. As predictors, we found that the interaction between parents' nationality and number of courses enrolled at school was significant for both social integration and negative relationships, and number of good friends for social integration and type of school for negative relationships. However, the coefficients related to the predictive value of the parents' nationality + number of courses interaction on social integration and perceived negative relationships were, albeit significant, very low. So they were removed from the model. Thus social integration and perception of negative relationships were mediators for all bullying forms, with a stronger relationship of both factors for predicting relational bullying. The mediational model to predict relational bullying explained 20% of variance, while the model to predict aggressive bullying explained 8% of variance. Finally, the model to predict cyberbullying scarcely explained 4% of variance.

In order to test the adjustment of these three models, we performed SEM. We used the MLM, "the Maximum Likelihood Parameter estimates with standard errors and a mean-adjusted chi-square test statistic that are robust to non-normality. The MLM chi-square test statistic is also referred to as the Satorra-Bentler chi-square" (Muthén and Muthén, 2010b, p. 533). For the prediction of all forms of bullying, the modification indices suggested a direct effect of perception of negative relationships on social integration, in a negative direction. As **Figure 1** depicts, in which all the standardized estimates are shown, for the

TABLE 2 | The zero-order correlations among the examined variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(1) Gender		0.01	0.03	0.01	−0.01	−0.00	0.02	0.02	−0.01	−0.06***	0.00	0.02	0.07***	0.04*
(2) Age			0.01	0.06***	−0.06***	0.04*	0.06**	−0.05**	0.01	0.05***	0.02	−0.01	0.01	−0.05**
(3) School type				0.15***	0.10***	0.14***	0.27***	−0.09***	0.04**	−0.01	−0.07***	−0.02	−0.02	−0.04**
(4) Parents' nationality					0.29***	0.10***	0.25***	−0.21***	−0.21***	−0.04*	0.10***	−0.07***	−0.05***	−0.03
(5) No. courses enrolled						0.03	0.20***	−0.29***	0.12***	0.02	−0.00	−0.07***	−0.05**	−0.04*
(6) Father's education							0.59***	−0.05***	0.03*	−0.02	0.01	−0.04*	−0.04*	−0.04*
(7) Mother's education								−0.19***	0.15***	0.02	−0.06*	−0.06**	−0.06**	−0.05*
(8) No. good friends									−0.12***	−0.01	−0.01	0.08***	0.07***	0.06***
(9) Social integration										0.37***	−0.10***	−0.41***	−0.22***	−0.14***
(10) Positive relationships											−0.28***	−0.21***	−0.11***	−0.10***
(11) Negative relationships												0.23***	0.19***	0.14***
(12) Relational Bullying													0.65***	0.47***
(13) Aggressive Bullying														0.61***
(14) Cyberbullying														

***$p < 0.001$; **$p < 0.01$; and *$p < 0.05$.

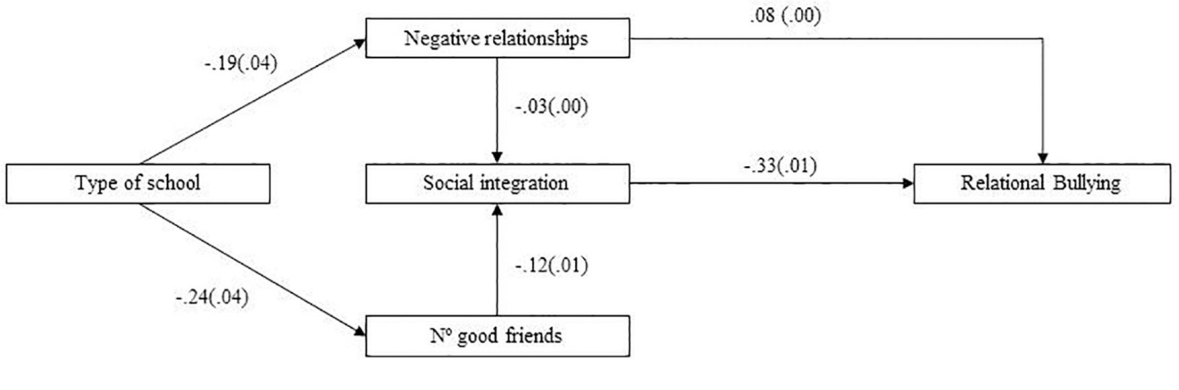

FIGURE 1 | Structural equation modeling showing the standardized estimates between the predictor and mediational variables on Relational Bullying.

Relational Bullying prediction, type of school predicted both negative relationships and number of good friends. In this sense, the route that comprises a larger number of good friends mediated by social integration feelings had a stronger impact on relational bullying, with a negative correlation than type of school mediated by negative relationships, which positively correlated with relational bullying. **Figure 2** shows the model for Aggressive Bullying for which, once again, the route containing type of school, number of good friends and social integration had a stronger impact. However in this case, the standardized estimates were much lower than for the previous model. Finally as shown in **Figure 3**, for the Cyberbullying prediction, the standardized estimates from both routes were, albeit significant, very low, except for a direct effect shown by type of school on cyberbullying, with a negative direction. All three models were adjusted according to the goodness-of-fit indices. In particular, for Relational Bullying (χ^2/df = 3.24, p = 0.000; RMSEA = 0.026; SRMR = 0.012; CFI = 0.98; TLI = 0.97), Aggressive Bullying (χ^2/df = 3.64, p = 0.000; RMSEA = 0.028; SRMR = 0.015; CFI = 0.96; TLI = 0.90) and Cyberbullying (χ^2/df = 2.72, p = 0.004; RMSEA = 0.023; SRMR = 0.009; CFI = 0.98; TLI = 0.91).

In short, in the three models, having more friends was associated with greater integration and students from state-funded school perceived fewer conflicts at school. For the mediators, feeling socially integrated and perceiving fewer conflicts lowered the likelihood of being bullied. However, it was interesting to note that perception of positive relationships

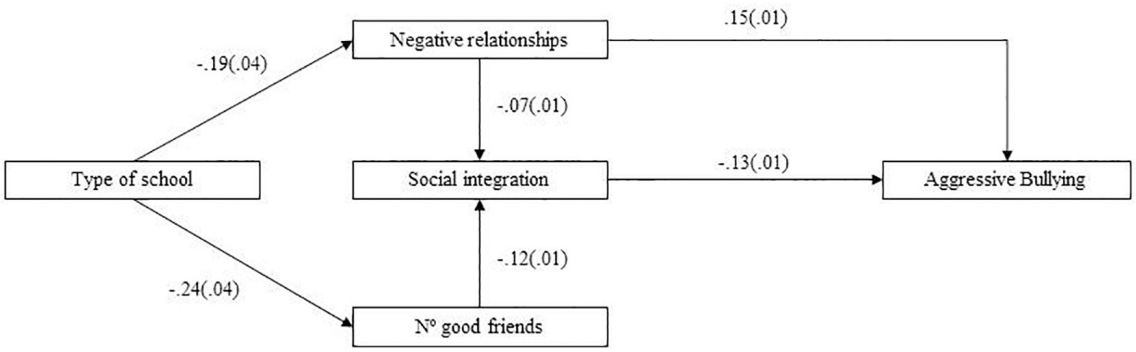

FIGURE 2 | Structural equation modeling showing the standardized estimates between the predictor and mediational variables on Aggressive Bullying.

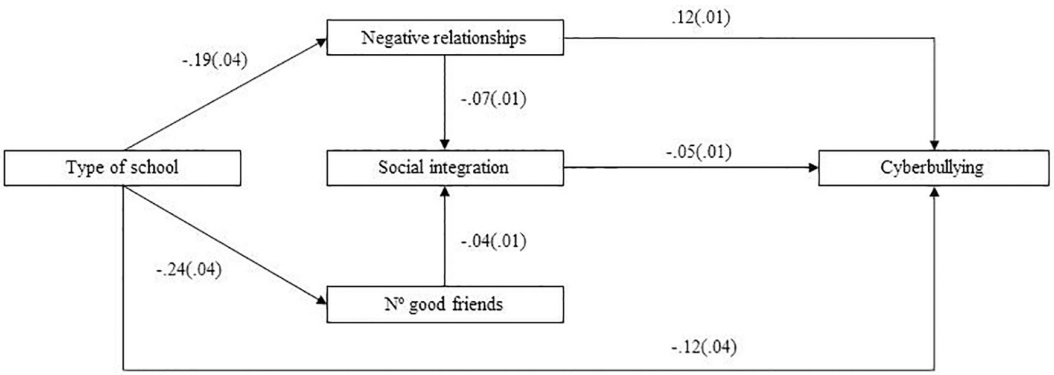

FIGURE 3 | Structural equation modeling showing the standardized estimates between the predictor and mediational variables on Cyberbullying.

did not enter any model; that is to say, perceiving positive relationships had little to do with being bullied or not.

DISCUSSION

School coexistence is a complex concept (Ortega, 2007; Pedrero, 2011; Peñalva-Vélez et al., 2015), in which both individual and interpersonal phenomena converge. As suggested by Peñalva and Soriano (2011), nowadays reach an optimum quality of coexistence is one of the prime interests in education. For this reason, the goal of the present study was to focus mainly on the protective factors, such as quality of coexistence at school and social integration, measured by the perception of both positive and negative relationships among peers, related to diverse bullying forms: relational, aggressive and cyberbullying.

Our main findings emphasize that feeling socially integrated and perceiving few conflicts among students are important factors for each bullying type, although these factors are more relevant for relational bullying, which refers to the forms in which individuals are ignored, their participation in activities is neglected, or they are offended or humiliated. Although perceiving few conflicts was relevant for being bullied, perceiving positive relationships was not, which opens debate as to how to focus interventions, whether on promoting positive relationships or reducing conflicts, as they do not seem to be sides of the same coin.

With the correlation analysis, socio-demographic variables like gender or age were not relevant in our study sample to predict being bullied. We noted a greater and significant tendency toward aggressive bullying in boys than in girls. However this relationship was not strong. Regarding gender, mixed results were found based on bullying type (see Robers et al., 2014; Donoghue and Raia-Hawrylak, 2015; Innamorati et al., 2018). However, this gender difference depended on age, country or survey, as indicated by a recent review (Smith et al., 2018). So it is likely that no clear bullying pattern would emerge that could be differentiated by younger students. The remaining socio-demographic variables barely related directly with bullying. Instead, some were associated with number of good friends and social integration, such as the parents' nationality and number of courses the student was enrolled for at the school. In particular, the students whose parents were both Spanish and those who had studied longer at the same school had more good friends and felt more integrated at school. Implications were of relevance because from educational and school viewpoints, schools should guarantee welcoming plans to ensure the integration of the new students who enroll at school (Mehta et al., 2013). Promotions to establish new friends and bonds should be provided, which would favor their social network and support, and would protect them

from school victimization. This should be especially stressed for those cases in which children come from other countries or cultures, and for those whose enrollment at school takes place later than for other students (Valdivia et al., 2016). As previously reviewed, immigrant children may be a vulnerable minority for bullying (Llorent et al., 2016).

The subcomponents of quality of coexistence were strongly associated with each bullying type, as shown by the correlational analyses. Hence their role was confirmed by the mediational and SEM. Our findings revealed that the main predictor factors for all the bullying forms were number of good friends and school type. That is, the students with more good friends felt more integrated at school. The prediction of perceiving conflicts among students also lowered if the school was a state-funded school type. Several implications of these findings can be highlighted. Regarding school type, a previous study in Spain has suggested that some aggressive behavior types could be more prevalent in public schools, save some other forms related to verbal aggressive behavior, which was more commonly found in state-funded schools (Ruiz et al., 2014). In our study, only a direct relationship was found between school type and cyberbullying, although coefficient was low. Instead a relationship appeared between school type and perception of negative relationships and number of good friends, with them being lower in state-funded schools. Therefore, this finding is not conclusive as, while in public schools the number of friends is higher, also perception of relationships among peers is more negative. Nevertheless, as our sample was based mostly on public schools (almost 80%), no further interpretations could be made.

A greater sense of integration and low perception of conflicts were the main mediators for all bullying types, especially for relational bullying. This finding is consistent with previous findings which have emphasized the protective role of having friends, which lowers the likelihood of being bullied (Mucherah et al., 2018). As concluded in a recent systematic review and a meta-analysis, positive peer interaction is the strongest protective factor of being bullied (Zych et al., 2018). In particular in Spain, compared to other OECD countries, data are optimum as 87% of students in Spain feel integrated into their schools, unlike other OECD rates that indicated 73%. In addition, we add some pieces of evidence to support previous studies on the mediational role of the perception of relationships at school (Acosta et al., 2018). Interestingly, our findings indicated that positive relationships or cooperation relationships were not relevant against being victimized. Future prevention and intervention programs should focus not only on promoting cooperative relationships, but also on reducing conflicts, as this is a precursor for school bullying (Del Rey et al., 2018). Recent interventions with noteworthy effectiveness have more often included figures such as "peer mediators" or "peer supporters," as well as "educator peers" which intervene when bullying is detected at school (Menesini and Salmivalli, 2017).

Both aggressive bullying and cyberbullying were very modestly predicted by the socio-demographic and quality of coexistence variables. These findings underline, on the one hand, that other factors are likely associated with these two other bullying forms, such as learning aggressive behaviors from parents (Griffin and Gross, 2004), or by personality traits related to aggressive behavior; e.g., impulsivity is one of the most well-studied (Carrera et al., 2011), or aggressive behavior may be a reaction triggered by some interpretation of others' behaviors (Hanish and Guerra, 2000) rather than being related to school factors. On the other hand, the cyberbullying phenomenon is more likely to occur in students aged 10–11 years old, with a peak rate at 13–14 years (Sakellariou et al., 2012; Garaigordobil, 2015; Peris et al., 2018). Thus for our sample's age range, this victimization could still be scarcely present. Moreover, some findings have indicated that cyberbullying is a form of violence that differs from the bullying which occurs at school and, therefore, from distinct predictor factors (Kubiszewski et al., 2015), in which some aspects like number of good friends, are relevant for relational bullying, which has very little to do with this cybernetic form of violence (Wang et al., 2009).

This study has several limitations. First, its design is cross-sectional and, therefore, no causality relationships can be established. Second, as the sample was recruited from a particular region of Spain, the generalizability of the results remains unknown. Third, data were collected from a self-reported measure, like most of the research based on this measurement type, with aspects such as social desirability, among others, which could bias our results. As the study formed part of a larger project, quality of coexistence and, in particular, all of its subcomponents, were evaluated by only a few items. Hence further research should more profoundly explore this construct with larger and more detailed questionnaires, accompanied by qualitative information. In addition, although this study also provides some psychometric properties of the used scales, which were not previously reported by the original authors, more in depth psychometric analyses should be conducted with further evidence for validity and invariance, among others, as some subscales yielded low reliability values; e.g., perception of positive relationships. Finally, and particularly in relation to how friendship was measured by number of good friends, although previous research has commonly used this indicator, a more in-depth analysis should be conducted in future studies to better know what "good friends" really means for students: for example, from sharing time together, sharing concerns or secrets, to displaying helping and supportive behaviors. Although most research agrees that number of good friends protects from bullying, sometimes victims make more friends with other victims, whereas perpetrators are friends who display other similar abusive behaviors (Salmivalli et al., 1997). Therefore, further research should explore the complex interaction and relationships among students more profoundly, which is a key factor to gain a better understanding of bullying.

Nonetheless, our study provides findings with direct implications for education for the bullying issue. In summary, these implications are related with having to promote integration among students at school as this emerged as the main protective factor from relational bullying, and to focus interventions

to reduce conflicts among students. Finally, although most interventions tend to focus on secondary education, prevention should be addressed at earlier ages (Sánchez and Cerezo, 2011).

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

AUTHOR CONTRIBUTIONS

NM wrote and performed the statistical analyses. EA and JC wrote the manuscript. JA performed the statistical analyses.

FUNDING

This study was supported by the European Social Fund "Building Europe from Aragon" and the research project "Coexistence in schools from Aragon" (Ref: 2017/0304) from the OTRI ("Oficina de Transferencia de Resultados de Investigación") headed by Santos Orejudo Hernández.

ACKNOWLEDGMENTS

We thank to all participants and schools taking part in this study. We also thank the Government of Aragon and the research group from the University of Zaragoza (S57_17R EDUCAVIVA: Education and Psychological Processes).

REFERENCES

Acosta, J., Chinman, M., Ebener, P., Malone, P. S., Phillips, A., and Wilks, A. (2018). Understanding the relationship between perceived school climate and bullying: a mediator analysis. *J. Sch. Violence* 18, 200–215. doi: 10.1080/15388220.2018.1453820

Álvarez-García, D., García, T., and Núñez, J. C. (2015). Predictors of school bullying perpetration in adolescence: a systematic review. *Aggress. Violent Behav.* 23, 126–136. doi: 10.1016/j.avb.2015.05.007

Baldry, A. C., Farrington, D. P., and Sorrentino, A. (2017). School bullying and cyberbullying among boys and girls: roles and overlap. *J. Aggress. Maltreat. Trauma* 26, 937–951. doi: 10.1080/10926771.2017.1330793

Brendgen, M., and Poulin, F. (2018). Continued bullying victimization from childhood to young adulthood: a longitudinal study of mediating and protective factors. *J. Abnorm. Child Psychol.* 46, 27–39. doi: 10.1007/s10802-017-0314-5

British Educational Research Association [BERA] (2011). *Ethical Guidelines for Educational Research*. Available at: https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2011 [Accessed: 3 August 2018].

Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.

Carrera, M. V., DePalma, R., and Lameiras, M. (2011). Toward a more comprehensive understanding of bullying in school settings. *Educ. Psychol. Rev.* 23, 479–499. doi: 10.1007/s10648-011-9171-x

Cerezo, F., Ruiz-Esteban, C., Sánchez Lacasa, C., Gonzalo, A., and Julián, J. (2018). Dimensions of parenting styles, social climate, and bullying victims in primary and secondary education. *Psicothema* 30, 59–65. doi: 10.7334/psicothema2016.360

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., and Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: a meta-analytic investigation. *Sch. Psychol. Q.* 25, 65–83. doi: 10.1037/a0020149

Córdoba, F., Del Rey, R., Casas, J. A., and Ortega Ruiz, R. (2016). Valoración del alumnado de primaria sobre convivencia escolar: El valor de la red de iguales [Students' rating of school climate in elementary schools: the value of the peer network]. *Psicoperspectivas* 15, 78–89.

Del Rey, R., Mora-Merchán, J. A., Casas, J. A., Ortega-Ruiz, R., and Elipe, P. (2018). Programa asegúrate: efectos en ciberagresión y sus factores de riesgo ["Asegúrate" program: effects on cyber-aggression and its risk factors]. *Com. Rev. Cientif. Ibero. Com. Educ.* 56, 39–48. doi: 10.3916/C56-2018-04

Delgado-Gaitan, C. (1991). Parents in the schools: a process of empowerment. *Am. J. Educ.* 100, 20–46. doi: 10.1086/444003

Díaz-Aguado, M. J., Martínez Arias, R., and Babarro, J. M. (2013). El acoso entre adolescentes en España. Prevalencia, papeles adoptados por todo el grupo y características a las que atribuyen la victimización [Bullying among adolescents in Spain. Prevalence, participants' roles and characteristics attributable to victimization by victims and aggressors]. *Rev. Educ.* 362, 348–379. doi: 10.4438/1988-592X-RE-2011-362-164

Díaz-Aguado, M. J., Martínez Arias, R., and Martín, J. (2010). *Estudio estatal sobre la convivencia escolar en la Educación Secundaria Obligatoria [State study on school coexistence in Compulsory Secondary Education]. Observatorio Convivencia Escolar*. Madrid: Ministerio de Educación.

Donoghue, C., and Raia-Hawrylak, A. (2015). Moving beyond the emphasis on bullying: a generalized approach to peer aggression in high school. *Child. Sch.* 38, 30–39. doi: 10.1093/cs/cdv042

Espelage, D. L. (2014). Ecological theory: preventing youth bullying, aggression, and victimization. *Theory Pract.* 53, 257–264. doi: 10.1080/00405841.2014.947216

Finkelhor, D. (2013). *Trends in Bullying and Peer Victimization.* Durham: Crimes Against Children Research Center.

Foundation, A. N. A. R. (2016). *Acoso escolar: I estudio sobre el "Bullying" según los afectos y líneas de actuación [School Bullying: I study about "Bullying" based on its effects and lines of intervention]*. Available at: http://www.anar.org/wp-content/uploads/2016/04/Estudio-Bullying-Seg%C3%BAn-los-Afectados-Abril-2016.pdf

Garaigordobil, M. (2015). Cyberbullying en adolescentes y jóvenes del país vasco: cambios con la edad [cyberbullying in adolescents and youth in the basque country: changes with age]. *Anal. Psicol.* 31, 1069–1076. doi: 10.6018/analesps.31.3.179151

Gendron, B. P., Williams, K. R., and Guerra, N. G. (2011). An analysis of bullying among students within schools: estimating the effects of individual normative beliefs, self-esteem, and school climate. *J. Sch. Violence* 10, 150–164. doi: 10.1080/15388220.2010.539166

Griffin, R. S., and Gross, A. M. (2004). Childhood bullying: current empirical findings and future directions for research. *Aggress. Violent Behav.* 9, 379–400. doi: 10.1016/S1359-1789(03)00033-8

Hanish, L. D., and Guerra, N. G. (2000). Children who get victimized at school: what is known? What can be done? *Profess. Sch. Couns.* 4:113.

Hayes, A. F. (2012). *PROCESS: A Versatile Computational Tool for Observed Variable Mediation, Moderation, and Conditional Process Modeling*. Available at: http://www.afhayes.com/ public/process2012.pdf

Hong, J. S., and Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: an ecological system analysis. *Aggress. Violent Behav.* 17, 311–322. doi: 10.1016/j.avb.2012.03.003

Innamorati, M., Parolin, L., Tagini, A., Santona, A., Bosco, A., De Carli, P., et al. (2018). Attachment, social value orientation, sensation seeking, and bullying in early adolescence. *Front. Psychol.* 9:239. doi: 10.3389/fpsyg.2018.00239

Klein, J., Cornell, D., and Konold, T. (2012). Relationships between bullying, school climate, and student risk behaviors. *Sch. Psychol. Q.* 27, 154–169. doi: 10.1037/a0029350

Konishi, C., Hymel, S., Danbrook, M. C., and Wong, T. K. (2018). Changes in bullying in relation to friends, competitiveness, and self-worth. *Can. J. Sch. Psychol.* doi: 10.1177/0829573518765519

Kubiszewski, V., Fontaine, R., Potard, C., and Auzoult, L. (2015). Does cyberbullying overlap with school bullying when taking modality of involvement into account? *Comput. Hum. Behav.* 43, 49–57. doi: 10.1016/j.chb.2014.10.049

Lee, C. H. (2011). An ecological systems approach to bullying behaviors among middle school students in the United States. *J. Interpers. Violence* 26, 1664–1693. doi: 10.1177/0886260510370591

Llorent, V. J., Ortega-Ruiz, R., and Zych, I. (2016). Bullying and cyberbullying in minorities: are they more vulnerable than the majority group? *Front. Psychol.* 7:1507. doi: 10.3389/fpsyg.2016.01507

Martínez-Otero, V. (2017). Bullying and cyberbullying in a sample of secondary students [Acoso y ciberacoso en una muestra de alumnos de secundaria]. *Rev. Curricul. Form. Profes.* 21, 277–298.

Mehta, S. B., Cornell, D., Fan, X., and Gregory, A. (2013). Bullying climate and school engagement in ninth-grade students. *J. Sch. Health* 83, 45–52. doi: 10.1111/j.1746-1561.2012.00746.x

Méndez, I., Ruiz-Esteban, C., and López-García, J. J. (2017). Risk and protective factors associated to peer school victimization. *Front. Psychol.* 8:441. doi: 10.3389/fpsyg.2017.00441

Menesini, E., and Salmivalli, C. (2017). Bullying in schools: the state of knowledge and effective interventions. *Psychol. Health Med.* 22, 240–253. doi: 10.1080/13548506.2017.1279740

Molina, J. A., and Vecina, P. (2015). *Bullying, Cyberbullying y Sexting: ¿CÓMO Actuar Ante Una Situación de Acoso [Bullying, Cyberbullying and Sexting: How to Act in a Situation of Bullying?]*. Madrid: Pirámide.

Moore, S. E., Norman, R. E., Suetani, S., Thomas, H. J., Sly, P. D., and Scott, J. G. (2017). Consequences of bullying victimization in childhood and adolescence: a systematic review and meta-analysis. *World. J. Psychiatry* 7, 60–76. doi: 10.5498/wjp.v7.i1.60

Mucherah, W., Finch, H., White, T., and Thomas, K. (2018). The relationship of school climate, teacher defending and friends on students' perceptions of bullying in high school. *J. Adolesc.* 62, 128–139. doi: 10.1016/j.adolescence.2017.11.012

Muthén, B. O., and Muthén, L. (2010a). *Mplus Version 6.1 [Software]*. Los Angeles, CA: Author.

Muthén, L. K., and Muthén, B. O. (2010b). *Version 6 Mplus User's Guide*. Los Angeles, CA: Author.

Ortega, R. (2007). La convivencia. Un regalo de la cultura a la escuela. *Revista Idea La Mancha* 4, 50–54.

Ortega-Ruiz, R., and Córdoba, F. (2017). El modelo Construir la convivencia para prevenir el acoso y el ciberacoso escolar [The building school convivencia model to prevent bullying and cyberbullying]. *Innova. Educ.* 27, 19–32. doi: 10.15304/ie.27.4287

Pedrero, E. (2011). "La situación de la convivencia escolar en España: análisis del estudio estatal sobre convivencia escolar en la Educación Secundaria Obligatoria," in *Interculturalidad y Escuela*, eds J. J. Leiva and R. Borrero (Barcelona: Octaedro), 13–39.

Peñalva, A., and Soriano, E. (2011). "La resolución de conflictos en contextos multiculturales a través de la mediación [The resolution of conflicts in multicultural contexts through mediation]," in *Interculturalidad y Escuela*, eds J. J. Leiva and Y. R. Borrero (Barcelona: Octaedro), 97–122.

Peñalva-Vélez, A., López-Goñi, J., Vega-Osés, A., and Satrústegui-Azpíroz, C. (2015). Clima escolar y percepciones del profesorado tras la implementación de un programa de convivencia escolar [school climate and teacher's perceptions after the implementation of a program of school coexistence]. *Estud. Sobre Educ.* 28, 9–28. doi: 10.15581/004.28.9-28

Peris, M., Maganto, C., and Garaigordobil, M. (2018). Scale of risk of addiction to social networks and Internet for adolescents: reliability and validity (ERA-RSI). *Rev. Psicol. Clín. Niñ. Adolesc.* 5, 30–36. doi: 10.21134/rpcna.2018.05.2.4

Pottie, K., Dahal, G., Georgiades, K., Premji, K., and Hassan, G. (2015). Do first generation immigrant adolescents face higher rates of bullying, violence and suicidal behaviours than do third generation and native born? *J. Immigr. Minor. Health* 17, 1557–1566. doi: 10.1007/s10903-014-0108-6

Preacher, K. J., and Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Methods* 40, 879–891. doi: 10.3758/BRM.40.3.879

Rhee, S., Lee, S., and Jung, S. (2017). Ethnic differences in bullying victimization and psychological distress: a test of an ecological model. *J. Adolesc.* 60, 155–160. doi: 10.1016/j.adolescence.2017.07.013

Robers, S., Kemp, J., Rathbun, A., and Morgan, R. E. (2014). *Indicators of School Crime and Safety*. Washington, DC: National Center for Education Statistics.

Ruiz, E. P., Gonzalo, J. J. A., Espín, J. J. L., and Cantero, A. M. T. (2014). Incidencia de la violencia y victimización escolar en estudiantes de Educación Secundaria Obligatoria en la región de Murcia [Impact of school violence and victimization among higher school students in the región of Murcia]. *Rev. Invest. Educ.* 32, 223–241. doi: 10.6018/rie.32.1.154251

Saarento, S., Garandeau, C. F., and Salmivalli, C. (2015). Classroom-and school-level contributions to bullying and victimization: a review. *J. Comm. Appl. Soc. Psychol.* 25, 204–218. doi: 10.1002/casp.2207

Sakellariou, T., Carroll, A., and Houghton, S. (2012). Rates of cyber victimization and bullying among male Australian primary and high school students. *Sch. Psychol. Int.* 33, 533–549. doi: 10.1177/0143034311430374

Salmivalli, C., Huttunen, A., and Lagerspetz, K. M. (1997). Peer networks and bullying in schools. *Scand. J. Psychol.* 38, 305–312. doi: 10.1111/1467-9450.00040

Sánchez, C., and Cerezo, F. (2011). Estatus social de los sujetos implicados en bullying Elementos para la mejora de la convivencia en el aula [Social status of the individuals involved in bullying. Elements which improve coexistence in the classroom]. *Rev. Esp. Orient. Psicop.* 22, 137–149. doi: 10.5944/reop.vol.22.num.2.2011.62

Sigfusdottir, I. D., Kristjansson, A. L., Thorlindsson, T., and Allegrante, J. P. (2016). Stress and adolescent well-being: the need for an interdisciplinary framework. *Health Promot. Int.* 32, 1081–1090. doi: 10.1093/heapro/daw038

Smith, P. K., López-Castro, L., Robinson, S., and Görzig, A. (2018). Consistency of gender differences in bullying in cross-cultural surveys. *Aggress. Violent Behav.* (in press). doi: 10.1016/j.avb.2018.04.006

Swearer, S. M., Espelage, D. L., Vaillancourt, T., and Hymel, S. (2010). What can be done about school bullying? Linking research to educational practice. *Educ. Res.* 39, 38–47. doi: 10.3102/0013189X09357622

Ttofi, M. M., Bowes, L., Farrington, D. P., and Lösel, F. (2014). Protective factors interrupting the continuity from school bullying to later internalizing and externalizing problems: a systematic review of prospective longitudinal studies. *J. Sch. Violence* 13, 5–38. doi: 10.1080/15388220.2013.857345

Valdivia, I. M., Schneider, B. H., and Carrasco, C. V. (2016). School adjustment and friendship quality of first-and second-generation adolescent immigrants to spain as a function of acculturation. *J. Adolesc. Res.* 31, 750–777. doi: 10.1177/0743558415592179

Vervoort, M. H., Scholte, R. H., and Overbeek, G. (2010). Bullying and victimization among adolescents: the role of ethnicity and ethnic composition of school class. *J. Youth Adolesc.* 39, 1–11. doi: 10.1007/s10964-008-9355-y

Von Marées, N., and Petermann, F. (2010). Bullying in German primary schools: gender differences, age trends and influence of parents' migration and educational backgrounds. *Sch. Psychol. Internat.* 31, 178–198. doi: 10.1177/0143034309352416

Waasdorp, T. E., Pas, E. T., O'Brennan, L. M., and Bradshaw, C. P. (2011). A multilevel perspective on the climate of bullying: discrepancies among students, school staff, and parents. *J. Sch. Violence* 10, 115–132. doi: 10.1080/15388220.2010.539164

Walters, G. D., and Mandracchia, J. T. (2017). Testing criminological theory through causal mediation analysis: current status and future directions. *J. Crim. Just.* 49, 53–64. doi: 10.1016/j.jcrimjus.2017.02.002

Wang, J., Iannotti, R. J., and Nansel, T. R. (2009). School bullying among adolescents in the United States: physical, verbal, relational, and cyber. *J. Adolesc. Health* 45, 368–375. doi: 10.1016/j.jadohealth.2009.03.021

Zych, I., Farrington, D. P., Llorent, V. J., and Ttofi, M. M. (2017). *Protecting Children Against Bullying and Its Consequences*. Switzerland: Springer. doi: 10.1007/978-3-319-53028-4

Zych, I., Farrington, D. P., and Ttofi, M. M. (2018). Protective factors against bullying and cyberbullying: a systematic review of meta-analyses. *Aggress. Violent Behav.* (in press). doi: 10.1016/j.avb.2018.06.008

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 26 March 2019
doi: 10.3389/fpsyg.2019.00662

Being Bullied at School: Gratitude as Potential Protective Factor for Suicide Risk in Adolescents

Lourdes Rey[1], Cirenia Quintana-Orts[1], Sergio Mérida-López[2] and Natalio Extremera[2]*

[1] Department of Personality, Evaluation and Psychological Treatment, Universidad de Málaga, Málaga, Spain, [2] Department of Social Psychology, Universidad de Málaga, Málaga, Spain

Bullying victimization has been recognized as a risk factor for social, physical, and psychological problems in adolescence. One promising resource that seems to protect adolescents from adversity and traumatic events is gratitude. However, no analysis of the specific role of gratitude in bullying context has been performed as yet. Thus, the aim of this research was to explore the associations between bullying victimization, gratitude and suicide risk (i.e., depressive symptoms and suicidal thoughts and behaviors) and gender-based differences. We also investigated whether levels of gratitude moderated the relationship between victimization and suicide risk for girls and boys. A convenience sample of 1,617 adolescents (50.5% girls; *M* age = 14.02) participated in this research. Adolescents completed a paper-and-pencil questionnaire about their bullying victimization, gratitude, depressive symptoms and suicidal thoughts and behaviors. Gratitude was found to be negatively related to victimization and suicide risk. While no gender differences were found in gratitude, it was observed that girls reported higher levels of suicide risk. However, the victimization × gratitude interaction contributed to variance in suicide risk, but only for girls: Those girls who were victims of bullying with high gratitude scores reported lower suicide risk than their counterparts who showed less gratitude. Thus, the findings from this present cross-sectional study suggest that gratitude is related to suicide risk in the context of bullying victimization, especially among adolescent girls. Finally, the theoretical and practical implications of our novel contributions to the understanding of gratitude as a protective factor against consequences of bullying victimization are discussed.

Keywords: bullying victimization, suicidal thoughts and behaviors, depressive symptoms, gratitude, adolescence

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain

Reviewed by:
Izabela Zych, Universidad de Córdoba, Spain
Norzarina Mohd-Zaharim, University of Science, Malaysia

****Correspondence:***
Lourdes Rey
lrey@uma.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *09 December 2018*
Accepted: *11 March 2019*
Published: *26 March 2019*

Citation:
Rey L, Quintana-Orts C, Mérida-López S and Extremera N (2019) Being Bullied at School: Gratitude as Potential Protective Factor for Suicide Risk in Adolescents. Front. Psychol. 10:662. doi: 10.3389/fpsyg.2019.00662

INTRODUCTION

Recent studies have indicated that bullying victimization – i.e., when an adolescent is beaten, insulted, threatened, robbed, excluded, or rumored intentionally and repeatedly by some student or several physically or psychologically strengthen; Ortega-Ruiz et al., 2016 – has considerable amounts of negative consequences for both the physical and mental health of adolescents (Povedano et al., 2015; Stapinski et al., 2015). Consistent with these findings, bullying research has shown that victimized adolescents often report high levels of affective disorders and negative health outcomes such as depression and suicidal behavior and ideation (Özdemir and Stattin, 2011; Fredrick and Demaray, 2018). For example, Holt et al. (2015), in a meta-analysis, found significant

associations between bullying victimization and suicidal behavior. Similarly, Stapinski et al. (2015) showed that bullying victimization not only caused short-term effects on mental health, but also had a delayed impact on symptoms of depression. Both distal (e.g., depressive symptoms) and proximal (e.g., suicidal ideation) variables are thought to increase the risk of death by suicide among adolescents (Bonner and Rich, 1987; Sareen, 2011; Chang et al., 2017).

Despite the robust association between bullying victimization, depressive symptoms and suicidal behavior and ideation, a common limitation in this area of research is the scarce attention given to examining the influence of personal resources to ameliorate the potentially negative effects of bullying victimization. The organism-environment interaction theory (Lerner et al., 2006) states that not all persons are equally influenced by the same context, and it is the interaction between person and context that contribute to persons' social and psychological adjustment. Additionally, research on bullying (Zych et al., 2017; Extremera et al., 2018) has suggested that persons with different positive internal resources will respond differently to stress or negative experiences such as victimization. This variation in response to bullying victimization suggests that there may be different profiles associated with victimization. As well, there appear to be consistent gender differences in the relation between victimization and internalizing problems, with females experiencing higher levels of depression and suicidal ideation in consequence of bullying (Brunstein Klomek et al., 2007; Fredrick and Demaray, 2018). However, results concerning the associations between bullying victimization and gender are mixed and unclear. For example, although most studies have found that bullying victimization is more common for girls than for boys, others have found that boys are generally more victimized than girls, and, even, some research has found no gender differences (Zych et al., 2015).

Several researchers (Zhou et al., 2017; Zych et al., 2017; Quintana-Orts and Rey, 2018) have begun to examine how individual positive factors might ameliorate the negative association of bullying victimization and suicide risk. One such positive characteristic and psychological strength, thus far scarcely studied, is gratitude, or thankfulness. This is commonly defined as a two-step process: first, recognizing that one has obtained a positive outcome; and second, recognizing that there is an external source for this positive outcome (Emmons and McCullough, 2003). Some scholars (e.g., Allen, 2018) categorize three different conceptualizations of gratitude: affective trait (disposition across time and circumstances where gratitude is an extension of an individual's personality), mood (daily variations in overall gratitude), and emotion (a more transitory feeling of gratitude one may feel after a specific situation such as receiving a gift or a favor). In this study, we focus on trait (or "dispositional") gratitude.

An increasing number of studies shows that dispositional gratitude seems to have far-ranging positive impacts for children and adolescents. For example, studies have found that more grateful adolescents are happier with their school and report better interpersonal relationships (Froh et al., 2010; Mofidi et al., 2014) and develop more prosocial behaviors (Bono et al., 2017). Furthermore, some scholars suggest that gratitude has a robust relationship with both mental health and psychological adjustment (Wood et al., 2010). For example, several studies have shown that gratitude is linked to lower depressive symptoms (Neto, 2007; Petrocchi and Couyoumdjian, 2016; Disabato et al., 2017) and reduced suicidal ideation and suicide attempts (Li et al., 2012).

Although gratitude is a positive characteristic observed in all individuals, there are studies that have found differences between males and females regarding gratitude, in both adolescents and adults. Such studies (Neto, 2007; Petrocchi and Couyoumdjian, 2016; Disabato et al., 2017; Yost-Dubrow and Dunham, 2018) found that girls and women report higher levels of gratitude than their male counterparts. However, other studies (Freitas et al., 2011; Ruch et al., 2014; Wang et al., 2015) did not find these differences.

Some studies focusing on the importance of personal factors in bullying have found their protective value against the development of internalizing (e.g., depression) and externalizing problems (e.g., suicide). For example, some authors suggest that forgiveness is an emotion-focused coping strategy to help victims alleviate the negative outcomes of being bullied (Freedman, 2018) and have lower levels of depression, anxiety, anger, or hostility (Toussaint et al., 2015). On the same vein other authors highlight other resources such as self-esteem (Turner et al., 2010), resilience (Sapouna and Wolke, 2013) and optimism (Rigby, 2003) as relevant factors that may successfully influence in overcoming victimization experiences. According to Fredrickson's (1998) broaden-and-build theory, people with positive emotions have broad-ranging thoughts and actions, which allow individuals access to resources and may help them to resist negative life choices and decreasing difficulties. In this regard, gratitude is suggested as another protective factor linked to more positive emotions and appraisals against negative experiences and psychological difficulties (e.g., Disabato et al., 2017; Nezlek et al., 2018). However, gratitude has been neglected in bullying research, and, as a result, it is not currently known how some bullied adolescents manage bullying victimization to recover from its impact and stay healthy over time considering their levels of gratitude. In order to address this gap, the purpose of this research is to explore whether gratitude is a positive resource that could protect against negative outcomes such as other personal resources do.

The Present Study

To the best of our knowledge, research on the possible protective role of gratitude in the relationship between bullying victimization and mental health in adolescence has been not empirically assessed. For that reason, the aim of this study was to extend our understanding of the links among bullying victimization and suicide risk (depression and suicidal behavior and ideation), in three regards. Our first objective was to explore the relationships between bullying victimization, gratitude and suicide risk in an adolescent sample, with the aim to extend our understanding of bullying victimization experiences in this age group. Our second aim was to explore gender-based differences in the association between bullying

victimization and mental health and the relative role of gratitude at promoting psychological adjustment. Thirdly, we endeavored to determine whether there is a significant victimization × gratitude interaction effect in predicting suicide risk.

As aforementioned, gratitude has been shown to be positively linked to adolescents' psychological adjustment (Froh et al., 2008, 2009; Bono and Froh, 2009). Thus, we expected bullying victimization to be positively related to suicide risk, whereas we predicted gratitude would be negatively related to suicide risk (H1). In addition, regarding gender differences, studies on bullying victimization (Froh et al., 2009; Fredrick and Demaray, 2018) suggest consistent differences between boys and girls in gratitude, depressive symptoms and suicidal behavior and ideation. Therefore, we expected results consistent with these findings (H2), with girls reporting higher levels of suicidal thoughts and behaviors, depression and gratitude compared to boys. Regarding victimization, we explored the results caused by mixed results of research. Finally, gaining more insight into the specific gender pattern between gratitude and suicide risk may help improve our understanding of the manner and methods of conducting anti-bullying prevention and intervention strategies. Thus, we tentatively hypothesized that, independent of gender, adolescents with higher levels of gratitude would report lower levels of suicide risk. That is, we expected to find that gratitude served as a buffer between bullying victimization and suicide risk (depressive symptoms and suicide) in both adolescent males and females (H3).

MATERIALS AND METHODS

Participants

A convenience sample of 1,617 adolescents (50.5% female) from several public high schools in Málaga (Andalusia, Spain) participated in this study. The mean age was 14.02 years (*SD* = 1.46; range 12–17). A 83.4% of the sample was Spanish. Regarding the academic level taught, 29.6% attended classes of the 1st year of Compulsory Secondary Education; 28.1% attended classes of the 2nd year; 22.2% the 3rd year and 12.3% the last course. A 7.7% of the sample attended classes at A level.

Procedure

Principals of the schools were responsible for reporting and consulting to the parents about the study. Parents were asked to provide an informed consent to use the data anonymously in the present research. A written consent for participants was provided to school authorities, who made the last decision on their participation. Besides, principals provided written informed consent for the conduct of the study. There was no parental refusal for adolescents' participation. The data was collected in classrooms during a 1-h lesson, always with the presence of one of the researchers and at least one schoolteacher, and with guarantees of the participants' voluntariness and anonymity. All participants were encouraged to answer honestly. The study was carried out in accordance with the ethical principles for psychological research involving human subjects and was approved by the Research Ethics Committee of University of Málaga (62-2016-H).

Bullying Victimization

Bullying victimization was measured using the Victimization subscale of the European Bullying Intervention Project Questionnaire (EBIP-Q; Brighi et al., 2012). The EBIP-Q subscale comprises seven items representing the frequency of bullying over the previous 2 months. All responses were on a 5-point Likert scale ranging from 0 for "never" to 4 for "more than once a week." The Spanish version was used (Ortega-Ruiz et al., 2016). For this sample, Cronbach's alpha for the bullying victimization subscale was 0.82.

Suicide Risk

To assess suicide risk in adolescents we used two measures concerning suicide and depression. This choice was made for two reasons. Firstly, because of "suicidal tendencies and behaviors are defined as a continuum of behaviors, with suicidal ideation on one end of the continuum, and death by suicide on the other end" (Mazza, 2006; Fredrick and Demaray, 2018) and secondly, due to the solid involvement of depressive symptoms in suicide (Konick and Gutierrez, 2005; Cukrowicz et al., 2011; Cheung et al., 2018; Quintana-Orts and Rey, 2018).

For *depressive symptoms*, we used the Depression Inventory Short Version (CDI-S; Kovacs, 1992). The Spanish version by Del Barrio and Carrasco (2004) was used. CDI-S is a 10-item measure that assesses the severity of depressive symptoms in adolescents. The items are enunciated, in three sentences that represent three levels of intensity of depressive symptomatology. The total scores range from 0 to 20. The instrument has high internal consistency in Spanish samples (de la Vega et al., 2016). Higher scores on the CDI-S indicate greater depressive symptomatology. The internal consistency for the CDI-S in this study was 0.76.

For *suicidal thoughts and behavior*, the Suicidal Behaviors Questionnaire–Revised (SBQ-R; Osman et al., 2001) was used. The SBQ-R has four items and provides an indication of overall suicidality. Participants were asked to respond to different aspects relating to suicide: lifetime suicidal thoughts and suicide behaviors (six levels of answers); frequency of suicidal ideation in the last year (five levels of frequency); suicidal intention and likelihood suicidal attempt in the future (five and six levels of answer, respectively). Higher scores on the SBQ-R indicate greater suicidality. The SBQ-R was validated for Spanish adolescents by Rey et al. (2018a) and was found to have adequate psychometric properties. In the current research, the Spanish version showed good internal consistency (Cronbach's alpha = 0.87).

Gratitude

The Gratitude Questionnaire (GQ; McCullough et al., 2002). The Spanish version by Rey et al. (2018b) was used to assess gratitude. The Spanish version, validated for adolescents, is a five-item self-report scale. The statements were rated on a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree; e.g., "I have so much in life to be thankful for"). Higher scores indicate greater levels of gratitude. This scale has adequate psychometric

properties. In the present study, the internal consistency of the scale was 0.79.

Statistical Analyses

Data was analyzed using the program SPSS (version 22). First, descriptive analyses were used to describe the demographic information of the sample. Next, we adopted Pearson's correlation analyses to examine the associations among research variables in the total sample. Participants' gender differences in the research variables were examined by using Student's *t*-test. Finally, to analyze the potential buffering effects of gratitude in both boys and girls, separate moderation analyses were conducted for each group using the process macro (Model 1) developed by Hayes (2013). The significance of the indirect effect at different levels of the moderator was tested using bias-corrected bootstrap confidence intervals (CIs) at 95% (5,000 random samples).

RESULTS

Demographic Characteristics

The demographic information of the participants is presented in **Table 1**.

Correlations

As seen in **Table 2**, the Pearson's bivariate correlations for the studied variables showed that victimization was positively correlated with depressive symptoms and suicidal thoughts and behaviors, and negatively correlated with gratitude. Gratitude was negatively correlated with depressive symptoms and suicidal ideation and behaviors.

TABLE 1 | Demographic characteristics of the sample.

	Percent	*n*
Gender		
Males	49.5	800
Females	50.5	817
School grade		
1st compulsory secondary education	29.6	479
2nd compulsory secondary education	28.1	455
3rd compulsory secondary education	22.2	359
4th compulsory secondary education	12.3	199
Classes at A level	7.7	125
Age		
12	16.2	262
13	26.2	424
14	22.1	358
15	17.0	275
16	12.1	195
17	6.4	103
Nationality		
Spanish	83.9	1357
Other European countries	8.2	133
American	4.8	77
African	2.4	38
Asian	0.6	10
Australian/Oceanian	0.1	2

TABLE 2 | Descriptive statistics and bivariate correlations between the studied variables among total sample.

			Correlations			
Variable	**M *(SD)***	**Range**	**1**	**2**	**3**	**4**
(1) Victimization	0.80 (0.73)	[0–4]				
(2) Depressive symptoms	1.51 (0.35)	[1–8]	0.38***			
(3) Suicidal thoughts and behaviors	5.53 (3.87)	[3–22]	0.41***	0.58***		
(4) Gratitude	5.51 (1.12)	[1–7]	−0.26***	−0.49***	−0.41***	

***$p < 0.001$.

TABLE 3 | Gender differences in the studied variables.

	Gender differences			
Variable	**Male *M (SD)***	**Female *M (SD)***	***T***	***d***
Victimization	0.78 (0.71) *n* = 800	0.82 (0.75) *n* = 817	−1.05	−0.05
Depressive symptoms	1.45 (0.31) *n* = 799	1.57 (0.37) *n* = 816	−7.22***	−0.35
Suicidal thoughts and behaviors	4.81 (3.02) *n* = 797	6.23 (4.44) *n* = 815	−7.53***	−0.37
Gratitude	5.52 (1.04) *n* = 798	5.50 (1.18) *n* = 816	0.36	0.02

***$p < 0.001$.

Differences Between Girls' and Boys' Scores

Regarding gender differences, means in the variables were compared between girls and boys with Student's *t*-test and with Cohen's *d* to calculate the strength of the relationships (effect size). As seen in **Table 3**, girls scored higher than boys on depressive symptoms and suicidal thoughts and behaviors ($p < 0.001$; $d = -0.35$, and -0.37, respectively). No differences were found between girls and boys in victimization or on gratitude scores.

Moderating Effect of Gratitude

To test the moderation hypothesis for boys and girls, the moderating effect of gratitude in the relationship between victimization and suicide risk (both depressive symptoms and suicidal behavior and ideation) was estimated, using the PROCESS macro (Model 1) by Hayes (2013). The specifications of each model are summarized in **Table 4**.

There was a significant effect of gratitude on depressive symptoms for both boys ($b = -0.12$, $p < 0.001$) and girls ($b = -0.14$, $p < 0.001$), as well as a significant association between gratitude and suicidal thoughts and behaviors for boys ($b = -0.71$, $p < 0.001$) and girls ($b = -1.33$, $p < 0.001$). However, there was only a significant interaction between victimization and gratitude scores on both depressive symptoms (b = −0.03,

TABLE 4 | Moderating effect of gratitude on suicide risk for the female and male samples.

	Male sample					Female sample				
	b	SE	R^2	Δ R^2	95% CI	b	SE	R^2	Δ R^2	95% CI
Depressive symptoms			0.49***					0.64***		
Constant	1.11***	0.13			0.84–1.37	1.50***	0.16			1.19–1.81
Age	0.03*	0.01			0.01–0.05	−0.01	0.01			−0.03–0.02
School grade	−0.02	0.01			−0.04–0.01	0.05**	0.02			0.02–0.09
Victimization	0.09***	0.01			0.07–0.12	0.14***	0.02			0.11–0.17
Gratitude	−0.12***	0.01			−0.13–−0.09	−0.14***	0.01			−0.15–−0.12
Victimization × Gratitude	−0.02	0.01		0.00	−0.04–0.01	−0.03**	0.01		0.01**	−0.05–−0.01
Suicidal thoughts and behaviors			0.42***					0.60***		
Constant	2.22	1.38			−0.49–4.93	3.43	1.98			−0.45–7.31
Age	0.21	0.12			−0.02–0.44	0.20	0.17			−0.14–0.53
School grade	−0.16	0.14			−0.43–0.11	−0.02	0.20			−0.41–0.37
Victimization	1.09***	0.14			0.80–1.37	2.06***	0.18			1.70–2.41
Gratitude	−0.71***	0.10			−0.90–−0.52	−1.33***	0.11			−1.55–−1.11
Victimization × Gratitude	−0.16	0.13		0.00	−0.40–0.09	−0.40**	0.13		0.01**	−0.65–−0.15

*N_{males} = 798 (for deppresive symptoms) and 796 (for suicide thoughts and behaviors) $N_{females}$ = 815; *p < 0.05, **p < 0.01, ***p < 0.001.*

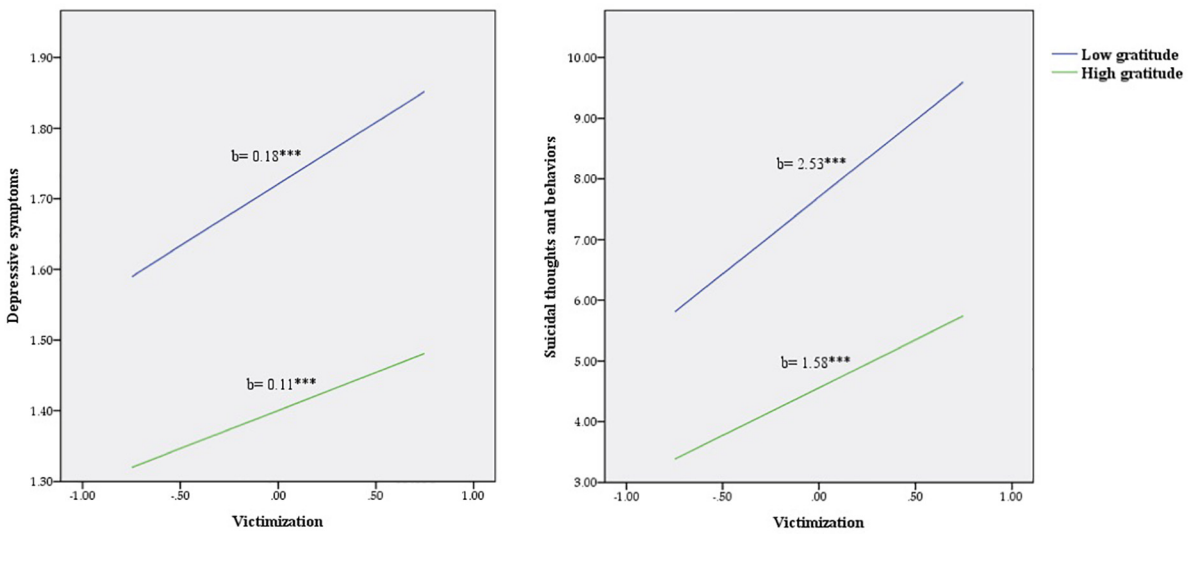

FIGURE 1 | Relationship of victimization and gratitude for predicting suicide risk (depressive symptoms and suicidal thoughts and behaviors) in girls. ***$p < 0.001$.

95% CI: −0.15 to −0.12, $p < 0.01$) and suicidal thoughts and behaviors ($b = -0.40$, 95% CI: −0.65 to −0.15, $p < 0.01$) for girls. To visually inspect the interaction effects, two simple slope analyses were conducted (see **Figure 1**). This approach selects two arbitrary points (i.e., one standard deviation above and below the mean) of the moderator to estimate the effect of the predictor on the outcome. As seen in **Figure 1**, simple slope analysis revealed that among girls the positive association between victimization and depressive symptoms was weaker at high levels of gratitude ($b = 0.11$; 95% CI: 0.07, 0.15, $t = 5.01$, $p < 0.001$) compared to low levels ($b = 0.18$; 95% CI: 0.14, 0.21, $t = 10.83$, $p < 0.001$). In addition, **Figure 1** shows that for girls, the positive relationship between victimization and suicidal thoughts and behaviors was weaker at high ($b = 1.58$; 95% CI: 1.06, 2.10, $t = 5.94$, $p < 0.001$) compared to low ($b = 2.53$; 95% CI: 2.14, 2.93, $t = 12.63$, $p < 0.001$) levels of gratitude.

DISCUSSION

This study aimed to examine the relationship between victimization and suicide risk in adolescents aged 12–17 years and to delve into the role played by gratitude in the bullying victimization-suicide risk relationship. Regarding the first hypothesis (H1), the results are in line with previous literature suggesting that adolescents who are bullied at school are more likely to show a decreased psychological adjustment and higher levels of depression and suicidal thoughts and behaviors

(Hertz et al., 2013). In addition, and consistent with previous research (Wood et al., 2008; Wu et al., 2018), gratitude was negatively associated with victimization and positively associated with depressive symptoms and suicide.

Concerning the second hypothesis (H2), the results were in accordance with previous literature that found gender differences for psychological maladjustment in favor of female after suffering from bullying (Fredrick and Demaray, 2018). Specifically, girls reported higher depressive symptoms and suicidal behavior and ideation than their male counterparts. Further, the present findings support those of Bannink et al. (2014), who also found a relationship between gender and mental health problems and suicidal ideation in the bullying victimization context, even after controlling for baseline mental health and baseline suicidal ideation. Similarly, Fredrick and Demaray (2018) found that girls reported higher levels of depressive symptoms and suicidal ideation than boys, which tends to support the current findings.

Regarding bullying victimization, in line with previous research (Kowalski et al., 2014), our study found no gender differences. Thus, inconsistent results remain with respect to the role of gender in this area of concern (cf. Zych et al., 2015). Further, contrary to our expectations, no gender differences were found in levels of gratitude. While some researchers found gender differences in expression of gratitude (Petrocchi and Couyoumdjian, 2016; Disabato et al., 2017), other studies (Freitas et al., 2011; Ruch et al., 2014; Wang et al., 2015) are in line with our results. One plausible reason for this finding is that gratitude could be related to the age and maturation of participants. The majority of the adolescents we studied were aged between 12 and 14 years; it could be that, among these early adolescents, more complex forms of gratitude have yet to be developed (Merçon-Vargas et al., 2018). Another possible reason could be the influence of culture on gratitude development in children and adolescents. Indeed, some researchers (Tudge et al., 2016; Mendonça et al., 2018) have found differences across societies in the extent to which various types of gratitude were expressed in the age-related patterns of gratitude expression. Thus, both maturity and environmental conditions could influence the development of gender differences in the expression and experience of more complex forms of gratitude (Kashdan et al., 2009). Although some studies in other European countries (e.g., Germany; Ruch et al., 2014) also revealed no gender differences in adolescents, further research examining these potential differences in the Spanish culture are needed.

The last hypothesis (H3) was partially supported, as the moderation analyses results in the present study show that gratitude was associated with less suicide risk in girls, but not in boys. Although gratitude was linked to less suicide risk (emerging as a significant and negative predictor for both depressive symptoms and suicidal ideation and behaviors for girls and boys), when we tested the moderator role, it was solely significant for girls involved in victimization situations (both high- and low-victimization). That is, gratitude buffered the relationship between victimization and suicide risk, as high gratitude was related to lower levels of depression and suicidal ideation and behaviors, even in cases of high bullying victimization – but only for females. These results are consistent with earlier studies (Kashdan et al., 2009) finding more benefits of gratitude for females. A tentative explanation for this effect could be differences between girls and boys in the experience and management of negative emotions (Nolen-Hoeksema, 2012; Kim et al., 2018). Adolescent females have been found to be more susceptible to interpersonal stress (Hammen, 2009; Hankin et al., 2015) and to "experience more intense and prolonged tension as a result of interpersonal stress compared to males" (Kim et al., 2018, pp. 663). This suggests that girls may be at greater risk for depressive symptoms and suicide after experiencing relational aggression such as bullying victimization (Nolen-Hoeksema and Girgus, 1994; Bor et al., 2014). Further, whereas males are more likely to engage in reward-seeking and impulsive acts in response to negative emotions, females tend to be more conscious of and focused on their emotions and more likely to engage in ruminative thoughts when facing negative emotions associated with relational aggression experiences (Nolen-Hoeksema and Girgus, 1994; Nolen-Hoeksema, 2012). For some females, this awareness of and engagement with feelings may become maladaptive, in the form of a ruminative attention to emotions (Zahn-Waxler et al., 2008; Nolen-Hoeksema, 2012). Considering gratitude as the tendency to "possess a worldview that is more focused on the appreciation of the good things in life, including personal qualities, skills, and resources which may lead to less self-criticism when facing life circumstances" (Petrocchi and Couyoumdjian, 2016, pp. 200–201), women with higher gratitude may engage in a more positive reappraisal against negative emotions and rumination associated with stressful situations such as bullying victimization (Nezlek et al., 2018). According to Sergeant and Mongrain (2011), self-critical individuals are particularly responsive to the benefits of gratitude intervention. In this sense, as dispositional gratitude has been associated with less self-criticism and self-attacks (Petrocchi and Couyoumdjian, 2016), women could benefit from gratitude as a type of self-protective mechanism from thoughts about unwanted negative emotional experiences or adverse social consequences. However, this is a tentative explanation; future research is needed to better understand associated factors for these gender differences in the associations among victimization, gratitude, and mental health indicators.

Findings of the current research suggest that gratitude is a relevant protective factor for the prevention of suicide risk in victims of bullying, but only for girls. Although boys and girls show similar levels of gratitude, on the basis of the present findings, one could argue that gratitude is more important for girls in terms of preventing suicide risk in the context of bullying.

Following Fredrickson (1998, 2001) broaden-and-build theory, gratitude may contribute to individuals' positive emotions, thereby broadening their momentary thought–action repertoires undoing the effects of negative emotions after a bullying experience and, besides, enduring personal resources that people use to regulate their experiences of negative emotions. Therefore, fostering gratitude not only among victims of bullying but also among adolescents may be good because of its effects on adolescents' positive mood as well as constitute a way for achieving flourishing and a healthier life (Wood et al., 2010). When targeting efforts at promoting gratitude

among adolescents, the different facets of this resource stated by McCullough et al. (2002) should be specifically addressed. In short, these authors highlight the relevance of the intensity experienced by a person after a positive event (intensity), the number of times experiencing gratitude each day (frequency), the number of life circumstances for which a person feels grateful at a given time (span) and the number of individuals to whom one feels grateful for a single positive outcome (density of gratitude). Finally, cultivating gratitude and its facets among adolescents would plausibly promote higher positive emotions and related subjective well-being, as well as lower negative emotions, depressive symptoms, and suicide risk.

Theoretical and Practical Implications

There are several potential implications of the present research. Theoretically, the findings suggest that gratitude may protect individuals from stress and enable them to achieve more resilience, thus providing evidence for the utility of gratitude for promoting mental health (cf. Bono and Sender, 2018). Considering our findings, victims of bullying with higher gratitude could engage in more positive reappraisal strategies against negative acts such as bullying and, therefore, they may benefit from less self-criticism and self-blaming comparing to those who show less gratitude. However, future research should compare these effects of gratitude while understanding for the emotional impact and the psychological symptoms displayed by the victim. Thus, it is necessary to test whether high gratitude profiles would remain the same or alter within the same individual depending on the perceived severity of bullying or the length of time they are involved in these aggressive behaviors. In addition, our results showed that gratitude played a role as a moderator with this effects being conditioned by gender. It draws attention to the fact that gender development in adolescence involves the development of several emotional components that might affect the victim's expression of gratitude. Therefore, the present research highlight the importance of examining hypotheses about explanations from theories on gender development involving expression and experience of gratitude to better understand these relations.

Practically, the present study could be quite informative for school staff and mental health professionals who deal with adolescent mental health consequences after bullying incidents. Clinicians, school personnel and school policymakers should take a step toward taking more notice of the development of protective factors against bullying victimization that might reduce its pernicious effects and lead to more positive outcomes (Hemphill et al., 2014). In so doing, we would suggest addressing both well-being and mental health difficulties through prevention and early intervention and providing safer contexts in which adolescents with mental health difficulties can be supported (cf. Hymel et al., 2018). However, the role of gender should be considered in developing optimal preventive interventions and service. The results of the present study support efforts to teach gratitude to girls who are victims of bullying and may be vulnerable to depressive symptoms and suicidal thoughts and behaviors. This implies that, among girls, thankfulness exercises could also be integrated into modules for mitigating the consequences of experiencing bullying and reducing their consequent emotional and behavioral difficulties. Considering that anti-bullying programs are more effective when targeting vulnerable adolescents (Bradshaw, 2015), these findings support calls for developing approaches that are sensitive to gender differences on the impact of bullying in emotional and behavioral outcomes.

Limitations and Strengths

Findings of this research should be interpreted within the context of several limitations, including the cross-sectional nature, self-reported measures, and a convenience sampling method. First, the cross-sectional design of the study prevents us from establishing causal relationships among the variables. Future research could include longitudinal assessments in order to examine the directionality and combined effect among gratitude, depressive symptoms, gender and suicide thoughts and behaviors in victimized adolescents. Second, this study used self-report scales to assess victimization, gratitude, and suicide risk. Although these instruments were selected for their good psychometric properties, it is possible that the nature of the self-report measures could be lend itself to bias (i.e., social desirability). Future studies with a multi-method measurement approach (e.g., peer nomination method for bullying victimization or clinical assessment for depressive symptoms and suicidal ideation) are needed to generalize the results of this study. Researchers could also examine whether gratitude plays a buffering role in the consequences of other types of bullying victimization (e.g., cybervictimization). Finally, the convenience sample limits the extent to which these findings can be generalized. Future studies should use more representative samples and could, for instance, compare clinical and non-clinical samples.

Despite these limitations, this research adds to the gratitude literature in many ways. We note that the explorative analyses used allowed us to examine the relationship between bullying victimization, gratitude and suicide risk, and to better understand the role of gratitude in this complex relationship. As far as we know, it is the first known study to explore the buffering role of gratitude in the relationship between bullying victimization and suicide risk in adolescence. Another strong point refers to focusing on the identification of protective individual factors that allowed us to identify gratitude as a relevant factor that should be included in programs aimed at the prevention and treatment of suicidality and, similarly, in programs to help adolescents cope with stress and the negative consequences of bullying experiences.

CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

The present research sheds light on the associations between bullying victimization, gratitude and suicide risk in adolescent boys and girls, and, besides, contributes to the scarce literature on the moderating role of gratitude. The findings emphasize the relevance of gender differences analyses when investigating

depression and suicide, and highlight the importance of gender-tailored development and evaluation of intervention studies. The results suggest that boys and girls may not benefit in the same manner from gratitude after experiencing face-to-face bullying. Future development of positive psychology and bullying research and interventions should take this into account.

DATA AVAILABILITY

All datasets generated for this study are included in the manuscript and/or the supplementary files.

AUTHOR CONTRIBUTIONS

All authors participated and contributed in the conception of the study, in performing the data collection and statistical analysis, and in writing the manuscript. The final manuscript has been approved by all authors.

FUNDING

Funding for this study was provided by the University of Málaga (PPIT.UMA.B1.2017/23).

REFERENCES

Allen, S. (2018). *The Science of Gratitude.* Conshohocken, PA: John Templeton Fundation.

Bannink, R., Broeren, S., van de Looij-Jansen, P. M., de Waart, F. G., and Raat, H. (2014). Cyber and traditional bullying victimization as a risk factor for mental health problems and suicidal ideation in adolescents. *PLoS One* 9:e94026. doi: 10.1371/journal.pone.0094026

Bonner, R. L., and Rich, A. R. (1987). Toward a predictive model of suicidal ideation and behavior: some preliminary data in college students. *Suicide Life Threat. Behav.* 17, 50–63. doi: 10.1111/j.1943-278X.1987.tb00061.x

Bono, G., and Froh, J. J. (2009). "Gratitude in school: benefits to students and schools," in *Promoting Wellness in Children and Youth: A Handbook of Positive Psychology in the Schools*, eds R. Gilman, E. S. Heubner, and M. Furlong (Hillsdale, NY: Routledge), 77–88.

Bono, G., Froh, J. J., Disabato, D., Blalock, D., McKnight, P., and Bausert, S. (2017). Gratitude's role in adolescent antisocial and prosocial behavior: a 4-year longitudinal investigation. *J. Posit. Psychol.* 14, 230–243. doi: 10.1080/17439760.2017.1402078

Bono, G., and Sender, J. T. (2018). How gratitude connects humans to the best in themselves and in others. *Res. Hum. Dev.* 15, 224–237. doi: 10.1080/15427609.2018.1499350

Bor, W., Dean, A. J., Najman, J., and Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Aust. N. Z. J. Psychiatry* 48, 606–616. doi: 10.1177/0004867414533834

Bradshaw, C. P. (2015). Translating research to practice in bullying prevention. *Am. Psychol.* 70, 322–332. doi: 10.1037/a0039114

Brighi, A., Ortega, R., Pyzalski, J., Scheithauer, H., Smith, P. K., Tsormpatzoudis, C., et al. (2012). *European Bullying Intervention Project Questionnaire (EBIPQ)* (Unpublished manuscript). Bologna: University of Bologna.

Brunstein Klomek, A., Marrocco, F., Kleinman, M., Schonfeld, I. S., and Gould, M. S. (2007). Bullying, depression, and suicidality in adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* 46, 40–49. doi: 10.1097/01.chi.0000242237.84925.18

Chang, E. C., Chang, O. D., Martos, T., Sallay, V., Li, X., and Lucas, A. G. (2017). Does optimism weaken the negative effects of being lonely on suicide risk? *Death Stud.* 42, 63–68. doi: 10.1080/07481187.2017.1332115

Cheung, A. H., Zuckerbrot, R. A., Jensen, P. S., Laraque, D., and Stein, R. E. K. (2018). Guidelines for adolescent depression in primary care (GLAD-PC): Part II. Treatment and ongoing management. *Pediatrics* 120:e1313-26. doi: 10.1542/peds.2017-4082

Cukrowicz, K. C., Schlegel, E. F., Smith, P. N., Jacobs, M. P., Van Orden, K. A., Paukert, A. L., et al. (2011). Suicide ideation among college students evidencing subclinical depression. *J. Am. Coll. Heal.* 59, 575–581. doi: 10.1080/07448481.2010.483710

de la Vega, R., Racine, M., Sánchez-Rodríguez, E., Solé, E., Castarlenas, E., Jensen, M. P., et al. (2016). Psychometric properties of the short form of the Children's Depression Inventory (CDI-S) in young people with physical disabilities. *J. Psychosom. Res.* 90, 57–61. doi: 10.1016/j.jpsychores.2016.09.007

Del Barrio, V., and Carrasco, M. A. (2004). *Adaptación del CDI, Inventario de depresión infantil de Maria Kovacs*. Madrid: TEA.

Disabato, D. J., Kashdan, T. B., Short, J. L., and Jarden, A. (2017). What predicts positive life events that influence the course of depression? A longitudinal examination of gratitude and meaning in life. *Cognit. Ther. Res.* 41, 444–458. doi: 10.1007/s10608-016-9785-x

Emmons, R. A., and McCullough, M. E. (2003). Counting blessings versus burdens: an experimental investigation of gratitude and subjective well-being in daily life. *J. Pers. Soc. Psychol.* 84, 377–389. doi: 10.1037/0022-3514.84.2.377

Extremera, N., Quintana-Orts, C., Mérida-López, S., and Rey, L. (2018). Cyberbullying victimization, self-esteem and suicidal ideation in adolescence: does emotional intelligence play a buffering role? *Front. Psychol.* 9:367. doi: 10.3389/fpsyg.2018.00367

Fredrick, S. S., and Demaray, M. K. (2018). Peer victimization and suicidal ideation: the role of gender and depression in a school-based sample. *J. Sch. Psychol.* 67, 1–15. doi: 10.1016/j.jsp.2018.02.001

Fredrickson, B. L. (1998). What good are positive emotions? *Rev. Gen. Psychol.* 2, 300–319. doi: 10.1037/1089-2680.2.3.300

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The broaden-and-build theory of positive emotions. *Am. Psychol.* 56, 218–226. doi: 10.1037/0003-066X.56.3.218

Freedman, S. (2018). Forgiveness as an educational goal with at-risk adolescents. *J. Moral. Educ.* 47, 415–431. doi: 10.1080/03057240.2017.1399869

Freitas, L. B. L., Pieta, M. A. M., and Tudge, J. R. H. (2011). Beyond politeness: the expression of gratitude in children and adolescents. *Psicol. Reflexão e Crít.* 24, 757–764. doi: 10.1590/S0102-79722011000400016

Froh, J. J., Bono, G., and Emmons, R. (2010). Being grateful is beyond good manners: gratitude and motivation to contribute to society among early adolescents. *Motiv. Emot.* 34, 144–157. doi: 10.1007/s11031-010-9163-z

Froh, J. J., Sefick, W. J., and Emmons, R. A. (2008). Counting blessings in early adolescents: an experimental study of gratitude and subjective well-being. *J. Sch. Psychol.* 46, 213–233. doi: 10.1016/j.jsp.2007.03.005

Froh, J. J., Yurkewicz, C., and Kashdan, T. B. (2009). Gratitude and subjective well-being in early adolescence: examining gender differences. *J. Adolesc.* 32, 633–650. doi: 10.1016/j.adolescence.2008.06.006

Hammen, C. (2009). Adolescent depression: stressful interpersonal contexts and risk for recurrence. *Curr. Dir. Psychol. Sci.* 18, 200–204. doi: 10.1111/j.1467-8721.2009.01636.x

Hankin, B. L., Young, J. F., Abela, J. R. Z., Smolen, A., Jenness, J. L., Gulley, L. D., et al. (2015). Depression from childhood into late adolescence: influence of gender, development, genetic susceptibility, and peer stress. *J. Abnorm. Psychol.* 124, 803–816. doi: 10.1037/abn0000089

Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis*. New York, NY: Guilford Press.

Hemphill, S. A., Tollit, M., and Herrenkohl, T. I. (2014). Protective factors against the impact of school bullying perpetration and victimization on young adult externalizing and internalizing problems. *J. Sch. Violence* 13, 125–145. doi: 10.1080/15388220.2013.844072

Hertz, M. F., Donato, I., and Wright, J. (2013). Bullying and suicide: a public health approach. *J. Adolesc. Heal.* 53, S1–S3. doi: 10.1016/j.jadohealth.2013.05.002

Holt, M. K., Vivolo-Kantor, A. M., Polanin, J. R., Holland, K. M., DeGue, S., Matjasko, J. L., et al. (2015). Bullying and suicidal ideation and behaviors: a meta-analysis. *Pediatrics* 135, e496–e509. doi: 10.1542/peds.2014-1864

Hymel, S., Low, A., Starosta, L., Gill, R., and Schonert-Reichl, K. (2018). Promoting mental well-being through social-emotional learning in schools: examples from British Columbia. *Can. J. Commun. Ment. Heal.*36, 97–107. doi: 10.7870/cjcmh-2017-029

Kashdan, T. B., Mishra, A., Breen, W. E., and Froh, J. J. (2009). Gender differences in gratitude: examining appraisals, narratives, the willingness to express emotions, and changes in psychological needs. *J. Pers.* 77, 691–730. doi: 10.1111/j.1467-6494.2009.00562.x

Kim, S., Colwell, S. R., Kata, A., Boyle, M. H., and Georgiades, K. (2018). Cyberbullying victimization and adolescent mental health: evidence of differential effects by sex and mental health problem type. *J. Youth Adolesc.* 47, 661–672. doi: 10.1007/s10964-017-0678-4

Konick, L. C., and Gutierrez, P. M. (2005). Testing a model of suicide ideation in college students. *Suicide Life-Threaten. Behav.* 35, 181–192. doi: 10.1521/suli.35.2.181.62875

Kovacs, M. (1992). *Children's Depression Inventory CDI Manual*. New York, NY: Multi-Health System. doi: 10.1007/s10903-013-9955-9

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research amonayouth. *Psychol. Bull.* 140, 1073–1137. doi: 10.1037/a0035618

Lerner, R. M., Lerner, J. V., Almerigi, J., and Theokas, C. (2006). "Dynamics of individual context relations in human development: a developmental systems perspective", in *Comprehensive Handbook of Personality and Psychopathology. Personality and Everyday Functioning*, Vol. 1, eds J. C. Thomas, D. L. Segal, and M. Hersen (Hoboken, NJ: John Wiley & Sons Inc.), 23–43.

Li, D., Zhang, W., Li, X., Li, N., and Ye, B. (2012). Gratitude and suicidal ideation and suicide attempts among Chinese Adolescents: direct, mediated, and moderated effects. *J. Adolesc.* 35, 55–66. doi: 10.1016/j.adolescence.2011.06.005

Mazza, J. J. (2006). "Youth suicidal behavior: a crisis in need of attention"," in *Adolescent Mental Health*, eds F. A. Villarruel and T. Luster (New York, NY: Greenwood Publishing Group), 156–177.

McCullough, M. E., Emmons, R. A., and Tsang, J. A. (2002). The grateful disposition: a conceptual and empirical topography. *J. Pers. Soc. Psychol.* 82, 112–127. doi: 10.1037/0022-3514.82.1.112

Mendonça, S. E., Merçon-Vargas, E. A., Payir, A., and Tudge, J. R. H. (2018). The development of gratitude in seven societies: cross-cultural highlights. *Cross-Cultural Res.* 52:106939711773724. doi: 10.1177/1069397117737245

Merçon-Vargas, E. A., Poelker, K. E., and Tudge, J. R. H. (2018). The development of the virtue of gratitude: theoretical foundations and cross-cultural issues. *Cross-Cultural Res.* 52, 3–18. doi: 10.1177/1069397117736517

Mofidi, T., El-Alayli, A., and Brown, A. A. (2014). Trait gratitude and grateful coping as they relate to college student persistence, success, and integration in school. *J. Coll. Student Retent. Res. Theory Pract.* 16, 325–349. doi: 10.2190/CS.16.3.b

Neto, F. (2007). Forgiveness, personality and gratitude. *Pers. Individ. Differ.* 43, 2313–2323. doi: 10.1016/j.paid.2007.07.010

Nezlek, J. B., Krejtz, I., Rusanowska, M., and Holas, P. (2018). Within-person relationships among daily gratitude, well-being, stress, and positive experiences. *J. Happiness Stud.* 20, 1–16. doi: 10.1007/s10902-018-9979-x

Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: the role of gender. *Annu. Rev. Clin. Psychol.* 8, 161–187. doi: 10.1146/annurev-clinpsy-032511-143109

Nolen-Hoeksema, S., and Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychol. Bull.* 115, 424–44. doi: 10.1037/0033-2909.115.3.424

Ortega-Ruiz, R., Del Rey, R., and Casas, J. A. (2016). Evaluar el bullying y el cyberbullying validación española del EBIP-Q y del ECIP-Q. *Psicol. Educ.* 22, 71–79. doi: 10.1016/j.pse.2016.01.004

Osman, A., Bagge, C. L., Gutierrez, P. M., Konick, L. C., Kopper, B. A., and Barrios, F. X. (2001). The suicidal behaviors questionnaire-revised (SBQ-R): validation with clinical and nonclinical samples. *Assessment* 8, 443–454. doi: 10.1177/107319110100800409

Özdemir, M., and Stattin, H. (2011). Bullies, victims, and bully-victims: a longitudinal examination of the effects of bullying-victimization experiences on youth well-being. *J. Aggress. Confl. Peace Res.* 3, 97–102. doi: 10.1108/17596591111132918

Petrocchi, N., and Couyoumdjian, A. (2016). The impact of gratitude on depression and anxiety: the mediating role of criticizing, attacking, and reassuring the self. *Self Identity* 15, 191–205. doi: 10.1080/15298868.2015.1095794

Povedano, A., Cava, M.-J., Monreal, M.-C., Varela, R., and Musitu, G. (2015). Victimization, loneliness, overt and relational violence at the school from a gender perspective. *Int. J. Clin. Heal. Psychol.* 15, 44–51. doi: 10.1016/j.ijchp.2014.09.001

Quintana-Orts, C., and Rey, L. (2018). Forgiveness, depression, and suicidal behavior in adolescents: gender differences in this relationship. *J. Genet. Psychol.* 179, 85–89. doi: 10.1080/00221325.2018.1434478

Rey, L., Sánchez-Álvarez, N., and Extremera, N. (2018a). Spanish gratitude questionnaire: psychometric properties in adolescents and relationships with negative and positive psychological outcomes. *Pers. Individ. Differ.* 135, 173–175. doi: 10.1016/j.paid.2018.07.005

Rey, L., Sánchez-Álvarez, N., Quintana-Orts, C., Mérida-López, S., and Extremera, N. (2018b). "Validez del cuestionario de comportamientos suicidas (SBQ-R) en una muestra de adolescentes," in *Póster presentado en el X Congreso Internacional de Psicología y Educación, Logroño*.

Rigby, K. (2003). Consequences of bullying in schools. *La Revue Canadienne de Psychiatrie [Can J Psychiatry.]* 48, 583–590. doi: 10.1177/070674370304800904

Ruch, W., Weber, M., Park, N., and Peterson, C. (2014). Character strengths in children and adolescents: reliability and initial validity of the german values in action inventory of strengths for youth (German VIA-Youth). *Eur. J. Psychol. Assess.* 30, 57–64. doi: 10.1027/1015-5759/a000169

Sapouna, M., and Wolke, D. (2013). Resilience to bullying victimization: the role of individual, family and peer characteristics. *Child Abuse Negl.* 37, 997–1006. doi: 10.1016/j.chiabu.2013.05.009

Sareen, J. (2011). Anxiety disorders and risk for suicide: why such controversy? *Depress. Anxiety* 28, 941–945. doi: 10.1002/da.20906

Sergeant, S., and Mongrain, M. (2011). Are positive psychology exercises helpful for people with depressive personality styles? *J. Posit. Psychol.* 6, 260–272. doi: 10.1080/17439760.2011.577089

Stapinski, L. A., Araya, R., Heron, J., Montgomery, A. A., and Stallard, P. (2015). Peer victimization during adolescence: concurrent and prospective impact on symptoms of depression and anxiety. *Anxiety Stress. Coping* 28, 105–120. doi: 10.1080/10615806.2014.962023

Toussaint, L. L., Worthington, E. L. J., and Williams, D. R. (2015). *Forgiveness and Health*. Dordrecht: Springer, doi: 10.1007/978-94-017-9993-5

Tudge, J. R. H., Freitas, L. B. L., and O'Brien, L. T. (2016). The virtue of gratitude: a developmental and cultural approach. *Hum. Dev.* 58, 281–300. doi: 10.1159/000444308

Turner, H. A., Finkelhor, D., and Ormrod, R. K. (2010). The effects of child victimization on self-concept and depression. *Child Maltreat.* 15, 76–90. doi: 10.1177/1077559509349444

Wang, D., Wang, Y. C., and Tudge, J. R. H. (2015). Expressions of gratitude in children and adolescents: insights from China and the united states. *J. Cross. Cult. Psychol.* 46, 1039–1058. doi: 10.1177/0022022115594140

Wood, A. M., Froh, J. J., and Geraghty, A. (2010). Gratitude and well-being: a review and theoretical integration. *Clin. Psychol. Rev.* 30, 890–905. doi: 10.1016/j.cpr.2010.03.005

Wood, A. M., Maltby, J., Gillett, R., Linley, P. A., and Joseph, S. (2008). The role of gratitude in the development of social support, stress, and depression: two longitudinal studies. *J. Res. Pers.* 42, 854–871. doi: 10.1016/j.jrp.2007.11.003

Wu, Q., Chi, P., Lin, X., and Du, H. (2018). Child maltreatment and adult depressive symptoms: roles of self-compassion and gratitude. *Child Abuse Negl.* 80, 62–69. doi: 10.1016/j.chiabu.2018.03.013

Yost-Dubrow, R., and Dunham, Y. (2018). Evidence for a relationship between trait gratitude and prosocial behaviour. *Cogn. Emot.* 32, 397–403. doi: 10.1080/02699931.2017.1289153

Zahn-Waxler, C., Shirtcliff, E. A., and Marceau, K. (2008). Disorders of childhood and adolescence: gender and psychopathology. *Annu. Rev. Clin. Psychol.* 4, 275–303. doi: 10.1146/annurev.clinpsy.3.022806.091358

Zhou, Z.-K., Liu, Q.-Q., Niu, G.-F., Sun, X.-J., and Fan, C.-Y. (2017). Bullying victimization and depression in Chinese children: a moderated mediation model of resilience and mindfulness. *Pers. Individ. Differ.* 104, 137–142. doi: 10.1016/j.paid.2016.07.040

Zych, I., Farrington, D. P., Llorent, V. J., and Ttofi, M. M. (2017). *Protecting Children Against Bullying and Its Consequences*. Cham: Springer International Publishing. doi: 10.1007/978-3-319-53028-4

Zych, I., Ortega-Ruiz, R., and Del Rey, R. (2015). Systematic review of theoretical studies on bullying and cyberbullying: facts, knowledge, prevention, and intervention. *Aggress. Violent Behav.* 23, 1–21. doi: 10.1016/j.avb.2015.10.001

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 22 May 2019
doi: 10.3389/fpsyg.2019.01159

The Effect of Parental Control on Cyber-Victimization in Adolescence: The Mediating Role of Impulsivity and High-Risk Behaviors

David Álvarez-García, José Carlos Núñez, Paloma González-Castro, Celestino Rodríguez and Rebeca Cerezo*

Department of Psychology, University of Oviedo, Oviedo, Spain

The aim of this work is to analyze the relationship between parental control and cyber-victimization in adolescence, considering the possible mediating effect of impulsivity, and high-risk internet behavior. To that end we analyzed the responses of 3360 adolescents aged between 11 and 18 (M = 14.02; SD = 1.40), from Asturias (Spain), to four previously validated questionnaires in order to measure the level of parental control over the use of the internet (restriction and supervision), along with high-risk internet behaviors, impulsivity, and cyber-victimization in the adolescents. The results show that parental control tends to have a protective effect on the likelihood of the children being victims of cyber-aggression, with impulsivity, and high-risk internet behaviors as mediating variables. More specifically, parental restriction and supervision are positively related to each other; both forms of parental control are negatively related with the adolescent's engaging in high-risk internet behaviors; supervision is negatively related with impulsivity; impulsivity is positively related with high-risk internet behaviors; and both impulsivity and high-risk internet behaviors are positively related to being a victim of cyber-aggression. The practical implications of these results are discussed.

Keywords: parental control, cyber-victimization, impulsivity, high-risk internet behaviors, adolescence

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain

Reviewed by:
Cristina Maria Coimbra Vieira, University of Coimbra, Portugal
Larisa Tatjiana McLoughlin, University of the Sunshine Coast, Australia

****Correspondence:***
David Álvarez-García
alvarezgardavid@uniovi.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *10 February 2019*
Accepted: *02 May 2019*
Published: *22 May 2019*

Citation:
Álvarez-García D, Núñez JC, González-Castro P, Rodríguez C and Cerezo R (2019) The Effect of Parental Control on Cyber-Victimization in Adolescence: The Mediating Role of Impulsivity and High-Risk Behaviors. Front. Psychol. 10:1159. doi: 10.3389/fpsyg.2019.01159

INTRODUCTION

The mobile phone and the internet can be very positive tools for adolescents' development, allowing them to keep in touch with family and friends, and offering many learning opportunities. However, they can also be very dangerous if they are used to cause harm. The term *cyber-aggression* is commonly used to refer to acts which intentionally harm or offend via electronic communication devices. *Cyber-victimization* refers to being a victim of those aggressions (Álvarez-García et al., 2018b).

At this moment in time, there is great social concern about this problem, because of its prevalence, and effects. Different studies offer data which varies greatly about prevalence, depending on the characteristics of the samples being analyzed and the methodology used. It is estimated that between 4.9 and 65% of adolescents have been victims of aggression via electronic media (Brochado et al., 2017) and that between 2 and 7% have suffered severe cyber-aggression (Garaigordobil, 2011). Cyber-victimization can have serious consequences for the victim, especially in severe cases. It has mainly been associated with an increase in internalizing problems, such

as anxiety (Rose and Tynes, 2015), low self-esteem (García et al., 2015), social anxiety (Juvonen and Gross, 2008), depressive symptomatology (Bonanno and Hymel, 2013), and suicidal ideation (Van Geel et al., 2014).

For this reason, it is important to have strategies which can effectively combat the problem (Díaz-Lopez et al., 2019). In order to do that, the principal associated protective and risk factors need to be identified. Parents are often advised to exercise a certain *control* over their children's use of mobile phones and the internet in order to prevent them from becoming victims of cyber-aggression. Families often set limits or *restrictions* on internet and mobile use (time, content, activities, and contacts), whether by setting rules or by using specific software; or they *supervise* their children's activity either openly or surreptitiously, during or after the activity.

However, research attempting to analyze the relationship between both forms of parental control (restriction and supervision) and cyber-victimization in adolescence is scarce and has produced inconsistent results. Some studies have found a negative relationship between the two forms of parental control (restriction and supervision) and cyber-victimization, which is greater for supervision but is small in both cases (Khurana et al., 2015). Other studies have not found statistically significant relationships between parental control and becoming a victim of cyber-aggression: neither for restriction, such as installing filters or software that blocks websites (Navarro et al., 2013), nor for supervision, such as checking the web pages that children visit on the internet (Navarro et al., 2013) or direct parental monitoring of internet use (Mishna et al., 2012). A third group of studies suggests that the relationship between the two forms of parental control and cyber-victimization is positive (Álvarez-García et al., 2015; Sasson and Mesch, 2017; Wright, 2017; Wright and Wachs, 2018). This might be explained by a tendency of some parents to exercise more control if they know that their children are suffering cyber-victimization or think that there is a risk that they will suffer from it, or because the family rules are not combined with parental support (Martins et al., 2016). A lack of parental warmth (support, dialogue, open communication, trust, affective relationships, and parental interest in children's activities) increases the probability of suffering from cyber-aggression (Elsaesser et al., 2017; Gómez-Ortiz et al., 2018). All of these results suggest a complex relationship between parental control and cyber-victimization. Some research suggests that the impact of parental control on cyber-victimization is indirect and in order to understand it, the intermediate variables that modulate its effect need to be understood.

One intermediate variable that seems important, according to previous research, is adolescents engaging in high-risk behavior on the internet. Some studies indicate that parental control could be a protective factor for high-risk behavior, such as intensive internet use (Chen and Chng, 2016; Gómez et al., 2017; Villanueva-Blasco and Serrano-Bernal, 2019), having Internet access in the bedroom (Khurana et al., 2015), or disclosing personal information (Liu et al., 2013). Other studies show that engaging in these high-risk behaviors on the internet increases the likelihood of becoming a victim of cyber-aggression (Helweg-Larsen et al., 2012; Sasson and Mesch, 2014) such that parental control would be expected to be a protective factor for cyber-victimization through its protective effect on high-risk internet behavior. Nevertheless, some studies have produced apparently contradictory results: adolescents who received higher levels of restrictive parental mediation (Shin and Ismail, 2014) and supervision (Sasson and Mesch, 2014) were more inclined to engage in risky online activities. If parental control is excessive or is imposed in a climate of little affection or communication it may be counterproductive in terms of engaging in risky behavior (Sasson and Mesch, 2014; Shin and Ismail, 2014).

The relationship between parental control and high-risk behavior may be mediated by impulsivity. Some studies indicate that teaching rules and parental supervision are protective factors for impulsivity in children (Li et al., 2014; Chen and Chng, 2016; Kurtz and Zavala, 2017), especially if they occur in a context of parental warmth (Ruiz-Hernández et al., 2019). Impulsivity is, in turn, positively related to engaging in high-risk internet behavior. Adolescents with poor self-control spent much more time on the Internet (Li et al., 2014) and made more self-disclosures (making personal or even private information public) on the Internet (Yu, 2014). Nonetheless, this relationship is also complex and is modulated by other variables. Some studies highlight that personal risky information may not only be published impulsively and spontaneously, but rather in a planned way, in order to improve a person's social image on the web, and people may be well aware of the potential risk of publication (White et al., 2018).

In sum, previous research suggests a complex relationship between parental control and cyber-victimization, although the precise mechanisms by which that happens are still not clear. This leads to the objective of our study: to analyze the relationship between parental control and cyber-victimization in adolescence, considering the possible mediating effect of impulsivity, and risky internet behavior. If we consider previous research, we expect the theoretical model in **Figure 1** to have a good fit to the empirical data.

MATERIALS AND METHODS

Participants

Students from twenty schools were selected by a combination of stratified and cluster random sampling from all Compulsory Secondary Education schools supported by public funds in Asturias (Spain). The population of schools was divided according to type (public or semi-private), and a number of schools proportional to the population were randomly selected from each group. The questionnaires were given to all students in the 1st to 4th years of Compulsory Secondary Education in each selected school, totaling 3360 students, aged between 11 and 18 years old (M = 14.02; SD = 1.40). Of them, 48.3% were girls.

Measuring Instruments

Parental Control for Adolescent Internet Use Questionnaire (Álvarez-García et al., 2019)

This is made up of 7 items. For each item, the respondent indicates the extent to which they think the corresponding

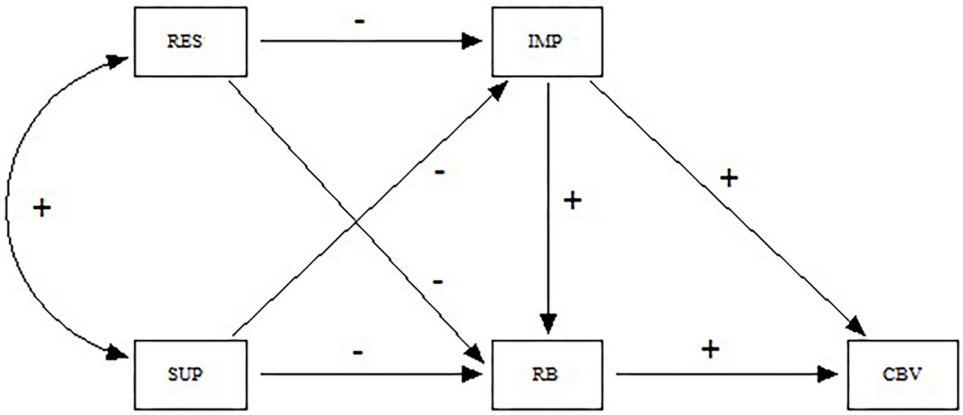

FIGURE 1 | Starting theoretical model (RES, restriction; SUP, supervision; IMP, impulsivity; RB, risk behaviors; CBV, cyber-victimization; +, positive relation; −, negative relation).

statement about possible control of their Internet use by their parents is true. The questionnaire measures two types of control: restriction [3 items; α = 0.70; e.g., "En casa me han puesto algunas normas sobre lo que puedo o no puedo hacer en Internet" ("At home my parents have set some rules about what I can or can not do on the Internet")] and supervision [4 items; α = 0.80; e.g., "Cuando accedo a Internet en mi tiempo libre, mis padres me vigilan y echan un vistazo a la pantalla" ("When I access the Internet in my spare time, my parents watch me and take a look at the screen")]. The responses are in a Likert-type format with four alternatives (from 1 = completely false to 4 = completely true). In both types of parental control the total score for each respondent corresponds to the sum of the scores on each item (restriction: theoretical minimum 3, maximum 12; supervision: minimum 4, maximum 16). Higher scores indicate greater control by families.

High-Risk Internet Behaviors Questionnaire (Álvarez-García et al., 2018a)

This is a self-report made up of 8 items, each of which describes a high-risk behavior on the internet [e.g., "Suelo publicar información personal en mis redes sociales: qué voy a hacer, dónde y con quién; fotos o vídeos personales o familiares;.." ("I usually publish personal information on my social networks: what I am going to do, where, and who with; personal or family photos or videos. . .")]. The respondent indicates the extent to which they think it is true that they engage in each of the behaviors through a Likert-type scale with four alternatives (from 1 = completely false to 4 = completely true). The total score for each respondent in this factor corresponds to the sum of the scores on each item (minimum 8 and maximum 32). High scores indicate that the respondent engages in a lot of high-risk internet behaviors. The internal consistency of the scale in this study sample is adequate (α = 0.73).

Impulsivity Scale (Álvarez-García et al., 2016a)

This was created using part of the impulsivity criteria proposed by the DSM-5 (American Psychiatric Association [APA], 2013) for the diagnosis of Attention Deficit and Hyperactivity Disorder. It consists of five items [e.g., "A menudo contesto antes de que se haya completado la pregunta" ("I often answer before the question has finished")] with a Likert-type response scale with four options (from 1 = completely false to 4 = completely true). The total score for each respondent in this factor corresponds to the sum of the scores on each item (minimum 5 and maximum 20). High scores indicate high levels of impulsivity. The internal consistency of the scores obtained with the scale in this study sample is adequate (α = 0.75).

Cyber Victimization Questionnaire for Adolescents (CYVIC; Álvarez-García et al., 2017)

This measures the frequency with which the respondents report having been victims of aggression via mobile phone or the Internet during the last 3 months [e.g., "Se han burlado de mí con comentarios ofensivos o insultantes en las redes sociales" ("Someone has made fun of me with offensive or insulting comments on social networks")]. It consists of 19 Likert-type response format items (from 1 = never to 4 = always). In this study, the total score in cyber-victimization for each respondent was obtained by adding the scores from the 19 items (minimum 19 and maximum 76). High scores indicate high levels of cyber-victimization. The internal consistency of the scale in this study sample is adequate (α = 0.79).

Procedure

Permission to administer the questionnaires was requested from the administration in each school selected. Each school obtained family consent for the participation of the students in the study because they were underage. The questionnaires were completed by the students at the school during normal school hours. At the time of the application of the questionnaires, participants were informed of the voluntary and anonymous nature of the test as well as the confidential treatment of the data obtained.

Data Analysis

Preliminary analysis was performed to examine the mean, standard deviation, skewness and kurtosis for each variable

included in the starting theoretical model. The relationship between these variables was analyzed by using the Pearson correlation coefficient or the Spearman correlation coefficient depending on whether the variable scores were normally distributed or not. Following that, path analysis was used to examine how well the starting theoretical model fit the empirical observed data. Given the non-normality of the data (Mardia = 14.44), Robust Maximum Likelihood was used as the method of estimation. To determine the degree of fit of the tested models, the Chi-square ($\chi 2$)/degrees of freedom (df) ratio, the comparative fit index (CFI), the Bentler-Bonett non-normed fit index (NNFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA) were utilized. Usually, the fit is considered good when CFI $\geq$ 0.95, NNFI $\geq$ 0.95, SRMR $\leq$ 0.08, and RMSEA $\leq$ 0.06 (Hu and Bentler, 1999), and $\chi 2/df < 3$ (Ruiz et al., 2010). The analyses were carried out using the statistical programs SPSS 24 (IBM Corp, 2016) and EQS 6.2 (Bentler, 2014).

RESULTS

The study participants tended to give low scores in the five variables included in the starting theoretical model (restriction, supervision, impulsivity, high-risk internet behaviors, and cyber-victimization). This tendency was especially marked in the case of cyber-victimization, which was the only variable whose distribution was significantly far from normality (**Table 1**). All of the correlations between the model variables were statistically significant (**Table 1**).

The starting theoretical model (**Figure 1**) showed a good fit to the empirical data [SBχ^2 = 8.34; df = 2; SBχ^2/df = 4.17; CFI = 0.997; NNFI = 0.986; SRMR = 0.016; RMSEA = 0.033 (90% CI 0.012–0.057)]. However, the effect of restriction on impulsivity was not statistically significant (Standard Error = 0.029; Critical Ratio = −0.667; $p > 0.05$). Consequently, the path analysis was repeated after removing this effect (**Figure 2**).

The path analysis performed (**Figure 2**) demonstrated a positive correlation between the two forms of parental control (restriction and supervision). Both forms of parental control had a direct and negative effect on engaging in high-risk internet behaviors. High-risk internet behaviors had a positive, direct effect on cyber-victimization. Therefore, both forms of parental control had an indirect and negative effect on cyber-victimization through their effect on engaging in high-risk internet behaviors. High-risk internet behaviors constitute a mediating variable between both forms of parental control and cyber-victimization.

Supervision had a direct and negative effect on impulsivity. Impulsivity had a positive, direct effect on cyber-victimization, but mainly indirect through its effect on high-risk internet behaviors. Therefore, supervision had an indirect and negative effect on cyber-victimization through its effect on impulsivity. Impulsivity constitutes a mediating variable between supervision and high-risk internet behavior, as well as between supervision and cyber-victimization.

The effects were statistically significant but small, except for the relationship between restriction and supervision, and the effect of impulsivity on high-risk internet behavior, which were moderate (**Figure 2**). The fit of the model to the obtained empirical data in the study was good [SBχ^2 = 8.97; df = 3; SBχ^2/df = 2.99; CFI = 0.997; NNFI = 0.991; SRMR = 0.016; RMSEA = 0.026 (90% CI 0.007–0.046)].

No appreciable differences in the predictive capacity of the variables were observed between boys and girls (**Figure 3**). Both in boys as in girls, the fit of the model was good. Boys: SBχ^2 = 3.12; df = 3; SBχ^2/df = 1.04; CFI = 1.00; NNFI = 1.00; SRMR = 0.013; RMSEA = 0.005 (90% CI 0.000–0.044). Girls: SBχ^2 = 5.14; df = 3; SBχ^2/df = 1.71; CFI = 0.998; NNFI = 0.994; SRMR = 0.017; RMSEA = 0.022 (90% CI 0.000–0.054).

TABLE 1 | Descriptive statistics and correlation coefficients between the variables in the starting theoretical model.

	1	2	3	4	5
1. Restriction					
2. Supervision[1]	0.616***				
3. Impulsivity[1]	−0.110***	−0.165***			
4. High-risk behavior[1]	−0.231***	−0.272***	0.350***		
5. Cyber-victimization[2]	−0.069***	−0.090***	0.292***	0.388***	
Mean	6.00	7.67	10.27	13.67	21.57
Standard deviation	2.75	3.62	3.49	4.42	3.29
Response range	3–12	4–16	5–20	8–32	19–57
Skewness (*SE* = 0.04)	0.60	0.76	0.45	0.87	2.77
Kurtosis (*SE* = 0.09)	−0.75	−0.59	−0.38	0.43	13.30

[1]*Pearson correlation coefficients.*
[2]*Spearman correlation coefficients. ***$p < 0.001$.*

DISCUSSION

The aim of this study was to analyze the relationship between parental control and cyber-victimization in adolescence, considering the possible mediating effect of impulsivity and high-risk internet behaviors. The results agree with the starting theoretical model (**Figure 1**), excepting for the direct effect of restriction on impulsivity. More specifically, parental restrictions and supervision are positively related with each other; both forms of parental control are negatively related with the adolescent's engaging in high-risk internet behaviors; supervision is negatively related with impulsivity; and both impulsivity and high-risk internet behaviors are positively related to falling victim to cyber-aggression.

In this study, restriction and supervision exhibit a moderate level of co-occurence. This suggests that although setting rules and monitoring are often complementary, they are different entities and do not always happen concurrently. In this study, the participants reported that their parents place few restrictions and do little supervision of the use they make of the internet, which is in line with previous research (Rial et al., 2014; Arnaiz et al., 2016).

According to the results we obtained, the two forms of parental control (restriction and supervision) exhibit a protective effect on engaging in high-risk internet behaviors, although very small

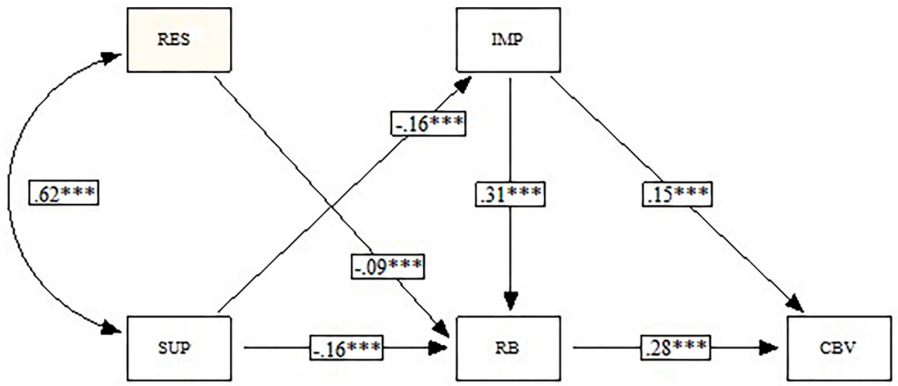

FIGURE 2 | *Post hoc* path model (RES, restriction; SUP, supervision; IMP, impulsivity; RB, risk behaviors; CBV, cyber-victimization). ***$p < 0.001$.

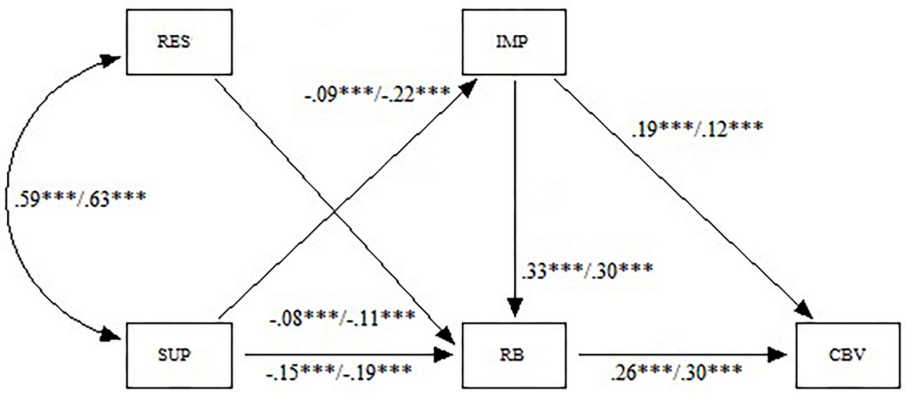

FIGURE 3 | Result of the path analysis performed with boys (left) and girls (right) (RES, restriction; SUP, supervision; IMP, impulsivity; RB, risk behaviors; CBV, cyber-victimization). ***$p \leq 0.001$.

in the case of restriction and small in the case of supervision. One possible reason for this weak influence of parental control is that peers take on greater importance during adolescence (Cutrín et al., 2017). It is difficult for parents or guardians to exercise rigorous control over adolescents' use of the internet and mobile phones. Adolescents spend a lot of time away from their parents and they might go online out of sight or using different devices (Álvarez-García et al., 2015). In addition, the peer group often encourages or approves of risky behavior more than families (Sasson and Mesch, 2014; Shin and Ismail, 2014). Although parents may set sufficient restrictions, occasionally peer pressure may encourage an adolescent to break the rules and engage in risky behavior.

The results we obtained suggest that supervision is also more effective than restriction in order to prevent impulsivity in the adolescents (and consequently, high-risk behavior, and cyber-victimization). Impulsivity is a risk factor for cyber-victimization, both directly and indirectly via its effect on high-risk internet behaviors. This suggests that impulsive adolescents may be victims of cyber-aggression due to their tendency to high-risk internet behaviors, but also due to off-line acts where their impulsivity might have a prominent role. The relationship between risky behavior and cyber-victimization in the path analysis was statistically significant but small. One possible explanation is that it is not strictly necessary to engage in high-risk internet behavior (or use the internet at all) to become a victim of certain types of cyber-aggression (Álvarez-García et al., 2015).

This research contributes to the study of the complex relationship between parental control and cyber-victimization in adolescence. From a theoretical perspective it helps to clarify the mechanisms behind this relationship. From a practical perspective it offers some clues towards more effective prevention of this problem. Parental control has a protective effect on cyber-victimization, albeit limited and indirect. In order for parental control to be an effective protective factor, it must happen in an environment of parental affection, and communication (Elsaesser et al., 2017; Gómez-Ortiz et al., 2018). There are various reasons for this. Firstly, restrictions that are simply imposed without debate, or at the very least explanation, and excessive supervision can be perceived by adolescents as interference in their ongoing search for autonomy from their parents and can

therefore end up being counterproductive (Sasson and Mesch, 2014; Shin and Ismail, 2014). They can cause conflicts and make communication and togetherness harder for parents and children (Sasson and Mesch, 2014). A good climate of family affection and communication facilitates self-disclosure by adolescents. This is a subtle form of control, consisting of spontaneous revelation by the child to their parents about what they do in their free time, and is generally the consequence of a climate of affection and communication between parents and children (Álvarez-García et al., 2016b). If there is a good family atmosphere, adolescents will feel comfortable sharing what they do and what happens to them with their parents, which is a protective factor against high-risk behavior in the children (Urry et al., 2011). Secondly, restrictions themselves only aim to avoid risky situations. They do not require a discussion between the parents and children about the right way to act online and the possible risks, nor do they teach strategies to face issues when they occur. This discussion and anticipation of negative consequences may prevent impulsive behavior and subsequently reduce the risk of cyber-victimization (Wright, 2017). Thirdly, excessive parental control has a negative impact on other variables that are also related to risky behaviors and cyber-victimization, such as self-esteem and shyness/social anxiety (Álvarez-García et al., 2015). Finally, supervision and good communication mean that it is easier for parents to be aware of the applications their children are using, which helps give better recommendations for their proper use and better supervision. The applications that adolescents use change constantly. One of the things which contributes to parental control having a limited protective effect is the difficulty parents face in having the same level of knowledge and understanding of new technologies (Shin and Ismail, 2014).

Despite the contributions of this study, it is not without its limitations. In the first place, it was carried out with a large, random sample of adolescents but constrained in terms of age and specific geographical context. This means that any generalization of the results of this study to other ages and contexts should be made with care. In the future, it would be interesting to replicate this study with other ages and in other contexts. Secondly, the only measuring instruments were questionnaires directed at students. It would be useful to complement that in the future with data gathered using other techniques (e.g., interviews or discussion groups) and informants (particularly parents). Thirdly, this was a transversal study. It would be interesting to test whether the hypothesized causal relationships would be confirmed in longitudinal studies. Finally, the model we tested did not consider the role of other potentially important variables, which might be mediators, or modulators of the relationships examined in this study. For example, previous studies have highlighted the importance of peer influence and school climate as predictors of cyber-victimization (Zych et al., 2019).

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Deontology Commission of the General Counsel of Psychology of Spain, with written informed parental consent for all subjects. All subjects family gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the research and ethics committee at the University of Oviedo.

AUTHOR CONTRIBUTIONS

DA-G and JN designed the study, analyzed the data, and drafted the manuscript. PG-C, CR, and RC critically reviewed the draft and made significant contributions to the final version.

FUNDING

This work was funded by the Government of the Principality of Asturias (Spain) (Plan of Science, Technology, and Innovation 2018-2022), the European Union (European Regional Development Fund - ERDF) (Ref. FC-GRUPINIDI/2018/000199), and the Spanish Ministry of Science, Innovation and Universities (Ref. PGC2018-097739-B-I00).

ACKNOWLEDGMENTS

We thank all pupils, teachers, and principals of the respective schools for their participation in this study.

REFERENCES

Álvarez-García, D., Barreiro-Collazo, A., Núñez, J. C., and Dobarro, A. (2016a). Validity and reliability of the cyber-aggression questionnaire for adolescents (CYBA). *Eur. J. Psychol. Appl. Leg. Context* 8, 69–77. doi: 10.1016/j.ejpal.2016.02.003

Álvarez-García, D., García, T., Barreiro-Collazo, A., Dobarro, A., and Antúnez, A. (2016b). Parenting style dimensions as predictors of adolescent antisocial behavior. *Front. Psychol.* 7:1383. doi: 10.3389/fpsyg.2016.01383

Álvarez-García, D., García, T., Cueli, M., and Núñez, J. C. (2019). Control parental del uso de Internet durante la adolescencia: evolución y diferencias de género. *Revista Iberoamericana de Diagnóstico y Evaluación – e Avaliação Psicológica* 51, 19–31. doi: 10.21865/RIDEP51.2.02

Álvarez-García, D., García, T., and Suárez-García, Z. (2018a). The Relationship between parental control and high-risk internet behaviours in adolescence. *Soc. Sci.* 7:87.

Álvarez-García, D., Núñez, J. C., García, T., and Barreiro-Collazo, A. (2018b). Individual, family, and community predictors of cyber-aggression among adolescents. *Eur. J. Psychol. Appl. Leg. Context* 10, 79–88. doi: 10.5093/ejpalc2018a8

Álvarez-García, D., Núñez, J. C., Barreiro-Collazo, A., and García, T. (2017). Validation of the Cybervictimization Questionnaire (CYVIC) for adolescents. *Comput. Hum. Behav.* 70, 270–281. doi: 10.1016/j.chb.2017.01.007

Álvarez-García, D., Núñez, J. C., Dobarro, A., and Rodríguez, C. (2015). Risk factors associated with cybervictimization in adolescence. *Int. J. Clin. Health Psychol.* 15, 226–235. doi: 10.1016/j.ijchp.2015.03.002

American Psychiatric Association [APA] (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. Washington, DC: American Psychiatric Publishing.

Arnaiz, P., Cerezo, F., Giménez, A. M., and Maquilón, J. J. (2016). Conductas de ciberadicción y experiencias de cyberbullying entre adolescentes. *Anales de Psicología* 32, 761–769. doi: 10.6018/analesps.32.3.217461

Bentler, P. M. (2014). *EQS 6.2 for Windows (Build 107) - Structural Equation Modeling Software*. Encino, CA: Multivariate Software Inc.

Bonanno, R. A., and Hymel, S. (2013). Cyber bullying and internalizing difficulties: above and beyond the impact of traditional forms of bullying. *J. Youth Adolesc.* 42, 685–697. doi: 10.1007/s10964-013-9937-1

Brochado, S., Soares, S., and Fraga, S. (2017). A scoping review on studies of cyberbullying prevalence among adolescents. *Trauma Violence Abuse* 18, 523–531. doi: 10.1177/1524838016641668

Chen, V. H., and Chng, G. S. (2016). Active and restrictive parental mediation over time: effects on youths' self-regulatory competencies and impulsivity. *Comput. Educ.* 98, 206–212. doi: 10.1016/j.compedu.2016.03.012

Corp, I. B. M. (2016). *IBM SPSS Statistics for Windows, Version 24.0*. Armonk, NY: IBM Corp.

Cutrín, O., Gómez, J. A., Maneiro, L., and Sobral, J. (2017). Effects of parenting practices through deviant peers on nonviolent and violent antisocial behaviours in middle- and late-adolescence. *Eur. J. Psychol. Appl. Leg. Context* 9, 75–82. doi: 10.1016/j.ejpal.2017.02.001

Díaz-Lopez, A., Rubio-Hernández, F. J., and Carbonell-Bernal, N. (2019). Efectos de la aplicación de un programa de inteligencia emocional en la dinámica de bullying. *Un estudio piloto. Revista de Psicología y Educación* 14, 124–135. doi: 10.23923/rpye2019.02.177

Elsaesser, C., Russell, B., Ohannessian, C. M., and Patton, D. (2017). Parenting in a digital age: a review of parents' role in preventing adolescent cyberbullying. *Aggress. Violent Behav.* 35, 62–72. doi: 10.1016/j.avb.2017.06.004

Garaigordobil, M. (2011). Prevalence and consequences of cyberbullying: a review. *Int. J. Psychol. Psychol. Therapy* 11, 233–254.

García, C. M., Romera, E. M., and Ortega, R. (2015). Explicative factors of face-to-face harassment and cyberbullying in a sample of primary students. *Psicothema* 27, 347–353. doi: 10.7334/psicothema2015.35

Gómez, P., Rial, A., Braña, T., Golpe, S., and Varela, J. (2017). Screening of problematic internet use among spanish adolescents: prevalence and related variables. *Cyberpsychol. Behav. Soc. Netw.* 20, 259–267. doi: 10.1089/cyber.2016.0262

Gómez-Ortiz, O., Romera, E. M., Ortega-Ruiz, R., and Del Rey, R. (2018). Parenting practices as risk or preventive factors for adolescent involvement in cyberbullying: contribution of children and parent gender. *Int. J. Environ. Res. Public Health* 15:2664. doi: 10.3390/ijerph15122664

Helweg-Larsen, K., Schütt, N., and Larsen, H. B. (2012). Predictors and protective factors for adolescent internet victimization: results from a 2008 nationwide danish youth survey. *Acta Paediatr.* 101, 533–539. doi: 10.1111/j.1651-2227.2011.02587.x

Hu, L., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct. Equ. Modeling* 6, 1–55. doi: 10.1080/10705519909540118

Juvonen, J., and Gross, E. F. (2008). Extending the school grounds? Bullying experiences in Cyberspace. *J. School Health* 78, 496–505. doi: 10.1111/j.1746-1561.2008.00335.x

Khurana, A., Bleakley, A., Jordan, A. B., and Romer, D. (2015). The Protective effects of parental monitoring and internet restriction on adolescents' risk of online harassment. *J. Youth Adolesc.* 44, 1039–1047. doi: 10.1007/s10964-014-0242-4

Kurtz, D. L., and Zavala, E. (2017). The importance of social support and coercion to risk of impulsivity and juvenile offending. *Crime Delinq.* 63, 1838–1860. doi: 10.1177/0011128716675360

Li, C., Dang, J., Zhang, X., Zhang, Q., and Guo, J. (2014). Internet addiction among chinese adolescents: the effect of parental behavior and self-control. *Comput. Hum. Behav.* 41, 1–7. doi: 10.1016/j.chb.2014.09.001

Liu, C., Ang, R. P., and Lwin, M. O. (2013). Cognitive, personality, and social factors associated with adolescents' online personal information disclosure. *J. Adolesc.* 36, 629–638. doi: 10.1016/j.adolescence.2013.03.016

Martins, M. J., Veiga, A. M., Freire, I., Caetano, A. P., and Matos, A. (2016). Cyber-Victimization and cyber-aggression among portuguese adolescents: the relation to family support and family rules. *Int. J. Cyber Behav., Psychol. Learn.* 6, 65–78. doi: 10.4018/IJCBPL.2016070105

Mishna, F., Khoury-Kassabri, M., Gadalla, T., and Daciuk, J. (2012). Risk factors for involvement in cyber bullying: victims, bullies and bully–victims. *Child. Youth Serv. Rev.* 34, 63–70. doi: 10.1016/j.childyouth.2011.08.032

Navarro, R., Serna, C., Martínez, V., and Ruiz-Oliva, R. (2013). The role of internet use and parental mediation on cyberbullying victimization among spanish children from rural public schools. *Eur. J. Psychol. Educ.* 28, 725–745. doi: 10.1007/s10212-012-0137-2

Rial, A., Gómez, P., Braña, T., and Varela, J. (2014). Actitudes, percepciones y uso de Internet y las redes sociales entre los adolescentes de la comunidad gallega (España). *Anales de Psicología* 30, 642–655. doi: 10.6018/analesps.30.2.159111

Rose, C. A., and Tynes, B. M. (2015). Longitudinal associations between cybervictimization and mental health among U.S. adolescents. *J. Adolesc. Health* 57, 305–312. doi: 10.1016/j.jadohealth.2015.05.002

Ruiz, M. A., Pardo, A., and San Martín, R. (2010). Modelos de ecuaciones estructurales. *Papeles del Psicólogo* 31, 34–45.

Ruiz-Hernández, J. A., Moral-Zafra, E., Llor-Esteban, B., and Jiménez-Barbero, J. A. (2019). Influence of parental styles and other psychosocial variables on the development of externalizing behaviors in adolescents: a sytematic review. *Eur. J. Psychol. Appl. Leg. Context* 11, 9–21. doi: 10.5093/ejpalc2018a11

Sasson, H., and Mesch, G. (2014). Parental mediation, peer norms and risky online behavior among adolescents. *Comput. Hum. Behav.* 33, 32–38. doi: 10.1016/j.chb.2013.12.025

Sasson, H., and Mesch, G. (2017). The role of parental mediation and peer norms on the likelihood of cyberbullying. *J. Genet. Psychol.* 178, 15–27. doi: 10.1080/00221325.2016.1195330

Shin, W., and Ismail, N. (2014). Exploring the role of parents and peers in young adolescents' risk taking on social networking sites. *Cyberpsychol. Behav. Soc. Netw.* 17, 578–583. doi: 10.1089/cyber.2014.0095

Urry, S. A., Nelson, L. J., and Padilla-Walker, L. M. (2011). Mother knows best: psychological control, child disclosure, and maternal knowledge in emerging adulthood. *J. Family Stud.* 17, 157–173. doi: 10.5172/jfs.2011.17.2.157

Van Geel, M., Vedder, P., and Tanilon, J. (2014). Relationship between peer victimization, cyberbullying, and suicide in children and adolescents. *A Meta-analysis. JAMA Pediatr.* 168, 435–442. doi: 10.1001/jamapediatrics.2013.4143

Villanueva-Blasco, V. J., and Serrano-Bernal, S. (2019). Patrón de uso de internet y control parental de redes sociales como predictor de sexting en adolescentes: una perspectiva de género. *Revista de Psicología y Educación* 14, 16–26. doi: 10.23923/rpye2019.01.168

White, C. M., Cutello, C. A., Gummerum, M., and Hanoch, Y. (2018). A cross-cultural study of risky online self-presentation. *Cyberpsychol. Behav. Soc. Netw.* 21, 25–31. doi: 10.1089/cyber.2016.0660

Wright, M. F. (2017). Parental mediation, cyberbullying, and cybertrolling: the role of gender. *Comput. Hum. Behav.* 71, 189–195. doi: 10.1016/j.chb.2017.01.059

Wright, M. F., and Wachs, S. (2018). Does parental mediation moderate the longitudinal association among bystanders and perpetrators and victims of cyberbullying? *Soc. Sci.* 7, 231. doi: 10.3390/socsci7110231

Yu, S. (2014). Does low self-control explain voluntary disclosure of personal information on the internet? *Comput. Hum. Behav.* 37, 210–215. doi: 10.1016/j.chb.2014.04.055

Zych, I., Farrington, D. P., and Ttofi, M. M. (2019). Protective factors against bullying and cyberbullying: a systematic review of meta-analyses. *Aggress. Vio. Behav.* 45, 4–19. doi: 10.1016/j.avb.2018.06.008

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 28 May 2019
doi: 10.3389/fpsyg.2019.01222

Analysis of Moral Disengagement as a Modulating Factor in Adolescents' Perception of Cyberbullying

Isabel Cuadrado-Gordillo and Inmaculada Fernández-Antelo*

Department of Psychology and Anthropology, University of Extremadura, Badajoz, Spain

There have been various studies establishing a relationship between moral reasoning and the perpetration of cyberbullying, but very few analyzing either the moderating role played by moral disengagement in how both aggressor and victim perceive cyberbullying, or the repercussions of this moderation for the determination of the prevalence of the problem and for the design of prevention programs. The present study examines the relationship between moral disengagement, moral identity, and how victims of this type of abuse perceive cyberbullying. The participants were 1912 adolescents (51% women) from Extremadura (Spain) of ages from 14 to 18 years. They completed three questionnaires addressing perception of cyberbullying, moral disengagement, and moral identity. Factorial, structural, correlation, and hierarchical multiple regression analyses were used to construct their perceptual structure of cyberbullying. These analyses showed the influence of their different levels of moral disengagement on those perceptions, and the moderating role that moral identity plays in the direct and indirect relationships between moral disengagement and the perception of cyberbullying. They revealed, on the one hand, the key and the subsidiary criteria victims use to classify some given cybernetic behavior as a case of cyberbullying, and, on the other, that the victims' levels of moral disengagement explain both the justifications they resort to in order to interpret occurrences of cyberbullying and their shifting or spreading of responsibility onto others. Finally, the results can be a key element in the design of effective psychological interventions aimed at improving adolescents' moral identity in situations of cybernetic victimization.

Keywords: cyberbullying, adolescent, moral disengagement, moral identity, mediation effect

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz,
Universidad de Córdoba, Spain

Reviewed by:
Raúl Navarro,
University of Castilla La Mancha, Spain
Manuel Gamez,
Autonomous University of Madrid, Spain

****Correspondence:***
Isabel Cuadrado-Gordillo
cuadrado@unex.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *25 February 2019*
Accepted: *08 May 2019*
Published: *28 May 2019*

Citation:
Cuadrado-Gordillo I and Fernández-Antelo I (2019) Analysis of Moral Disengagement as a Modulating Factor in Adolescents' Perception of Cyberbullying. Front. Psychol. 10:1222. doi: 10.3389/fpsyg.2019.01222

INTRODUCTION

In the last two decades, there has been an exponential growth in studies addressing the cyberbullying phenomenon, and an ever-greater diversity of variables introduced for analysis. Understanding why adolescents become aggressors or victims and what the factors are that favor the persistence of their roles are still difficult questions to answer. Once past the simple causal explanations, one has to opt for an interrelation of factors or components that offers a more holistic understanding, and allows better adjustment of cyberbullying prevention and intervention programs. The consideration of such variables as morality, prevalence, and perceptions about

cyberbullying, addressing them all in an interrelated manner, is an as yet little explored area whose results could lead to advances in the understanding of the processes of aggression and victimization.

Adolescents' Perception of Cyberbullying

In recent years, there has been a proliferation of works addressing how adolescents perceive cyberbullying (Menesini et al., 2012; Dredge et al., 2014; Correa and López, 2018; Midamba and Moreno, 2019). Their results differ significantly due to the variety of instruments used, the samples selected, and the types of analysis applied. Nonetheless, they all coincide in pointing to knowledge of how young people define and identify the cyberbullying phenomenon and the different forms in which it manifests itself as constituting a powerful tool with which to adjust calculations of its prevalence, and to design specific measures of prevention and intervention in this type of abusive situation.

Researchers use a particular set of criteria to differentiate an episode of cyberbullying from an act of cyber-aggression – power imbalance, intentionality to hurt, repetition, publicity, and anonymity (Thomas et al., 2015). Adolescents have not only established a hierarchy of these criteria (Talwar et al., 2014; Barlett et al., 2016; Wright et al., 2017; Samoh et al., 2019), but have also constructed synergistic pairwise relationships among them (Nocentini et al., 2010; Palladino et al., 2017; Fernández-Antelo and Cuadrado-Gordillo, 2018). In this sense, studies indicate that although adolescents point to repetition of the aggression as being an identifying criterion for cyberbullying (Thomas et al., 2017), they generally consider it to be a second-order factor dependent on other primary factors such as publicity or intentionality to hurt. The results of Hutson (2016) reveal that adolescents tend to downplay the repetition of an aggressive behavior, arguing that when a single abuse goes viral in an uncontrolled way it can cause recurrent harm similar to that experienced when the aggression is suffered repeatedly. However, they perceive publicity as being a key element in the identification of cyberbullying. They understand that when abuses are committed in private, they can be classified as aggressions but not as cyberbullying because they do not cause the same pain as if the abuse transcends into the public plane through its diffusion with the use of technological resources (Chen and Cheng, 2016; Wright et al., 2017).

Likewise, adolescents also tend to establish a relationship between repetition and intentionality because they understand that when an aggressive behavior occurs continuously it can not be interpreted as unintentional (Menesini et al., 2012). However, some researchers warn of the difficulty that adolescents have in perceiving the intentionality of the aggressor in cybernetic contexts, as well as their tendency to justify or minimize the intentionality of these abusive acts by alluding to the manifestation of social interaction patterns among adolescents (Cuadrado-Gordillo and Fernández-Antelo, 2016). The adoption of maladaptive styles of humor or the normalization of aggressive behavior may explain the emergence of distorted interpretations of adolescent behavior (Sari, 2016; Betts and Spenser, 2017).

Another pair of criteria that adolescents associate together are anonymity and power imbalance, understanding that the lower a person's skills in technological resources the less likely they will be able to uncover the authorship of cyber attacks (Palladino et al., 2017). Knowing that they can hide their identity, some adolescents perpetrate abuses that they would not dare to do in face-to-face contexts. Nevertheless, many victims have well-founded suspicions about the identity of their aggressors because they both generally belong to the same social or school circle.

Advances in the study of perceptions about cyberbullying have also revealed that the role which is played exerts a differential influence on which criteria are selected and prioritized (Dredge et al., 2014). While the victim emphasizes the intentionality to hurt, and associates it with the publicity of the abusive behavior, the aggressor stresses the imbalance and anonymity criteria (Compton et al., 2014; Crosslin and Golman, 2014; Fernández-Antelo and Cuadrado-Gordillo, 2018).

Moral Variables and Cyberbullying: A Complex, as Yet Uncovered, Web

Moral Disengagement

Research studies directed at analyzing the explanatory causes of aggressive processes, whether offline or online (Pornari and Wood, 2010; Menesini et al., 2013; Gini et al., 2014; Leduc et al., 2018; Simao et al., 2018), have emphasized the moral variables involved. One of these variables is moral disengagement. This refers to the process by which individuals separate their personal moral norms from their immoral behaviors (Bandura et al., 1996). For decades, it has been known that moral disengagement is strongly related to bullying, and can even be a predictor of it (Ortega-Ruiz et al., 2002; Li and Lei, 2004; Gasser and Keller, 2009; Wang et al., 2017). In particular, the aggressor can, by activating certain mechanisms designed to release the tension caused by the contradictions that arise between their moral principles and their actions, intimidate others without feeling remorse (Hymel and Bonano, 2014; Allison and Bussey, 2017). These mechanisms correspond to four loci of behavior which allow an individual to regulate their conduct: justifying the behavior, shifting responsibility, minimizing the harm caused, and moving the causal focus onto the victim (Bandura et al., 1996). Despite the numerous studies that have addressed this topic, there has however, been very little work on whether these moral imbalances are also present in the figure of the victim, and whether they contribute to perpetuating the victim's role (Hood and Duffy, 2018; Thornberg et al., 2018). The moral disengagement process in the victims would consist in their search for explanations that both justify they're not confronting the aggressions they suffer and minimize their moral self-sanctioning. In this way, victims can disengage themselves morally so as to justify their inaction and even the aggressions they have suffered (Allison and Bussey, 2017; Luo and Bussey, 2019). Unlike the studies focused on the figure of the aggressor whose results tend to be mutually coincident, those that also include the victims have reported results and drawn conclusions that differ. Not only that, but most of the latter studies of this latter type deal with the dual role of victim and aggressor

(Perren et al., 2012; Fanti and Kimonis, 2013), with works whose focus has been entirely on the figure of the victim being few and far between.

The study of moral disengagement has traditionally been linked to contexts and phenomena such as bullying that are face-to-face. However, the coexistence of both off- and on-line scenarios has led to the study of moral disengagement being transferred from physical contexts linked to bullying to cybernetic contexts associated with cyberbullying. Despite this, the influence that contextual factors may have on the interpretation of external signals has not yet been taken into account (Luo and Bussey, 2019). While some workers apply the same instruments for the assessment of the two types of abuse (Wang et al., 2016; Yang et al., 2018), others argue that they are distinct phenomena which require different approaches and instruments (Gini et al., 2014; Udris, 2014; Leduc et al., 2018; Meter and Bauman, 2018). In this sense, Harrison (2016) warns that the contextual factors which are so characteristic of online scenarios (e.g., the possibilities of anonymity, publicity, and the mass dissemination of messages or other types of audiovisual content) can contribute to certain abuses being committed that would not be committed in face-to-face situations. In parallel, these factors could contribute to the activation of moral disengagement mechanisms related to ignorance of the harm caused or to the diffusion of responsibility.

In spite of the initiatives being made to incorporate new approaches to the study of moral disengagement in response to the contextual duality in which we are immersed (offline and online), the aggressor continues to be given protagonism to the detriment of the study of the other roles involved in cyberbullying situations. While some recent research has opted to analyze the process of moral disengagement in adolescents who witness cyber abuse (DeSmet et al., 2016; Song and Oh, 2018; Luo and Bussey, 2019), the victims still seem to be forgotten, thus ignoring the possible repercussions that moral variables may have on the processes of victimization. Although timid, some approaches to the study of the association between cyber-victim and moral disengagement note that adolescents who are subjected to cyber abuses resort to a search for moral justifications, and develop a special empathy toward other victims so as to mitigate their self-attacks on their own self-esteem (Perren et al., 2012).

Moral Identity

In recent times, studies on moral disengagement and cyberbullying have incorporated a new variable into the web of relationships between morality and involvement in violent cyber behaviors: moral identity. Aquino and Reed (2002) define it as the process of self-regulation that motivates individuals to moral action, favoring a social identification that they use to construct their identity or self-definition (Hardy and Carlo, 2011). Likewise, it implies a personal commitment that generates high levels of well-being and protects the individual from others insofar as there is coherence between the behaviors manifested and the commitment that is taken on. In this sense, moral identity becomes the best predictor of moral action and commitment (Damon and Hart, 1992). Therefore it should be understood that persons who feel that moral values are key elements in defining their identity have a solid moral identity that favors their prosocial and positive interactions with others, and consequently a lower register of antisocial behavior (Hertz and Krettenauer, 2016). Determining the moral values which adolescents take on as being their own, which identify them to their peers, and which orient their behavior in a certain direction is a preliminary step to understanding the appearance of contradictions, inconsistencies, and distortions in their cognition and behavior. Aggressive and immoral actions can arise as a result of these dissonances. One of them is cyberbullying.

Studies that analyse the relationship between moral identity and the manifestation of violent and abusive behavior show that low levels of moral identity correlate positively with a high tendency toward antisocial actions (Hardy et al., 2014). When these violent behaviors are particularized in episodes of cyberbullying, and the effect of other moral variables such as moral disengagement are considered, researchers such as Hardy et al. (2015) or Aquino et al. (2007) note that moral identity can mitigate the influence of moral disengagement on cyberbullying. The emergence of new virtual scenarios has modified the way in which we relate, communicate, help, and also attack. To be able to understand the interpersonal, interactive dynamics emerging from this new context, it is necessary to continue deepening into the study of moral variables, particularly into the role of moral identity since, as Hertz and Krettenauer (2016) point out, the construction of solid moral identifiers can make it easier to access the structures and schemes of knowledge which guide the self-regulation of behavior and encourage moral action.

The Study

The introduction of moral variables into studies of the prevalence of cyberbullying has provided important explanatory and causal indicators regarding the involvement of adolescents in cyber-aggression (Hardy et al., 2015; Allison and Bussey, 2017; Larranaga et al., 2018). These results have very limited applicability, however, unless other factors that exert a determining influence on the prevalence of aggression and victimization and on the persistence of these roles are taken into account at the same time. We refer to the perception that young people have of the different types of cyberbullying (Menesini et al., 2012; Dredge et al., 2014; Fernández-Antelo and Cuadrado-Gordillo, 2018). Recent studies have explored the relation between moral disengagement and perceptions of cyberbullying. They note that adolescents' resort to various types of moral justification so as to interpret cyber abuse as jokes arising from the adoption of maladaptive styles of humor (Yang et al., 2018). However, there is still much ground to be explored to know how moral variables influence the self-regulation of the perceptive structure of cyberbullying through the selection, prioritization, and relation of the criteria identifying this phenomenon. A real challenge is to analyze the combination of moral variables and the perception of cyberbullying, and the synergy that arises between them. Without doubt, there will be important contributions made to allow an advance in the understanding of the processes of aggression and victimization. But an even greater challenge is to cede the protagonism to the victims, the forgotten agonists in studies which include moral variables. In

this sense, the objectives of the present work were the following: (i) to identify the perceptive structure that cyberbullying victims have of this phenomenon, and that differentiates it from other forms of cyber aggression; (ii) to analyze the mediating effect of moral disengagement on the relationship between the perception of cyberbullying and victimization; and (iii) to explore the moderating role of moral identity in the relationship between the perception of cyberbullying and cybervictimization via moral disengagement. To respond to these objectives, we formatted the following hypotheses:

H1: The victims' perception of cyberbullying will consist primarily of three factors: intentionality to hurt, imbalance, and publicity.
H2: Moral disengagement will exert a mediating effect on the relationship between the perception of cyberbullying and cybervictimization.
H3: Moral identity will moderate the relationships between the perception of cyberbullying and cybervictimization via moral disengagement.

MATERIALS AND METHODS

Participants

The sample consisted of 1912 adolescents (51% boys and 49% girls), of ages from 14 to 18 years (M = 15.8; SD = 0.9). The sample selection followed an approximately proportional stratified procedure that included 21 lower and upper secondary schools in both urban and rural populations located throughout the Region of Extremadura (Spain). In the urban cases, the schools corresponded to both the center and the periphery of the town, so that the final overall sample would cover diverse socio-economic contexts with the participants' families having highly varied academic levels. The inclusion of urban and rural areas had the objective of covering populations with very different family incomes. In the rural areas selected, the family income level was below the regional average, and approximately half of the participants' parents had no university studies. In the urban areas, we selected schools located in residential areas, where there is a medium-to-high level of purchasing power, and schools located in humbler neighborhoods where people usually work in low-skilled jobs and where the family income level is medium-to-low. Despite these economic differences, all the participating adolescents had a smartphone. In total, 28 schools were selected and invited to participate in this study. This was done firstly through the Regional Educational Administration to which we had presented the research project and which facilitated access to the schools during school hours. And secondly, the researchers explained to the schools the objectives of the study and the use that would be made of the data, among other questions. This written invitation was followed by telephone and personal contacts so as to coordinate the collection of data. Seven of these secondary education schools declined the invitation to participate for various reasons, among which were the scarce availability of time especially for pupils in the higher years, the saturation of activities and surveys carried out during the school year, and the difficulties in coordinating the collection of data. For each school, one class was chosen at random from each of the 3rd year of Compulsory Secondary Education (ESO, lower secondary), the 4th year of ESO, the 1st year of Baccalaureate (upper secondary), and the 2nd year of Baccalaureate. According to the Regional Education Administration's data, there were 23,842 adolescents enrolled in the aforementioned courses. We performed a representativity calculation by means of a statistical power analysis with a confidence level of 95% ($\alpha = 0.05$), a power of 80% ($\beta = 0.2$), an effect of 0.120, and SD = 1. The result was a desired sample size of 2181 participants. In total, 2189 adolescents voluntarily completed the questionnaires that were distributed. The final sample after applying the data cleansing process was 1912 participants. The eliminated cases were those which were incomplete, which the pupil had used to joke with their peers by marking crosses in the form of some drawing, or which were improperly filled out in marking various responses where only one had been requested.

Instruments

The instruments used for data acquisition were three questionnaires. The first was designed to identify cybervictims, and to determine their perceptions of cyberbullying on the basis of its defining criteria and the direct and indirect relationships that have been established between them (Fernández-Antelo and Cuadrado-Gordillo, 2018). A 4-value ordinal scale was used to calculate the prevalence of cybervictims: considering just the preceding 3 months, "never", "once or twice", "once a week", and "several times a week." An adolescent was considered to have been a victim of cyberbullying when they had been the object of one or more of the cyber-aggressions that were set out in the questionnaire at least "once or twice" in the preceding 3 months. In this study, we did not form any sample subgroups by frequency of the aggressions suffered. The review of the literature had shown that, in the cybernetic context, the criterion of repetition is sometimes displaced by that of publicity, and that adolescents can interpret and experience as cyberbullying episodes abusive behaviors that occur only once but quickly become viral. For this reason, we consider cybervictims to be those adolescents who have suffered "at least once" one or more of the aggressions presented. The inclusion in the questionnaire of a scale with different values provided information that is important for the adjustment of prevention and intervention programs, although these have not been analyzed in the present study. By way of example, the following is the questionnaire item that allowed us to identify the adolescents who consider themselves to be victims of cyberbullying. They were asked to indicate how often during the preceding 3 months they had suffered any of the following behaviors: "(1) I have been insulted through mobile phone or Internet; (2) I have been threatened or blackmailed through mobile phone or Internet; (3) lies and false rumors have been spread about me through mobile phone or Internet; (4) I have been removed from contact lists on social networks, group chats, or emails so as to exclude me; (5) I have had someone pretend to be me, and my email, private chat rooms, or social network profile have been accessed without my permission; (6) incriminating photos or videos, which are

denigrating or demeaning to me, have been sent by mobile phone or Internet; (7) fights in which I participated have been recorded and spread through mobile phone, social networks, or other cyber means; (8) sexual or erotic type of content in which I took part has been sent out."

The 25 items of this first questionnaire were grouped into eight thematic blocks corresponding to the different types of cyberbullying. A 5-value ordinal scale was used to indicate the degree of agreement with each item. The levels of internal consistency (Cronbach's alpha) of each of the thematic blocks ranged from 0.69 to 0.81. An example of this type of item is: "Why do you think some peers threaten others through telephone calls? (1) Because they do not dare do it face to face for fear of reprisals; (2) Because they can hide their identity and inflict fear on others who are stronger; (3) Because it is the way they have of relating; (4) Because that way they feel more powerful; (5) Because it the only way they have to get what they want; (6) Because they feel more accepted by their friends; (7) Because it is a way of getting revenge; (8) Because they record the telephone calls and then spread them so that the victim repeatedly feels fear; (9) Because they like to see how others suffer; (10) They are jokes or other ways of having fun that are typical of adolescents."

The second questionnaire was used to calculate the level of moral disengagement about cyberbullying. It was an adaptation of the questionnaire given in Bandura et al. (1996). We prepared it on the basis of other researchers' adaptations of the original scale, adjusting the situation set out in each item to the cybernetic context. In particular, the adaptations of Bussey et al. (2015) and Meter and Bauman (2018) reduced the original scale to an 8-item questionnaire: moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, attribution of blame, and dehumanization of the victim. The adaptation made by Day and Lazuras (2016) consisted of 15 items, but with the analysis of disengagement mechanisms being reduced to just 4: minimization of harmful effects, moral justification, denial of responsibility, and dehumanization. Following the same procedure as in the aforementioned works, we chose to adapt the 32 items of the original scale by replacing aggressions linked to the off-line context with other on-line ones. The items from Meter and Bauman (2018) and Day and Lazuras (2016) were included without change (e.g., "Cyberbullying should be justified if you have been mistreated by others", "Some people can't be hurt by cyberbullying because they lack feelings", "Cyberbullying annoying classmates is just teaching them a lesson", "If people give out their passwords to others, they deserve to be cyberbullied"). And we made our own specific adaptations of the rest (e.g., "Sending humiliating photos or re-tweeting false messages about someone is just a form of fun or joking"), until completing the 32 of the original scale. The coefficient of reliability (Cronbach's alpha) was $\alpha = 0.84$. A 5-value ordinal scale was used to indicate the degree of agreement with each item, ranging from "strongly disagree" to "strongly agree." Before its definitive application, the questionnaire was subjected to a confirmatory factor analysis with part of the sample ($n = 325$) to verify the existence of the eight factors (disengagement mechanisms) and their associated items. The objective of this first analysis was to ensure the validity of the questionnaire before it was distributed. The results showed the fit to be adequate: $\chi^2(17, N = 325) = 138.61$, $p < 0.001$, CFI = 0.97, TLI = 0.98, RMSEA = 0.05. It was therefore decided that the questionnaire was appropriate for use in the study. Once all the questionnaires had been collected and entered into the database, a new confirmatory factor analysis was carried out to ensure for the second time the validity of this instrument and the permanence of the eight initial factors. The level of fit obtained was satisfactory: $\chi^2/df = 1.977$, $p < 0.001$, CFI = 0.95, TLI = 0.97, RMSEA = 0.043.

The third questionnaire was that of Aquino and Reed (2002) designed to measure the level of moral identity. The participants had to express their degree of agreement with 10 items forming the questionnaire, again using a 5-value ordinal scale ranging from "strongly disagree" to "strongly agree." Each item included the term "these characteristics" (e.g., "It would make me feel good to be a person who has these characteristics"). The participants were asked to replace this term with the following list of adjectives: caring, compassionate, fair, friendly, generous, helpful, hard-working, honest, and kind. Their responses reflected the "self-importance" that they attribute to these characteristics in terms of moral identity. This questionnaire has two dimensions: internalization and symbolization. The first, internalization, addresses the degree to which moral traits are fundamental for the self-concept, thus constituting the aspect of moral identity that is most private. The second, symbolization, represents the degree to which the traits are reflected in an individual's actions, through which others are going to identify him or her and attribute certain characteristics to that person. Therefore, this dimension reflects the more social aspect of moral identity. The coefficient of reliability of the scale was $\alpha = 0.81$. In order to calculate the goodness of fit of the two-factor model, a confirmatory factorial analysis was performed with the entire sample, obtaining a satisfactory fit: $\chi^2/df = 1.489$, $p < 0.001$, CFI = 0.953, TLI = 0.957, RMSEA = 0.041.

Procedure

Prior to the distribution of the questionnaires to the adolescents, both the research objectives and the procedure, instruments and techniques used were checked and approved by the Bioethics and Biosafety Committee of University of Extremadura (Spain). Also, the parents' approval was required (as the study was dealing with minors) as also was that of the Regional Education Administration (from both the school inspectors and the schools' headteachers). In the case of the parents, they were sent a letter describing the nature of the investigation and the mechanisms used to guarantee the anonymity and confidentiality of their children's responses. Specifically, they were informed that their children would not have to write their names or other identifying information about their family. They were also informed that the distribution, collection, storage, and analysis of the responses would be carried out by the research team responsible for the project, and that no teacher or other person from the school would read the responses their children gave to the questionnaires. This letter was accompanied by a written informed parental consent that they were to send back to the

TABLE 1 | Correlations between the variables that form the victims' perception of cyberbullying behavior.

	1	2	3	4	5	6	7	8
(1) Imbalance	–							
(2) Intentionality	0.51**	–						
(3) Repetition	0.18	0.41**	–					
(4) Publicity	0.32*	0.68***	0.64***	–				
(5) Anonymity	0.63***	0.39**	−0.28*	−0.22	–			
(6) Revenge	0.38**	0.32*	0.16	0.09	0.02	–		
(7) Social relationship	−0.29*	−0.61***	0.42**	0.40**	0.14	−0.38**	–	
(8) Cyberbullying	0.33*	0.72***	0.15	0.16	0.10	0.19	−0.48**	–

*$p < 0.01$; **$p < 0.01$; ***$p < 0.001$.

school if they wanted their child to be part of the study sample. In the case of the Education Administration, obtaining approval consisted of two phases. In the first, a detailed report of the objectives and methods of the investigation was sent to the Inspection Service of the Regional Government, together with the ethical principles conforming it. Approval of this report allowed access to the Region's schools for distribution of the questionnaires. The second phase required acceptance on the part of the selected schools' directive teams to facilitate the choice of classrooms and access to them during school hours.

Once all the favorable permissions had been obtained, the questionnaires were handed out by the researchers who remained in the classrooms while the adolescents completed them, and then gathered the completed questionnaires in. In this way, the confidentiality of the data was guaranteed, and any doubts the respondents had about any term or wording in the items could be answered.

The participants had 50 min to answer the questionnaires, although the average time spent was around 20 min. The data collection process, once all the permissions and authorizations were obtained, lasted for 4 months (February to May 2018), adapting to the times and schedules that the schools themselves indicated.

Data Analysis

Accessing the victims' perceptive structure about the cyberbullying phenomenon required the construction of a structural model based on a confirmatory factorial analysis. The structural equation model resulting from this analysis was subjected to maximum likelihood estimation. To check the fit, we used the χ^2 statistic, the comparative fit index (CFI), the goodness-of-fit index (GFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the root mean square residual (RMR). We also estimated the model's standardized regression coefficients. To analyze the mediation effect of moral disengagement in the relationship between the perception of cyberbullying and cybervictimization, we applied the mediation test of Baron and Kenny (1986). This test requires there to be significant relationships between perception and cybervictimization, perception and moral disengagement, and moral disengagement and cyberbullying while controlling for the perception variable. Likewise, it requires there to be a significant coefficient of the indirect effects between perception and cybervictimization via moral disengagement, a condition whose satisfaction was verified by the bias-corrected percentile bootstrap method. Finally, to determine whether this mediation process was moderated by the moral identity variable, we resorted to the moderated mediation test of Hayes (2013).

RESULTS

Perception of Cyberbullying: Explanatory Model

The results revealed the existence of 316 adolescents who claimed to have suffered one or more cyber-attacks at least once or twice in the preceding 3 months. It is important to point out that this group of victims did not include those adolescents who claimed to be both victims and aggressors.

The confirmatory factorial analysis of the dimensions that form the perceptive structure of the victims on cyberbullying (χ^2/df = 1.654, $p < 0.01$, RMSEA = 0.039, RMR = 0.027, CFI = 0.952, TLI = 0.948, GFI = 0.946) together with the correlation analysis of the variables constituting those dimensions (**Table 1**) allowed a structural model to be constructed which comprised seven standardized observable variables and one latent variable, cyberbullying (**Figure 1**). The fitting indices calculated showed the fit of the model to be correct: $\chi^2 = 24.579$; χ^2/df = 1.928, $p < 0.05$; RMSEA = 0.042; RMR = 0.009; CFI = 0.965; TLI = 0.974; GFI = 0.970;

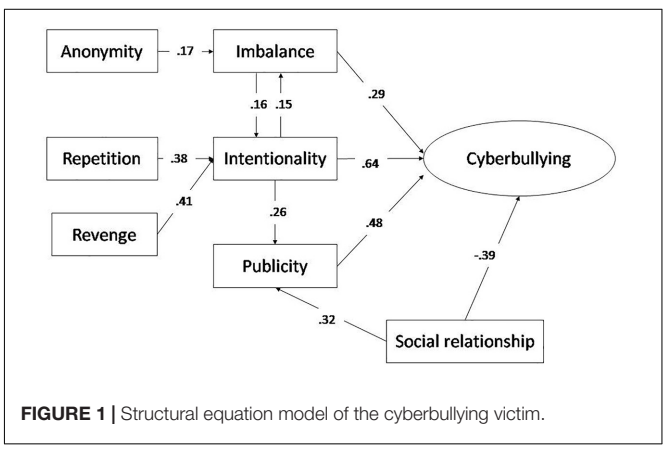

FIGURE 1 | Structural equation model of the cyberbullying victim.

NFI = 0.968. To verify that the resulting model was not over-fitted, the parsimony-adjusted indices were calculated: PGFI = 0.59; PNFI = 0.68.

The standardized regression coefficients reflected a network of predictors of cyberbullying consisting of intentionality (β = 0.638, $p < 0.001$), imbalance (β = 0.289, $p < 0.05$), and publicity (β = 0.481, $p < 0.01$), and an inverse relationship between the variable "social relationship" and cyberbullying (β = −0.387, $p < 0.01$). Other results showed a web of indirect influences that reflect the complexity of the model guiding adolescents' perception of cyberbullying (**Figure 1**). For instance, there were strong associations of the variables "repetition" (β = 0.383, $p < 0.05$) and "revenge" (β = 0.407, $p < 0.01$) with the variable "intentionality." There was also an influence of "anonymity" on "cyberbullying" through the variable "imbalance" (β = 0.168, $p < 0.05$). The results clearly indicate interactions among the main predictors of cyberbullying (**Figure 1**).

The cybervictims' perceptive structure reflects the existence of three fundamental criteria: intentionality, publicity, and imbalance. These explain 48% of the variance of the cyberbullying variable. In this study therefore, the confluence of these three criteria will constitute a new variable that we shall denote "perception of cyberbullying."

Mediation Effect of Moral Disengagement in the Perception of Cyberbullying

To detect the mediation effect that the variable "moral disengagement" may have in the relationship between the perception of cyberbullying and cybervictimization, we applied the four-step mediation test of Baron and Kenny (1986), with regression analyses performed in each of the steps. The first step (Model 1) showed a strong positive association between the perception of cyberbullying and cybervictimization (**Table 2**). The second step (Model 2) showed perception to be negatively associated with moral disengagement (β = −0.47, $p < 0.001$). The regression coefficients resulting from the third step (Model 3) showed there to be an association between moral disengagement and cybervictimization (**Table 2**). In the fourth step, it is was verified that, controlling for the "perception" variable, the effect of moral disengagement on cybervictimization remained significant, evidence for its mediatory action. Finally, we calculated the indirect effects so as to avoid Type II errors. For this purpose, we applied the percentile bootstrap method. The results indicated that the indirect effect of perception on cybervictimization via moral disengagement was significant (β = 0.19, SE = 0.03, 95% CI = [0.06, 0.27]). The mediation effect represented 43.16% of the total effect, thus confirming its satisfactoriness.

The Role of Moral Identity in the Relationship Between the Perception of Cyberbullying and Cybervictimization

Starting from the verified model of direct and indirect relationships between the perception of cyberbullying and cybervictimization through the mediation of the variable "moral disengagement", we analyzed the moderating influence that moral identity might have in this web of relationships. Following the procedure put forward by Hayes (2013), we established three regression models with which to analyze the moderator effects of moral identity: Model 1, for the relationship between perception and cybervictimization; Model 2, for the relationship between perception and moral disengagement; and Model 3, for the relationship between moral disengagement and cybervictimization (**Figure 2**).

The results (**Table 3**) indicated that perception has a significant influence on cybervictimization (β = 0.47, $p < 0.001$) moderated by moral identity (β = 0.30, $p < 0.001$; Model 1). Simple slopes were calculated for one standard deviation both above and below the mean. In particular, the results showed that low levels of moral identity lead to a more poorly defined identification of cyberbullying criteria, and that this is associated with lower levels of cybervictimization ($\beta_{simple} = 0.48$, $p < 0.01$). Similarly, high levels of moral identity imply a sharper definition of the perception of cyberbullying that is associated with higher levels of cybervictimization ($\beta_{simple} = 0.61$, $p < 0.001$).

Model 2 reflects a significant influence of the perception of cyberbullying on moral disengagement (β = −0.32, $p < 0.001$), with moral identity exerting a moderating effect (β = 0.21, $p < 0.01$). The results indicate that low levels of moral identity imply a more poorly defined perception of cyberbullying associated with higher levels of moral disengagement ($\beta_{simple} = 0.25$, $p < 0.05$). Similarly, higher levels of moral

TABLE 2 | Mediation effect of perception on cyberbullying.

Predictors	Model 1 (cyberbullying)		Model 2 (moral disengagement)		Model 3 (cyberbullying)	
	β	*t*	β	*t*	β	*t*
Perception	0.39	8.54***	−0.47	−11.03***	0.31	5.94***
Moral disengagement					0.38	7.14***
R^2	0.22		0.29		0.35	
F	38.19***		49.07***		44.56***	

*** $p < 0.001$. *Each column is a regression model that predicts the criterion at the top of the column.*

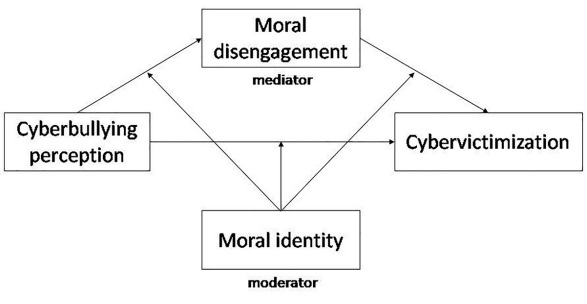

FIGURE 2 | Moderated mediation model.

TABLE 3 | Moderated mediation effect of perception on cyberbullying.

Predictors	Model 1 (cyberbullying)		Model 2 (moral disengagement)		Model 3 (cyberbullying)	
	β	*t*	β	*t*	β	*t*
Perception	0.47	7.36***	−0.32	−5.86***	0.31	5.94***
Moral identity	−0.58	9.84***	−0.35	−6.04***	−0.41	−7.21***
Perception × Moral identity	0.30	5.63***	0.21	3.74**	0.27	4.63***
Moral disengagement					0.39	6.58***
Moral disengagement × Moral Identity					−0.11	1.44
R^2	0.39		0.42		0.36	
F	52.84***		59.14***		48.07***	

***p < 0.01; ***p < 0.001. Each column is a regression model that predicts the criterion at the top of the column.*

identity confirm a significant effect of perception on moral disengagement ($\beta_{simple} = 0.20$, $p < 0.05$).

Model 3 reflects an association between moral disengagement and cyberbullying ($\beta = 0.39$, $p < 0.001$), with no significant moderating effect of moral identity ($\beta = -0.11$, $p > 0.05$).

The indirect effects of the perception of cyberbullying on cybervictimization through moral disengagement and moderated by moral identity were calculated using the percentile bootstrap method. The results indicated that when there are low levels of moral identity then one finds a significant indirect effect of perception on cybervictimization through moral disengagement ($\beta = 0.18$, SE = 0.07, 95% CI = [0.03, 0.29]). There were also significant indirect effects when the levels of moral identity were high ($\beta = 0.16$, SE = 0.05, 95% CI = [0.08, 0.20]).

DISCUSSION

The social, economic, school, and health problems generated by cyberbullying have traversed all types of barriers and limits despite the countless attempts to combat them. This study has aimed at shedding some light on the understanding of victimization processes and the causes that motivate their persistence. The complex network of relationships that form the perceptive structure that victims have of cyberbullying reveals which are the first- and second-order criteria that they take as identifying and defining the phenomenon. Added to this complicated web of interactions is the mediating and moderating effect that some moral variables, such as moral disengagement and moral identity, can exert on the persistence of the role of victim.

Factors That Articulate the Victims' Perceptive Structure of Cyberbullying

The studies that address the conceptualization that adolescents make of cyberbullying indicate that anonymity is one of their main defining criteria of cyberbullying (Udris, 2014; Barlett et al., 2016; Samoh et al., 2019). Nevertheless, for Spanish adolescents who are victims of cyberbullying, the intentionality to cause harm is the key element that allows them to identify the presence of this phenomenon. This criterion is in turn reinforced by others such as repetition and revenge, i.e., a succession of aggressions suffered, or the perception of revenge in the aggressor as reflecting the existence of an express will to hurt. The formation of local social networks comprising persons they know well and with whom they maintain some kind of relationship in offline contexts may mean that these young people intuit the identity of their aggressors, and therefore relegate the anonymity criterion to a secondary level, which itself would be dependent on the degree of dominance that the aggressors have of the technologies involved to be able to hide their identity.

Publicity and imbalance of power constitute the principal axes of these adolescents' perceptive structure about cyberbullying, and both are closely related to intentionality. These results are in line with those of previous work (Nocentini et al., 2010; Fernández-Antelo and Cuadrado-Gordillo, 2018) that, in a cybernetic context, those who want to hurt others must have sufficient technical knowledge to impersonate identities, manipulate images or videos, or eliminate other people from distribution lists and contacts, for example, and that it is the diffusion of these aggressions which demonstrates this intentionality at the same time as reinforcing it. In sum, these results allow us to determine that there are principally three factors which articulate the perception victims have of cyberbullying: intentionality to hurt, imbalance of power, and publicity. Hypothesis H1 is thus confirmed. There appears a secondary factor in this perceptive structure which we have denoted "social relationship", representing the adolescents' interpretation of certain aggressions as innocuous formulas of interaction or jokes. According to Betts and Spenser (2017) and Sari (2016), the adoption of maladaptive styles of humor or distorted perceptions about the abuses suffered can lead to the normalization of this type of behavior as typical patterns of adolescents' socialization. The justification of the aggressions suffered through the activation of mechanisms of moral disengagement such as euphemistic language, for instance, reinforces the situation of victimization, especially its persistence over time (Chen et al., 2017; Yang et al., 2018). Precisely, it is moral disengagement or the absence of moral referents that explains why young people can classify the same behavior sometimes as a form of relating socially and other times as cyber-aggression.

Mediating Effect of Moral Disengagement in the Relation Between the Perception of Cyberbullying and Cybervictimization

The present results confirm a significant relationship between moral disengagement and cybervictimization, reflecting that, as the level of moral disengagement increases, so does the prevalence of victims. These relationships had already been noted by Meter and Bauman (2018) and Yang et al. (2018) in their analyses of the influence of moral variables on the perpetration of

cyber-aggression by adolescents. However, there have been very few preceding studies that put the protagonism on the victims, making it difficult to compare results.

Beyond the correlation study of these variables, the results show the mediating power exerted by moral disengagement in the relationship between the perception of cyberbullying and cybervictimization. Specifically, one can conclude that the type of perception that victims have of cyberbullying can facilitate the activation of certain mechanisms of moral disengagement (Model 1) such as, for example, euphemistic language, the distortion of consequences, or advantageous comparison. According to the social cognitive theory of Bandura (2002), selective recourse to these mechanisms allows victims to reduce the tension experienced when others do not respect their moral standards and they either feel unable to put a stop to the situation or do not dare to because they fear feeling excluded or making matters worse. In this way, the victims try to play down, camouflage, or distort the intentions behind the abuses they suffer, or the motivations that led the aggressors to disseminate these abuses by technological means. The apparent ignorance of the identity of the aggressor and the lack of direct contact between aggressor and victim (characteristics specific to cyberbullying) can foster this type of moral justification to escape the emotional self-sanctions imposed by not respecting their own moral standards (Perren and Gutzwiller-Helfenfinger, 2012).

The negative association between the perception of cyberbullying and moral disengagement (Model 2) shows that, as the victims more strongly identify the phenomenon with intentional aggressive episodes in which there is an imbalance of power in favor of the aggressor who resorts to dissemination of the abuses committed in order to increase the hurt done to the victim (**Figure 1**), there is less need to seek mechanisms of moral disengagement to justify the aggressor's intentions, or a lessening of the consequences suffered when compared with others that some of their peers may be suffering.

The present results confirm that moral disengagement has a positive relationship with cybervictimization (Model 3), in the same way as other studies which have verified the existence of a relationship between moral disengagement and cyberbullying (Kowalski et al., 2014; Bussey et al., 2015; Meter and Bauman, 2018). This association indicates that the cognitive resources which the victims use to make the aggressions they experience seem less harmful, or not as harmful as other forms of abuse or delinquency, affect the indices of the prevalence of cybervictimization and the persistence of the role of victim. In trying to downplay the hurt suffered and to mask the processes of victimization to which they are being subjected, they significantly weaken their establishment of support networks. If a person hides or does not recognize their pain, they apparently do not need help from others to combat situations of helplessness, risk, or danger. In short, there is confirmation of the mediatory effect of the variable "moral disengagement" in the relationship between cybervictimization and the perception of cyberbullying, thus confirming hypothesis H2. The perception of cyberbullying becomes a predictor of cybervictimization by way of moral disengagement. Acting on these cognitive and moral distortions should be part of cyberbullying prevention and intervention programs so as to ensure their minimal efficacy.

Moderating Effect of the Variable Moral Identity

Previous studies have pointed to the moderating influence that moral identity can have between certain personal variables and cyberbullying (Wang et al., 2017; Yang et al., 2018). The intention with this study was to define the complex web of relationships between moral identity, the perception of cyberbullying, and cybervictimization, without forgetting the mediating influence exerted by moral disengagement. In this sense, the results reveal the power of moral identity to moderate the relationship between perception and cybervictimization. High levels of moral identity strengthen a definition of cyberbullying based on the three key identifying criteria constituting its perceptive structure: intentionality, publicity, and imbalance. Likewise, this conceptual and perceptual delimitation, based on the values that form the backbone of the moral identity of cybervictims, results in their increased prevalence (Model 1). To the extent that they have solid criteria available to let them distinguish an aggression from an episode of cyberbullying, without needing to seek justifications that hide their helplessness or threaten their self-esteem, it would be simpler to identify them as victims, and the prevalence data would thus pick up cases that theretofore had remained hidden. A strong moral identity may thus improve access to the structures of knowledge and schemes that guide self-regulation, foster social action, and help define the situations of cyberbullying that these adolescents are suffering (Aquino and Reed, 2002).

The moderating effect of moral identity is also present in the relationship between the perception of cyberbullying and moral disengagement (Model 2). In this case, moral identity helps neutralize the negative effects of moral disengagement on the perception of cyberbullying. The results indicate that high levels of moral identity favor an adjusted perception of cyberbullying and lower levels of moral disengagement. These results are consistent with those of other studies (Hardy et al., 2015; Hertz and Krettenauer, 2016) that have explained how a well defined moral identity, based on values that favor pro-social interactions and combat violent behavior whether committed by or committed against the person, is negatively associated with the manifestation of mechanisms of moral

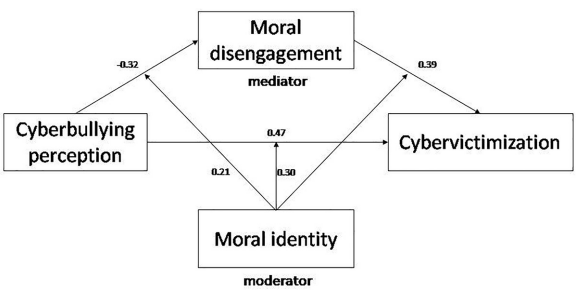

FIGURE 3 | Moderated mediation model.

disengagement. This capacity to neutralize the negative effect of moral disengagement reflects the self-regulatory capacity that moral identity can acquire to compensate for maladaptive social cognitions (Hardy et al., 2015).

These moderating effects of moral identity do not appear in the relationship between moral disengagement and cybervictimization, where it was expected that its neutralizing role would be played with greater force (**Figure 3**). This means that hypothesis H3 is only partially confirmed. A possible explanation for this may lie in the distortions that the adolescents manifested in their interpretation of cyberbullying when they consider it to sometimes be harmless behavior typical of social relationships, jokes, or the adoption of maladaptive styles of humor.

Finally, the significance of the indirect effects of the perception of cyberbullying on cybervictimization via moral disengagement moderated by moral identity not only confirms that this last variable plays a moderating role, but also that it has a major predictive value.

CONCLUSION

The association between moral variables and cyberbullying has been an object of study during the last decade. The role analyzed, however, has almost exclusively been that of the aggressor. One of the main contributions of this present study lies in the transfer of protagonism to the victim in an attempt to understand some of the causes that contribute to the lasting nature of their role. Furthermore, the adaptation of the scale of Bandura et al. (1996) to the study of moral disengagement in cybernetic contexts opens up new possibilities for analysis of the moral mechanisms that the different agents involved in cyberbullying episodes use to justify the facts or to dilute their responsibility, among other actions. Likewise, the consideration of more than one moral variable reflects the importance given to this dimension, and the attempt to seek more complex explanations removed from the establishment of simple, unidirectional relationships.

But undoubtedly the main contribution of this study has been to describe how moral identity moderates the association between the perception of cyberbullying and cybervictimization, taking into account the mediating power of moral disengagement.

Limitations and Future Research

This work has some limitations. First, it was a cross-sectional study, so that there has to be caution in making any generalization of the results or in determining any causal and predictive relationships. And second, the analyses did not take age into account as a variable. Although the ages of the participants cover an interval that is not very broad (14–18 years), the evolutionary moment at which these adolescents find themselves may have had some sort of influence on the results. One has to assume that at the end of adolescence moral development is more settled than in mid adolescence, and this may affect the construction of identity and the use of mechanisms of moral disengagement.

These limitations serve to orient the consideration of new lines of research to gain deeper knowledge of the processes of cybernetic victimization. The adoption of a longitudinal approach covering the different evolutionary moments of adolescence and youth, and the inclusion of gender as a variable, would complete the results that have been presented here.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of "Bioethics and biosafety committee of University of Extremadura" with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the "Bioethics and biosafety committee of University of Extremadura".

AUTHOR CONTRIBUTIONS

IC-G and IF-A designed the work, acquired and interpreted the data, and wrote and revised the manuscript.

FUNDING

This project has been funded by the Junta de Extremadura and the European Regional Development Fund. Exp: GR18046.

REFERENCES

Allison, K. R., and Bussey, K. (2017). Individual and collective moral influences on intervention in cyberbullying. *Comput. Hum. Behav.* 74, 7–15. doi: 10.1016/j.chb.2017.04.019

Aquino, K., Reed, A., Thau, S., and Freeman, D. (2007). A grotesque and dark beauty: how moral identity and mechanisms of moral disengagement influence cognitive and emotional reactions to war. *J. Exp. Soc. Psychol.* 43, 385–392. doi: 10.1016/j.jesp.2006.05.013

Aquino, K., and Reed, I. I. (2002). The self-importance of moral identity. *J. Pers. Soc. Psychol.* 83, 1423–1440. doi: 10.1037//0022-3514.83.6.1423

Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *J. Moral Educ.* 31, 101–119. doi: 10.1080/0305724022014322

Bandura, A., Barbaranelli, C., Caprara, G. V., and Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *J. Pers. Soc. Psychol.* 71, 364–374. doi: 10.1037/0022-3514.71.2.364

Barlett, C. P., Gentile, D. A., and Chew, C. (2016). Predicting cyberbullying from anonymity. *Psychol. Pop. Media Cult.* 5, 171–180. doi: 10.1037/ppm0000055

Baron, R. M., and Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psychol.* 51, 1173–1182. doi: 10.1037//0022-3514.51.6.1173

Betts, L. R., and Spenser, K. A. (2017). 'People think it's a harmless joke': young people's understanding of the impact of technology, digital vulnerability and cyberbullying in the United Kingdom. *J. Child. Media* 11, 20–35. doi: 10.1080/17482798.2016.1233893

Bussey, K., Fitzpatrick, S., and Raman, A. (2015). The role of moral disengagement and self-efficacy in cyberbullying. *J. Sch. Violence* 14, 30–46. doi: 10.1080/15388220.2014.954045

Chen, L.-M., and Cheng, Y.-Y. (2016). Perceived severity of cyberbullying behaviour: differences between genders, grades and participant roles. *Educ. Psychol.* 37, 599–610. doi: 10.1080/01443410.2016.1202898

Chen, L., Ho, S. S., and Lwin, M. O. (2017). A meta-analysis of factors predicting cyberbullying perpetration and victimization: from the social cognitive and media effects approach. *New Media Soc.* 19, 1194–1213. doi: 10.1177/1461444816634037

Compton, L., Campbell, M. A., and Mergler, A. (2014). Teacher, parent and student perceptions of the motives of cyberbullies. *Soc. Psychol. Educ.* 17, 383–400. doi: 10.1007/s11218-014-9254-x

Correa, M. R., and López, J. C. R. (2018). Perception and experiences about cyberbullying in university students. *ATTIC Rev. d'Innovatió Educ.* 21, 10–22. doi: 10.7203/attic.21.12956

Crosslin, K., and Golman, M. (2014). "Maybe you don't want to face it" - College students' perspectives on cyberbullying. *Comput. Hum. Behav.* 41, 14–20. doi: 10.1016/j.chb.2014.09.007

Cuadrado-Gordillo, I., and Fernández-Antelo, I. (2016). Adolescents' peception of the characterizing dimensions of cyberbullying: differentiation between bullies' and victims' perceptions. *Comput. Hum. Behav.* 55, 653–663. doi: 10.1016/j.chb.2015.10.005

Damon, W., and Hart, D. (1992). "Self-understanding and its role in social and moral development," in *Developmental Psychology: An Advanced Textbook*, eds M. Bornstein and M. E. Lamb (Hillsdale, NJ: Erlbaum), 421–464.

Day, S., and Lazuras, L. (2016). *The Cyberbullying-Specific Moral Disengagement Questionnaire (CBMDQ-15)*. Available at: http://shura.shu.ac.uk/12890/1/CBMDQ%2015%20Overview.pdf (accessed February 10, 2019).

DeSmet, A., Bastiaensens, S., Van Cleemput, K., Poels, K., Vandebosch, H., Cardon, G., et al. (2016). Deciding whether to look after them, to like it, or leave it: a multidimensional analysis of predictors of positive and negative bystander behavior in cyberbullying among adolescents. *Comput. Hum. Behav.* 57, 398–415. doi: 10.1016/j.chb.2015.12.051

Dredge, R., Gleeson, J., and de la Piedad, X. (2014). Cyberbullying in social networking sites: an adolescent victim's perspective. *Comput. Hum. Behav.* 36, 13–20. doi: 10.1016/j.chb.2014.03.026

Fanti, K. A., and Kimonis, E. R. (2013). Dimensions of juvenile psychopathy distinguish "bullies," "bully-victims," and "victims". *Psychol. Violence* 3, 396–409. doi: 10.1037/a0033951

Fernández-Antelo, I., and Cuadrado-Gordillo, I. (2018). Divergent perceptual processes on cyberbullying between victims and aggressors: construction of explanatory models. *Front. Psychol.* 9:396. doi: 10.3389/fpsyg.2018.00396

Gasser, L., and Keller, M. (2009). Are the competent the morally good? Perspective taking and moral motivation of children involved in bullying. *Rev. Soc. Dev.* 18, 798–816. doi: 10.1111/j.1467-9507.2008.00516.x

Gini, G., Pozzoli, T., and Hymel, S. (2014). Moral disengagement among children and youth: a meta-analytic review of links to aggressive behavior. *Aggress. Behav.* 40, 56–68. doi: 10.1002/ab.21502

Hardy, S. A., Bean, D. S., and Olsen, J. A. (2015). Moral identity and adolescent prosocial and antisocial behaviors: interactions with moral disengagement and self-regulation. *J. Youth Adolesc.* 44, 1542–1554. doi: 10.1007/s10964-014-0172-1

Hardy, S. A., and Carlo, G. (2011). Moral identity: what is it, how does it develop, and is it linked to moral action? *Child Dev. Perspect.* 5, 212–218. doi: 10.1111/j.1750-8606.2011.00189.x

Hardy, S. A., Walker, L. J., Olsen, J. A., Woodbury, R. D., and Hickman, J. R. (2014). Moral identity as moral ideal self: links to adolescent outcomes. *Dev. Psychol.* 50, 45–57. doi: 10.1037/a0033598

Harrison, T. (2016). Virtuous reality: moral theory and research into cyber-bullying. *Ethics Inf. Technol.* 17, 275–283. doi: 10.1007/s10676-015-9382-9

Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York, NY: The Guilford Press.

Hertz, S. G., and Krettenauer, T. (2016). Does moral identity effectively predict moral behavior? A meta-analysis. *Rev. Gen. Psychol.* 20, 129–140. doi: 10.1037/gpr0000062

Hood, M., and Duffy, A. L. (2018). Understanding the relationship between cyber-victimization and cyber-bullying on Social Network Sites: the role of moderating factors. *Pers. Individ. Dif.* 133, 103–108. doi: 10.1016/j.paid.20617.04.004

Hutson, E. (2016). Cyberbullying in adolescence: a concept analysis. *ANS Adv. Nurs. Sci.* 39, 60–70. doi: 10.1097/ANS.0000000000000104

Hymel, S., and Bonano, R. A. (2014). Moral disengagement processes in bullying. *Theory Pract.* 53, 278–285. doi: 10.1080/00405841.2014.947219

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol. Bull.* 140, 1073–1137. doi: 10.1037/a0035618

Larranaga, E., Navarro, R., and Yubero, S. (2018). Socio-cognitive and emotional factors on perpetration of cyberbullying. *Comunicar* 56, 19–28. doi: 10.3916/C56-2018-02

Leduc, K., Conway, L., Gomez, C., and Talwar, V. (2018). The influence of participant role, gender, and age in elementary and high-school children's moral justifications of cyberbullying behaviors. *Comput. Hum. Behav.* 83, 215–220. doi: 10.1016/j.chb.2018.01.044

Li, Y., and Lei, L. (2004). Participant roles in bullying process and moral judgment development in children and adolescents. *Int. J. Psychol.* 39, 332–332.e9.

Luo, A., and Bussey, K. (2019). The selectivity of moral disengagement in defenders of cyberbullying: contextual moral disengagement. *Comput. Hum. Behav.* 93, 318–325. doi: 10.1016/j.chb.2018.12.038

Menesini, E., Nocentini, A., and Camodeca, M. (2013). Morality, values, traditional bullying, and cyberbullying in adolescence. *Br. J. Dev. Psychol.* 31, 1–14. doi: 10.1111/j.2044-835X.2011.02066.x

Menesini, E., Nocentini, A., Palladino, B. E., Frisén, A., Berne, S., Ortega-Ruiz, R., et al. (2012). Cyberbullying definition among adolescents: a comparison across six european countries. *Cyberpsychol. Behav. Soc. Netw.* 15, 455–463. doi: 10.1089/cyber.2012.0040

Meter, D. J., and Bauman, S. (2018). Moral disengagement about cyberbullying and parental monitoring: effects on traditional bullying and victimization via cyberbullying involvement. *J. Early Adolesc.* 38, 303–326. doi: 10.1177/0272431616670752

Midamba, N., and Moreno, M. (2019). Differences in parent and adolescent views on cyberbullying in the US. *J. Child. Media* 13, 106–115. doi: 10.1080/17482798.1544159

Nocentini, A., Calmaestra, J., Schultze-Krumbholz, A., Scheithauer, H., Ortega, R., and Menesini, E. (2010). Cyberbullying: labels, behaviours and definition in three European countries. *Aust. J. Guid. Counsel.* 20, 129–142. doi: 10.1375/ajgc.20.2.129

Ortega-Ruiz, R., Sánchez, V., and Menesini, R. (2002). Bullying and moral disengagement: a cross-national comparison. *Psicothema* 14, 37–49.

Palladino, B. E., Menesini, E., Nocentini, A., Luik, P., Naruskov, K., Ucanok, Z., et al. (2017). Perceived severity of cyberbullying: differences and similarities across four countries. *Front. Psychol.* 8:1524. doi: 10.3389/fpsyg.2017.01524

Perren, S., and Gutzwiller-Helfenfinger, E. (2012). Cyberbullying and traditional bullying in adolescence: differential roles of moral disengagement, moral emotions, and moral values. *Eur. J. Dev. Psychol.* 9, 195–209. doi: 10.1080/17405629.2011.643168

Perren, S., Gutzwiller-Helfenfinger, E., Malti, T., and Hymel, S. (2012). Moral reasoning and emotion attributions of adolescent bullies, victims, and bully-victims. *Br. J. Dev. Psychol.* 30, 511–530. doi: 10.1111/j.2044-835X.2011.02059x

Pornari, C. D., and Wood, J. (2010). Peer and cyber aggression in secondary school students: the role of moral disengagement, hostile attribution bias, and outcome expectancies. *Aggress. Behav.* 36, 81–94. doi: 10.1002/ab.20336

Samoh, N., Boonmongkon, P., Ojanen, T. T., Samakkeekarom, R., Jonas, K. J., and Guadamuz, T. E. (2019). "It's an ordinary matter": perceptions of cyberbullying in Thai youth culture. *J. Youth Stud.* 22, 240–255. doi: 10.1080/136776261.2018.14955835

Sari, S. V. (2016). Was it just joke? Cuberbullying perpetrations and their styles of humor. *Comput. Hum. Behav.* 54, 555–559. doi: 10.1016/j.chb.2015.08.053

Simao, A. M., Ferreira, P., Francisco, S. M., Paulino, P., and Souza, S. B. (2018). Cyberbullying: shaping the use of verbal aggression through normative moral beliefs and self-efficacy. *New Media Soc.* 20, 4787–4806. doi: 10.1177/1461444818784870

Song, J., and Oh, I. (2018). Factors influencing bystanders' behavioral reactions in cyberbullying situations. *Comput. Hum. Behav.* 78, 273–282. doi: 10.1016/j.chb.2017.10.008

Talwar, V., Gómez, C., and Shariff, S. (2014). Adolescents' moral evaluations and ratings of cyberbullying: the effect of veracity and intentionality behind the event. *Comput. Hum. Behav.* 36, 122–128. doi: 10.1016/j.chb.2014.03.046

Thomas, H. J., Connor, J. P., Baguley, C. M., and Scott, J. G. (2017). Two sides to the story: adolescent and parent views on harmful intention in defining school bullying. *Aggress. Behav.* 43, 352–363. doi: 10.1002/ab.21694

Thomas, H., Connor, J. P., and Scott, J. G. (2015). Integrating traditional bullying and cyberbullying: challenges of definition and measurement in adolescents - a review. *Educ. Psychol. Rev.* 27, 135–152. doi: 10.1007/s10648-014-9261-7

Thornberg, R., Waenstroem, L., Pozzoli, T., and Gini, G. (2018). Victim prevalence in bullying and its association with teacher-student and student-student relationships and class moral disengagement: a class-level path analysis. *Res. Pap. Educ.* 33, 320–355. doi: 10.1080/02671522.2017.1302499

Udris, R. (2014). Cyberbullying among high school students in Japan: development and validation of the Online disinhibition scale. *Comput. Hum. Behav.* 41, 253–261. doi: 10.1016/j.chb.2014.09.036

Wang, X., Lei, L., Liu, D., and Hu, H. (2016). Moderating effects of moral reasoning and gender on the relation between moral disengagement and cyberbullying in adolescents. *Pers. Individ. Dif.* 98, 244–249. doi: 10.1016/j.paid.2016.04.056

Wang, X., Yang, L., Yang, J., Wang, P., and Lei, L. (2017). Trait anger and cyberbullying among young adults: a moderated mediation model of moral disengagement and moral identity. *Comput. Hum. Behav.* 73, 519–526. doi: 10.1016/j.chb.2017.03.073

Wright, M. F., Yanagida, T., Aoyama, I., Sevcikova, A., Machackova, H., Dedkova, L., et al. (2017). Differences in severity and emotions for public and private face-to-face and cybervictimization across six countries. *J. Cross Cult. Psychol.* 48, 1216–1229. doi: 10.1177/0022022116675413

Yang, X., Wang, Z., Chen, H., and Liu, D. (2018). Cyberbullying perpetration among Chinese adolescents: the role of interparental conflict, moral disengagement, and moral identity. *Child. Youth Serv. Rev.* 86, 256–263. doi: 10.1016/j.childyouth.2018.02.003

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Education

ORIGINAL RESEARCH
published: 10 June 2019
doi: 10.3389/feduc.2019.00046

Toward an Understanding of the Characteristics of Secondary School Cyberhate Perpetrators

Catherine Blaya[1,2]* *and Catherine Audrin*[1,3]

[1] Faculty of Teachers Education, Lasale, HEP du Canton de Vaud, Lausanne, Switzerland, [2] URMIS - University Nice Côte d'Azur, Nice, France, [3] Swiss Center for Affective Science, University of Geneva, Geneva, Switzerland

While the Internet offers many opportunities to access information, training and communication, it has created new grounds for risks, threats and harm. With the rise of populism and extremism, new forms of cyberbullying emerge, more specifically cyberhate. The Internet has become a privileged tool to disseminate hatred, based on racism, xenophobia, bigotry, and islamophobia. Organized groups use the internet as a dissemination tool for their ideas, to build collective identity and to recruit young people. The presence of these groups has been facilitated worldwide thanks to technology. Yet, little attention has been granted to the way the Internet eases the activities of individuals who promote and propagate hate online. The role they play in spreading racism, xenophobia and bigotry is paramount as they regularly comment online about news and events, interacting with like-minded people with impunity because the web prevents people from being easily identified or controlled. While literature on exposure to hateful contents and cyberhate victimization is growing, little is known about who the perpetrators really are. A survey with young people aged 12–20 (N = 1,889) was completed in France and forms the basis of this article. It provides an understanding of the characteristics and associated variables of cyberhate perpetration. The Structural Equation model shows that cyberhate perpetration is heavily related to time spent online, victimization, belonging to a deviant youth group, positive attitudes toward violence and racism. Results from the SEM further suggest that people who suffered from online victimization will themselves have a greater tendency to belong to deviant youth groups. Multiple mediation analysis further suggests that trust in institutions may however prevent young people from belonging to a deviant youth group and decrease positive attitudes toward violence, thus diminishing the tendency to perform hateful aggression.

Keywords: cyberhate, involvement, young people, perpetration, victimization, characteristics

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Michelle F. Wright, Pennsylvania State University, United States
José Antonio Casas, Universidad de Córdoba, Spain

***Correspondence:**
Catherine Blaya
catherine.blaya@hepl.ch

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Education

Received: *28 February 2019*
Accepted: *09 May 2019*
Published: *10 June 2019*

Citation:
Blaya C and Audrin C (2019) Toward an Understanding of the Characteristics of Secondary School Cyberhate Perpetrators. Front. Educ. 4:46. doi: 10.3389/feduc.2019.00046

INTRODUCTION

Young people are super-connected to the Internet and electronic communications are an integral part of their life (Boyd, 2014). France has the fourth largest number of Internet users of any country in Europe and is 17th worldwide. According to the last national poll on the digital practices IPSOS in France, teens widely use media services, spending on average 15 h per week online: 13–19 years-old spend over 15 h a week on the Internet while 7–12 years-old spend about 6 h. The vast majority of teens (81%) has a Smartphone. More than one in three young people (34%) use a tablet and it is common for them to own a personal device. Video game tablets are owned by 69% of the

surveyed young people. The applications that score the biggest success are YouTube (79%) followed by Facebook (77%) and Snapchat (57%). YouTube and Snapchat are the platforms that have shown the fastest growth in teens Internet usage lately.

The online world offers young people many opportunities to access information and knowledge, to explore their own identity as well as to communicate with others (Mishna et al., 2010; Boyd, 2014). However, the Internet and electronic communication tools can be used either positively or negatively. Notably, they can be used to convey antagonistic, hateful, racist and xenophobic content. In Europe, with the rise of populism and extremism, hate crimes and hate speeches have increased over the last decade (FRA (Fundamental Rights Agency), 2014; Penzien, 2017). While some findings may be controversial (Vitoroulis and Vaillancourt, 2015), research suggests that, indeed, ethnic minorities are subjected to hateful bullying and are more vulnerable than majority groups, both in the US and in Europe (Tynes, 2005; Hawdon, 2014; Llorent et al., 2016).

Social media have become a free, easy to use, and privileged tool for propaganda and victimization especially among young people (Blaya, 2019). Online hate speech and incitement have a potentially greater impact when spread in social media (Recommendation No. R (97) 20 of the Committee of Ministers of the Council of Europe on "hate speech"). Many countries have issued legislation to protect people from groups and organized individuals who use the web to propagate and incite hatred. Hatred is also spread by "ordinary" people. As stressed by Potok (2015), individuals have become more active than organized groups and produce hate that is widely disseminated through posts, comments and user-generated social media platforms. This should get full attention from part of decisionmakers, researchers and educators, due to the rise in anti-Semitism, Islamophobia and xenophobia throughout Europe and beyond. Such phenomenon may have dramatic consequences in terms of stigmatization and alienation on both individuals and society.

Research has increasingly investigated the exposure and victimization of individuals and communities to online hateful content (Oksanen et al., 2014; Hawdon et al., 2017; Blaya, 2019). However, only one research documents the involvement of the young people as perpetrators in the US (Costello and Hawdon, 2018). In Europe, there is a gap in research focusing on cyberhate perpetrators. This article is therefore attempting to address the current gap with an online survey completed in France by 1,889 young people aged 12–20.

RESEARCH BACKGROUND

Defining Cyberhate

Cyberhate is related to cyberbullying. However, although they use similar means and happen in similar context, there are differences between these two forms of aggression:

- In the case of cyberhate, individuals or communities are targeted because of supposed, specific or identified characteristics such as their physical appearance, religion or the language they speak.
- Even when individuals only are targeted, cyberhate expresses inter-group hostility (Hawdon, 2014). It can be the consequence of the competition for economic wealth or power, the feeling that one's identity is being threatened. Hatemongers thrive on this (Sherif and Sherif, 1969).
- The consequences of being exposed or a direct target of cyberhate not only generate individual or community unrest but also contribute to alter social cohesion and democracy/human rights.

Literature [be it journalistic (Knobel, 2012), from the associative sector (Messmer, 2009) or scientific] often refers to cyberhate as a virus that spreads like an infectious disease in our societies, affecting the most vulnerable people (Foxman and Wolf, 2013). The Council of Europe, in its Additional Protocol to the Convention on Cybercriminality of 28 January 2003, extends its scope to criminalize racist and xenophobic speech and propaganda via computer systems, states that:

> *"'Racist and xenophobic material' means any written material, any image or any other representation of ideas or theories, which advocates, promotes or incites hatred, discrimination or violence, against any individual or group of individuals, based on race, color, descent or national or ethnic origin, as well as religion if used as a pretext for any of these factors." (Art. 2-1).*

For its part, the Anti-Defamation League defines cyberhate as:

> *"Any use of electronic communications technology to spread anti-Semitic, racist, bigoted, extremist or terrorist messages or information. These electronic communications technologies include the Internet (i.e., Web-sites, social networking sites, "Web 2.0" user-generated content, dating sites, blogs, on-line games, instant messages and e-mail) as well as other computer- and cell phone-based information technologies (such as text messages and mobile phones).*" (Anti-Defamation League, 2010)

The Center for Equal Opportunities and Opposition to Racism in Brussels, defines cyberhate as *"the propagation of hate speech on the Internet."* It refers to hatred in the form of bullying, insults, discrimination on the Internet against individuals or groups of people on the grounds of their skin color, supposed race, ethnic origin, sex, sexual orientation or political or religious beliefs. It also refers to anti-Semitism and historical revisionism (p. 8, 2009).

We define cyberhate as electronic communication initiated by hate groups or individuals, with the purpose to attract new members, build and strengthen group identity; it aims at rejecting others' collective identity. The means used are the publishing of propagandistic messages, incitation to discrimination, violence, and hatred against individuals and their community with the view to potentially disaggregate social cohesion, on the ground of color of skin, religion, national or ethnic origin. In this research, we use the term "cyberhate" to refer to all hateful online forms of expression (text, images, videos, pictures, graphic representations) whose objective is to belittle, humiliate or ridicule a person or group of persons, by generating hatred or rejecting these persons or their communities who genuinely or

supposedly belong to a specific ethnic or religious background different from theirs.

Exposure to Cyberhate

A pioneer research in the United States and Europe, shows that 53% of respondents are exposed to online hate content and 16% are personally targeted (Oksanen et al., 2014; Hawdon et al., 2017). In Europe, the *Net Children Go Mobile* survey (Mascheroni and Ólafsson, 2014) reports that children aged 9–16 are becoming increasingly exposed to hateful comments. A research in France, concludes that one third of the surveyed youth are exposed to hate online (30%) (Blaya, 2019). Although exposure does not systematically lead to victimization, evidence suggests that being exposed to hateful content is linked to lower self-esteem, enhanced feeling of insecurity and fear as well as mental health issues such as mood swings (Tynes, 2005; Blaya, 2019). Exposed individuals are more likely to be associated with delinquent peers, to live alone and have higher levels of education (Schils and Pauwels, 2014; Hawdon et al., 2017). They also spend longer time on the Internet and are multi-users of online applications and services (Hawdon, 2014; Costello et al., 2016; Keipi et al., 2017). Being exposed to cyberhate is also associated to cyberbullying and violence (Leung et al., 2018) and to recruitment to extremist organizations (Foxman and Wolf, 2013). Finally, research reveals that exposure (put exposure to what) may be correlated with detrimental effects on a societal level: exposure is potentially linked to an increase in hate crimes offline, a lack of social trust, tougher discrimination, and prejudice against the targets (Näsi et al., 2015; Keipi et al., 2017), this including spreading extremist and violent ideology (Tynes, 2005; Foxman and Wolf, 2013).

Cyberhate Victimization

In Canada, the "*Young Canadians in a Wired World*" study (Taylor, 2001) indicates that 14% of Instant Messaging users had suffered threats. In the United States, a research among Afro-American, Latinos, Asians and Métis communities showed evidence of an increase in cyberhate victimization from 2010 to 2013 (Tynes et al., 2015). Statistical analyses do not identify any difference between male and female respondents nor between the involved ethnic groups. However, older respondents showed higher rates of victimization which might be due to longer hours spent online. Research shows that victims adopt more at-risk online behaviors such as spending long time online, being more active on social networking sites, and visiting potentially dangerous websites (i.e., promotion of self-inflicted violence) (Keipi et al., 2017; Costello et al., 2018). Being faced with hate speech can encourage people to adopt violent behaviors. Consequences range from lower self-esteem, mental health issues such as high levels of anxiety, identity erosion, anger, fear, to adopting violent behaviors (Leets, 2002; Tynes, 2005).

Cyberhate Perpetrators

A paper by Costello and Hawdon (2018) on a survey including a random sample of Americans aged 15–36, shows that one fifth of the respondents acknowledged producing and disseminating cyberhate on the grounds of ethnic origin, religion or color of skin. Their findings show that males are significantly more involved in online hate perpetration than females. They also highlight that perpetrators more often use specific sites such as Reddit, Tumblr and messaging boards. Belonging to an online community or visiting sites that spread hatred increases the probability of producing cyberhate. Having favorable attitudes toward violence and being submitted to some social pressure leads people feeling comfortable performing offline violent behavior (Ajzen, 1991). Online, the "filter bubble effect" as explained by Pariser (2011) virtually encloses in the same network, individuals who share similar ideas and live in a similar identity bubble. As for cyberhate, sharing subversive ideology, and positive attitudes toward xenophobia, racism, or bigotry can intensify the risk of perpetration (Costello and Hawdon, 2018).

Along findings showing that being a victim of "mainstream" cyberbullying increases the likelihood to be involved as a perpetrator, being the target of cyberhate is correlated with higher odds to become a perpetrator (Hawdon, 2014). However, unlike other forms of cyberbullying, spending much time online or playing first-person shooter games does not seem to influence the spread of hatred (Costello and Hawdon, 2018). Cyberhate exposure and victimization are negatively associated with trust in people in general (Keipi et al., 2017; Näsi et al., 2017). The link between trust in institutions and the perpetration of cyber hatred has not been studied yet.

As Perry and Olsson (2009) argue, spreading cyberhate contributes to consolidating hatred in real life. Racist individuals use the Internet to disseminate their ideas and to confirm their racist views by connecting with people sharing the same ideas on political blogs, games, forums, and chat rooms. They use this powerful communication tool to hurt, denigrate, humiliate people and communities. Victims of racism and discrimination in real life have increased risks of offending, as they develop hostile views of others (Burt et al., 2012). However, prejudice and racism are not always conscious and can be implicit. Implicit bias is likely to trigger discriminatory and hostile attitudes in interpersonal face-to-face or online interactions. This highlights the need to investigate attitudes toward racism while investigating cyberhate, in order to assess the potential association between declared racism and cyberhate perpetration.

Relying on the definition presented previously and the above research background, the objectives of this survey were two-fold:

(1) To assess the prevalence of the involvement of young people in cyberhate in France
(2) To examine the factors contributing to the involvement of young perpetrators of cyberhate

METHODS

The questionnaire was informed by several sources including questions on deviant youth groups (DYG) from the ISRD survey (Blaya and Gatti, 2010) and some questions on digital practices from the EU Kids Online survey (Livingstone et al., 2011). The questions related to cyberhate were informed by an extensive

literature review and some exploratory interviews that were conducted prior the designing of the survey.

Sample and Procedure

The study included 16 lower and upper secondary schools. 1889 students completed an online questionnaire survey. Participants ranged from 11 to 20 years of age (age mean = 14.631, sd = 2.053), 50.24% were females, 49.75% were males. The student population of these schools is diverse ranging from upper-class schools in the center of Paris to remote rural schools in the South West of France. All students from one class randomly selected per year group completed the questionnaire. Students under the age of 18 were asked to participate providing they submitted a parental consent form. Parents were sent an explanation letter informing them on the objectives of the research, the use and management of data and the associated potential risks. All students completing the questionnaire were informed about the study and provided their consent prior to participating. As a consequence, written consent was obtained from all adult participants and from the parents of all non-adult participants. The response rate was 90%. There is no mean to check on potential differences between students who participated and those who did not. Some of them had not provided the parental consent, others were out of school the day of data completion and there were a number of personal reasons why they could not take part in the survey.

Data were collected anonymously during the year 2016. To ensure children understood the questions, the wording of the questionnaire was improved after cognitive testing with children of different age groups and gender. It was then piloted to check on completion time.

In each school, questionnaires were administered online under the supervision of a research assistant in the school's IT room and no staff was present during data collection to ensure confidentially, trust and accuracy of the students' responses. Completion took no more than 45 min.

Measurement Tool

We used the questionnaire previously used by Blaya and Gatti (2010) and Livingstone et al. (2011), which yielded good reliability indices ($\alpha = 0.95$, $\omega = 0.96$). It was made up of general questions about the socio-demographic characteristics of respondents and their families, their digital practices (ICT use), their experiences of bullying in schools, their satisfaction with life. We also asked them questions regarding their religion and attitudes toward violence, their trust in institutions, the characteristics of their peer group, and their attitudes toward racism.

Finally, we asked them about their cyberhate experience as our main variables of interest were the prevalence of exposure, victimization and perpetration of hate online amongst young people.

Demographics

Questions regarding individual and family characteristics included gender (males vs. females); age (open question); students' school grade; the person with whom they lived, if their parents had a professional occupation and their nationality.

ICT Use

Participants were asked to assess how much time they spent online every day (1) during the week (item 1) and (2) during the week-end (item 2, $\alpha = 0.72$, $\omega = 0.72$). They could answer on a scale ranging from never (1) to 4 h or more (5). They further were asked to assess which type of applications they preferred amongst Snapchat, Messenger, Facebook, Instagram, Twitter, and online games.

School Bullying

Participants were asked to answer three items referring to how they underwent psychological violence in school ($\alpha = 0.66$, $\omega = 0.68$). Specifically, participants were asked: (1) how many times they were excluded by other students, (2) how many times they were insulted or made fun of, and (3) how many times they were insulted during the last 12 months preceding the survey. Participants could answer on a scale ranging from 1 (never) to 5 (five times and more).

Life Satisfaction

Participants were asked how satisfied they currently were with their lives. They could answer on a scale ranging from not happy at all (1) to very happy (5).

Religion and Practice

Participants were asked (1) if they had a religion (yes or no), (2) if so, what their religion was, and (3) how often they practiced their religion. For this last question, participants answered on a scale ranging from 0 "I am not a religious person" to 4 – "I am very religious".

Attitudes Toward Violence

Attitudes toward violence were measured by seven items ($\alpha = 0.96$, $\omega = 0.98$). These items asked participants if they thought that fighting was legitimate (1) to defend oneself (item 1), (2) to defend someone else (item 2), (3) if participants were insulted (item 3). Other items assessed that using violence was legitimate (4) in the case where someone is made fun of because of their religion (item 4), (5) to defend one's country (item 5), (6) to fight back against racism (item 6), (7) to fight for one's ideas (item 7). One item (using violence is legitimate because it is funny) was removed from the analyses because it did not significantly load on the "attitude toward violence" factor. Participants were asked to answer on a scale ranging from 1 (I don't agree) to 3 (I agree).

Trust in Institutions

Institutional trust was initially measured by 11 items ($\alpha = 0.96$, $\omega = 0.98$). For each institution, participants were asked to assess what was their level of trust. Out of the eleven items, five were kept as they significantly load on the "trust in distant institutions" factor. These items were: the parliament, the prime minister, the President of the republic, the European Union, the United nations. To define the "trust in proximal institutions," we included the following items: parents, local politicians, schools, the police and the law. Participants were asked to answer how

much they trusted each institution on a scale ranging from 1 (I don't trust this institution) to 3 (I deeply trust this institution).

Peer Group(s)

This section comprises two scales: the first scale asked about the number of friends the participants had in real life (IRL) and online and the second scale aimed to evaluate if the participants belonged to a deviant youth group—DYG (Blaya and Gatti, 2010).

- Number of friends ($\alpha = 0.74$, $\omega = 0.75$): we measured the number of friends was measured by four items. Participants were asked to assess how many friends they had (1) at school, (2) in their neighborhood, (3) in their town. They were also asked to assess how many friends they had on the web, but this item did not significantly load on the factor. Participants were asked to answer on a scale ranging from 1 (no friends) to 7 (more than 300 friends).
- Belonging to DYG ($\alpha = 0.99$, $\omega = 0.99$): Belonging to a DYG was measured using 13 items. Among those, three were retained for our survey. Item one asked participants if they had to do particular things to be admitted into the gang. Item two asked participants if doing things prohibited by the law was accepted or tolerated in their gang. Item three asked participants if members of their groups did illegal things (i.e., things that were prohibited by the law). Participants were asked to answer if this was true ("Yes," 1) or not ("No," 0).

Racist Beliefs

Questions assessing racist beliefs were included in the survey ($\alpha = 0.88$, $\omega = 0.88$). These questions were asking (1) if the participants thought some "races" were superior to others (item 1: "do you think that some races are superior to others?") (2) if racism was the product of social intolerance (item 2: "do you think that racism is caused by social intolerance?"), (3) if the participants thought that racism could sometimes be justified (item 3), (4) if they thought that victims of racism were sometimes responsible for their own fate (item 4). Finally, they were asked if they thought that racism was (1) a long-existing problem with no solution, (2) a problem which could be solved if everyone works on it and (3) a situation less serious than what is claimed.

Cyberhate Exposure

Cyberhate exposure investigated whether the participants had been exposed to hateful online messages during the 6 months prior to the survey (Yes/no/I do not know). They were further asked if they had purposefully sought such messages (never to 4 times and more).

Cyberhate Victimization

Online victimization was measured by two items ($\alpha = 0.78$, $\omega = 0.79$). These items asked participants if during the last 6 months, they had been the target of hateful or humiliating messages, comments or images (1) on their cell phone (item 1), (2) on social media (item 2). The scale ranged from 1 (never) to 4 (4 times and more).

Cyberhate Perpetration

This is our dependent variable ($\alpha = 0.63$, $\omega = 0.64$). It was measured through two items. Participants were asked if they had (1) published (item 1) or (2) shared or transferred (item 2) humiliating or hateful messages, images or comments toward one specific person or a group of persons on the Internet. Participants were asked to answer on a scale ranging from 1 (never) to 4 (4 times and more).

Data Analyses

Data were analyzed with R and Mplus and consisted of two steps: descriptive statistics and a Structural Equation Model (SEM). We performed descriptive analyses on the prevalence of participants' involvement in cyberhate and the relationship with variables such as school violence, life satisfaction, cyberhate victimization and perpetration, as well as socio-demographics. In the Structural Equation Model analysis, we tested how the perpetration of cyberhate was related to (1) attitudes toward violence, (2) cyberhate victimization, (3) belonging to a DYG, (4) trust in proximal institutions, (5) trust in distal institutions, (6) social isolation (measured by offline number of friends), (7) attitudes toward racism, (8) school bullying, as well as (9) the time spent online and 10) the use of applications. As most of our variables were categorical or ordered data, we used the WLSMV estimator. This estimator does not assume normally distributed variables, and is recommended to analyze such kind of data (Brown, 2014). Multivariate Mardia coefficient reveals that our data were not normally distributed (Mardia Skweness = 24551.252, $p < 0.001$; Mardia Kurtosis = 55.192, $p < 0.001$). We kept at least two items for each latent variable, as recommended by Kenny (http://davidakenny.net/cm/identify.htm). Items were kept if (1) their loading were equal or higher than.3, and (2) if their R^2 were higher than 0.3.

Goodness-of-fit

To assess the model's goodness-of-fit, we relied on indices having different measurement properties, as recommended by Hu and Bentler (1999). Thus, we used the root mean-square error of approximation (RMSEA), the comparative fit indices (CFI) and the Tucker-Lewis index (TLI). Browne and Cudeck (1992) suggest that models with RMSEA below 0.05 are indicative of good fit, and that values up to 0.08 reflect reasonable errors of approximation. The CFI statistic (McDonald and Marsh, 1990) reflects the "distance" of the model from the perfect fit. It is generally acknowledged that a value >0.9 reflects an acceptable distance to the perfect fit. We also reported the Tucker–Lewis index (TLI; Tucker and Lewis, 1973), which accounts for the model complexity. The TLI indicates how the model of interest improves the fit in relation to the null model. As for the CFI statistic, a TLI value equaled or >0.9 reflects an acceptable distance to the perfect fit. However, we did not report SRMR indices, because it is not computed when performing SEM using WLSMV estimator in Mplus.

TABLE 1 | Numbers and proportions of perpetrators and victims of hateful content.

	Nb perpetrators (publish)	%	Nb perpetrators (share)	%	Nb exposed	%	Nb victims (cellphone)	%	Nb victims (social network)	%
No	1752	94.7	1752	94.9	842	56.7	1633	88.6	1659	90.4
Yes	98	5.3	94	5.1	642	43.3	211	11.4	176	9.6
Total	1850	100	1846	100	1484	100	1844	100	1835	100

RESULTS

Descriptive Statistics

Before analyzing our Structural Equation Model (SEM) results, we first provide descriptive analyses of how often participants reported being either author or victim of cyberhate and if they were victims of school bullying (**Table 1**). To do this, we analyzed if participants were involved at least once or never as (1) cyberhate perpetrator either by publishing or by (2) sharing hateful content, (3) exposed to cyberhate, (4) targets of cyberhate via their cell phone or (5) via social networks.

We then focused only on participants who reported being a perpetrator at least once, either by sharing or by publishing hateful content. This represents 146 participants out of the initial 1,889 students who completed the questionnaire. The study of socio-demographic characteristics shows that there were significantly more boys among perpetrators (59.3%, $n = 83$) than girls [40.7%, $n = 57$; $Chi^2_{(1)} = 4.828$, $p = 0.027$]. The vast majority of the perpetrators had both a working mother [73%, $n = 99$, $Chi^2_{(1)} = 27.161$, $p < 0.001$], and a working father [84.6%, $n = 110$, $Chi^2_{(1)} = 62.308$, $p < 0.001$]. Regarding their potential religion, a slight majority (51%) of perpetrators answered they belonged to a religion ($n = 73$), 34.5 % reported not belonging to any religion ($n = 49$) and the rest of the sample 14% ticked "other" ($n = 21$), [$Chi^2_{(2)} = 28.42$, $p < 0.001$]. Among those who stated they had a religion, 8% said that they were not active, 32% said they were little active, 38% they were rather active and 29% reported they practiced much [$Chi^2_{(3)} = 15.822$, $p = 0.001$]. Regarding the various types of reported religions, 19% of the sample answered they were Catholic ($n = 28$), 20% Muslim ($n = 30$), and 60% reported other religious affiliations [$Chi^2_{(2)} = 47.736$, $p < 0.001$].

We also focused on perpetrators' life satisfaction. Seventy percentage of reported being either very happy or relatively happy ($n = 99$); 14% reported being neither happy nor unhappy ($n = 20$); 14% of them finally reported being not really happy to really not happy ($n = 20$), thus revealing a significant difference between the proportions of life satisfaction [$Chi^2_{(4)} = 63.67$, $p < 001$].

Regarding school bullying, results reveal that most of the perpetrators were never victims of ostracism (61.7%, $n = 87$) nor threatened (51.4%, $n = 73$). However, many of them were insulted over five times (43.6%, $n = 61$, see **Table 2**) during the last 6 months prior the survey. Results reveal significant differences in the proportions of perpetrators being excluded [$Chi^2_{(4)} = 154.14$, $p < 0.001$], insulted [$Chi^2_{(4)} = 53.87$, $p < 0.001$] and threatened [$Chi^2_{(4)} = 88.85$, $p < 0.001$].

TABLE 2 | Reported school bullying.

	Excluded	%	Insulted	%	Threatened	%
Never	87	61.7	29	20.7	73	51.4
Once	13	9.2	21	15.0	19	13.4
Twice	10	7.1	16	11.4	21	14.8
3–4 times	14	9.9	13	9.3	13	9.2
5 times and more	17	12.1	61	43.6	16	11.3
Total	141	100	140	100	142	100

TABLE 3 | Proportion of perpetrators reporting a specific search for hateful content.

	Color of skin	%	Religion	%	Origin	%	Culture	%
Never	105	80.15	103	75.18	94	74.02	98	77.17
Once	7	5.34	11	8.03	15	11.81	12	9.45
2–3 times	10	7.63	10	7.30	9	7.09	8	6.30
More than 4 times	9	6.87	13	9.49	9	7.09	9	7.09
Total	131	100.00	137	100.00	127	100.00	127	100.00

We then checked whether perpetrators had previously been the target of online hateful messages. Results suggest that the vast majority had never suffered cyberhate aggression via social networks [71.4%, $n = 100$, $Chi^2_{(1)} = 25.712$, $p < 0.001$] or via cell phones [66.6 %, $n = 94$, $Chi^2_{(1)} = 15.67$, $p < 0.001$]. Interestingly however, most of them had previously been exposed to cyberhate [$n = 98$, 80.33%, $Chi^2_{(1)} = 44.88$, $p < 0.001$].

Perpetrators were then asked if they had intentionally searched for such content, notably by looking for websites which were targeting specific (groups of) people because of their religion, the color of their skin, their origin or their culture. In all these cases, more than 75% of the sample answered that they had never specifically searched for such content (see **Table 3** for an overview).

On average, perpetrators had a neutral attitude toward violence (mea $n = 2.01$, sd $= 0.49$). Interestingly however, most of them agreed with the idea of using violence to defend oneself [78.5 %, $n = 106$, $Chi^2_{(2)} = 124$, $p < 0.001$], or to defend someone else [70%, $n = 91$, $Chi^2_{(2)} = 82.82$, $p < 0.001$]. Moreover, perpetrators were equally distributed between not agreeing and agreeing with the fact that it is acceptable to use violence to defend oneself against racism ["I don't agree" = 34.5%, "I neither agree nor disagree" = 29.3%, "I totally agree" = 36.1%, $Chi^2_{(2)} =$

TABLE 4 | Descriptive statistics for the items included in the SEM analysis.

		Mean	SD	Median	Skew	Kurtosis
Cyberhate victimization	Target on cell phone (Item 1)	1.193	0.596	1	3.447	11.649
	Target on social network (Item 2)	1.194	9.597	1	3.239	9.916
Cyberhate perpetration	Publish (Item 1)	0.044	0.205	0	4.424	17.600
	Share/transfer (Item 2)	0.045	0.208	0	4.344	16.897
Attitude toward violence	To defend oneself (Item 1)	2.548	0.708	3	−1.243	0.081
	To defend someone else (Item 2)	2.533	0.672	3	−1.122	−0.007
	To answer toward insults (Item 3)	1.775	0.733	2	0.378	−1.077
	To answer if someone is made fun of because of their religion (Item 4)	1.583	0.725	1	0.818	−0.680
	To defend one's country (Item 5)	1.768	0.781	2	0.427	−1.244
	To fight back against racism (Item 6)	1.785	0.731	2	0.357	−1.077
	To fight for one's ideas (Item 7)	1.391	0.596	1	1.253	0.522
Trust in distant institutions	Parliament (Item 1)	0.918	0.888	1	0.635	−0.469
	Prime minister (Item 2)	0.898	0.852	1	0.720	−0.110
	President of the republic (Item 3)	0.926	0.826	1	0.638	−0.135
	European Union (Item 4)	1.053	0.985	1	0.494	−0.872
	United nations (Item 5)	1.089	1.012	1	0.438	−0.998
Trust in proximal institutions	Parents (Item 1)	2.282	0.509	3	−3.285	11.444
	Local political (Item 2)	0.837	0.765	1	0.608	−0.121
	Schools (Item 3)	1.848	0.947	2	−0.421	−0.749
	Police (Item 4)	1.677	0.967	2	−0.237	−0.913
	Justice (Item 5)	1.579	0.912	2	−0.195	−0.763
Belonging to DYG	Do particular things to be admitted into the group (Item 1)	0.065	0.247	0	3.501	10.271
	Tolerance and acceptance in doing prohibited things (by the law) by the group (Item 2)	0.361	0.480	0	0.578	−1.668
	Group members do illegal things (i.e., things that were prohibited by the law) (Item 3)	0.362	0.481	0	0.572	−1.676
Number of friends	At school (Item 1)	3.49	1.35	3	0.001	0.623
	In their neighborhood (Item 2)	2.49	1.49	2	0.001	0.755
	In their town (Item 3)	2.71	1.49	2	0.001	0.604
Racism	Some races are superior to others (Item 1)	0.058	0.234	0	3.754	12.116
	Racism is caused by social intolerance – reversed item (Item 2)	0.647	0.478	1	−0.616	−1.622
Time online	Time during the week (Item 1)	3.703	1.208	4	−0.368	−1.155
	Time during the week-end (Item 2)	4.155	1.083	5	−0.963	−0.300
	Youtube	0.917	0.275	1	−3.022	7.147
Applications	Snapchat	0.715	0.452	1	−0.948	−1.101
	Facebook	0.575	0.493	1	−0.343	−1.883

TABLE 5 | Regression coefficients on latent factor "cyberhate perpetration."

	Standardized estimate	95% lower	95% upper	Significance
Cyberhate victimization	0.414	0.299	0.530	0.001***
Attitude toward violence	0.104	−0.008	0.216	0.068
Trust in proximal institutions	−0.031	−0.200	0.137	0.718
Trust in distal institutions	0.012	−0.153	0.177	0.888
Number of friends	0.052	−0.062	0.166	0.369
Belonging to DYG	0.406	0.236	0.576	0.001***
Racism	0.240	0.061	0.427	0.009**
Time online	0.214	0.044	0.383	0.014*
Use of online applications	−0.159	−0.383	0.065	0.163

$^{***}p < 0.001$; $^{**}p < 0.01$, $^{*}p < 0.05$.

1.00, $p > 0.05$] and to defend oneself if one is insulted ["I don't agree" = 27.1%, "I neither agree nor disagree" = 41.2%, "I totally agree" = 31.3%, $\text{Chi}^2_{(2)} = 3.9$, $p > 0.05$].

Regarding how trusting perpetrators were toward the institutions, results suggest that they have a low level of trust (mean = 1.30, sd = 0.44). Interestingly however, perpetrators strongly trusted their parents [94%, $n = 138$, $\text{Chi}^2_{(3)} = 225.5$, $p < 0.001$] and their friends [87%, $n = 118$, $\text{Chi}^2_{(3)} = 78.17$, $p < 0.001$]. In contrast, they showed less confidence in local politics [13.2%, $n = 65$, $\text{Chi}^2_{(3)} = 77.44$, $p < 0.001$], school [41%, $n = 54$, $\text{Chi}^2_{(3)} = 55.9$, $p < 0.001$], the parliament [12.8%, $n = 16$, $\text{Chi}^2_{(3)} = 77.67$, $p < 0.001$], the prime minister [15.6%, $n = 21$, $\text{Chi}^2_{(3)} = 71.27$, $p < 0.001$], and the President of the republic [17.1%, $n = 22$, $\text{Chi}^2_{(3)} = 79.25$, $p < 0.001$].

TABLE 6 | Factor loadings for each latent variable.

	Estimate	S.E.	Standardized estimate	*p*-value	Lower 95%	Higher 95%
CYBERHATE VICTIMIZATION						
Target on cell phone (Item 1)	1.000	0.000	0.910	0.001***	0.822	0.990
Target on social network (Item 2)	1.027	0.098	0.923	0.001***	0.832	1.019
CYBERHATE PERPETRATION						
Publish (Item 1)	1.000	0.000	0. 859	0.001***	0.780	0.937
Share/transfer (Item 2)	1.084	0.084	0. 931	0.001***	0.852	1.011
ATTITUDE TOWARD VIOLENCE						
To defend oneself (Item 1)	1.000	0.000	0. 806	0.001***	0.771	0.840
to defend someone else (Item 2)	1.016	0. 033	0. 818	0.001***	0.788	0.844
To answer toward insults (Item 3)	0.867	0.026	0. 698	0.001***	0.655	0.731
To answer if someone is made fun of because of their religion (Item 4)	0.768	0.030	0. 619	0.001***	0.578	0.660
To defend one's country (Item 5)	0.826	0. 028	0. 665	0.001***	0.629	0.701
To fight back against racism (Item 6)	0.897	0. 028	0. 723	0.001***	0.689	0.757
To fight for one's ideas (Item 7)	0.740	0. 033	0. 596	0.001***	0.551	0.642
TRUST IN DISTANT INSTITUTIONS						
Parliament (Item 1)	1.000	0.000	0.838	0.001***	0.823	0.853
Prime minister (Item 2)	1.109	0.009	0.929	0.001***	0.921	0.938
President of the republic (Item 3)	1.062	0.008	0.890	0.001***	0.879	0.900
European Union (Item 4)	1.128	0.009	0.946	0.001***	0.938	0.953
United nations (Item 5)	1.109	0.010	0.930	0.001***	0.921	0.938
TRUST IN PROXIMAL INSTITUTIONS						
Parents (Item 1)	1.000	0.000	0.304	0.001***	0.219	0.388
Local political (Item 2)	2.086	0.305	0.633	0.001***	0.590	0.677
Schools (Item 3)	2.701	0.384	0.820	0.001***	0.797	0.844
Police (Item 4)	2.760	0.394	0.838	0.001***	0.816	0.861
Justice (Item 5)	2.263	0.323	0.687	0.001***	0.657	0.717
BELONGING TO DYG						
Do particular things to be admitted into the group (Item 1)	1.000	0.000	0.567	0.001***	0.435	0.690
Tolerance and acceptance in doing prohibited things (by the law) by the group (Item 2)	1.603	0.186	0.908	0.001***	0.859	0.957
Group members do illegal things (i.e., things that were prohibited by the law) (Item 3)	1.646	0.189	0.932	0.001***	0.883	0.981
NUMBER OF FRIENDS						
At school (Item 1)	1.000	0.000	0. 669	0.001***	0.623	0.714
In their neighborhood (Item 2)	1.365	0.080	0. 803	0.001***	0.755	0.850
In their town (Item 3)	1.204	0.078	0.655	0.001***	0.604	0.706
RACISM						
Some races are superior to others (Item 1)	1.000	0.000	0.415	0.001***	0.181	0.649
Racism is caused by social intolerance—reversed item (Item 2)	0.782	0.431	0.663	0.001***	0.297	1.028
TIME ONLINE						
Time during the week (Item 1)	1.000	0.000	0.838	0.001***	0.776	0.900
Time during the week-end (Item 2)	0.744	0.067	0.675	0.001***	0.619	0.731
APPLICATIONS						
Youtube	1.000	0.000	0.292	0.001***	0.176	0.408
Snapchat	2.613	0.562	0.763	0.001***	0.678	0.848
Facebook	1.990	0.427	0.581	0.001***	0.503	0.660

*** $p < 0.001$.

When measuring the participant's attitudes toward racism, results showed that 47% of the perpetrators consider racism not to be justifiable ($n = 63$), while 30% agreed it is justifiable sometimes. Finally, 22.5 % ($n = 30$) of the perpetrators considered racism to be often justifiable. This suggests that a slight majority of cyberhate producers and disseminators consider that racism is justifiable [$\text{Chi}^2_{(2)} = 12.917, p = 0.001$].

Finally, when reporting their tendency to use specific apps, the vast majority of perpetrators reported using YouTube [$n =$

130, 89%, $Chi^2_{(1)} = 89.01$, $p < 0.001$], followed by Snapshat [$n = 107$, 73%, $Chi^2_{(1)} = 31.67$, $p < 0.001$] and Facebook [$n = 92$, 63%, $Chi^2_{(1)} = 9.89$, $p = 0.001$]. Regarding the remaining applications (i.e., Instagram, Viber, Messenger, WhatsApp, Twitter and online games), participants either did not use them [for example, 140 perpetrators did not use Viber, 95%, $Chi^2_{(1)} = 122.9$, $p < 0.001$ don't use Viber] or there were similar proportions of people who used them and did not use them (for example, 83 vs. 63 perpetrators used Instagram (56.8 vs. 43.1%, $Chi^2_{(1)} = 2.74$, $p = 0.09$].

Structural Equation Model

The model provided an acceptable fit (RMSEA = 0.049, CFI = 0.970, TLI = 0.965), and descriptive statistics for the variables kept in the model are reported in **Table 4** (mean, standard deviation, median which is especially relevant for our categorical variables, skewness, kurtosis). Regression coefficients are reported in **Table 5**, factor loadings in **Table 6**, and correlation between latent factors in **Table 7**.

Regression Coefficients

Regarding the model *per se* (**Table 5**, **Figure 1**), results show that producing cyberhate was significantly predicted by cyberhate victimization ($b = 0.414$, 95% CI = [0.299; 0.530], $p = 0.001$), revealing that the more participants reported being the target of cyberhate, the more they reported perpetration. Positive attitudes toward violence marginally predicted the tendency to be involved as a perpetrator ($b = 0.104$, 95% CI = [−0.008; 0.216], $p = 0.068$). Belonging to a DYG ($b = 0.406$, 95% CI = [0.236; 0.576], $p = 0.001$) and the time spent online ($b = 0.214$, 95% CI = [0.044; 0.383], $p = 0.014$) also significantly and positively predicted being a perpetrator. Surprisingly however, our results showed no significant link between perpetrators and (1) trust in proximal institutions ($b = -0.031$, 95% CI = [−0.200; 0.137], $p = 0.718$) nor with (2) distal institutions ($b = 0.012$, 95% CI = [−0.153; 0.177], $p = 0.888$), (3) the number of friends ($b = 0.052$, 95% CI = [−0.062; 0.166], $p = 0.369$) or with (4) the use of online applications ($b = -0.159$, 95% CI = [−0.0383; 0.065], $p = 0.163$).

Correlations Between Latent Factors

Regarding correlations between latent factors (**Table 7**), results reveal a significant and positive correlation between attitudes toward violence and confidence in distant institutions ($b = 0.080$, 95% CI = [0.026; 0.133], $p = 0.004$) but a negative correlation with proximal institutions ($b = -0.087$, 95% CI = [−0.143; −0.031], $p = 0.005$). Results also highlight a significant and positive correlation between attitude toward violence and the number of friends ($b = 0.264$, 95% CI = [0.206; 0.322], $p = 0.001$) and belonging to DYGs ($b = 0.432$, 95% CI = [0.366; 0.497], $p = 0.001$). Moreover, there was a significant and positive correlation between attitudes toward violence and the amount of time spent online ($b = 0.171$, 95% CI = [0.113; 0.228], $p = 0.001$) and the use of online applications (YouTube, Facebook and Snapshat) ($b = 0.064$, 95% CI = [0.007; 0.121], $p = 0.027$).

Trust in distant institutions was positively related to reliance in proximal institutions ($b = 0.585$, 95% CI = [0.552; 0.614], $p = 0.001$) and to the number of friends ($b = 0.087$, 95% CI = [0.025; 0.148], $p = 0.006$). It was also negatively related to the time spent online ($b = -0.064$, 95% CI = [−0.119; −0.003], $p = 0.023$]

TABLE 7 | Correlation coefficients between latent factors.

	Correlation	95% lower	95% upper	Significance
ATTITUDE TOWARD VIOLENCE				
Trust in distant institutions**	0.080	0.026	0.133	0.004
Trust in proximal institutions**	−0.087	−0.143	−0.031	0.002
Belonging to DYG***	0.432	0.366	0.497	0.001
Number of friends***	0.264	0.206	0.322	0.001
Cyberhate victimization	0.008	−0.073	0.088	0.850
Racism	0.012	−0.065	0.089	0.766
Time online***	0.171	0.113	0.228	0.001
Applications***	0.150	0.078	0.222	0.001
TRUST IN DISTANT INSTITUTIONS				
Trust in proximal institutions***	0.585	0.552	0.619	0.001
Belonging to DYG	0.023	−0.055	0.101	0.563
Number of friends**	0.087	0.025	0.148	0.006
Racism	0.021	−0.055	0.096	0.587
Cyberhate victimization	0.031	−0.055	0.118	0.481
Time online*	−0.064	−0.119	−0.009	0.023
Applications*	−0.075	−0.148	−0.015	0.041
TRUST IN PROXIMAL INSTITUTIONS				
Belonging to DYG***	−0.236	−0.309	−0.164	0.001
Number of friends	−0.032	−0.095	0.031	0.322
Racism	−0.054	−0.133	0.024	0.171
Cyberhate victimization	−0.074	−0.153	0.005	0.066
Time online***	−0.211	−0.266	−0.156	0.001
Applications***	−0.200	−0.272	−0.127	0.001
BELONGING TO DYG				
Number of friends***	0.312	0.241	0.383	0.001
Racism	−0.066	−0.172	0.041	0.226
Cyberhate victimization	0.075	0.043	0.247	0.005
Time online***	0.250	0.174	0.326	0.001
Applications***	0.357	0.261	0.453	0.001
NUMBER OF FRIENDS				
Racism	0.137	0.036	0.239	0.008
Cyberhate victimization	0.057	−0.027	0.140	0.185
Time online	0.089	0.028	0.150	0.005
Applications	0.297	0.219	0.375	0.001
RACISM				
Cyberhate victimization	0.053	−0.059	0.165	0.351
Time online	−0.020	−0.099	0.059	0.624
Applications	0.037	−0.963	0.139	0.477
TIME ONLINE* **				
Cyberhate victimization***	0.267	0.180	0.354	0.001
Applications***	0.569	0.496	0.642	0.001
APPLICATIONS				
Cyberhate victimization	0.038	0.006	0.069	0.008

$^{***}p < 0.001$; $^{**}p < 0.01$, $^{*}p < 0.05$.

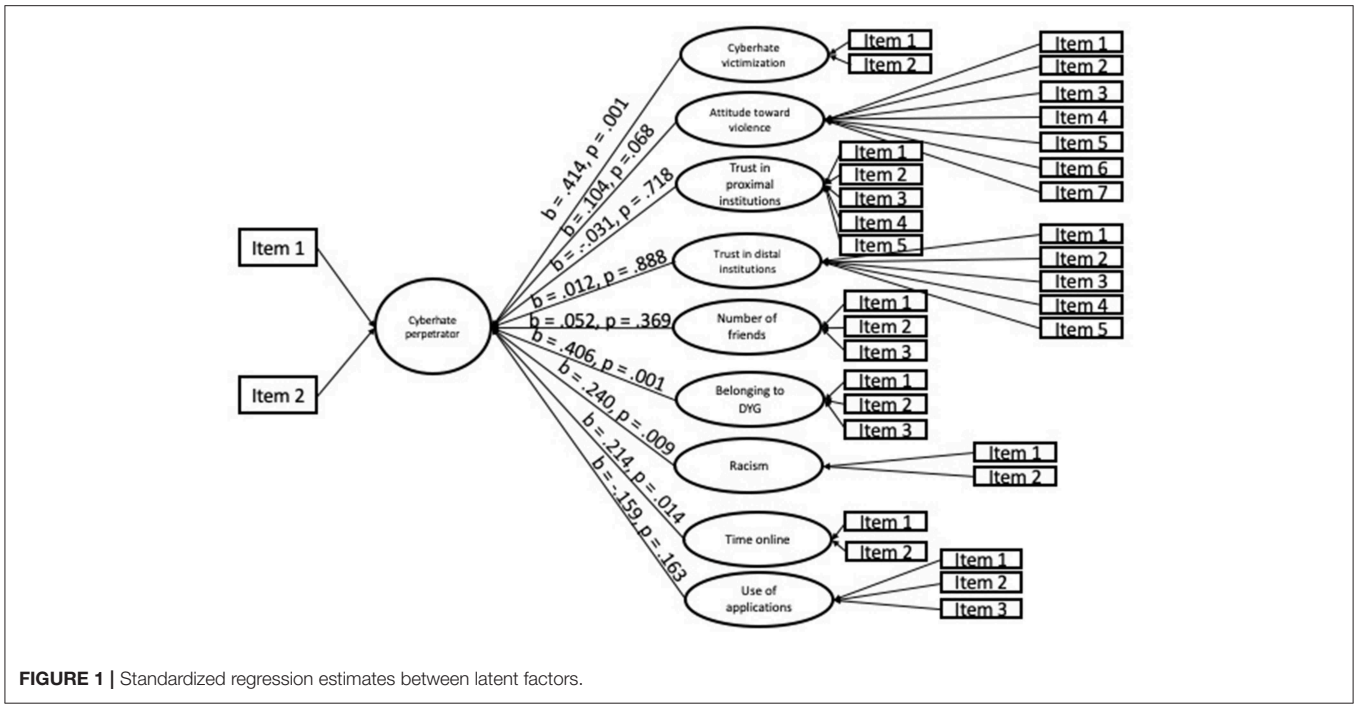

FIGURE 1 | Standardized regression estimates between latent factors.

TABLE 8 | Results of the mediation analysis.

	Standardized estimate	95% lower	95% upper	*p*-value
Total	−0.221	−0.325	−0.116	0.001***
Total indirect	−0.229	−0.303	−0.154	0.001***
Indirect via belonging to DYG	−0.182	−0.245	−0.129	0.001***
Indirect via attitude toward violence	−0.047	−0.069	−0.024	0.001***
Direct	0.008	−0.117	0.133	0.898

$^{***}p < 0.001$; $^{**}p < 0.01$, $^{*}p < 0.05$.

and to the use of applications ($b = -0.073$, 95% CI = [−0.131; −0.015], $p = 0.014$).

Belonging to DYGs was positively correlated with the number of friends ($b = 0.312$, 95% CI = [0.242; 0.383], $p = 0.001$), cyberhate victimization ($b = 0.075$, 95% CI = [0.043; 0.247], $p = 0.005$), and negatively correlated with trust in proximal institutions ($b = -0.236$, 95% CI = [−0.308; −0.163], $p = 0.001$). It was also positively related to the time spent online ($b = 0.250$, 95% CI = [0.174; 0.326], $p = 0.001$) and to the use of applications ($b = 0.357$, 95% CI = 0.261; 0.453], $p = 0.001$).

The number of friends was positively correlated with racism ($b = 0.137$, 95% CI = [0.036; 0.239], $p = 0.008$), time spent online ($b = 0.089$, 95% CI = [0.028; 0.150], $p = 0.005$) and the use of applications ($b = 0.297$, 95% CI = [0.219; 0.375], $p = 0.001$). Finally, the time spent online was positively related to the use of applications ($b = 0.480$, 95% CI = [0.427; 0.533], $p = 0.001$). Cyberhate victimization was positively related with the time spent online ($b = 0.267$, 95% CI = [0.180; 0.354], $p = 0.001$), and with the use of application ($b = 0.038$, 95% CI = [0.006; 0.069], $p = 0.008$). Finally, time spent online was positively related with the use of applications ($b = 0.569$, 95% CI = [0.180; 0.354], $p = 0.001$). No other significant correlation between latent factors was significant.

Multiple Mediation Analysis

Based on the observed results, we then sought to understand more clearly the mechanisms underlying the tendency to act as a cyberhate perpetrator. Notably, we wished to assess further if the level of trust in proximal institutions could actually predict acting as a cyberhate perpetrator. We hypothesized that the link between trust in proximal institutions and cyberhate perpetration could be mediated by (1) belonging to DYGs and (2) attitudes toward violence. In order to test these hypotheses, we performed a multiple mediation analysis in which we tested the direct and indirect link between trust in proximal institutions and cyberhate perpetration through belonging to a DYG and attitudes toward violence.

Results of the mediation analyses are reported in **Table 8** and depicted in **Figure 2**. The model provided an acceptable fit (RMSEA = 0.071, CFI = 0. 923, TLI = 0.908). Results reveal that there is a significant total effect of distrust in proximal institutions on cyberhate perpetration ($b = -0.221$, 95% CI = [−0.325; −0.116], $p < 0.001$). Individual mediation analyses revealed a negative indirect effect for both belonging to a DYG ($b = -0.182$, 95% CI = [−0.245; −0.129], $p < 0.001$) and attitudes toward violence ($b = -0.047$, 95% CI = [−0.069; −0.024], $p < 0.001$). However, as showed in **Figure 2** below, and confirming our previous analyses, no direct effect was found between the level of trust in proximal institutions and cyberhate perpetration ($b = 0.008$, 95% CI = [0.006; 0.069], $p > 0.05$). These results suggest that trust in institutions may indirectly prevent people

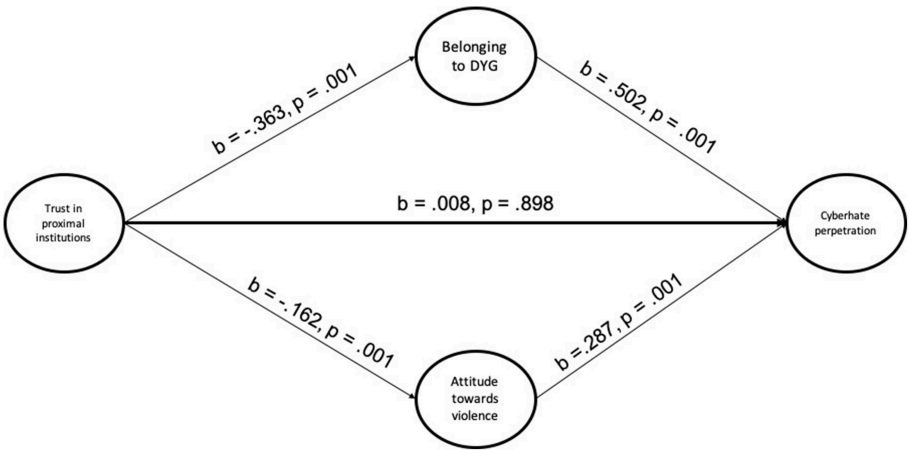

FIGURE 2 | Multiple mediation analysis.

from acting as cyberhate perpetrators since the more people trust their proximal institutions, the less they tend to become members of a DYG, and the more negative is their attitude toward violence.

GENERAL DISCUSSION

This paper reports on a survey about the involvement of young people in cyberhate. It sets out to investigate the extent to which students are involved as perpetrators and to explore the characteristics of these young people. Descriptive findings show that out of 1,889 respondents to the survey, approximately one student in ten (10%) reported being victims of cyberhate and 5% that they had published or disseminated hateful content online. This percentage is much lower than the prevalence rates found by the survey by Costello and Hawdon (2018). There are probably contextual effects due to the cultural and legal differences as far as the freedom of expression and content regulations are concerned (Akdeniz, 2010). While in the United States, the First Amendment guarantees freedom of speech prevails, in Europe nations have made specific efforts to regulate cyberhate (Gagliardone et al., 2015). This is also probably due to the discrepancy in the age of the participants since the American survey included older participants (aged 15–36). Descriptive analyses show that male perpetrators are more numerous although females are also active (40%). As a whole, perpetrators are relatively happy with their lives. This contradicts research suggesting that young people adhering to extremist ideologies are unhappy and frustrated individuals (Khosrokahvar, 2014) and the fact that both parents work goes against the idea that extreme right youngsters are part of the "white trash" (Patricot, 2013). Apart from being a male, socio-demographics did not seem to be predictors of producing or disseminating cyberhate. A majority of perpetrators (70%) are actively involved in religion and spend longer time online as shown in previous research (Costello and Hawdon, 2018). This last point meets previous findings from research on cyberbullying, showing that the longer the time online, the higher the odds to become a victim. Exposure to cyberhate is associated with producing cyberhate as in the findings of Leung et al. (2018) for cyberbullying and Costello and Hawdon (2018).

While descriptive analyses suggest that perpetrators are more exposed than victims of cyberhate, regression analyses reveal that cyberhate perpetration is significantly predicted by cyberhate victimization. This goes along previous studies on bullying and "general" cyberbullying dedicated to the identification of the victims and aggressors' characteristics, showing that there is a strong overlap between victimization and perpetration (Vandebosch and Cleemput, 2009; Mishna et al., 2012). Perpetrators report more often being insulted at school than the other participants and thus being in a vulnerable position within their peer group. Having a group of friends usually is a testimony that one has positive social skills; it acts as a protective factor against victimization (Aoyama, 2010). However, some groups of friends are inadequate and have a negative influence on the way their members behave. As we could see in this survey, belonging to a DYG is positively correlated with having a high number of friends, contributes to a lower trust in the institutions and has a direct effect on producing or disseminating cyberhate. Latent factors analyses show that positive attitudes toward violence are correlated to belonging to a DYG and that they positively influence cyberhate behaviors. These attitudes are justified as a mean to defend oneself or someone else. As we could check with the SEM, cyberhate is strongly linked with being a victim of cyberhate, which might explain positive attitudes toward violence as a way to defend oneself or to defend others. Cyberhate and belonging to a DYG go along with the assumption that violence is a social construct and adolescents who associate with deviant or antisocial peers are more at risk to be involved in such behaviors themselves (Rugg, 2013), seeking peer acceptance or being under domination. The mere perception that deviance, delinquency or violence are accepted within the group can lead to the adoption of such behaviors (Petraitis et al., 1995). As Huang et al. (2014) show,

peers' online risky behaviors is a risk factor for adolescents who will end up acting in a similar fashion. These findings lead us to think that cyberhaters are particularly vulnerable since their involvement is associated with school bullying and cyberhate victimization.

The TUI Foundation (2018) showed that low levels of trust toward institutions are common among youth. One third of the participants to this survey thought that a radical change is needed and 7–23% showed populist attitudes. Quite a few youngsters experienced a feeling of loss of boundaries and that there was a demoralization process toward politics and institutions. This feeling affects the process of building stable identities and contributes to making them feel threatened, as stressed by (Rosa, 2017). Anomia leads some of them to adhere to populist ideologies. Discriminating and alienating others gives them a sense of order that they perceive, can only be achieved if they are hostile toward other groups (Schaafsma and Williams, 2012).

Perpetrators in our survey have lesser confidence in institutions than the other respondents. Latent factors analyses show that trust in institutions can act as a preventive factor as it prevents young people from belonging to deviant groups and decreases positive attitudes toward violence. We shall note that some perpetrators as well as young people repeatedly victimized reported low levels of trust toward school. This leads us to stress the urgency to reverse this situation and not only restrain the misuse of the Internet but also to promote attitudes toward tolerance and against racism and violence. As some previous studies show, teaching and fostering open discussions on racism, Islamophobia or anti-Semitism have positive incidence on students' attitudes toward racism and intolerance in general, both online and offline (Bergamaschi and Blaya, 2019). Schools can mediate intolerance through intercultural dialogue and education diversity. Although they cannot bear the responsibility to solve this societal problem on their own, schools can play an important role in counteracting hostile and abusive behaviors that stigmatize students and their communities both offline and online. As Foxman and Wolf (2013) argue, this would benefit not only this specific group but society as a whole as cyberhate affects the coherence of society, feeds hatred offline and spreads violent and extremist ideology.

LIMITATIONS

Some limitations of this study should be noted. The sample is a convenience sample, as we could only perform the study in schools who accepted to participate. Consequently, we cannot rely on a nationally representative sample. Questionnaires are self-reported, and answers are potentially biased like any survey of this type. However, it contributes to a better understanding of the characteristics of youth involved in cyberhate and thus can inform intervention against a phenomenon that can have heavy social consequences on witnesses, victims and perpetrators themselves.

DATA AVAILABILITY

All datasets generated for this study are included in the manuscript and/or the supplementary files.

ETHICS STATEMENT

The survey was approved by the ethics committee of the Université Nice Sophia Antipolis and fulfills the requirements from the CNIL.

AUTHOR CONTRIBUTIONS

All authors made substantial contribution to the theoretical framework, design, data analyses or interpretation of this article.

FUNDING

The current study was supported by a research grant for the project SAHI granted to the first author by the Centre National de la Recherche Scientifique (CNRS) in France.

ACKNOWLEDGMENTS

We thank Michele Junges-Stainthorpe for her proofreading of English.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* 50, 179–211. doi: 10.1016/0749-5978(91)90020-T

Akdeniz, Y. (2010). *Racism on the Internet.* Strasbourg: Council of Europe Publishing.

Anti-Defamation League (2010). *Responding to Cyberhate, Toolkit for Action*. Available online at: https://www.adl.org/sites/default/files/documents/assets/pdf/combating-hate/ADL-Responding-to-Cyberhate-Toolkit.pdf (retrieved November 1, 2016).

Aoyama, I. (2010). Cyberbullying: What are the psychological profiles of bul-lies, victims, and bully-victims? *Diss. Abstr. Int. Section A: Humanit. Soc. Sci.* 71, 3526.

Bergamaschi, A., and Blaya, C. (2019). *Interactions Entre Jeunes: Lien Social, Relations Amicales et Confiance Envers les Institutions ?* Research Report, University Nice Côte D'azur/CAF, Nice.

Blaya, C. (2019). *Cyberhaine, Les Jeunes et la Violence sur Internet*. Paris: Nouveaux Mondes.

Blaya, C., and Gatti, U. (2010). Deviant youth groups in Italy and France: prevalence and characteristics. *Eur. J. Crim. Policy Res.* 16, 127–144. doi: 10.1007/s10610-010-9124-9

Boyd, D. (2014). *It's Complicated: The Social Lives of Networked Teens*. New Haven: Yale University Press.

Brown, T. A. (2014). *Confirmatory Factor Analysis for Applied Research*. New York, NY: Guilford Publications.

Browne, M. W., and Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociol. Methods Res.* 21, 230–258. doi: 10.1177/0049124192021002005

Burt, C. H., Simons, R. L., and Gibbons, F. X. (2012). Racial discrimination, ethnic-racial socialization, and crime: a micro-sociological model of risk and resilience. *Am. Sociol. Rev.* 77, 648–677. doi: 10.1177/0003122412448648

Costello, M., and Hawdon, J. (2018). Who are the online extremists among us? Sociodemographic characteristics, social networking, and online experiences

of those who produce online hate materials. *Violence Gender* 5, 55–60. doi: 10.1089/vio.2017.0048

Costello, M., Hawdon, J., Ratliff, T., and Grantham, T. (2016). Who views online extremism? Individual attributes leading to exposure. *Comput. Human Behav.* 63, 311–320. doi: 10.1016/j.chb.2016.05.033

Costello, M., Rukus, J., and Hawdon, J. (2018). We don't like your type around here: regional and residential differences in exposure to online hate material targeting sexuality. *Deviant Behav.* 40, 1–17. doi: 10.1080/01639625.2018.1426266

Foxman, A. H., and Wolf, C. (2013). *Viral Hate: Containing its Spread on the Internet*. New York, NY: Macmillan.

FRA (Fundamental Rights Agency) (2014). *Fundamental Rights: Challenges and Achievements in 2013.* FRA Annual Report. Office des Publications de l'Union Européenne.

Gagliardone, I., Gal, D., Alves, T., and Martinez, G. (2015). *Countering Online Hate Speech*. Unesco Publishing. Retrieved from: http://unesdoc.unesco.org/images/0023/002332/233231e.pdf

Hawdon, J. (2014). "Group violence revisited: Common themes across types of group violence," in *The Causes and Consequences of Group Violence: From Bullies to Terrorists*, eds J. Hawdon, J. Ryan, and M. Luch (Lanham, MD: Lexington Books), 241–254.

Hawdon, J., Oksanen, A., and Räsänen, P. (2017). Exposure to online hate in four nations: a cross-national consideration. *Deviant Behav.* 38, 254–266. doi: 10.1080/01639625.2016.1196985

Hu, L. T., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct. Equation Model. Multidiscipl. J.* 6, 1–55. doi: 10.1080/10705519909540118

Huang, G. C., Unger, J. B., Soto, D., Fujimoto, K., Pentz, M. A., Jordan-Marsh, M., et al. (2014). Peer influences: the impact of online and offline friendship networks on adolescent smoking and alcohol use. *J. Adolesc. Health* 54, 508–514. doi: 10.1016/j.jadohealth.2013.07.001

Keipi, T., Näsi, M., Oksanen, A., and Räsänen, P. (2017). *Online Hate and Harmful Content: Cross-National Perspectives*. Abingdon and New York: Routledge.

Khosrokahvar, F. (2014). *Radicalisations*. Paris: Editions de la Maison des Sciences de l'Homme.

Knobel, M. (2012). *L'Internet de la Haine: Racistes, Antisémites, Néonazis, Intégristes, Islamistes, Terroristes et Homophobes à L'assaut du Web.* Paris: Berg International.

Leets, L. (2002). Experiencing hate speech: perceptions and responses to anti-semitism and antigay speech. *J. Soc. Issues* 58, 341–361. doi: 10.1111/1540-4560.00264

Leung, A. N., Wong, N., and Farver, J. M. (2018). You are what you read: the belief systems of cyber-bystanders on social networking sites. *Front. Psychol.* 9:365. doi: 10.3389/fpsyg.2018.00365

Livingstone, S., Haddon, L., Görzig, A., Olafsson, K., and with members of the EU Kids Online Network. (2011). *EU Kids Online: Final Report.* London: EU Kids Online Network, London School of Economics and Political Science.

Llorent, V. J., Ortega-Ruiz, R., and Zych, I. (2016). Bullying and cyberbullying in minorities: are they more vulnerable than the majority group? *Front. Psychol.* 7:1507. doi: 10.3389/fpsyg.2016.01507

Mascheroni, G., and Ólafsson, K. (2014). *Net Children Go Mobile: Risks and Opportunities, 2nd Edn.* Milano: Educatt.

McDonald, R. P., and Marsh, H. W. (1990). Choosing a multivariate model: noncentrality and goodness of fit. *Psychol. Bull.* 107:247. doi: 10.1037/0033-2909.107.2.247

Messmer, E. (2009). Racism, hate, militancy sites proliferating via social networking: websense sees tripling of such active sites and "pockets" over last year. *Netw.* Retrieved from: http://www.networkworld.com/news/2009/052909-hate-sites.html (accessed September 20, 2018).

Mishna, F., Cook, C., Gadalla, T., Daciuk, J., and Solomon, S. (2010). Cyber bullying behaviors among middle and high school students. *Am. J. Orthopsychiatry* 80, 362–374. doi: 10.1111/j.1939-0025.2010.01040.x

Mishna, F., Khoury-Kassabri, M., Gadalla, T., and Daciuk, J. (2012). Risk factors for involvement in cyber bullying: victims, bullies and bully–victims. *Child. Youth Serv. Rev.* 34, 63–70. doi: 10.1016/j.childyouth.2011.08.032

Näsi, M., Räsänen, P. Hawdon, J., Holkeri, E., and Oksanen, A. (2015). Exposure to online hate material and social trust among Finnish youth. *Information Tech. People* 28, 607–622. doi: 10.1108/ITP-09-2014-0198

Näsi, M. J., Räsänen, P., Keipi, T., and Oksanen, A. (2017). Trust and victimization: A cross-national comparison of Finland, the U.S., Germany and UK. *Res. Finn. Soc.* 10, 119–131.

Oksanen, A., Hawdon, J., Holkeri, E., Nasi, M., and Räsänen, P. (2014). "Exposure to online hate among young social media users," in *Soul of Society: A Focus on the Lives of Children and Youth*, ed M. N. Warehime (Emerald: Bingley), 253–273.

Pariser, E. (2011). *The Filter Bubble: What the Internet Is Hiding From You.* London: Penguin Press.

Patricot, A. (2013). *Les petits Blancs: Un Voyage dans la France D'en Bas*. Paris: Plein jour.

Penzien, E. (2017). *Xenophobic and Racist Hate Crimes Surge in the European Union.* Human Rights Brief. Retrieved from: http://hrbrief.org/2017/02/xenophobic-racist-hate-crimes-surge-european-union/ (accessed September 20, 2018).

Perry, B., and Olsson, P. (2009). Cyberhate: the globalization of hate. *Inf. Commun. Technol. Law* 18, 185–199. doi: 10.1080/13600830902814984

Petraitis, J., Flay, B. R., and Miller, T. Q. (1995). Reviewing theories of adolescent substance use: organizing pieces in the puzzle. *Soc. Psychol. Bull.* 117, 67–86. doi: 10.1037//0033-2909.117.1.67

Potok, M. (2015). *The Year in Hate and Extremism*. Intelligence Report 151. Retrieved from: https://www.splcenter.org/intelligence-report (accessed October 21, 2015).

Rosa, H. (2017). *Beschleunigung: Die Veränderung der Zeitstrukturen in der Moderne*. Berlin: Suhrkamp Verlag.

Rugg, M. (2013). Teenage smoking behaviour influenced by friends and parents smoking habits. *Eurek Alert J. Adolesc. Health* 143, 120–125.

Schaafsma, J., and Williams, K. D. (2012). Exclusion, intergroup hostility, and religious fundamentalism. *J. Exp. Soc. Psychol.* 48, 829–837. doi: 10.1016/j.jesp.2012.02.015

Schils, N., and Pauwels, L. (2014). Explaining violent extremism for subgroups by gender and immigrant background, using SAT as a framework. *J. Strateg. Secur.* 7, 27–47. doi: 10.5038/1944-0472.7.3.2

Sherif, M., and Sherif, C. W. (eds.). (1969). "Ingroup and intergroup relations: experimental analysis," in *Social Psychology*, (New York, NY: Harper & Row), 221–266.

Taylor, A. (2001). Young Canadians in a wired world: how Canadian kids are using the internet. *Educ. Canada* 41, 32–35.

Tucker, L. R., and Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika* 38, 1–10.

TUI Foundation (2018). *Young Europe 2018 – The Youth Study of TUI Foundation*. Retrieved from: https://www.tui-stiftung.de/en/ (retrieved January 15, 2019)

Tynes, B. (2005). "Children, adolescents and the culture of online hate," in *Handbook of Children, Culture and Violence*, eds N. E. Dowd, D. G. Singer, and R. F. Wilson (Thousand Oaks, CA: Sage), 267–289. doi: 10.4135/9781412976060.n14

Tynes, B., Del Toro, J., and Lozada, T. (2015). An unwelcomed digital visitor in the classroom: the longitudinal impact of online racial discrimination on academic motivation. *Sch. Psychol. Rev.* 44, 407–424. doi: 10.17105/SPR-15-0095.1

Vandebosch, H., and Cleemput, K. V. (2009). Cyberbullying among youngsters: profiles of bullies and victims. *New Media Soc.* 11, 1349–1371. doi: 10.1177/1461444809341263

Vitoroulis, I., and Vaillancourt, T. (2015). Meta-analytic results of ethnic group differences in peer victimization. *Aggress. Behav.* 41, 149–170. doi: 10.1002/ab.21564

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Education

CORRECTION
published: 08 August 2019
doi: 10.3389/feduc.2019.00083

Corrigendum: Toward an Understanding of the Characteristics of Secondary School Cyberhate Perpetrators

Catherine Blaya [1,2*] *and Catherine Audrin* [1,3]

[1] Faculty of Teachers Education, Lasale, HEP du Canton de Vaud, Lausanne, Switzerland, [2] URMIS - University Nice Côte d'Azur, Nice, France, [3] Swiss Center for Affective Science, University of Geneva, Geneva, Switzerland

Keywords: cyberhate, involvement, young people, perpetration, victimization, characteristics

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Antonio J. Rodríguez-Hidalgo, Universidad de Córdoba, Spain

****Correspondence:***
Catherine Blaya
catherine.blaya@hepl.ch

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Education

Received: *23 July 2019*
Accepted: *26 July 2019*
Published: *08 August 2019*

Citation:
Blaya C and Audrin C (2019) Corrigendum: Toward an Understanding of the Characteristics of Secondary School Cyberhate Perpetrators. Front. Educ. 4:83. doi: 10.3389/feduc.2019.00083

A Corrigendum on

Toward an Understanding of the Characteristics of Secondary School Cyberhate Perpetrators
by Blaya, C., and Audrin, C. (2019). Front. Educ. 4:46. doi: 10.3389/feduc.2019.00046

In the original article, there was a mistake in **Figure 1** as published. "Trust in proximal institutions" appears twice. The second instance should state "Trust in distal institutions" instead. The corrected **Figure 1** appears below.

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

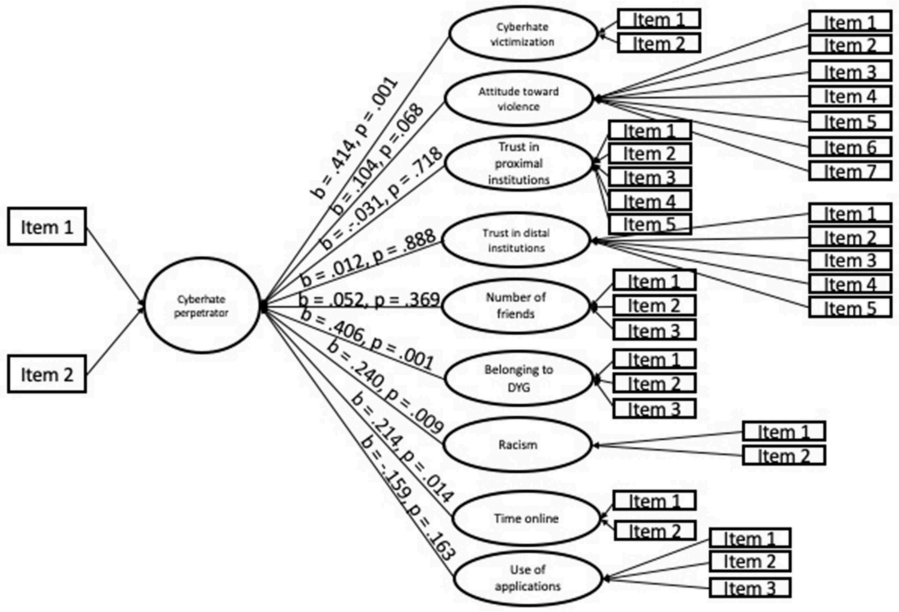

FIGURE 1 | Standardized regression estimates between latent factors.

frontiers in Psychology

ORIGINAL RESEARCH
published: 19 June 2019
doi: 10.3389/fpsyg.2019.01383

Psychological Predictors of Bullying in Adolescents From Pluricultural Schools: A Transnational Study in Spain and Ecuador

*Antonio J. Rodríguez-Hidalgo[1], Yisela Pantaleón[2] and Juan Calmaestra[1]**

[1]*Department of Psychology, Universidad de Córdoba, Córdoba, Spain,* [2]*Department of Education, University Laica Eloy Alfaro of Manabí, Manta, Ecuador*

This study aimed to analyze the levels of personal aggression and victimization, ethnic-cultural aggression and victimization, self-esteem, empathy, social skills and gender in adolescents as potential predictors of bullying in Spain and Ecuador. The wide pluricultural sample comprised secondary education students from both countries (N = 25,190, average age = 13.92, SD = 1.306; N_{Spain} = 14,437; $N_{Ecuador}$ = 10,753), who took part in the study by filling in a self-report. The results revealed that predictive models of bullying for both countries explain 50–70% of variance. A transnational predictive pattern of personal victimization can be observed based on the levels of ethnic-cultural victimization, ethnic-cultural aggression, personal aggression, self-deprecation, and affective empathy. A transnational predictive pattern of personal aggression is evidenced depending on the levels of ethnic-cultural aggression, personal victimization, self-deprecation, ethnic-cultural victimization, and the fact of being female. We concluded that bullying can largely be predicted by involvement in ethnic-cultural discrimination. These results are discussed, and educational inferences are drawn for prevention.

Keywords: bullying, ethnic-cultural discrimination, social skills, empathy, self-esteem

OPEN ACCESS

Edited by:
Rita Zukauskiene,
Mykolas Romeris University, Lithuania

Reviewed by:
Evangelia Karagiannopoulou,
University of Ioannina, Greece
Giulio Arcangeli,
University of Florence, Italy

****Correspondence:***
Juan Calmaestra
juan.calmaestra@uco.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *18 February 2019*
Accepted: *28 May 2019*
Published: *19 June 2019*

Citation:
Rodríguez-Hidalgo AJ, Pantaleón Y and Calmaestra J (2019) Psychological Predictors of Bullying in Adolescents From Pluricultural Schools: A Transnational Study in Spain and Ecuador. Front. Psychol. 10:1383. doi: 10.3389/fpsyg.2019.01383

INTRODUCTION

School is a developmental context for adolescents where they have the opportunity to interact and join a peer group (Salmivalli, 2010; Eccles and Roeser, 2011). In recent decades, the school population has been more and more culturally diverse due to globalization and the increase in migratory flows (Hull and Hellmich, 2018; Kastoryano, 2018). This makes that peer relationships are also relationships between different cultural groups (Marks et al., 2014; Rodríguez-Hidalgo et al., 2018).

In the last decades, the phenomenon of interpersonal violence known as bullying has been the major concern in schools. This phenomenon is characterized by a perverse dynamic in which the roles of bully and victim emerge (Hong and Espelage, 2012; Beltrán-Catalán et al., 2018). The victim is subdued by the bully or bullies in terms of intentional physical and/or psychological

damage, repeatedly over time and in an asymmetrical power relation (Olweus, 2013). This abuse is an immoral behavior that breaks the most basic rules of peer reciprocity (Ortega-Ruiz et al., 2012) and makes the victim feel more and more vulnerable and unable to protect him/herself (Sentse et al., 2017). Bullying victimization has serious consequences. For example, at an academic level, a lower performance, the desire of not attending school or even a school dropout could be observed, whereas at a healthy level, anxiety, depression, sleep disturbance, self-harm, suicide attempts or even suicide could appear (Wolke and Lereya, 2015). Bullies and bullying bystanders also suffer the negative effects of this violent phenomenon since they take the risk of internalizing and consolidating aggressive, immoral and little empathic interrelational patterns as well as suffering social imbalances throughout their development (Vanderbilt and Augustyn, 2010; Ortega-Ruiz et al., 2012). Some studies have revealed that there is an overlap between aggression and victimization in bullying; in fact, they even show that they seem to intertwine (e.g., Mishna, 2003; Del Rey et al., 2012).

Insofar as cultural diversity is present in schools, educational centers are concerned about the ethnic-cultural discrimination that threatens and harms the health and development of students from cultural minorities (e.g., Priest et al., 2014; Cooper and Sánchez, 2016; Brüggemann and D'Arcy, 2017). Ethnic-cultural aggressions predict the psychological imbalance of those who suffer them (Benner and Graham, 2013) and act as an educational barrier (Baysu et al., 2016). The co-occurrence of bullying victimization and ethnic-cultural discriminatory victimization makes more predictable the emergence of suicidal ideation than when these phenomena occur separately (Garnett et al., 2014).

In order to prevent and palliate bullying among students, more and more researchers have stated that their predictors and associated factors should be studied in different cultural contexts and within different ethnic-cultural groups (e.g., Garnett et al., 2014; Vera et al., 2017). Several transnational studies on ways of violence in minors have shown consistency in some predictors and inconsistency in others, allowing us to propose strategies adapted to every country (e.g., Rodríguez-Hidalgo et al., 2018). Comparing transnational knowledge may help to fit prevention and intervention to every single context (e.g., Arenas et al., 2015; Mucci et al., 2016; Bartoll et al., 2019). In order to foresee the emergence and consolidation of the dynamics of bullying, it is necessary to know more about the characteristics of personality and the types of interpersonal behaviors that allow us to predict this phenomenon. Hereunder, there is a review about some of the potential bullying predictive factors in adolescents from culturally diverse schools: (1) personal, such as self-esteem, empathy, social skills and gender; (2) and interpersonal, like personal victimization and personal aggression (bullying), or ethnic-cultural victimization and ethnic-cultural aggression (discrimination).

There is a negative association between the levels of victimization and self-esteem in adolescents (Blood et al., 2011; Chen and Wei, 2011; Rodríguez-Hidalgo et al., 2015). Additionally, victimization is negatively linked to social adjustment and to the number of friends in school (Rodríguez-Hidalgo et al., 2014). Those adolescents who suffer bullying victimization take a greater risk of internalizing problems like having a low global self-esteem (Mishna et al., 2016). On the other hand, it has been observed that self-esteem acts as an internal element influencing on the overcoming of victimization experiences (Sapouna and Wolke, 2013), so it can be considered as a protective factor. It seems that there is a cause-effect relation between victimization and self-esteem (Fredstrom et al., 2011).

Tsaousis' review and meta-analysis (2016) reveal that the existing negative association between aggression and self-esteem is weaker than the one between victimization and self-esteem (Tsaousis, 2016). This researcher underscores that the results from different studies regarding this subject support two hypotheses: low self-esteem acts as a precursor of aggression toward peers; and in adolescents with high self-esteem, they develop aggressive behaviors toward their peers when their self-esteem is threatened by them.

Part of the studies on cognitive empathy and involvement in bullying has found a link between both (e.g., Caravita et al., 2009; Dini et al., 2016; Rieffe and Camodeca, 2016), while another part has not found any relation between them (van Noorden et al., 2015). However, within the studies that have evidenced such connection, the results are inconsistent. In some studies, it is said that cognitive empathy is positively associated with a violent behavior in both genders (Caravita et al., 2009; Rieffe and Camodeca, 2016). However, other studies conclude that cognitive empathy is negatively associated with levels of aggression in bullying (Mitsopoulou and Giovazolias, 2015; Dini et al., 2016). One of the few existing longitudinal studies has revealed that cognitive empathy does not predict involvement as a bully or the other way around (Stavrinides et al., 2010). Nevertheless, there are studies stating that low cognitive empathy and gender—being male—are predictors of an aggressive behavior (Kokkinos and Kipritsi, 2012).

Affective empathy is negatively associated with aggression in bullying (Mitsopoulou and Giovazolias, 2015; van Noorden et al., 2015; Rieffe and Camodeca, 2016), especially more in boys than girls (Caravita et al., 2009). It has been seen that a low affective empathy is a predictor of the involvement as a bully and the other way around (Stavrinides et al., 2010). However, other studies do not show any association between affective empathy and involvement in bullying (Dini et al., 2016).

A negative correlation has been observed between the levels of victimization and cognitive and affective empathy (Kokkinos and Kipritsi, 2012). van Noorden et al.'s systematic review (2015) concludes that victimization is not usually associated with affective empathy, but it is usually negatively associated with cognitive empathy: the victims experience what others feel but they do not understand what they feel.

Adolescents' assertive responses to different situations in the school context are considered as more effective by peers and teachers, so they are more adaptive (Dirks et al., 2009, 2014). Girls give more assertive responses in comparison to boys when facing challenging situations between peers (Rose and Rudolph,

2006). In adolescents, educational training in assertiveness is seen as a solution for bullying (Boket et al., 2016), since it can improve the coping of social situations, modify the aggressive behavior, improve social skills, and balance the emotional status (Keliat et al., 2015). Several recent studies have revealed that the educational intervention to promote assertive behaviors has a positive effect in: (1) the reduction of victimization (Keliat et al., 2015; Avşar and Ayaz-Alkaya, 2017), and (2) the reduction of aggressive behaviors toward peers in bullying (Ttofi and Farrington, 2011; Schroeder et al., 2012; Keliat et al., 2015; Avşar and Ayaz-Alkaya, 2017).

Despite the fact that many existing educational programs for the prevention of bullying in schools try to promote the development of conflict-resolution skills, a very little percentage of adolescents has shown to have used these skills to deal with bullying situations (Didaskalou et al., 2017). It has been seen that cooperative resolution skills negatively correlate with the emission of aggressive behaviors and the justification and acceptance of a violent behavior; however, these skills positively correlate with empathy toward bullying victims (Garaigordobil, 2012, 2017).

The high belief about their skills to communicate, resolve conflicts, and handle emotions with friends is related to low levels of victimization in adolescents (Fitzpatrick and Bussey, 2014). Bullying victims show less communicative and conflict-resolution skills (Haynie et al., 2001; Kochel et al., 2015). On the other hand, bullies show less communicative skills associated with a successful performance in collaborative tasks than defenders; bullies give less useful explanations and less guidance instructions to their peers than defenders (Murphy and Faulkner, 2011).

In the last two decades, attention has increasingly been paid in studies to the weight of cultural diversity regarding coexistence and violence phenomena among peers. Some studies reveal that the higher the presence of ethnic-cultural diversity is among students, the higher the bullying prevalence will be (Vervoort et al., 2010; Jansen et al., 2016). In those adolescents who belong to cultural minorities, the content of the suffered intimidation is often based on the differences of origin, ethnic group, language or migratory status (Maynard et al., 2016; Brietzke and Perreira, 2017). It has been observed that the minority status within each school is related both to the general or personal victimization and to the particularly racist victimization (Fisher et al., 2015). Being a victim of physical, verbal or relational bullying shows a strong association with being a victim of ethnic-cultural discrimination (Monks et al., 2008; Rodríguez-Hidalgo et al., 2014, 2015; Cardoso et al., 2017). Additionally, it has been seen that being a victim of discrimination between adolescents from different ethnic groups is positively related to being a victim of discrimination between peers from the same ethnic group (Benner and Wang, 2017). Nevertheless, there is a research gap regarding the connection between personal aggression in bullying and ethnic-cultural discriminatory aggression.

In view of the increasing study of bullying concerning ethnic-cultural diversity in the last years, some educational projects addressing discrimination among peers (Rodríguez-Hidalgo et al., 2017; Earnshaw et al., 2018) are being developed. However, it is necessary to have a greater body of knowledge about the nature of the relations between bullying and ethnic-cultural discrimination so that these educational proposals are more effective.

THE PRESENT STUDY

The review of scientific literature enables us to observe that there are hardly any transnational studies about bullying predictors—personal aggression and personal victimization—that has been carried out with a wide sample. Thus, we need to know if they act as bullying predictors as well as to what extent they are stable or different among countries: (1) personal factors such as self-esteem, empathy, social skills, and gender and (2) interpersonal factors such as the levels of involvement in personal victimization (bullying), personal aggression (bullying), ethnic-cultural victimization (discrimination), and/or ethnic-cultural aggression (discrimination). We have carried out a comparative study on students from two different countries: Spain and Ecuador. These two countries have significant cultural links; however, they deal with ethnic-cultural diversity in different ways. Ecuador is multiethnic and multicultural, while Spain is neither multiethnic nor multicultural despite having recognized rights to cultural diversity. The objectives of the present study are:

1. To know what personal and interpersonal factors are predictors of personal victimization.
2. To know what personal and interpersonal factors are predictors of personal aggression.
3. To know which predictive patterns of personal victimization and personal aggression are common in Spain and Ecuador and which ones are unique in each country.

The following hypotheses have been studied:

1. Personal aggression and personal victimization will be predicted by means of social skills, self-esteem, and empathy.
2. Being female will be a positive predictor of personal victimization and a negative predictor of personal aggression.
3. Personal aggression and personal victimization will reciprocally be positive predictors.

Ethnic-cultural aggression and ethnic-cultural victimization will be predictors of personal aggression and personal victimization.

MATERIALS AND METHODS

Participants

A total of 25,190 participants took part in the study. Two data collections were carried out following the same methodology, one in all Spain and another one in Ecuador. The Spanish sample was obtained in the whole national territory, while the

Ecuadorian sample was obtained in zone 4 of Ecuador, composed of the extensive provinces of Manabí and Santo Domingo de Los Tsáchilas. The subjects were selected using a random cluster sampling. From the total sample, 42.7% (10,753 subjects) were from the Ecuadorian collection, while 57.3% (14,437 subjects) were from the Spanish collection. The participants were studying in equivalent years within the two different educational systems. The average age of the sample is 13.92 (SD = 1.306), being the average age of the Spanish sample 14.03 (SD = 1.390) and of the Ecuadorian sample 13.77 (SD = 1.169). Regarding gender, a similar proportion of boys and girls was found in the sample (49.9% were girls). For the Spanish sample, this percentage amounted to 50.7% and for the Ecuadorian sample, it fell to 48.9%.

Instruments

To measure the levels of bullying aggression and victimization among peers, we used the European Bullying Intervention Project Questionnaire—EBIPQ—(Ortega-Ruiz et al., 2016). The questionnaire is composed of 14 items, 7 items regarding victimization and 7 for aggression. Those items have five response options (1 = never; 2 = once or twice; 3 = once or twice a month; 4 = about once a week; 5 = more than once a week). The reliability indexes are high, not only for the Spanish sample ($\alpha_{\text{victimization-SPA}} = 0.827$; $\alpha_{\text{aggression-SPA}} = 0.823$) but also for the Ecuadorian one ($\alpha_{\text{victimization-ECU}} = 0.826$; $\alpha_{\text{aggression-ECU}} = 0.855$). The CFA showed optimal levels for the two-factor structure of the instrument (χ^2 S-B = 10371.7069, $p = 0.00$; CFI = 0.97; NNFI = 0.96; RMSEA = 0.067).

An adaptation of the EBIPQ was used to measure involvement in victimization and aggression due to ethnic-cultural discrimination: the European Bullying Intervention Project Questionnaire—Ethnic-Cultural Discrimination Version (EBIPQ-ECD Rodríguez-Hidalgo et al., 2019). The EBIPQ-ECD has a similar structure to the EBIPQ, presenting the same number of items and the same measurement scale. Its psychometric properties in this study are even better than the ones of the EBIPQ for both the Spanish sample ($\alpha_{\text{victimization-SPA}} = 0.862$; $\alpha_{\text{aggression-SPA}} = 0.855$) and the Ecuadorian sample ($\alpha_{\text{victimization-ECU}} = 0.858$; $\alpha_{\text{aggression-ECU}} = 0.873$). The CFA showed optimal levels for the two-factor structure of the instrument (χ^2 S-B = 12087.4424, $p = 0.00$; CFI = 0.98; NNFI = 0.97; RMSEA = 0.071).

To address the measurement of self-esteem, the Rosenberg Self-Esteem Scale—RSES—(Rosenberg, 1989) was used, adapted, and validated by Martín-Albo et al. (2007) and Viejo (2014). The scale has widely been used with samples of adolescents. The two-factor model of the scale fits the best for this study, independently considering self-confidence (five items positively formulated) and self-deprecation (five items negatively formulated). The values of the scale of measurement range from 1 to 4. The reliability analyses have shown enough indexes for both the Spanish sample ($\alpha_{\text{self-confidence-SPA}} = 0.816$; $\alpha_{\text{self-deprecation-SPA}} = 0.808$) and the Ecuadorian sample ($\alpha_{\text{self-confidence-ECU}} = 0.719$; $\alpha_{\text{self-deprecation-ECU}} = 0.645$). The CFA showed optimal levels for the two-factor structure of the instrument (χ^2 S-B = 2906.1713, $p = 0.00$; CFI = 0.98; NNFI = 0.97; RMSEA = 0.053).

The Basic Empathy Scale (BES; Jolliffe and Farrington, 2011) was used to measure the participants' levels of empathy, specifically the Oliva et al.'s adaptation (2011) of nine items, distinguishing between affective empathy (four items) and cognitive empathy (five items). The scale of measurement of each item ranges from 1 (*Totally disagree*) to 5 (*Totally agree*). The reliability values for both subscales are very high not only for the Spanish sample ($\alpha_{\text{cognitive\_empathy-SPA}} = 0.867$; $\alpha_{\text{affective\_empathy-SPA}} = 0.825$) but also for the Ecuadorian sample ($\alpha_{\text{cognitive\_empathy-ECU}} = 0.901$; $\alpha_{\text{affective\_empathy-ECU}} = 0.833$). The CFA showed optimal levels for the two-factor structure of the instrument (χ^2 S-B = 4087.9534, $p = 0.00$; CFI = 0.99; NNFI = 0.99; RMSEA = 0.070).

The social skills scale (Oliva et al., 2011) is composed of 12 items with values ranging from 1 (*Totally false*) to 7 (*Totally true*). The scale is divided into three sub-dimensions: Communicative or relational skills (five items), assertiveness (three items), and conflict-resolution skills (four items). The scores of the reliability tests are acceptable or good for most subscales in both samples ($\alpha_{\text{communicative\_social-SPA}} = 0.774$; $\alpha_{\text{assertiveness-SPA}} = 0.644$; $\alpha_{\text{conflict-resolution-SPA}} = 0.767$; $\alpha_{\text{communicative\_social-ECU}} = 0.832$; $\alpha_{\text{assertiveness-ECU}} = 0.779$; $\alpha_{\text{conflict-resolution-ECU}} = 0.822$). The CFA showed optimal levels for the three-factor structure of the instrument (χ^2 S-B = 4704.5658, $p = 0.00$; CFI = 0.98; NNFI = 0.97; RMSEA = 0.056).

Procedure

We proceeded to obtain the authorization from the respective educational administration and the educational centers in both countries. Written informed parental/guardian consent was obtained by means of the support of educational centers. The students were informed and ensured of the anonymous, confidential, and voluntary nature of their participation in the study. The registered data were codified in a data matrix through the SPSS 22 software. The collection was carried out in Ecuador by means of paper questionnaires, whereas it was done by online questionnaires in Spain. The procedure was approved by the Ethics committee of the University of Córdoba and was conducted following the national and international ethical standards.

Analysis

For this study, multiple linear regressions were used to explore what the predictive variables of aggression and victimization were in traditional bullying. The other variables have been used as predictors with the "Introduce" method for that purpose. The collinearity diagnostics were optimal. The levels of tolerance ranged from 0.34 to 0.94 for all the variables considered in the study. VIF values ranged from 1.06 to 3.48 and Durbin-Watson statistic showed values between 1.797 and 1.947 in all the cases. All the variables included in the regressions were measured in scale, except the gender variable, which was conversed in a dummy variable regarding the gender "girl" (0 = otherwise and 1 = girl).

RESULTS

Overall, four multiple linear regressions were carried out to address the research objectives. In all the models, the following phenomena were included as independent variables: received ethnic-cultural victimization, ethnic-cultural aggression, self-confidence, self-deprecation, affective empathy, cognitive empathy, communication or relationship skills, assertiveness, conflict-resolution skills, and belonging to the "girl" category. This last variable was recoded in a dummy variable as it has already been mentioned. Similarly, victimization was included for the regression predicting aggression and the other way around.

The predictive model for victimization explained nearly 70% of the variance in the Spanish sample. Almost all the variables showed certain influence on the regression model for victimization in Spain, except cognitive empathy and gender. The strongest detected predictor is the score in ethnic-cultural victimization (β = 0.757; p = 0.000), followed by the involvement as traditional bully (β = 0.368; p = 0.000). A high score in ethnic-cultural aggression was found as a remarkable protective factor of this type of victimization (β = −0.298; p = 0.000). As remarkable psychological variables, high levels of self-deprecation predict a higher score in victimization (β = 0.078; p = 0.000), unlike self-confidence (β = −0.043; p = 0.000). See **Table 1** for the details of parameter estimates in the analyses.

Regarding the Ecuadorian sample, the predictive model explained over 50% of variance. In such model, the score in victimization was detected to be predicted by means of a high score in ethnic-cultural victimization (β = 0.535; p = 0.000) and a high score in traditional aggression (β = 0.382; p = 0.000). However, high scores in ethnic-cultural aggression predicted low levels of traditional victimization (β = −0.135; p = 0.000). As remarkable psychological variables, self-deprecation (β = 0.035; p = 0.000), cognitive empathy (β = 0.037; p = 0.002), and affective empathy (β = 0.039; p = 0.000) could be mentioned. The variables that in this case did not significantly predict the model were self-confidence, being girl and all the variables related to social skills. See **Table 2** for the details of parameter estimates in the analyses for the Ecuadorian sample.

TABLE 1 | Multiple linear regression model for personal victimization (Spain).

ΔR^2	Model	Unstandardized coefficients		Standardized coefficients	t	p
		B	Std. error	β		
0.696	(Constant)	1.368	0.183		7.488	0.000
	Personal aggression	0.482	0.010	0.368	46.734	0.000
	Ethnic-cultural victimization	0.841	0.006	0.757	138.156	0.000
	Ethnic-cultural aggression	–0.437	0.012	–0.298	–36.543	0.000
	Self-confidence	–0.055	0.007	–0.043	–7.747	0.000
	Self-deprecation	0.088	0.006	0.078	14.034	0.000
	Affective empathy	0.027	0.006	0.026	4.188	0.000
	Cognitive empathy	0.009	0.007	0.009	1.364	0.173
	Communication/relationship skills	–0.009	0.003	–0.015	–2.980	0.003
	Assertiveness	0.022	0.007	0.020	3.092	0.002
	Conflict resolution skills	–0.010	0.005	–0.013	–1.973	0.049
	Girl (1 = yes)	0.006	0.044	0.001	0.145	0.885

TABLE 2 | Multiple linear regression model for personal victimization (Ecuador).

ΔR^2	Model	Unstandardized coefficients		Standardized coefficients	t	p
		B	Std. error	β		
0.507	(Constant)	1.485	0.226		6.560	0.000
	Personal aggression	0.438	0.011	0.382	41.140	0.000
	Ethnic-cultural victimization	0.580	0.010	0.535	60.462	0.000
	Ethnic-cultural aggression	–0.160	0.012	–0.135	–13.223	0.000
	Self-confidence	–0.006	0.011	–0.004	–0.528	0.597
	Self-deprecation	0.054	0.011	0.035	4.982	0.000
	Affective empathy	0.041	0.012	0.039	3.540	0.000
	Cognitive empathy	0.030	0.009	0.037	3.169	0.002
	Communication/relationship skills	0.004	0.006	0.007	0.705	0.481
	Assertiveness	–0.006	0.012	–0.007	–0.538	0.590
	Conflict resolution skills	–0.016	0.009	–0.021	–1.821	0.069
	Girl (1 = yes)	0.047	0.072	0.005	0.659	0.510

Regarding aggression, the model predicted over 70% of variance in the Spanish sample. Only three variables did not make a significant contribution to the model: affective empathy, cognitive empathy, and conflict-resolution skills. The variable with the highest explanatory force of traditional aggression was ethnic-cultural aggression (β = 0.784; p = 0.000), followed by traditional victimization (β = 0.358; p = 0.000). As a negative predictor, ethnic-cultural victimization is emphasized (β = −0.240; p = 0.000). The higher the level of ethnic-cultural victimization is, the lower the level of traditional aggression will be. The psychological variable with the highest influence on the model was communicative skills (β = 0.032; p = 0.000), predicting high levels of traditional aggression. Being a girl was a protection factor (β = −0.036; p = 0.000) in comparison to traditional aggression. See **Table 3** for the details of parameter estimates in the analyses.

Regarding the sample collected in Ecuador, the model of traditional aggression explained 54% of variance. In this regression, self-confidence, cognitive empathy, and the three variables related to social skills did not provide a significant effect to the model. The predictor with the greatest proportion in traditional aggression was aggression due to ethnic-cultural reasons (β = 0.535; p = 0.000), followed by the score in traditional victimization (β = 0.356; p = 0.000). The higher the scores of ethnic-cultural victimization are, the lower the levels of traditional aggression are (β = −0.064; p = 0.000). The most important psychological variables in the model were self-deprecation as a positive factor (β = 0.036; p = 0.000) and cognitive empathy as a negative factor (β = −0.034; p = 0.001). Being a girl proved to be a factor negatively related to the score in traditional aggression (β = −0.033; p = 0.000). See **Table 4** for the details of parameter estimates in the analyses.

DISCUSSION AND CONCLUSIONS

The predictive models provided for personal victimization and personal aggression (bullying) explain almost three-quarters of the variance in the Spanish sample and half of the variance in the Ecuadorian sample. Within the introduced variables,

TABLE 3 | Multiple linear regression model for personal aggression (Spain).

ΔR^2	Model	Unstandardized coefficients		Standardized coefficients	t	p
		B	Std. error	β		
0.704	(Constant)	0.577	0.138		4.196	0.000
	Personal victimization	0.273	0.006	0.358	46.734	0.000
	Ethnic-cultural victimization	–0.203	0.007	–0.240	–30.038	0.000
	Ethnic-cultural aggression	0.876	0.006	0.784	147.845	0.000
	Self-confidence	0.015	0.005	0.015	2.807	0.005
	Self-deprecation	0.013	0.005	0.015	2.740	0.006
	Affective empathy	–0.003	0.005	–0.004	–0.691	0.489
	Cognitive empathy	0.002	0.005	0.002	0.310	0.757
	Communication/relationship skills	0.014	0.002	0.032	6.432	0.000
	Assertiveness	–0.013	0.005	–0.015	–2.410	0.016
	Conflict resolution skills	–0.004	0.004	–0.007	–1.152	0.249
	Girl (1 = yes)	–0.240	0.033	–0.036	–7.318	0.000

TABLE 4 | Multiple linear regression model for personal aggression (Ecuador).

ΔR^2	Model	Unstandardized coefficients		Standardized coefficients	t	p
		B	Std. error	β		
0.540	(Constant)	2.051	0.190		10.798	0.000
	Personal victimization	0.311	0.008	0.356	41.140	0.000
	Ethnic-cultural victimization	–0.060	0.009	–0.064	–6.476	0.000
	Ethnic-cultural aggression	0.553	0.009	0.535	62.797	0.000
	Self-confidence	–0.011	0.009	–0.009	–1.237	0.216
	Self-deprecation	0.049	0.009	0.036	5.338	0.000
	Affective empathy	–0.032	0.010	–0.034	–3.242	0.001
	Cognitive empathy	–0.004	0.008	–0.006	–0.513	0.608
	Communication/relationship skills	0.000	0.005	0.000	0.046	0.964
	Assertiveness	–0.018	0.010	–0.023	–1.869	0.062
	Conflict resolution skills	0.013	0.007	0.020	1.795	0.073
	Girl (1 = Yes)	–0.296	0.061	–0.033	–4.894	0.000

interpersonal variables showed a greater predictive weight on peer victimization and aggression than personal variables. The weight and presence of predictor factors, not only in bullying victimization but also in bullying aggression, have partially been similar in the samples collected in Spain and Ecuador. Some predictive patterns are common in both countries, but others are unique.

Regarding bullying victimization, the conclusion is that there is a fairly robust transnational predictive pattern: there are three significantly important predictors, which are victimization due to ethnic-cultural discrimination, aggression because of bullying and aggression due to ethnic-cultural discrimination, and two less important predictors that are self-deprecation and affective empathy. Ethnic-cultural victimization is a positive predictor of victimization, being the one with the greatest predictor power among all the factors that we studied. Bullying aggression is a great positive predictor of victimization, whereas ethnic-cultural aggression is also a negative predictor at a similar level. Both self-deprecation and affective empathy act as positive predictors of bullying victimization.

Beyond this homogeneous prediction pattern of bullying victimization detected in both countries, the transnational comparison enables us to emphasize some unique predictors. In the Spanish sample, we observed more predictive lightweight factors of victimization: assertiveness as a positive predictor, self-confidence, communication and relationship, and conflict-resolution as negative predictors. In contrast, we observed cognitive empathy, being a positive predictor, as a predictive lightweight factor in the Ecuadorian sample. Social skills—assertiveness, communication and relationship, conflict-resolution—play a predictor role in bullying victimization in Spain, whereas it does not play it in Ecuador.

Regarding victimization, self-esteem and empathy both have a statistically significant influence on victimization in the Ecuadorian sample; however, social skills do not have this influence. The first hypothesis of the study is therefore partially corroborated. Nevertheless, regarding the Spanish sample, the first hypothesis is corroborated, since the three personal factors that were studied make possible the prediction of victimization. The fact that social skills predict victimization is consistent with the results obtained in some studies (Haynie et al., 2001; Fitzpatrick and Bussey, 2014; Kochel et al., 2015; Jenkins and Fredrick, 2017). However, despite the fact that several studies have revealed that assertiveness acts as a protective factor of victimization (Keliat et al., 2015; Boket et al., 2016), strangely enough, in our study, it has been observed that it acts as a positive predictor of victimization. The fact that low self-esteem predicts high levels of victimization is consistent with some observations from previous studies (Blood et al., 2011; Chen and Wei, 2011; Rodríguez-Hidalgo et al., 2014, 2015). High self-esteem, as Sapouna and Wolke (2013) state, acts as a protective factor of victimization. Affective empathy was expected not to be a predictor of victimization (van Noorden et al., 2015); however, it has been evidenced that affective empathy is a positive predictor of victimization in Spain and in Ecuador. On the other hand, the expectation of cognitive empathy negatively predicting victimization was not met. Unexpectedly, cognitive empathy acts as a positive predictor of victimization in the Ecuadorian sample. These last conclusions are conflicting with the negative correlations found by Kokkinos and Kipritsi (2012) between empathy—affective and cognitive empathy—and victimization.

Regarding bullying aggression, the conclusion is that there is a stable transnational predictive pattern: ethnic-cultural aggression, bullying victimization, and self-deprecation are positive predictors, while ethnic-cultural victimization and being a girl are negative predictors. Ethnic-cultural aggression and bullying victimization are the most powerful predictors in Spain and Ecuador. Nevertheless, ethnic-cultural victimization is also a great predictor in Spain, while it is a less important predictor in Ecuador. Being a girl and self-deprecation are lightweight predictors in both countries. Regarding lightweight predictors of aggression, the conclusion is that there are specificities in the contrast by countries. Communication and relationship skills as well as self-confidence are considered positive predictors in Spain, whereas assertiveness is a negative predictor. Affective empathy is a negative predictor in Ecuador. Just like in the prediction of victimization, social skills again seem to be relevant in Spain, in contrast with the lack of predictive importance they appear to have in Ecuador.

In terms of aggression, self-esteem and empathy make possible the prediction of aggression in the Ecuadorian sample. Additionally, social skills do not contribute in a statistically significant way to the model. Considering the Spanish sample in the aggression model, both social skills and self-esteem have a statistically significant effect whereas empathy does not. This evidence about the two samples regarding aggression enables us to partially confirm the first hypothesis of the study. The observation in the Spanish sample that low assertiveness predicts aggression is aligned with the model of social-skill deficit regarding aggression (Crick and Dodge, 1994; Camodeca and Goossens, 2005); while the observation that high social and relational skills predict aggression seems to support the model of a bully with popularity and leadership while she/he manipulates his/her classmates. This model typically appears in contexts in which the norms and the educational action try to prevent and palliate bullying (Waasdorp et al., 2013; Rivas-Drake et al., 2014; Vera et al., 2017). Apart from that, the expectation of aggression being predicted by means of low levels of self-esteem was met in the Ecuadorian and Spanish samples. High self-deprecation predicted aggression in both countries; however, high self-esteem also predicted aggression only in Spain. These two opposed conclusions seem to support, respectively, two hypotheses issued by Tsaousis (2016) following his extensive review: low self-esteem acts as a precursor of aggression, while high self-esteem is a precursor of aggressive behaviors toward peers in response to the peers' threat. As expected, the levels of cognitive empathy do not predict aggression in any of the countries of the study. It has also been evidenced that low affective empathy predicts aggressive behaviors in Ecuador. These results are consistent with the conclusions drawn by one of the few longitudinal studies carried out in that respect (Stavrinides et al., 2010). On the other hand, these results are inconsistent

with the conclusions drawn by the systematical review carried out by van Noorden et al. (2015).

The second hypothesis of the study was partially corroborated. Contrary to what was expected, being a girl does not predict a greater likelihood to be victimized in any of the samples from Spain or Ecuador. But it was observed that being a girl predicted a lower involvement in bullying aggressions, which is in line with the conclusion of Kokkinos and Kipritsi's (2012) study. This is consistent with the fact that female adolescents develop more assertive behaviors than male adolescents in difficult situations among peers (Rose and Rudolph, 2006). An aspect that we should remark in the Ecuadorian sample is that low affective empathy and being a boy are factors that increase the likelihood of being a bully, which is in line with the relation between these aspects as Caravita et al. (2009) stated.

The conclusion is therefore that aggression and victimization among adolescents are predicted reciprocally. This confirms the third initial hypothesis stated following the evidence of the existing overlap between the roles of bully and bullying victim in most of the people involved in this violent phenomenon (e.g., Mishna, 2003; Del Rey et al., 2012).

The results confirm the fourth hypothesis: ethnic-cultural victimization and aggression are predictors of bullying aggression and victimization. The evidence of the important predictive force of involvement in ethnic-cultural victimization over involvement in bullying victimization is a great step forward regarding the observations provided by some previous studies that had already emphasized the existence of some type of relation between both (Rodríguez-Hidalgo et al., 2014, 2015; Cardoso et al., 2017). Victimization can be predicted in terms of involvement in ethnic-cultural aggression. Bullying aggression is predictable depending on involvement in ethnic-cultural victimization and/or ethnic-cultural aggression. From these last findings, no precedents have been found in the scientific literature. It is interesting that ethnic-cultural aggression is a negative predictor of bullying victimization, and ethnic-cultural victimization is a negative predictor of bullying aggression in both samples. As a possible explanation for this, taking into account that the power imbalance between bully and victim plays a key role in the dynamics of bullying (Ortega-Ruiz et al., 2012; Olweus, 2013; Sentse et al., 2017), it is proposed that a significant proportion of this power imbalance between peers in pluricultural contexts is related to the difference of ethnic-cultural status. This ethnic-cultural status could be expressed and built at a large extent between peers depending on the emission and reception of ethnic-cultural discriminatory behaviors. This way, those who attack others discriminatorily could be more feared and less subject to bullying victimization at the same time. Those who suffer discriminatory victimization could be self-perceived and perceived by others with little or no power over their peers, what would confer them a disadvantageous situation to emit aggressive behaviors of bullying toward others.

The development of the research has considered the use of robust and reliable instruments over wide samples in Spain and Ecuador. Educational inferences are set out on the provided conclusions and discussion in order to improve the prevention of bullying, the limitations of the study, and the future lines of research.

A great part of the educational interventions based on the scientific evidence to prevent and palliate bullying has considered the educational work to build up self-esteem and to develop empathy and/or social skills (Ttofi and Farrington, 2011; Boket et al., 2016; Avşar and Ayaz-Alkaya, 2017; Didaskalou et al., 2017; Lösel and Ttofi, 2017). The conclusions of the study contribute to support this line of proposals. Nevertheless, the greatest part of the interventions has disregarded dealing with violent and discriminatory phenomena based on cultural differences (Earnshaw et al., 2018). The study proposes that educational policies and interventions take into account the approach of ethnic-cultural discrimination to prevent bullying, due to its high predictive value on this phenomenon. In the educational centers, the processing of contents and the development of educational strategies are necessary to promote the intercultural coexistence and the eradication of ethnic-cultural discrimination. Recently, new educational proposals against bullying are being developed, paying particular attention to the ethnic-cultural diversity and to the risk of discrimination and exclusion. An example of this is the Educational Model of Intercultural Coexistence—MECI in Spanish—(Rodríguez-Hidalgo et al., 2017). This work proposal is consistent with a budding but emerging line of bullying preventive and palliative psychoeducational models based on the stigma for having one or several socially devalued characteristics (Earnshaw et al., 2018).

Some of the limitations of the study are inherent to the type of methodology and instruments used in the research. As it is a cross-sectional study, the results are aimed toward the prediction and not toward the inference of causal relations between variables. The use of the self-report questionnaire enables us to collect data of self-perception, but not about the hetero-perception among peers. Starting from the results provided about the prediction of bullying aggression and victimization among adolescents, it would be convenient to develop a longitudinal study considering the same variables in the future. This would make possible to know more about the potential causal relations. Additionally, it would be interesting to take measures not only about self-perception but also about hetero-perception among peers. It would be convenient to start a line of studies on bullying and discrimination among adolescents taking into account socioeconomical indicators, as it is being done regarding other violent and/or psychological phenomena in adults (e.g., Mucci et al., 2016; Bartoll et al., 2019). These guidelines would allow us to advance in the study of bullying and ethnic-cultural discrimination as both are ecological and dynamic in the peer network.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

AUTHOR CONTRIBUTIONS

All authors made substantial contribution to the theoretical framework, design, data collection or interpretation of this study. All contributed to this article and approved its publication.

FUNDING

This work was supported by the Save the Children® under the project Bullying, Cyberbullying and Associated Factors (contract with the Foundation of the Autonomous University of Madrid; Code: 056900), and the Spanish National I+D+I Plan under project PSI2016-74871-R.

ACKNOWLEDGMENTS

The authors thank the children, parents, and school administrators for their participation and also want to thank the NGO Save the Children for their financial support and help in collecting data.

REFERENCES

Arenas, A., Giorgi, G., Montani, F., Mancuso, S., Perez, J. F., Mucci, N., et al. (2015). Workplace bullying in a sample of Italian and Spanish employees and its relationship with job satisfaction, and psychological well-being. *Front. Psychol.* 15:1912. doi: 10.3389/fpsyg.2015.01912

Avşar, F., and Ayaz-Alkaya, S. (2017). The effectiveness of assertiveness training for school-aged children on bullying and assertiveness level. *J. Pediatr. Nurs.* 36, 186–190. doi: 10.1016/j.pedn.2017.06.020

Bartoll, X., Gotsens, M., Marí-Dell'Olmo, M., Palència, L., Calvo, M., Esnaola, S., et al. (2019). Stable socioeconomic inequalities in ischaemic heart disease mortality during the economic crisis: a time trend analysis in 2 Spanish settings. *Arch. Public Health* 77:12. doi: 10.1186/s13690-019-0339-z

Baysu, G., Celeste, L., Brown, R., Verschueren, K., and Phalet, K. (2016). Minority adolescents in ethnically diverse schools: perceptions of equal treatment buffer threat effects. *Child Dev.* 87, 1352–1366. doi: 10.1111/cdev.12609

Beltrán-Catalán, M., Zych, I., Ortega-Ruiz, R., and Llorent, V. J. (2018). Victimisation through bullying and cyberbullying: emotional intelligence, severity of victimisation and technology use in different types of victims. *Psicothema* 30, 183–188. doi: 10.7334/psicothema2017.313

Benner, A. D., and Graham, S. (2013). The antecedents and consequences of racial/ethnic discrimination during adolescence: does the source of discrimination matter? *Dev. Psychol.* 49, 1602–1613. doi: 10.1037/a0030557

Benner, A. D., and Wang, Y. (2017). Racial/ethnic discrimination and adolescents' well-being: the role of cross-ethnic friendships and friends' experiences of discrimination. *Child Dev.* 88, 493–504. doi: 10.1111/cdev.12606

Blood, G. W., Blood, I. M., Tramontana, G. M., Sylvia, A. J., Boyle, M. P., and Motzko, G. R. (2011). Self-reported experience of bullying of students who stutter: relations with life satisfaction, life orientation, and self-esteem. *Percept. Mot. Skills* 113, 353–364. doi: 10.2466/07.10.15.17.PMS.113.5.353-364

Boket, E. G., Bahrami, M., Kolyaie, L., and Hosseini, S. A. (2016). The effect of assertiveness skills training on reduction of emotional victimization of female high school students. *Int. J. Humanit. Cult. Stud.* 9, 690–699. doi: 10.3126/ijls.v9i4.12679

Brietzke, M., and Perreira, K. (2017). Stress and coping: Latino youth coming of age in a New Latino destination. *J. Adolesc. Res.* 32, 407–432. doi: 10.1177/0743558416637915

Brüggemann, C., and D'Arcy, K. (2017). Contexts that discriminate: international perspectives on the education of Roma students. *Race Ethn. Educ.* 20, 575–578. doi: 10.1080/13613324.2016.1191741

Camodeca, M., and Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *J. Child Psychol. Psychiatry* 46, 186–197. doi: 10.1111/j.1469-7610.2004.00347.x

Caravita, S. C. S., Di Blasio, P., and Salmivalli, C. (2009). Unique and interactive effects of empathy and social status on involvement in bullying. *Soc. Dev.* 18, 140–163. doi: 10.1111/j.1467-9507.2008.00465.x

Cardoso, J. B., Szlyk, H. S., Goldbach, J., Swank, P., and Zvolensky, M. J. (2017). General and ethnic-biased bullying among latino students: exploring risks of depression, suicidal ideation, and substance use. *J. Immigr. Minor. Health* 20, 816–822. doi: 10.1007/s10903-017-0593-5

Chen, J.-K., and Wei, H.-S. (2011). The impact of school violence on self-esteem and depression among Taiwanese junior high school students. *Soc. Indic. Res.* 100, 479–498. doi: 10.1007/s11205-010-9625-4

Cooper, A. C., and Sánchez, B. (2016). The roles of racial discrimination, cultural mistrust, and gender in Latina/o youth's school attitudes and academic achievement. *J. Res. Adolesc.* 26, 1036–1047. doi: 10.1111/jora.12263

Crick, N. R., and Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychol. Bull.* 115, 74–101. doi: 10.1037/0033-2909.115.1.74

Del Rey, R., Elipe, P., and Ortega, R. (2012). Bullying and cyberbullying: overlapping and predictive value of the co-occurrence. *Psicothema* 24, 608–613. http://www.psicothema.com/psicothema.asp?id=4061

Didaskalou, E., Skrzypiec, G., Andreou, E., and Slee, P. (2017). Taking action against victimisation: Australian middle school students' experiences. *J. Psychol. Couns. Sch.* 27, 105–122. doi: 10.1017/jgc.2016.3

Dini, B., Sad, N., Milovanovi, I., and Sad, N. (2016). Empathy and peer violence among adolescents: moderation effect of gender empathy and peer violence among adolescents: moderation effect of gender. *Sch. Psychol. Int.* 37, 359–377. doi: 10.1177/0143034316649008

Dirks, M. A., Suor, J. H., Rusch, D., and Frazier, S. L. (2014). Children's responses to hypothetical provocation by peers: coordination of assertive and aggressive strategies. *J. Abnorm. Child Psychol.* 42, 1077–1087. doi: 10.1007/s10802-014-9862-0

Dirks, M. A., Treat, T. A., and Weersing, V. R. (2009). The judge specificity of evaluations of youth social behavior: the case of peer provocation. *Soc. Dev.* 19, 736–757. doi: 10.1111/j.1467-9507.2009.00559.x

Earnshaw, V. A., Reisner, S. L., Menino, D. D., Poteat, V. P., Bogart, L. M., Barnes, T. N., et al. (2018). Stigma-based bullying interventions: a systematic review. *Dev. Rev.* 48, 178–200. doi: 10.1016/j.dr.2018.02.001

Eccles, J. S., and Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *J. Res. Adolesc.* 21, 225–241. doi: 10.1111/j.1532-7795.2010.00725.x

Fisher, S., Middleton, K., Ricks, E., Malone, C., Briggs, C., and Barnes, J. (2015). Not just black and white: peer victimization and the intersectionality of school diversity and race. *J. Youth Adolesc.* 44, 1241–1250. doi: 10.1007/s10964-014-0243-3

Fitzpatrick, S., and Bussey, K. (2014). The role of perceived friendship self-efficacy as a protective factor against the negative effects of social victimization. *Soc. Dev.* 23, 41–60. doi: 10.1111/sode.12032

Fredstrom, B. K., Adams, R. E., and Gilman, R. (2011). Electronic and school-based victimization: unique contexts for adjustment difficulties during adolescence. *J. Youth Adolesc.* 40, 405–415. doi: 10.1007/s10964-010-9569-7

Garaigordobil, M. (2012). Cooperative conflict-solving during adolescence: relationships with cognitive-behavioural and predictor variables. *Infanc. Aprendiz.* 35, 151–165. doi: 10.1174/021037012800217998

Garaigordobil, M. (2017). Conducta antisocial: conexión con bullying/cyberbullying y estrategias de resolución de conflictos. *Psychosoc. Interv.* 26, 47–54. doi: 10.1016/j.psi.2015.12.002

Garnett, B. R., Masyn, K. E., Austin, S. B., Miller, M., Williams, D. R., and Viswanath, K. (2014). The intersectionality of discrimination attributes and bullying among youth: an applied latent class analysis. *J. Youth Adolesc.* 43, 1225–1239. doi: 10.1007/s10964-013-0073-8

Haynie, D. L., Nansel, T., and Eitel, P. (2001). Bullies, victims, and bully/victims: distinct groups of at-risk youth. *J. Early Adolesc.* 21, 29–49. doi: 10.1177/0272431601021001002

Hong, J. S., and Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: an ecological system analysis. *Aggress. Violent Behav.* 17, 311–322. doi: 10.1016/j.avb.2012.03.003

Hull, G. A., and Hellmich, E. A. (2018). Locating the global: schooling in an interconnected world. *Teach. Coll. Rec.* 120, 1–36. https://www.tcrecord.org

Jansen, P. W., Mieloo, C. L., and Berkel, A. D. (2016). Bullying and victimization among young elementary school children: the role of child ethnicity and ethnic school composition. *Race Soc. Probl.* 8, 271–280. doi: 10.1007/s12552-016-9182-9

Jenkins, L. N., and Fredrick, S. S. (2017). Social capital and bystander behavior in bullying: internalizing problems as a barrier to prosocial intervention. *J. Youth Adolesc.* 46, 757–771. doi: 10.1007/s10964-017-0637-0

Jolliffe, D., and Farrington, D. P. (2011). Is low empathy related to bullying after controlling for individual and social background variables? *J. Adolesc.* 34, 59–71. doi: 10.1016/j.adolescence.2010.02.001

Kastoryano, R. (2018). Multiculturalism and interculturalism: redefining nationhood and solidarity. *Comp. Migr. Stud.* 6:17. doi: 10.1186/s40878-018-0082-6

Keliat, P. B. A., Tololiu, T. A., Daulima, D. N. H. C., and Erawati, E. (2015). Effectiveness assertive training of bullying prevention among adolescents in West Java Indonesia. *Int. J. Nurs.* 2, 128–134. doi: 10.15640/ijn.v2n1a14

Kochel, K. P., Ladd, G. W., Bagwell, C. L., and Yabko, B. A. (2015). Bully/victim profiles' differential risk for worsening peer acceptance: the role of friendship. *J. Appl. Dev. Psychol.* 41, 38–45. doi: 10.1016/j.appdev.2015.05.002

Kokkinos, C. M. M., and Kipritsi, E. (2012). The relationship between bullying, victimization, trait emotional intelligence, self-efficacy and empathy among preadolescents. *Soc. Psychol. Educ.* 15, 41–58. doi: 10.1007/s11218-011-9168-9

Lösel, F., and Ttofi, M. M. (2017). Systematic reviews of the effectiveness of developmental prevention programs in reducing delinquency, aggression, and bullying. *Aggress. Violent Behav.* 33, 91–106. doi: 10.1016/j.avb.2016.11.003

Marks, A. K., Ejesi, K., and García Coll, C. (2014). Understanding the U.S. immigrant paradox in childhood and adolescence. *Child Dev. Perspect.* 8, 59–64. doi: 10.1111/cdep.12071

Martín-Albo, J., Núñez, J. L., Navarro, J. G., and Grijalvo, F. (2007). The Rosenberg self-esteem scale: translation and validation in university students. *Span. J. Psychol.* 10, 458–467. doi: 10.1017/S1138741600006727

Maynard, B. R., Vaughn, M. G., Salas-Wright, C. P., and Vaughn, S. (2016). Bullying victimization among school-aged immigrant youth in the United States. *J. Adolesc. Health* 58, 337–344. doi: 10.1016/j.jadohealth.2015.11.013

Mishna, F. (2003). Peer victimization: the case for social work intervention. *Fam. Soc.* 84, 513–522. doi: 10.1606/1044-3894.142

Mishna, F., Khoury-Kassabri, M., Schwan, K., Wiener, J., Craig, W., Beran, T., et al. (2016). The contribution of social support to children and adolescents' self-perception: the mediating role of bullying victimization. *Child Youth Serv. Rev.* 63, 120–127. doi: 10.1016/j.childyouth.2016.02.013

Mitsopoulou, E., and Giovazolias, T. (2015). Personality traits, empathy and bullying behavior: a meta-analytic approach. *Aggress. Violent Behav.* 21, 61–72. doi: 10.1016/j.avb.2015.01.007

Monks, C. P., Ortega-Ruiz, R., and Rodríguez-Hidalgo, A. J. (2008). Peer victimization in multicultural schools in Spain and England. *Eur. J. Dev. Psychol.* 5, 507–535. doi: 10.1080/17405620701307316

Mucci, N., Giorgi, G., Roncaioli, M., Fiz Perez, J., and Arcangeli, G. (2016). The correlation between stress and economic crisis: a systematic review. *Neuropsychiatr. Dis. Treat.* 12, 983–993. doi: 10.2147/NDT.S98525

Murphy, S., and Faulkner, D. (2011). The relationship between bullying roles and children's everyday dyadic interactions. *Soc. Dev.* 20, 272–293. doi: 10.1111/j.1467-9507.2010.00597.x

Oliva, A., Antolín Suárez, L., Pertegal Vega, M. Á., Ríos Bermúdez, M., Parra Jiménez, Á., Hernando Gómez, Á., et al. (2011). *Instrumentos para la evaluación de la salud mental y el desarrollo positivo adolescente y los activos que lo promueven*. (Seville: Junta de Andalucía. Consejería de Salud). Available at: http://www.formajoven.org/AdminFJ/doc_recursos/201241812465364.pdf

Olweus, D. (2013). School bullying: development and some important challenges. *Annu. Rev. Clin. Psychol.* 9, 751–780. doi: 10.1146/annurev-clinpsy-050212-185516

Ortega-Ruiz, R., Del Rey, R., and Casas, J. A. (2016). Evaluar el bullying y el cyberbullying validación española del EBIP-Q y del ECIP-Q. *Psicol. Educ.* 22, 71–79. doi: 10.1016/j.pse.2016.01.004

Ortega-Ruiz, R., Elipe, P., Mora-Merchán, J. A., Genta, M. L., Brighi, A., Guarini, A., et al. (2012). The emotional impact of bullying and cyberbullying on victims: a European cross-national study. *Aggress. Behav.* 38, 342–356. doi: 10.1002/ab.21440

Priest, N., Perry, R., Ferdinand, A., Paradies, Y., and Kelaher, M. (2014). Experiences of racism, racial/ethnic attitudes, motivated fairness and mental health outcomes among primary and secondary school students. *J. Youth Adolesc.* 43, 1672–1687. doi: 10.1007/s10964-014-0140-9

Rieffe, C., and Camodeca, M. (2016). Empathy in adolescence: relations with emotion awareness and social roles. *Br. J. Dev. Psychol.* 34, 340–353. doi: 10.1111/bjdp.12133

Rivas-Drake, D., Syed, M., Umaña-Taylor, A., Markstrom, C., French, S., Schwartz, S. J., et al. (2014). Feeling good, happy, and proud: a meta-analysis of positive ethnic-racial affect and adjustment. *Child Dev.* 85, 77–102. doi: 10.1111/cdev.12175

Rodríguez-Hidalgo, A. J., Calmaestra, J., Casas, J. A., and Ortega-Ruiz, R. (2019). Ethnic-cultural bullying versus personal bullying: specificity and measurement of discriminatory aggression and victimization among adolescents. *Front. Psychol.* 10:46. doi: 10.3389/fpsyg.2019.00046

Rodríguez-Hidalgo, A. J., Pantaleón, Y., and Alcívar, A. (2017). "La discriminación y la exclusión social: Tejer la convivencia intercultural" in *Acoso escolar, ciberacoso y discriminación: Educar en diversidad y convivencia*. eds. A. J. Rodríguez-Hidalgo and R. Ortega-Ruiz (Madrid: Los Libros de la Cararata), 81–95.

Rodríguez-Hidalgo, A. J., Ortega-Ruiz, R., and Monks, C. P. (2015). Peer-victimisation in multi-cultural contexts: a structural model of the effects on self-esteem and emotions. *Psicol. Educ.* 21, 3–9. doi: 10.1016/j.pse.2015.02.002

Rodríguez-Hidalgo, A. J., Ortega-Ruiz, R., and Zych, I. (2014). Peer victimization and ethnic-cultural peer victimization: self-esteem and school relations between different cultural groups of students in Andalusia, Spain. *J. Psychodidactics* 19, 191–210. doi: 10.1387/RevPsicodidact.7909

Rodríguez-Hidalgo, A. J., Solera, E., and Calmaestra, J. (2018). Psychological predictors of cyberbullying according to ethnic-cultural origin in adolescents: a national study in Spain. *J. Cross-Cult. Psychol.* 49, 1506–1522. doi: 10.1177/0022022118795283

Rose, A. J., and Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: potential trade-offs for the emotional and behavioral development of girls and boys. *Psychol. Bull.* 132, 98–131. doi: 10.1037/0033-2909.132.1.98

Rosenberg, M. (1989). *Society and the adolescent self-image. Rev.* edn. (Middeltown, CT: Wesleyan University Press).

Salmivalli, C. (2010). Bullying and the peer group: a review. *Aggress. Violent Behav.* 15, 112–120. doi: 10.1016/j.avb.2009.08.007

Sapouna, M., and Wolke, D. (2013). Resilience to bullying victimization: the role of individual, family and peer characteristics. *Child Abuse Negl.* 37, 997–1006. doi: 10.1016/j.chiabu.2013.05.009

Schroeder, B. A., Messina, A., Schroeder, D., Good, K., Barto, S., Saylor, J., et al. (2012). The implementation of a statewide bullying prevention program. *Health Promot. Pract.* 13, 489–495. doi: 10.1177/1524839910386887

Sentse, M., Prinzie, P., and Salmivalli, C. (2017). Testing the direction of longitudinal paths between victimization, peer rejection, and different types of internalizing problems in adolescence. *J. Abnorm. Child Psychol.* 45, 1013–1023. doi: 10.1007/s10802-016-0216-y

Stavrinides, P., Georgiou, S., and Theofanous, V. (2010). Bullying and empathy: a short-term longitudinal investigation. *Educ. Psychol.* 30, 793–802. doi: 10.1080/01443410.2010.506004

Tsaousis, I. (2016). The relationship of self-esteem to bullying perpetration and peer victimization among schoolchildren and adolescents: a meta-analytic review. *Aggress. Violent Behav.* 31, 186–199. doi: 10.1016/j.avb.2016.09.005

Ttofi, M. M., and Farrington, D. P. P. (2011). Effectiveness of school-based programs to reduce bullying: a systematic and meta-analytic review. *J. Exp. Criminol.* 7, 27–56. doi: 10.1007/s11292-010-9109-1

van Noorden, T. H. J., Haselager, G. J. T., Cillessen, A. H. N., and Bukowski, W. M. (2015). Empathy and involvement in bullying in children and

adolescents: a systematic review. *J. Youth Adolesc.* 44, 637–657. doi: 10.1007/s10964-014-0135-6

Vanderbilt, D., and Augustyn, M. (2010). The effects of bullying. *Paediatr. Child Health* 20, 315–320. doi: 10.1016/j.paed.2010.03.008

Vera, E. M., Daskalova, P., Hill, L., Floro, M., Anderson, B., Roche, M., et al. (2017). Parental messages, school belonging, social skills, and personal control as predictors of bullying in ethnic minority adolescents. *Sch. Ment. Heal.* 9, 347–359. doi: 10.1007/s12310-017-9218-3

Vervoort, M. H. M., Scholte, R. H. J., and Overbeek, G. (2010). Bullying and victimization among adolescents: the role of ethnicity and ethnic composition of school class. *J. Youth Adolesc.* 39, 1–11. doi: 10.1007/s10964-008-9355-y

Viejo, C. (2014). *'Dating violence' y cortejo adolescente Un estudio sobre la violencia en las parejas sentimentales de los jóvenes andaluces*. (Sevilla: Fundación Pública Andaluza Centro de Estudios Andaluces, Consejería de la Presidencia, Junta de Andalucía).

Waasdorp, T. E., Baker, C. N., Paskewich, B. S., and Leff, S. S. (2013). The association between forms of aggression, leadership, and social status among urban youth. *J. Youth Adolesc.* 42, 263–274. doi: 10.1007/s10964-012-9837-9

Wolke, D., and Lereya, S. T. (2015). Long-term effects of bullying. *Arch. Dis. Child.* 100, 879–885. doi: 10.1136/archdischild-2014-306667

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 02 July 2019
doi: 10.3389/fpsyg.2019.01520

Impact of the Physical Activity on Bullying

Inmaculada Méndez[1], Cecilia Ruiz-Esteban[1] and Enrique Ortega[2]*

[1] Department of Developmental Psychology and Education, University of Murcia, Murcia, Spain, [2] Department of Physical Activity and Sports, University of Murcia, Murcia, Spain

Relationship problems among school children can lead to bullying situations. In this regard, it should be noted that, among healthy lifestyle habits, sports practice (non-competitive) promotes responsibility and improves coexistence. The objective of the present study was to analyze the incidence of the frequency of practice of healthy physical activity on the risks of students directly involved in school bullying (harasser and victim) by gender. The participants of the study were 1,248 students of Compulsory Secondary Education with ages between 11 and 18 (M = 14.42, SD = 1.43), being 50.8% males. The results of the study indicated that students who practiced physical activity in the recommended frequency rated as healthy, at least four or more times per week, had higher values in the indicators of aggressiveness than students who practiced with a lower frequency, appreciating a greater relationship between both variables in male rather than in female students. The study will make progress in preventive and intervention programs whose central axis is the promotion of physical activity and healthy sport (non-competitive) among students involved in situations of bullying. Likewise, teacher training in the recognition of bullying is considered a priority, providing them with guidelines for action.

Keywords: bullying, secondary education, adolescence, physical activity, gender

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz,
Universidad de Córdoba, Spain

Reviewed by:
Evangelia Karagiannopoulou,
University of Ioannina, Greece
Robert Thornberg,
Linköping University, Sweden

****Correspondence:***
Cecilia Ruiz-Esteban
cruiz@um.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *22 December 2018*
Accepted: *17 June 2019*
Published: *02 July 2019*

Citation:
Méndez I, Ruiz-Esteban C and Ortega E (2019) Impact of the Physical Activity on Bullying. Front. Psychol. 10:1520. doi: 10.3389/fpsyg.2019.01520

INTRODUCTION

Due to the fact that the American College of Sports Medicine (ACSM) together with the Centers for Disease Control and Prevention (CDC) established some recommendations on the types and amounts of physical activity needed to improve and maintain health (Haskell et al., 2007; World Health Organization [WHO], 2010), programs which promote physical activity in schools are essential (Medeiros et al., 2018). Therefore, organized sport must complete, but not replace, a regular physical activity, since the physical activity is a formative tool in the educational context (Guzmán-Guzmán, 2010). Specifically, in Spain, the data provided by the Delegación del Gobierno para el Plan Nacional sobre Drogas [DGPNSD] (2016a,b)Government Delegation for the National Plan on Drugs –show that 70.8% of the adolescents practice sport weekly, although this percentage decrease as the age increases. In particular, the Annual Directory of Sport Statistics (Subdirección General de Estadística y Estudios, 2018) highlights from the Survey on Sport Habits in Spain (Subdirección General de Promoción Deportiva y Deporte Paralímpico, 2015) that inactive students who do not carry out any type of physical-sporting activities outside school hours, represent a 9% of the school population. Thus, 53.5% of the population from 15 years old had

practiced sport in the last year and 47% of the student population had carried out some physical-sporting activity during the break. Therefore, nowadays, there is a widespread concern for the low level of physical activity among teenagers, something that can be linked to high levels of overweight and obesity (Ramos et al., 2016).

Accordingly, the practice of physical activity (PA) in the adolescence plays an essential role in the promotion of healthy lifestyles (Campo-Ternera et al., 2017) as a lesser tendency toward drug use is shown (Hernando et al., 2013; Galán et al., 2014; González et al., 2016). Reciprocity between the self-concept of the physical condition and the competence perceived, as well as of the general health, physical function, mental health and vitality, has been found (Palomino-Devia et al., 2018). Thus, a greater physical activity increases the quality of life associated to health and self-esteem (Zurita-Ortega et al., 2018). Teenagers with a more self-determined profile perceive a greater teacher's support toward autonomy, greater competence and social relationships, and greater satisfaction in the practice of physical education or even a greater practice of physical activity (Fin et al., 2017). Most adolescents practice team sports, which provides greater possibilities of enjoyment and, at the same time, promote social relationships (González et al., 2016). With reference to gender, some authors have evinced that the percentage of inactive women being higher than that of men (Chahín-Pinzón and Libia, 2011; Hernando et al., 2013; Hutchens et al., 2016; Medina et al., 2018) even at the lower socioeconomic levels (Moreno-Maldonado et al., 2016; Ramos et al., 2016; Chzhen et al., 2018). There are more men in federated sports (Castro-Sánchez et al., 2016). Women show a higher social status (popularity and respect) in the school center while men's is higher in the Physical Education (PE) classes (Santos et al., 2018).

Likewise, some authors demonstrate that the practice of physical activity (PA) (non-competitive) is an excellent means for the transmission of values (Portolés and González, 2015) and helps to promote prosocial attitudes (González et al., 2016) so it can be helpful in the prevention and treatment of bullying and victimization and have a lower risk of developing aggressive and deviant behaviors (Pelegrín et al., 2010). Other studies make reference to the increase of aggressiveness produced by competitive sports (students replicate the violent situations, e.g., football and basketball to a greater extent) (Chacón-Cuberos et al., 2015; Subdirección General de Promoción Deportiva y Deporte Paralímpico, 2015). Thus, those teenagers who practiced sport on a regular basis showed a higher overt aggressiveness than sedentary teenagers, because started competing (Zurita-Ortega et al., 2015). Martínez-Baena and Faus-Bosca (2018) mention that there are scarce studies which relate bullying in the practice of physical activity. It has been proved that certain factors such as being overweight, having educational needs or deficient motor skills, etc., can be a risk factor for being bullied in the PE classes (Bejerot et al., 2011; Bejerot et al., 2013; Healy, 2014). Therefore, a moderate physical activity which is oriented toward disciplines such as football or athletics implies a greater victimization in all dimensions while one oriented toward the martial arts or popular games involves lower rates of victimization. Consequently, the amount of physical activity carried out and the type of sport practiced can act as regulators in the victimization for bullying. In relation to differences by gender, the following points are highlighted: significant differences in the dimension of indirect verbal violence in basketball, in violence for social exclusion in the martial arts, and in violence via new information and communication technologies in athletics (Medina Cascales and Reverte Prieto, 2019). Thus the report issued by the Fundación ANAR – Foundation for the Help of Children and Adolescents at Risk – (Ballesteros, 2018) shows that victims suffer a higher number of violent acts in comparison to previous reports (2.6%), observing that the situations of bullying are more and more violent, tougher and in more places. Then, bullying with medium or high seriousness implies up to 97% of cases. That is to say, bullying has become a problem on a global scale (Olweus, 2013). Furthermore, in Spain the studies evince that 9.3% of the students had been victims of bullying and 5.4% had been aggressors as it is pointed out in the report issued by Save the Children (Sastre, 2016) in the same way Sánchez-Queija et al. (2017) refer to an increase of victimization (20%). Moreover, both men and women are involved in the different forms of aggression (Chacón-Cuberos et al., 2015; Martínez-Martínez et al., 2017; López-Castedo et al., 2018; Medina Cascales and Reverte Prieto, 2019). Indeed, with reference to victimization, 10.6% of women had suffered bullying (Sastre, 2016).

Due to that there are scarce studies which relate bullying in the practice of PA, outside school, the aim of this study was to analyze the impact of the amount of healthy physical activity on the risks for the students directly involved in bullying (bully and victim) according to gender.

MATERIALS AND METHODS

Participants

The participants in the study were 1.248 students of Compulsory Secondary Education from different geographical areas of the Region of Murcia in Spain (73% urban and 27% rural areas) with an age range from 11 to 18 (M = 14.42; SD = 1.43), being 50.8% female and 49.2% men; 83.7% were Spanish and 16.3%, foreigners. We consider this sample as representative (with a maximal error of 3%) of the Secondary pupils of the Region of Murcia. The inclusion criteria used were the following: students in compulsory secondary education with ages between 11 and 18 years who attended school the day of the test. Exclusion criteria were the following: absence the day of the questionnaire and substantial deficit in the mastery of the Spanish language.

Design and Procedure

This research is a transversal descriptive study. The participants in this study were students selected from secondary schools in Murcia (Spain). After obtaining the permissions, students were approached at their own classrooms in school. Researchers explained the objectives of the study and the instruments that would be used. Participation was voluntary and confidential.

The study protocols were approved by the Ethics Committee of the University of Murcia, and the study was performed in accordance with the approved guidelines and the Declaration of

Helsinki, with written informed consent from all participants. To participate in the study, informed consent of the parents was required. The protocol was approved by the Ethic Committee for Clinic Investigations of the University of Murcia.

One session of 50 min was used to complete the tests (20 min for the Bull-S Test, 20–25 min for the second scale).

Instruments

To measure aggressiveness or victimization in bullying, the Bull-S test, Assessment Test of Aggressiveness (version 3.3) was used (Cerezo, 2012). It consisted of 15 direct choice Likert items and was addressed to all individuals in the group-class. The test had three dimensions: Dimension 1, Sociometric status (4 items by peer nominations); Dimension 2, Bullying dynamic (6 items by peer nominations), and Dimension 3, Situational perception (5 Likert scale items). In this study, we used dimension 2. It provided information on the students who stood out in at least 25% of each profile linked to bullying dynamics: the aggressor's profile and the victim's role. The features associated to the aggressor profile were related to continuous items: physical strength, aggressiveness and provoking behavior; and those associated with the victim role: cowardice, victimization and fixation. Individuals who scored significantly high in victimization and fixation were classified as provocative victim. Cronbach's alpha coefficient was 0.68 for total scale scores (0.73 for aggressors and 0.84 for victims) (Cerezo, 2012). In this study, the coefficient was 0.68 for total scale scores (0.83 for aggressors and 0.84 for victims). Example of items: Who are the victims?

To measure physical activity and health, the scale applied was based on the "National Survey on Drug Consumption in Secondary School Students" (ESTUDES), issued by the Government Delegation for the National Plan on Drugs – DGPNSD – (2016) and APAL-Q (Zaragoza et al., 2012). From the ESTUDES test the items refer to the frequency of realization of sports habits taking into account the place of performance, the causes in case of not doing, the consideration of being in good physical shape and if you consider the individual that puts your health at risk. On the other hand, APAL-Q is a short self-report physical activity questionnaire. The scale contained five questions. The answers were coded on a 4-point Likert scale (1 is the lowest value and 4 the highest). Example of items: do you do physical-sporting activities outside school? Cronbach's alpha coefficient was 0.76 for total scale scores. The test included socio-demographic variables too: gender (male/female), age, grade, origin (Spanish/foreigner), course repetition (yes/no), nature of the school (public/private/semi-private) and geographical location (urban/rural). For those following the recommendations of the ACSM (at least four times per week) and those who did not practice that minimum of physical exercise (less than four times per week).

Data Analysis

A descriptive statistic (mean, standard deviation, and frequency) was used and inferential statistics of the data were calculated. An analysis of variance of two factors (2 × 2), gender (male and female) and practice of physical activity according to the ACSM (a physical activity is frequently practiced according to the ACSM, or not). Bonferroni *post hoc* analysis was used. The level of significance was set in $p < 0.05$. The classification to measure the magnitude of the effect size was used (Ferguson, 2009): no effect ($\eta^2 < 0.04$), minimum effect ($0.04 < \eta^2 < 0.25$), moderate effect ($0.25 < \eta^2 < 0.64$) and strong effect ($\eta^2 > 0.64$). The statistical analysis was completed with SPSS software (version 21.0).

RESULTS

In **Table 1**, the means and standard deviations of aggressiveness in men and women who practiced the minimum frequency of physical exercise per week recommended by the ACSM (at least four times per week) and those who did not practice that minimum of physical activity (less than four times per week), are shown.

After the implementation of the analysis of variance of two factors (2 × 2), it was observed that the effect of the interaction between both variables was not significant ($F_{1,1244} = 1.093$, $p = 0.296$, $\eta^2 = 0.001$), and, therefore, our findings do not support that the interaction between gender and frequency of physical activity had an impact on the levels of aggressiveness in bullying.

From the perspective of the between-subjects factor gender, were not statistically significant differences between them ($F_{1,1244} = 0.687$, $p = 0.407$, $\eta^2 = 0.001$). These data showed that women and men had similar values of aggressiveness. In this sense, there were not statistically significant differences between men and women who practiced PA according to the ACSM

TABLE 1 | Descriptive values of aggressiveness in women and men, according to the frequency of practice of physical activity.

Gender	Practice PA ACSM	*M*	*SD*	*N*
Women	Not practice PA. ACSM	6.47	13.60	353
	Practice PA. ACSM	8.44	14.37	281
	Total	7.34	13.97	634
Male	Not practice PA ACSM	5.03	11.08	344
	Practice PA ACSM	8.61	14.99	270
	Total	6.60	13.06	614
Total	Not practice PA ACSM	5.76	12.43	697
	Practice PA ACSM	8.52	14.66	551
	Total	6.98	13.53	1248

($F_{1,1244}$ = 0.021, p = 0.885, η^2 = 0.000) nor between those who did not ($F_{1,1244}$ = 1.989, p = 0.159, η^2 = 0.002).

On the other hand, from the perspective of the between-subjects factor of practicing PA in accordance with the ACSM, the students who practiced PA according to the ACSM showed higher statistically significant values ($F_{1,1244}$ = 13.083, p = 0.000, η^2 = 0.051) with reference to those who did not practice PA according to the ACSM. These data showed that those students who practiced it have higher values of aggressiveness in comparison to those students who did not. In this sense, there were statistically significant differences in men between those who practiced PA according to the ACSM and those who did not ($F_{1,1244}$ = 10.688, p = 0.001, η^2 = 0.049), and a tendency toward significance in women ($F_{1,1244}$ = 3.364, p = 0.067, η^2 = 0.043). In both cases, there were higher values in men and women who practiced PA according to the ACSM than in those students who did not practice it.

In **Figure 1**, it can be seen that amongst the students not practicing PA according to the ACMS, women tended to have higher values of aggressiveness, while men showed higher values when practicing PA according to the ACSM.

In **Table 2**, the means and standard deviations of victimization in men and women, who practiced physical activity at least four

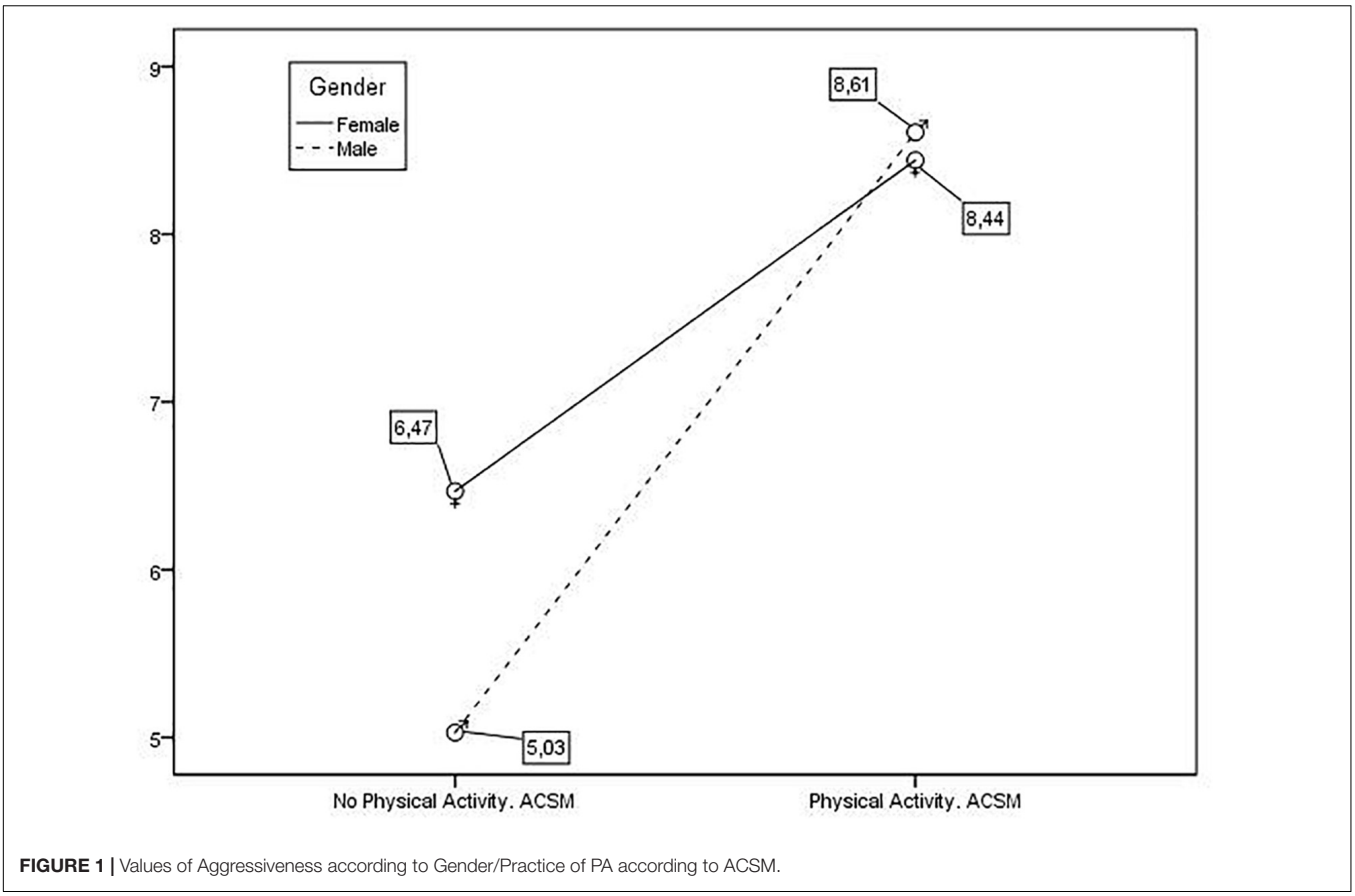

FIGURE 1 | Values of Aggressiveness according to Gender/Practice of PA according to ACSM.

TABLE 2 | Descriptive values of Victimization in women and men according to the frequency of practice of physical activity.

Gender	Practice PA ACSM	*M*	*SD*	*N*
Women	Not practice PA ACSM	4.88	11.95	353
	Practice PA ACSM	5.34	10.92	281
	Total	5.08	11,50	634
Male	Not practice PA ACSM	11.67	17.03	344
	Practice PA ACSM	11.05	16.38	270
	Total	11.40	16.73	614
Total	Not practice PA ACSM	8.23	15.06	697
	Practice PA ACSM	8.14	14.15	551
	Total	8.19	14.66	1248

times per week (as recommended by the ACSM), and those who did not practice that minimum frequency, can be seen.

After the implementation of the analysis of variance of two factors (2 × 2), gender and practice of physical activity according to ACSM, it was observed that the effect of the interaction between both variables was not significant ($F_{1,1244}$ = 0.435, p = 0.510, η^2 = 0.000), and, therefore, our findings do not support that the interaction between both factors had an impact on the levels of victimization in bullying.

From the perspective of the between-subjects factor gender, women had lower levels of victimization than men with statistically significant differences ($F_{1,1244}$ = 58.531, p = 0.000, η^2 = 0.055). These data showed that women had greatly inferior values with respect to men. In this sense, there were statistically significant differences either between men and women practicing PA according to the ACSM ($F_{1,1244}$ = 21.875, p = 0.000, η^2 = 0.047) and those not practicing PA according to the ACSM ($F_{1,1244}$ = 39.109, p = 0.000, η^2 = 0.060).

On the other hand, from the perspective of the between-subjects factor of the between-subjects factor of practicing PA in accordance with the ACSM, the students who practiced PA according to the ACSM showed slightly inferior values which were not statistically significant ($F_{1,1244}$ = 0.010, p = 0.920, η^2 = 0.000) with reference to those who did not practice PA according to the ACSM. These data showed that those students who practiced it had very similar values to those students who did not. In this sense, there were not statistically significant differences between those who practiced PA according to the ACSM and those who did not practice it, neither in men ($F_{1,1244}$ = 0.284, p = 0.594, η^2 = 0.000) nor in women ($F_{1,1244}$ = 0.159, p = 0.690, η^2 = 0.000). In **Figure 2**, it is shown that women, either practicing or not PA according to the ACSM, had lower values of victimization than men.

DISCUSSION

Due to that there are scarce studies which relate bullying in the practice of PA, outside school, the aim of this study was to analyze the impact of the amount of healthy physical activity on the risks for the students directly involved in bullying (bully and victim) according to gender. So the data obtained follow the line of previous researches which evince that both men and women are involved in the different forms of aggression (Chacón-Cuberos et al., 2015; Martínez-Martínez et al., 2017; López-Castedo et al., 2018; Medina Cascales and Reverte Prieto, 2019). Although the data of the present study indicate that an effect of the interaction between aggressiveness and gender is not appreciated, the descriptive data (**Figure 1**) reflect trends that could be confirmed with more subjects, so that the practice of physical activity modifies the levels of aggressiveness more in men than in women. Those teenagers who practiced sport on a regular

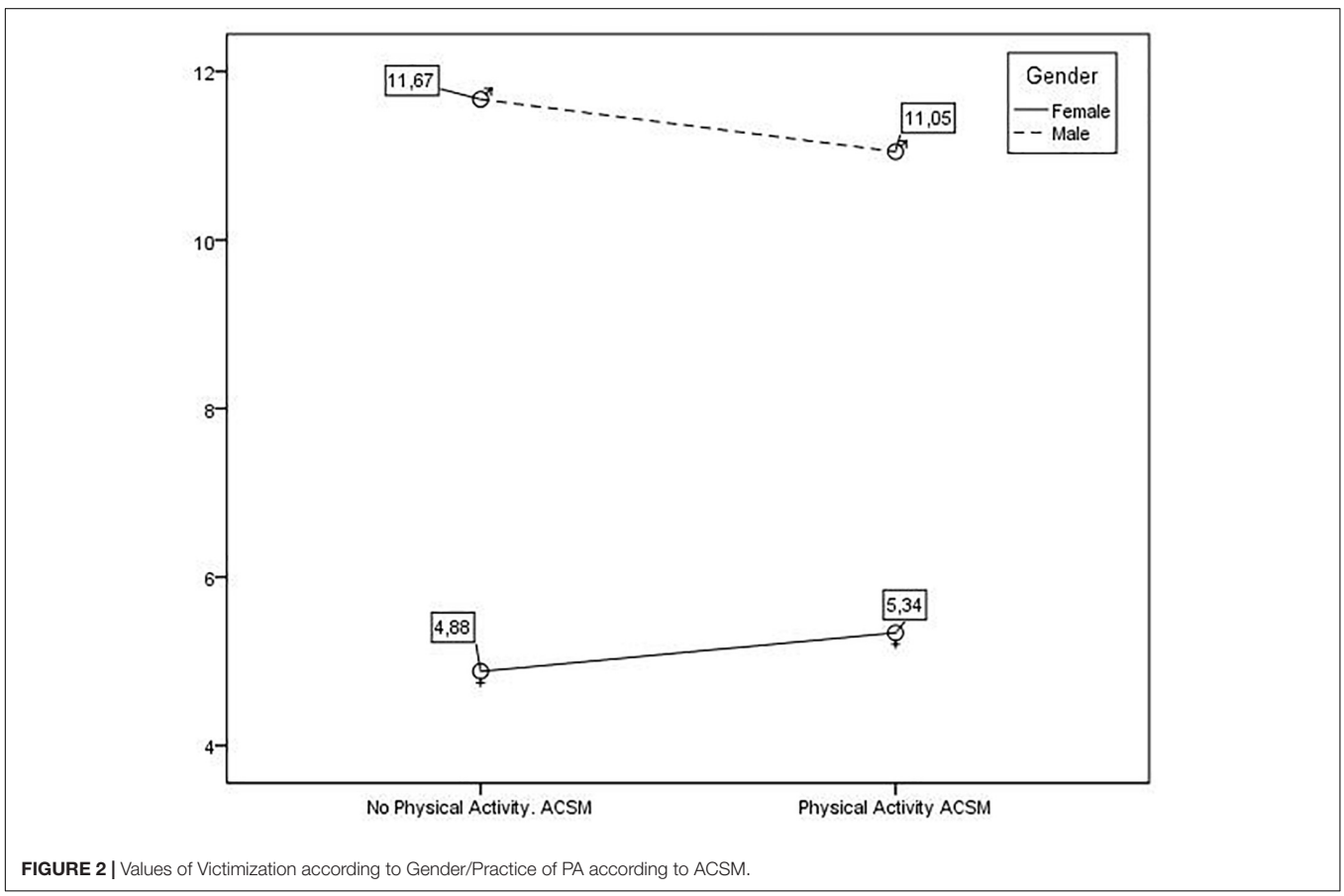

FIGURE 2 | Values of Victimization according to Gender/Practice of PA according to ACSM.

basis showed a moderate effect rate of overt aggressiveness than the sedentary adolescents (Zurita-Ortega et al., 2015), since in the competitive activities, students replicate violent situations (Subdirección General de Promoción Deportiva y Deporte Paralímpico, 2015). Moreover, the students who practice team sports (non-competitive) show a lesser risk of developing aggressive and deviant conducts (Pelegrín et al., 2010). In relation to victimization, significant differences by gender, in contrast with other studies, were found (Espelage et al., 2004; Rodkin and Berger, 2008). Women show lower levels of victimization, both among those who practice PA as among those who do not. In both genders, the practice of PA does not reduce the levels of victimization. However, it seems that the amount of physical activity carried out and the type of sport practiced can act as regulators in the victimization for bullying (Medina Cascales and Reverte Prieto, 2019). Indeed in our study, men tended to do more sport than women (Chahín-Pinzón and Libia, 2011; Hernando et al., 2013; Hutchens et al., 2016; Ramos et al., 2016; Martínez-Martínez et al., 2017; Medina et al., 2018).

In conclusion due to in adolescence, some lifestyles, which could put at risk the quality of life, may appear, therefore, the practice of a physical activity is a fundamental factor in health promotion in childhood and adolescence (Ramos et al., 2016). Most adolescents practice team sports (non-competitive) and this provides greater possibilities of enjoyment and, at the same time, promotes social relationships (González et al., 2016). According to Gómez (2007), it is necessary that the different professionals (psychologists, educators, etc.) tackle violence and the attitude toward it in the physical sporting context. Likewise, it is essential to promote an active lifestyle among teenagers, mainly among those from a low socioeconomic level and, particularly, among women (Ramos et al., 2016). Therefore, it is key to reinforce attitudes which favor healthy habits (Campo-Ternera et al., 2017; Lima-Serrano et al., 2018; Medeiros et al., 2018; Santos et al., 2018; Palomino-Devia et al., 2018) so antisocial and criminal behaviors can be minimized (Pelegrín et al., 2010; Gázquez et al., 2015). The practice of physical activity (non-competitive) entails the promotion of essential values for a peaceful coexistence and socialization, being an ideal tool to diminish the cases of violence (Martínez-Baena and Faus-Bosca, 2018; Medina Cascales and Reverte Prieto, 2019). Consequently, the role of PE teachers is noteworthy in the promotion of proactive strategies to prevent bullying through training sessions and competitions, which allow working in the resolution of conflicts that is to say avoiding competitive sports (Hand, 2016; López-Castedo et al., 2018) or even implementing in education centers programs which promote school coexistence, plans, protocols (Ortega-Ruiz and Córdoba-Alcaide, 2017), prosociality, empathy and emotional control (Gómez-Ortiz et al., 2017), programs on forgiveness in the prevention and treatment of bullying (Barcaccia et al., 2018), among others. Moreover, it is also necessary to consider that the prevention programs centered on students with a certain vulnerability (e.g., deficient gross motor skills) could diminish bullying (Bejerot et al., 2011, 2013; Healy, 2014).

On the whole, as a limitation of this research study can be pointed out the fact that the present study used a standard cross-sectional methodology even some of the data are self-reported these results may be biased due to distorted responses or social desirability. Finally, it would be desirable to use at the same time other assessment instruments which would allow identification of other variables as well as evaluation of the teaching staff and the family.

On the other hand, future research could consider other variables such as cyberaggression, parental control (Álvarez-García et al., 2018), self-concept of the physical condition and perceived competence, mental health (Palomino-Devia et al., 2018), physical activity carried out by parents (Loch et al., 2015; Castro-Sánchez et al., 2016; González et al., 2016; Greca et al., 2016), the impact of the socioeconomic inequalities in lifestyles and health (Moreno-Maldonado et al., 2016; Chzhen et al., 2018), resilience (Moreno et al., 2016), longitudinal studies, etc., Also, longitudinal studies using multiple informants (e.g., adolescence, peer, parent, coach, and teacher) are needed to establish true casual connections among variables.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Oviedo Agreement by the Ethic Committee for Clinic Investigations of the University of Murcia and with a written informed consent from all participants. Parents also gave written informed consent in accordance with the Declaration of Helsinki.

AUTHOR CONTRIBUTIONS

IM contributed to the fieldwork, analyzed the theoretical development, and wrote the manuscript. CR-E analyzed the theoretical development and wrote the manuscript. EO contributed to the fieldwork, analyzed the methodological treatment, and wrote the manuscript.

REFERENCES

Álvarez-García, D., Núñez, J. C., García, T., and Barreiro-Collazo, A. (2018). Individual, family, and community predictors of cyber-aggression among adolescents. *Eur. J. Psychol. Appl. Leg. Context* 10, 79–88. doi: 10.5093/ejpalc2018a8

Ballesteros, B. (coord). (2018). *III Estudio Sobre Acoso Escolar y Ciberbullying SEgún Los Afectados*. Madrid: Fundación Mutua Madrileña y Fundación ANAR

Barcaccia, B., Pallini, S., Baiocco, R., Salvati, M., Saliani, A. M., and Schneider, B. H. (2018). Forgiveness and friendship protect adolescent victims of bullying from emotional maladjustment. *Psicothema* 30, 427–433. doi: 10.7334/psicothema2018.11

Bejerot, S., Edgar, J., and Humble, M. B. (2011). Poor performance in physical education–a risk factor for bully victimization a case control study. *Acta Paediatrica.* 100, 413–419. doi: 10.1111/j.1651-2227.2010.02016.x

Bejerot, S., Plenty, S., Humble, A., and Humble, M. B. (2013). Poor motor skills: a risk marker for bully victimization. *Aggress. Behav.* 39, 453–461. doi: 10.1002/ab.21489

Campo-Ternera, L., Herazo-Beltrán, Y., García-Puello, F., Suarez-Villa, M., Orlando Méndez, O., and Vásquez-De la Hoz, F. (2017). Estilos de vida saludables de niños, niñas y adolescentes [Healthy lifestyles of children and adolescents]. *Salud Uniorte. Barranquilla* 33, 419–428. doi: 10.14482/sun.33.3.10931

Castro-Sánchez, M., Zurita-Ortega, F., Martínez-Martínez, A., Chacón-Cuberos, R., and Espejo-Garcés, T. (2016). Clima motivacional de los adolescentes y su relación con el género, la práctica de actividad física, la modalidad deportiva, la práctica deportiva federada y la actividad física familiar. *Rev. Int. Cienc. Deporte* 45, 262–277. doi: 10.5232/ricyde2016.04504

Cerezo, F. (2012). *Bull-S. Test De Evaluación De La Agresividad Entre Escolares*. Madrid: Albor-Cohs.

Chacón-Cuberos, R., Martínez-Martínez, A., Castro-Sánchez, M., Espejo-Garcés, T., Valdivia Moral, P. A., and Zurita-Ortega, F. (2015). Relación entre bullying, género y actividad física: estudio en escolares de la provincia de Granada. *Trances* 7, 791–810.

Chahín-Pinzón, N., and Libia, B. (2011). Actividad física en adolescentes y su relación con agresividad, impulsividad, internet y videojuegos. *Psychologia Avances De La Disciplina* 5, 9–23.

Chzhen, Y., Bruckauf, Z., Toczydlowska, E., Elgar, F. J., Moreno-Maldonado, C., Stevens, G. W., et al. (2018). Multidimensional poverty among adolescents in 38 countries: evidence from the health behaviour in school-aged children (HBSC) 2013/14 study. *Child Indic. Res.* 11, 729–753. doi: 10.1007/s12187-017-9489-0

Delegación del Gobierno para el Plan Nacional sobre Drogas [DGPNSD] (2016a). *Encuesta Estatal Sobre Uso De Drogas En Enseñanzas Secundarias(ESTUDES) 2016*. Madrid: Secretaría de Estado de Servicios Sociales e Igualdad.

Delegación del Gobierno para el Plan Nacional sobre Drogas [DGPNSD] (2016b). *Informe 2016. Alcohol, Tabaco y Drogas Ilegales En Espaňe*. Madrid: Secretaría de Estado de Servicios Sociales e Igualdad.

Espelage, D., Mebane, S., and Swearer, S. (2004). "Gender differences in bullying: moving beyond mean level differences bullying," in *American School A Social-Ecological Perspective on Prevention and Intervention*. eds D. Espelage and S. Swearer, Mahwah, NJ: Erlbaum, 15–35.

Ferguson, C. J. (2009). An effect size primer: a guide for clinicians and researchers. *Prof. Psychol. Res. Prac.* 40, 532–538. doi: 10.1037/a0015808

Fin, G., Baretta, E., Moreno-Murcia, J. A., and Nodari Junior, R. J. (2017). Autonomy support, motivation, satisfaction and physical activity level in physical education class. *Univ. Psychol.* 16, 1–12. doi: 10.11144/Javeriana.upsy16-4.asms

Galán, I., Boix, R., Medrano, M. J., Ramos, P., Rivera, F., and Moreno, C. (2014). Individual factors and school-based policies related to adherence to physical activity recommendations in spanish adolescents. *Prev. Sci.* 15, 588–599. doi: 10.1007/s11121-013-0407-5

Gázquez, J. J., Pérez-Fuentes, M. C., Carrión, J. J., Luque, A., and Molero, M. M. (2015). Perfiles de valores interpersonales y análisis de conductas y actitudes sociales de adolescentes. *Revista de Psicodidáctica* 20, 321–337. doi: 10.1387/RevPsicodidact.12978

Gómez, A. (2007). La violencia en el deporte: un análisis desde la psicología social. *Revista de Psicología Social* 22, 63–87. doi: 10.1174/021347407779697539

Gómez-Ortiz, O., Romera-Félix, E. M., and Ortega-Ruiz, R. (2017). Multidimensionalidad de la competencia social: medición del constructo y su relación con los roles del bullying. *Revista de Psicodidáctica* 22, 37–44. doi: 10.1016/S1136-1034(17)30042-4

González, A. J. I, Zurita-Ortega, F., Garófano, V. V., Martínez-Martínez, A. García, Sánchez, S., and Estévez Díaz, M. (2016). Actividad física de adolescentes: implicación de sustancias nocivas, modalidad practicada y familia. *Psicología Escolar e Educacional* 20, 13–22. doi: 10.1590/2175-3539/2015/0201908

Greca, J. P. A., Arruda, G. A., Coledam, D. C., Pires Junior, R., Teixeira, M., and Oliveira, A. R. (2016). Student and parental perception about physical activity in children and adolescents. *Rev. Andal. Med. Deporte* 9, 12–16. doi: 10.1016/j.ramd.2015.05.005

Guzmán-Guzmán, R. E. (2010). Valoración médico deportiva: aspectos biopsicosociales relacionados con las actividades físicas y deportivas en niños y adolescentes. *Revista Clínica de Medicina de Familia* 3, 192–200.

Hand, K. E. (2016). Creating a bully-free environment in physical education. *J. Phys. Edu. Recreat. Dance* 87, 55–57. doi: 10.1080/07303084.2016.1203685

Haskell, W. L., Lee, I. M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., et al. (2007). Physical activity and public health: updated recommendation for adults from the American college of sports medicine and the American heart association. *Med. Sci. Sports Exerc.* 39, 1423–1434. doi: 10.1249/mss.0b013e3180616b27

Healy, S. (2014). Preventing bullying in inclusive physical education practical strategies for teachers. *Palestra* 28, 42–46.

Hernando, A., Oliva, A., and Pertegal, M. A. (2013). Diferencias de género en los estilos de vida de los adolescentes [Gender differences in adolescents' lifestyles]. *Psychosoc. Inter.* 22, 15–23. doi: 10.5093/in2013a3

Hutchens, A., Soltero, E. G., Barquera, S., Lévesque, L., Jauregui, E., Lopez Taylor, J., et al. (2016). Influencia de la percepción de los padres sobre seguridad escolar y del género en la actividad física de niños en México: un estudio transversal *Salud Publica Méx.* 58, 7–15. doi: 10.21149/spm.v58i1.7662

Lima-Serrano, M., Martínez-Montilla, J. M., Guerra-Martín, M. D., Vargas-Martínez, A. M., and Lima-Rodríguez, J. S. (2018). Factores relacionados con la calidad de vida en la adolescencia Quality-of-life-related factors in adolescents. *Gaceta Sanitaria* 32, 68–71. doi: 10.1016/j.gaceta.2016.06.016

Loch, M. R., Porpeta, R. H., and Brunetto, B. C. (2015). Relac,ão entre a prática de atividade física no lazer dos pais e a dos filos. *Revista Basileira de Ciências do Esporte* 37, 29–34. doi: 10.1016/j.rbce.2013.09.001

López-Castedo, A., Álvarez García, D., Domínguez Alonso, J., and Álvarez Roales, E. (2018). Expressions of school violence in adolescence. *Psicothema* 30, 395–400. doi: 10.7334/psicothema2018.130

Martínez-Baena, A., and Faus-Bosca, J. (2018). Acoso escolar y educación física: una revisión sistemática. *Retos* 34, 412–419.

Martínez-Martínez, A., Ruiz-Rico, G., Zurita-Ortega, F., Chacón, R., Castro-Sánchez, M., and Cachón-Cuberos, J. (2017). Actividad física y conductas agresivas en adolescentes en régimen de acogimiento residencial. *Suma Psicológica* 24, 135–141. doi: 10.1016/j.sumpsi.2017.02.002

Medeiros, E. R., Rebouças, D. G. C., Paiva, A. C. S., Nascimento, C. P. A., Silva, S. Y. B., and Pinto, E. S. G. (2018). Studies evaluating of.health interventions at schools: an integrative literature review. *Rev. Lat. Am. Enfermagem* 26:e3008. doi: 10.1590/1518-8345.2463.3008

Medina, C., Jáuregui, A., Campos-Nonato, I., and Barquera, S. (2018). Prevalencia y tendencias de actividad física en niños y adolescentes: resultados de la Ensanut 2012 y Ensanut MC 2016. *Salud Pública Méx.* 60, 263–271. doi: 10.21149/8819

Medina Cascales, J. A., and Reverte Prieto, M. J. (2019). Incidencia de la práctica de actividad física y deportiva como reguladora de la violencia escolar. *Retos* 35, 54–60.

Moreno, C., García Moya, I., Rivera, F., and Ramos, P. (2016). Characterization of vulnerable and resilient Spanish adolescents in their developmental contexts. *Front. Psychol.* 7:983. doi: 10.3389/fpsyg.2016.00983

Moreno-Maldonado, C., Moreno, C., and Rivera, F. (2016). Indicadores para detectar y evaluar el impacto de las desigualdades socioeconómicas en los estilos de vida y la salud de los adolescentes españoles. *Apunt. Psicol.* 34, 177–188.

Olweus, D. (2013). School bullying: development and some important challenges. *Annu. Rev. Clin. Psychol.* 9, 751–780. doi: 10.1146/annurev-clinpsy-050212-185516

Ortega-Ruiz, R., and Córdoba-Alcaide, F. (2017). El Modelo construir la convivencia para prevenir el acoso y el ciberacoso escolar. *Innovación Educativa* 27, 19–32.

Palomino-Devia, C., Reyes-Oyola, F. A., and Sánchez-Oliver, A. (2018). Niveles de actividad física, calidad de vida relacionada con la salud, autoconcepto físico e índice de masa corporal: un estudio en escolares colombianos. *Biomédica* 38, 224–231. doi: 10.7705/biomedica.v38i0.3964

Pelegrín, A., Garcés, E. J., and Catón, E. (2010). Estudio de conductas prosociales y antisociales. Comparación entre niños y adolescentes que practican y no practican deporte. *Inf. Psicol.* 64–78.

Portolés, A., and González, J. (2015). Rendimiento académico y correspondencias con indicadores de salud física y psicológica. *Sportis* 1, 164–181. doi: 10.17979/sportis.2015.1.2.1409

Ramos, P., Jiménez-Iglesias, A., Rivera, F., and Moreno, C. (2016). Evolución de la práctica de la actividad física en los adolescentes españoles. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte* 16, 335–353. doi: 10.15366/rimcafd2016.62.010

Rodkin, P. C., and Berger, C. (2008). Who bullies whom? social status asymmetries by victim gender. *Int. J. Behav. Dev.* 32, 488–501.

Sánchez-Queija, I., García-Moya, I., and Moreno, M. C. (2017). Trend analysis (2006-2010-2014) of bullying victimization prevalence in spanish adolescent schoolchildren. *J. School Health* 87, 457–464. doi: 10.1111/josh.12513

Santos, M. O., Barbosa, D. G., Rebelatto, C. F., Beltrame, T., and Felden, E. P. G. (2018). Status social subjetivo na escola e nas aulas de educac,ão física. *Revista Brasileira de Ciencias do Esporte* 40, 77–86. doi: 10.1016/j.rbce.2018.01.008

Sastre, A. (coord). (2016). *Yo a Eso No Juego. Bullying y Ciberbullying En La Infancia*. Madrid: Save the Children España.

Subdirección General de Estadística y Estudios (2018). *Anuario De Estadísticas Deportivas 2018 [Yearbook of Sports Statistics 2018]*. Madrid: Ministerio de Educación.

Subdirección General de Promoción Deportiva y Deporte Paralímpico (2015). *Estudio: Los Hábitos Deportivos De La Población Escolar En España [Study: Sports Habits of the School Population in Spain]*. Madrid: Consejo Superior de Deportes.

World Health Organization [WHO] (2010). *Global Recommendations on Physical Activity for Health*. Geneva: World Health Organization.

Zaragoza, J., Generelo, E., Aznar, S., Abarca, A., Julián, J. A., and Mota, J. (2012). Validation of a short physical activity recall questionnaire completed by Spanish adolescents. *Eur. J. Sport Sci.* 12, 283–291. doi: 10.1080/17461391.2011.56635

Zurita-Ortega, F., Vilches, J. M., Cachon, J., Padial, R., Martínez-Martínez, A., and Castro, M. (2015). Violencia escolar en adolescentes: un análisis en función de la Actividad Física y Lugar de Residencia Habitual. *Universitas Psychologica* 14, 759–770. doi: 10.11144/Javeriana.upsy14-2.veaa

Zurita-Ortega, F., Salvador-Pérez, F., Knox, E., Gámiz-Sánchez, V. M., Chacón-Cuberos, R., Rodríguez-Fernández, S., et al. (2018). Physical activity and health-related quality of life in schoolchildren: structural equations analysis. *Anales de Psicología* 34, 385–390. doi: 10.6018/analesps.34.2.299781

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 04 July 2019
doi: 10.3389/fpsyg.2019.01467

Young, Bullying, and Connected. Common Pathways to Cyberbullying and Problematic Internet Use in Adolescence

Antonella Brighi[1], Damiano Menin[2], Grace Skrzypiec[3] and Annalisa Guarini[4]*

[1] Faculty of Education, Campus of Bressanone, Free University of Bolzano-Bozen, Bolzano, Italy, [2] Department of Education, University of Bologna, Bologna, Italy, [3] College of Education, Psychology, and Social Work, Flinders University, Adelaide, SA, Australia, [4] Department of Psychology, University of Bologna, Bologna, Italy

Cyberbullying perpetration (CBP) and problematic Internet use (PIU) are the most studied risky online activities for adolescents in the current generation. However, few studies have investigated the relationship between CBP and PIU. Still lacking is a clear understanding of common or differentiated risk and protective pathways for adolescents interacting in the cyber world. The aim of this study was to understand the role of individual (emotional symptoms) and environmental variables (parental monitoring) underpinning both CBP and PIU, with time spent online as a mediator of these factors. Furthermore, we investigated gender and school level differences in these dynamics. A questionnaire was filled in by 3,602 students from Italian Lower Secondary Schools and Upper Secondary Schools. Structural equation modeling was used to test the effects of emotional symptoms and parental monitoring on CBP and PIU mediated by time spent online, controlling for school level. In addition, the model was implemented for girls and boys, respectively. Negative emotional symptoms and low levels of parental monitoring were risk factors for both CBP and PIU, and their effect was mediated by the time spent online. In addition, parental monitoring highlighted the strongest total effect on both CBP and PIU. Risk and protective pathways were similar in girls and boys across Lower Secondary and Upper Secondary Schools, although there were some slight differences. CBP and PIU are the outcomes of an interplay between risk factors in the individual and environmental systems. The results highlight the need to design interventions to reduce emotional symptoms among adolescents, to support parental monitoring, and to regulate the time spent online by adolescents in order to prevent risky online activities.

Keywords: cyberbullying perpetration, problematic Internet use, emotional symptoms, family, parental monitoring, adolescence, risk factors, time online

OPEN ACCESS

Edited by:
Weijun Wang,
University at Buffalo, United States

Reviewed by:
Dennis S. W. Wong,
City University of Hong Kong, Hong Kong
Izabela Zych,
Universidad de Córdoba, Spain
Yan Xu,
Sun Yat-sen University, China

****Correspondence:***
Antonella Brighi
antonella.brighi@unibz.it

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *01 March 2019*
Accepted: *11 June 2019*
Published: *04 July 2019*

Citation:
Brighi A, Menin D, Skrzypiec G and Guarini A (2019) Young, Bullying, and Connected. Common Pathways to Cyberbullying and Problematic Internet Use in Adolescence. Front. Psychol. 10:1467. doi: 10.3389/fpsyg.2019.01467

INTRODUCTION

Information and communication technologies (ICTs) and social media are changing the way we socially interact, calling for a redefinition and reassessment of social boundaries and the relationships that operate within and around them. The integration of information technology with everyday social life has created a complex phenomenon where social contexts, information

channels, and network properties interact. Online and offline contexts represent social worlds placed along a continuum that requires a restructuring and reorganization of relations, nested in a complex system (Wellman, 2004).

The virtual context, in fact, is a crucial scenario to be considered when investigating the dynamics of socialization and communication involved in the construction of views, values, and patterns of behavior that define and influence adolescents' lifestyles, and, consequentially, their psychological well-being. Beyond the benefits of the Internet and ICT expansion into society, there are many risks that result from their misuse (Livingstone et al., 2011): access to discriminatory and prejudicial content and cyberbullying, pornography, sexting, sextortion, online gambling, and videogame addiction have been reported as emerging and alarming behaviors within the adolescent population (Garaigordobil and Aliri, 2013; Romer and Moreno, 2017; Gainsbury et al., 2018).

Cyberbullying perpetration (CBP) and problematic Internet use (PIU)—the latter defined as an entity of dysfunctional behavioral patterns within the spectrum of impulse control disorders (Kormas et al., 2011; Livingstone and Smith, 2014)—are the most studied risky online activities in the current adolescent population.

To date, the most frequently cited definition of cyberbullying, from Smith et al. (2008, p. 376), is as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him- or herself." This definition was later integrated and revised (Tokunaga, 2010; Slonje et al., 2013), suggesting that the criteria of repetition and power imbalance should be modified. Indeed, a single act can constitute CBP since it may be repeated many times (snowball effect), while the power imbalance in cyberbullying can be described as the presence of different technical abilities with ICTs and anonymity. The prevalence of CBP was highly variable across studies in function of methodological research options (definition of phenomenon, recall periods, age of assessment, country involved, etc.; Brochado et al., 2017; Kowalski et al., 2018). Indeed, as revealed by a recent meta-analysis (Brochado et al., 2017), analyzing the prevalence of cyberperpetration in the last 6 months, the variability across the 21 studies investigated was very high, since the range comprised 1.9 to 79.3%.

Concerning PIU, several studies have outlined the potential addictive properties of the Internet (Griffiths and Parke, 2002), particularly for those adolescents who overly use the Internet, who cannot control their behavior online, and who may develop symptoms of compulsive Internet use (Morahan-Martin and Schumacher, 2000), as well as Internet addiction (Young, 1998) or PIU (Caplan, 2002; Shapira et al., 2003; Gámez-Guadix et al., 2013). Despite a lack of consensus in definition, these symptoms refer to the presence of clinically significant distress or impairment in social, occupational, or other important areas of functioning associated with Internet use (Gámez-Guadix et al., 2013; Bányai et al., 2017), with loss of control over the behavior, conflict (internal and interpersonal), absorption with the Internet, use of the Internet to modify one's mood, and social withdrawal. Durkee et al. (2012) investigated the prevalence of PIU in 11 countries with a sample of 11,956 adolescents from Austria, Estonia, France, Germany, Hungary, Ireland, Israel, Italy, Romania, Slovenia, and Spain. The highest rate of maladaptive Internet use (18.2%) and pathological Internet use (11.8%) was found in Israel, while the sample's average was around 7.5%. A meta-analysis by Pontes et al. (2015) reported prevalence rates for PIU between 1 and 18%, with an average prevalence rate of 7.5%.

Given their relevance and growing alarm, literature has underlined the role of individual and contextual risk factors that may be involved in CBP and PIU. Concerning CBP, Cross et al. (2015) pointed out a range of factors at the levels of the individual, family, peers, and the community that may interact with cyberbullying, underlying an ecological framework for understanding this phenomenon. This framework has also been adopted in the systematic review of meta-analyses on protective factors against bullying and cyberbullying by Zych et al. (2019), who reported protective factors against CBP at community, school, family, peer, and individual levels.

At the individual level, research has shown that experiences with cyberbullying as an offender have been associated with significantly lower levels of self-esteem, even while controlling for gender, race, and age (Hinduja and Patchin, 2010; Brighi et al., 2012a; Guarini et al., 2012).

Conversely, Zych et al. (2019) found that a high of level self-esteem, high empathy, and high academic performance were protective factors against CBP. A meta-analysis by Guo (2016) that examined the predictors of CBP at the demographic, individual, and contextual level across 77 studies found that gender was a small to medium predictor of CBP, with higher levels of CBP among males. Age had a relatively small, yet significant, effect size: older students had a significant higher probability of being a cyberbully, but not a cybervictim. This finding was also confirmed by Ybarra (2004) study, since older adolescents were more often cyberbullies than younger ones.

In terms of individual characteristics, the role of internalizing and externalizing problems was analyzed too. The meta-analysis by Guo (2016) showed that internalizing problems had a stronger association with the perpetration of cyberbullying, even if the relationship diminished with the increasing average age of the sample. Strong predictors of CBP included experiencing offline victimization and perpetrating bullying, as well as reporting some externalizing problems. Thus, individuals who were traditional bullies and traditional victims and had been responsible for several delinquent, defiant, aggressive, and rule-breaking acts were more prone to being cyberbullies. Campbell et al. (2013) reported that cyberbullies had more social difficulties and higher scores on stress, depression, and anxiety scales than those students who were not involved in any bullying.

Other authors adopted an ecological approach in investigating PIU risk factors (Anderson et al., 2017; Cacioppo et al., 2019). For what concerns PIU, many studies have reported an association with increased depression and anxiety (Kim et al., 2006; Park et al., 2013; Lee et al., 2014), and personality traits such as impulsivity, hostility, irritability, and lower self-esteem (Cao et al., 2007; Ko et al., 2007, 2015; Yen et al., 2008). These emotional related problems have been reported

as being associated with PIU in a recent meta-analysis by Fumero et al. (2018).

The role of the family has been considered in many studies, both as a predictor and as a mediator of adolescents' use of the Internet. The quality of the affective relationship with parents (Li, 2007) and parental monitoring of young people's activities online have been found to be inversely associated with CBP (Mesch, 2009; Wade and Beran, 2011; Brighi et al., 2012a; Guarini et al., 2013; Guo, 2016; Melotti et al., 2018; Baldry et al., 2019; Zych et al., 2019). The systematic review of 154 studies by Nocentini et al. (2018) highlighted that parental supervision and monitoring were protective factors for cyberbullying, while the role of overprotective parents was not consistent across studies.

Similarly, recent studies have identified the contribution of attachment style (Cacioppo et al., 2019), family structure, and interactions (Wartberg et al., 2014) in predicting PIU. A recent meta-analysis (Anderson et al., 2017) demonstrated a consistent association between parenting, family-related factors, and levels of Internet use and PIU, particularly in adolescence: good parent–child communication about Internet use was associated with less risk of PIU (van den Eijnden et al., 2010; Yu and Shek, 2013). Paradoxically, parental restriction of online activities (i.e., gaming) did not have a significant impact on PIU levels (Liau et al., 2015). In general, adolescents with closer relationships with their parents showed decreased PIU symptoms over time.

Relevant research has examined possible correlates among risky online activities for adolescents, such as CBP and PIU and the time spent online (Erdur-Baker, 2010; Guo, 2016). The usage frequency of Internet-based communication tools and risky Internet usage were found to be related to both cybervictimization and cyberbullying, even after controlling for the effects of traditional bullying experiences for both male and female students. Adolescents who spend more time on the Internet may expose themselves to a number of potential risks, such as being the target of harassment, invasion of privacy online, identity theft, or sexual exploitation and manipulation (Eksi, 2012; Kırcaburun and Baştug, 2016) and/or may display problematic Internet usage.

Among studies that have described individual and family risk factors as well as the time spent online associated with CBP and PIU, few have investigated the relationship between CBP and PIU (for a meta-analysis, see Kowalski et al., 2014). In particular, CBP has been found to be directly associated with PIU (Keith and Martin, 2005; Eksi, 2012; Casas et al., 2013; Gámez-Guadix et al., 2013; Jung et al., 2014; Nartgün and Cicioğlu, 2015; Kırcaburun and Baştug, 2016). This relationship was found not only in cross-sectional studies but also in longitudinal studies where cyberbullying victimization predicted PIU 6 months later (Gámez-Guadix et al., 2013). At the same time, PIU was a significant predictor of CBP, with the amount of time people spent on the Internet often being linked with cyberbullying behavior (Kırcaburun and Baştug, 2016; Kırcaburun et al., 2018).

However, to our best knowledge, none of them adopted this ecological approach in investigating both CBP and PIU at the same time as outcomes; moreover, as emphasized by Zych et al. (2019), most of the studies in the field have not differentiated between risk factors and different types of protective factors against cyberbullying. Indeed, according to Zych et al. (2019), a factor that can be protective can, at the same time, be a risk factor. Therefore, a deeper knowledge of protective factors against CBP and PIU should be gained.

In accordance with the ecological framework, our study sought to investigate two main levels of the ecological system such as individual factors (emotional symptoms) and environmental factors (parental monitoring) on PIU and CBP, taking into account time spent online as mediator. The amount of time spent online, in fact, appears to be related to both parental monitoring behaviors (Khurana et al., 2015) and emotional symptoms (Cao et al., 2011), and was found to be one of the most important factor associated to PIU and CBP (Erdur-Baker, 2010; Guo, 2016). In our model, controlling for school level, emotional symptoms and parental monitoring were considered potential risk and protective factors for CBP and PIU, with time spent online partially mediating their effects on CBP and PIU. In particular, we hypothesized that emotional symptoms and parental monitoring would have both a direct effect on CBP and PIU and an indirect effect mediated by the influence of time that young people spent online. In addition, since literature has outlined that risk and protective factors can be differently modulated across genders (Guo, 2016), the proposed model was tested among male and female groups. Our study accounted for both risk and protective factors at individual and family levels, by exploring both their direct relation and their mediated relation with CBP and PIU, thus contributing to advance the knowledge regarding the way young people can be protected against these phenomena.

MATERIALS AND METHODS

Participants

A two-stage, non-probabilistic sampling method was applied in order to approximate a representative sample of the students in the Emilia Romagna region of Italy (for more information, see Guarini et al., 2013). Following the sampling procedure, 61 Secondary Schools were enrolled, comprising 16 Lower Secondary Schools and 45 Upper Secondary Schools, including Lyceum, technical institutes, and vocational institutes.

The survey was completed in 2014–2015 by 3602 students (56% were males, n = 2010), including Lower Secondary School students (n = 934, 26%) and Upper Secondary School students (n = 2668, 74%). Students' ages ranged from 11 to 20 years (M = 14.64, SD = 1.70). Students with non-Italian citizenship represented 17.1% of the sample (21% in Lower Secondary Schools and 15.4% in Upper Secondary Schools).

A combined analysis of the level of education of both parents showed that 23.5% of students had one parent who completed Primary or Lower Secondary School, 12.2% had both parents who completed Lower Secondary School, 50.3% had at least one parent with Upper High School or University degree, while 14.5% had both parents with this educational level. Most participants (79.7%; n = 2872) reported living with both parents, while 17.8% of students were from single-parent households.

Measures

Participants completed an anonymous, self-report questionnaire based on the European Cyberbullying Intervention Project ECIP questionnaire (ECIPQ, Brighi et al., 2012b; Del Rey et al., 2015). The questionnaire was translated and validated into five different languages (Schultze-Krumbholz et al., 2015), and for this reason, it was chosen among validated tools for the Italian population. It included the following sections.

Participant Information

Sociodemographic information, such as gender, age, and parents' education, was collected in this section.

Cyberbullying Perpetration

Cyberbullying was assessed using the Italian version of the cyberbullying scale from the European Cyberbullying Intervention Project Questionnaire (ECIPQ, Brighi et al., 2012b; Del Rey et al., 2015; Schultze-Krumbholz et al., 2015).

The CBP scale consists of seven items (e.g., "I threatened someone with messages on the Internet" and "I threatened someone by using SMS"). Participants were asked to evaluate their experiences of CBP in the last 6 months, using a five-point scale (never, once or two times, two or three times per month, once a week, more times a week). The CBP scale displayed a good reliability, as coefficient *H* (Hancock and Mueller, 2001) was 0.792.

Problematic Internet Use

An adapted and reduced version of the subscale "NCT Engagement" was included in the Lodz Electronic Aggression Prevalence Questionnaire (Pyżalski, 2009) and was used in order to measure PIU. The Italian version of the scale was validated for the Italian population in the ECIPQ (Brighi et al., 2012b; Guarini et al., 2013). The five items were included, as indicators of Internet use, which could be considered problematic ("I get bored if I cannot connect to internet," "On days when I'm free, I spend all my time at the computer," "Better that no one knows what I do on the computer," "Often I don't sleep during the night because I'm using the computer," "I feel better in virtual world than in the real world"). Participants responded to these questions as true (1) or false (0). A PIU score was computed, using the sum of the five items (ranging from 0 to 5). The factor was found to be quite reliable (coefficient $H = 0.797$).

For descriptive purposes, PIU scores were used to divide participants into four groups: "Not Evident" (with a score of zero), "Low Level" (with a score of one), "Medium Level" (with a score of two), and "High Level" (with a score of three or more).

Online Time

Online time was assessed using the Italian version of a three-item scale from the ECIPQ (Brighi et al., 2012b; Guarini et al., 2013). The three items were, respectively, "How long do you use internet in a normal working day?," "How long do you play videogames in a normal working day?," and "How long do you use technological tools in a normal working day?" Participants responded to the questions choosing the time that was more indicative of their use of Internet, from "less than 20 min a day" to "more than 5 h a day." The reliability of the online time scale displayed a coefficient *H* of 0.663.

Emotional Problems

For this study, the Emotional Symptoms Subscale of the SDQ (Goodman, 2001) was adopted, since the Italian validated version of the scale was available (Di Riso et al., 2010). The five items were, respectively, "I get a lot of headaches, stomach-aches, or sickness," "I worry a lot; I am often unhappy, depressed or tearful," "I am nervous in new situations," "I easily lose confidence," and "I have many fears, I am easily scared."

Each item was scored on a three-point scale with 0 = "not true," 1 = "somewhat true," and 2 = "certainly true." The Subscale score was computed by summing the scores on the five items (range = 0 to 10). Coefficient *H* for the scale was 0.714, indicating an acceptable reliability. For descriptive purposes, we applied the categorization by Goodman (1997) for the Emotional Symptoms subscale of the SDQ scale, summing the numeric scores (0–2) of the five items and coding the scores as normal (<4), borderline ($=4$), and abnormal (>4).

Parental Monitoring

A reduced and adapted version of the Parental Monitoring of Internet activities scale, validated in the ECIP questionnaire (Brighi et al., 2012b) and originally developed by Law et al. (2010), was used to assess parental monitoring. This included five items about the relationships with parents concerning Internet use (e.g., "Do your parents give you a time limit that you can spend on Internet?," "Do your parents really know what you do on Internet and which sites you visit?"). Students responded on a Likert scale ranging from 0 (never) to 5 (almost ever). The items covered not only the dimension of parental control (i.e., setting rules and time limits for Internet use, knowing what their child is doing online, soliciting information from their children) but also the child's will to disclose to parents his/her experiences online (Stattin and Kerr, 2000). The internal reliability of the Parental Monitoring scale was good, with coefficient *H* being 0.821.

Procedure

The online anonymous self-report questionnaire was administered in ICT classes. A trained researcher was present during the administration, in order to respond to possible questions. Students who were not allowed to take part in the study were involved in other activities carried on by class teachers. The questionnaire took about 30 min to complete. A researcher was available to provide explanations for students who may have had linguistic problems.

Ethics Statement

The study protocol met the ethical guidelines for the protection of human participants, including adherence to the legal requirements of Italy, and received a formal approval from the Bioethics Committee, University of Bologna. School directors and teachers were informed about the project. Parents provided their informed written consent for allowing the participation

of their son/daughter in the study. Students were also informed about the survey's procedure and aims and were given the opportunity to refrain from participation with no negative consequences.

Data Analysis

We used confirmatory factor analysis (CFA) to test the measurement model and structural equation modeling (SEM) to investigate the potential mediation of time spent online in relation to emotional symptoms and parental monitoring on the one hand, and PIU and cyberbullying (CBP) on the other.

Goodness of fit was assessed using various fit indexes, namely, the comparative fit index (CFI), the Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA) and corresponding 90% confidence interval, and the standardized root mean square residual (SRMR). CFI and TLI values above 0.90 and RMSEA and SRMR values lower than 0.06 and 0.08, respectively, were considered indicative of an acceptable fit (Hu and Bentler, 1999; Kenny, 2015).

The weighted least squares with means and variance adjusted (WLSMV), a robust version of the diagonally weighted least squares (DWLS) method, was adopted for parameter estimation, in order to accommodate for the ordinal nature of our data (Beauducel and Herzberg, 2006; Rhemtulla et al., 2012; Li, 2016), and standardized coefficients were used. Analyses were carried out using Lavaan version 0.5-23.1097 in R version 3.4.3.

RESULTS

Descriptive Statistics

Among cyberbullying behaviors, "I have told others some unpleasant things about someone else online" was the most commonly reported behavior (see **Table 1**), having been displayed once or twice over the last 6 months by 21.6% of respondents and at least once a month by 4.5% of respondents. Other forms of cyberbullying were less frequent even if serious in terms of their consequences on victims. For example, 9.3% of students ($n = 331$) admitted to having violated someone else's account at least once while 8.5% ($n = 303$) had created a fake account pretending to be someone else in the past 6 months.

At least one type of PIU behavior was reported during the past 6 months by more than half of the sample ($n = 2,024$, 57.6%). As displayed in **Table 2**, among the different behaviors, "I get bored if I cannot connect to the internet" was the most common response ($n = 1370$, 39.1%), followed by "It's better that no one knows what I do on the computer" ($n = 843$, 24.1%).

The total PIU scores were used to classify participants into four groups: no signs of PIU (score = 0; $n = 1469$) appeared for 42.5% of respondents, low PIU level (score = 1; $n = 961$) was observed in 27.8%, medium PIU level (score = 2, $n = 513$) was observed in 14.9% of the participants, and high PIU level (score of 3 or more, $n = 511$) was found for 14.8%.

Participants with a low PIU level were most likely to affirm that they were bored if they could not connect to the Internet ($n = 470$, 48.9%), while just over one-quarter ($n = 261$; 27.2%) thought that it was "Better that no one knows" what they did on the computer. Only a small proportion ($n = 105$, 10.9%) of participants in this group reported that they felt better in the virtual rather than the real world.

Participants with medium PIU level reported feeling bored without the Internet ($n = 405$, 78.9%) and that it would be better that no one knows what they did on the Internet ($n = 216$, 42.1%). However, less than one-third ($n = 158$, 30.8%) reported that they spent most of their free time on the Internet, while just over one-quarter ($n = 146$, 28.5%) reported feeling better in the virtual rather than the real world and one-fifth ($n = 101$, 19.7%) indicated that they did not sleep because they were using the computer.

Nearly all participants with high PIU level reported feeling bored without the Internet ($n = 469$, 91.8%). In addition, approximately two-thirds indicated that they spent most of their free time on the Internet ($n = 349$, 68.3%), felt better in the virtual rather than the real world ($n = 334$, 65.4%), and that it would be better that no one knows what they did on the Internet ($n = 356$, 69.7%). About half ($n = 271$, 53.0%) of the participants reported that they did not sleep because they were using the computer.

Concerning online time, results highlighted that exposure to Internet varied, as 30.6% of respondents ($n = 1,054$) reported

TABLE 1 | Participants' cyberbullying perpetration.

Item	Never		Once or twice		At least once a month	
	Count	%	Count	%	Count	%
(1) I said unpleasant things or I offended someone online	2,791	78.31	626	17.56%	147	4.12
(2) I have told others some unpleasant things about someone else online	2,613	73.90	764	21.61%	159	4.50
(3) I have violated someone else's account	3,226	90.69	255	7.17%	76	2.14
(4) I created a fake account pretending to be another person	3,254	91.48	250	7.03%	53	1.49
(5) I posted embarrassing pictures or videos online	3,352	94.18	149	4.19%	58	1.63
(6) I have excluded or ignored someone on social networks	2,877	80.93	503	14.15%	175	4.92
(7) I attacked or insulted someone in a game	2,971	83.62	270	7.60%	312	8.78

N = 3,602.

TABLE 2 | Descriptive (count and percentages) of PIU.

Index	Total sample		Low PIU		Medium PIU		High PIU	
	Count	%	Count	%	Count	%	Count	%
(1) I get bored if I cannot connect to the Internet	1,370	39.09	470	48.91	405	78.95	469	91.78
(2) In days when I'm free, I spend all my time on the computer	601	17.17	73	7.60	158	30.80	349	68.30
(3) It's better that no one knows what I do on the computer	843	24.13	261	27.16	216	42.11	356	69.67
(4) I often don't sleep during the night because I'm on the computer	430	12.31	52	5.41	101	19.69	271	53.03
(5) I feel better in a virtual world than in the real world	596	17.11	105	10.93	146	28.46	334	65.36

N = 3,602.

spending less than 1 h in a normal working day, 45.5% (n = 1,564) spent from 1 to 3 h a day on Internet activities, while 23.9% (n = 822) browsed the Internet from at least 3 h a day to more than 5 h (see **Table 3** for detailed incidences).

In terms of Emotional Symptoms, 55.5% of the sample (n = 1,998) was coded as normal (score < 4), 11.9% (n = 430) as borderline (score = 4), and 26% (n = 947) as abnormal (score > 4), while 6.3% (n = 227) was not categorized due to missing values.

Regarding parental monitoring, the survey highlighted a rather diversified situation. In particular, 46.3% of respondents (n = 1649) reported their parents were often or always aware of their online activities while 35.7% (n = 1256) were never talked to by their parents in relation to online behavior. Moreover, 58.4% of respondents reported that their parents never or rarely gave them a time limit for surfing the Internet.

CFA and SEM

The five-factor CFA model, including emotional symptoms, parental monitoring, online time, CBP, and PIU, showed a good fit with the data: CFI = 0.919, TLI = 0.909, RMSEA = 0.048 (90% CI 0.046; 0.050), SRMR = 0.068. Factor loadings were significantly (p < 0.001) different from zero for each measured variable, confirming the goodness of the measurement model and its factorial structure.

As shown in **Table 4**, the CFA highlighted significant covariance (with p < 0.001) between all the study variables, in the expected directions. Intraclass correlation (ICC) coefficients were checked to determine whether multilevel modeling was needed. Since all ICC coefficients were very low (<0.06), we concluded that single-level analyses were appropriate (Byrne, 2006; Gámez-Guadix et al., 2013).

In addition, in order to exclude multicollinearity between online time and PIU, as their covariance was relatively high (β = 0.589, p < 0.001), a four-factor CFA model was also fitted, with the items from these two constructs being loaded onto the same latent variable. This reduced model yielded consistently worse fit indexes than the full model: CFI = 0.904, TLI = 0.893, RMSEA = 0.052 (90% CI 0.050; 0.054), SRMR = 0.073. The full five-factor model was therefore retained for SEM analysis.

The hypothesized model was then fitted to the whole dataset, with emotional symptoms and parental monitoring as exogenous variables, online time as mediator and PIU and CBP as outcomes, while the effect of school level (Lower vs. Upper Secondary School) was controlled on all study variables.

Model fit indexes indicated that the model fit well with the data, CFI = 0.939, TLI = 0.946, RMSEA = 0.035 (90% CI 0.033; 0.037), SRMR = 0.068. As shown in **Figure 1**, all effects were significant (with p < 0.001). In particular, online time was negatively predicted by parental monitoring (β = −0.217, p < 0.001) and positively—although more weakly—by emotional symptoms (β = 0.112, p < 0.001). CBP was negatively predicted by parental monitoring (β = −0.193, p < 0.001) and positively predicted by emotional symptoms (β = 0.117, p < 0.001) and online time (β = 0.302, p < 0.001). PIU highlighted a similar pattern, being positively predicted by online time (β = 0.511, p < 0.001) and—more weakly—by emotional symptoms (β = 0.292, p < 0.001) and negatively predicted by parental monitoring (β = −0.379, p < 0.001).

In general, the effects of both emotional symptoms and parental monitoring on CBP and PIU were partially mediated by online time. Parental monitoring, in particular, highlighted the strongest total effect on both CBP (β = −0.258, p < 0.001) and PIU (β = −0.490, p < 0.001), with the mediation of online time accounting for 26% (β = −0.066, p < 0.001) and 23% (β = −0.111, p < 0.001), respectively, of total effects (see **Table 5**). Emotional symptoms showed weaker total effects on CBP (β = 0.151, p < 0.001) and PIU (β = 0.349, p < 0.001), with mediation of online time accounting for 23% (β = 0.034, p < 0.001) and 16% (β = 0.057, p < 0.001) of total effects, respectively. Residual covariance was significant both between CBP and PIU (β = 0.200, p < 0.001) and between parental monitoring and emotional symptoms (β = 0.189, p < 0.001). In addition, all of the study variables were affected by school level, with Upper Secondary students being more at risk for cyberbullying (β = 0.149, p < 0.001) and emotional symptoms (β = 0.107, p < 0.001), less at risk for PIU (β = −0.201, p < 0.001) and reporting more time online (β = 0.191, p < 0.001), as well as less parental control (β = −0.304, p < 0.001).

In order to investigate gender differences, a second model was fitted, using the same formula, accounting for school level and adopting gender as grouping variable. This model highlighted a consistently better fit, CFI = 0.953, TLI = 0.958, RMSEA = 0.029 (90% CI 0.028; 0.031), SRMR = 0.064. As shown in **Figure 2**, results highlighted overall similar effects across gender (with p < 0.001 for all regressions). However, among males, there was a stronger direct effect of parental monitoring (males: β = −0.399,

TABLE 3 | Participants' report of parental monitoring, emotional symptoms, and online time.

Parental monitoring						
Item	**Never/rarely**		**Sometimes**		**Often/always**	
	Count	**%**	**Count**	**%**	**Count**	**%**
(1) Do your parents really know what you do when you surf on the Internet and what sites you visit?	1,063	29.86	848	23.82	1,649	46.32
(2) How often do you tell your parents what you and your friends do when you're on the Internet?	2,014	56.51	835	23.43	715	20.06
(3) Do you have to tell your parents what you're doing on the Internet?	2,387	67.58	591	16.73	554	15.69
(4) How often do your parents talk to you about what you're doing on the Internet?	2,324	65.99	718	20.39	480	13.63
(5) Do your parents give you a limit on the time that you spend on the internet and sites that you can visit?	2,070	58.41	664	18.74	810	22.86
Emotional symptoms						
Item	**Not true**		**Partially true**		**Totally true**	
	Count	**%**	**Count**	**%**	**Count**	**%**
(1) I get a lot of headaches, stomach aches, or sickness	2,185	61.78	953	26.94	399	11.28
(2) I worry a lot	814	23.20	1690	48.16	1,005	28.64
(3) I am often unhappy, down-hearted, or tearful	2,140	61.71	959	27.65	369	10.64
(4) I am nervous in new situations. I easily lose confidence	1,414	40.52	1546	44.30	530	15.19
(5) I have many fears, I am easily scared	2,160	61.66	1021	29.15	322	9.19
Online time						
Item	**Less than 1 h**		**1–3 h**		**More than 3 h**	
	Count	**%**	**Count**	**%**	**Count**	**%**
(1) How long do you use Internet in a normal working day?	1,054	30.64	1564	45.47	822	23.90
(2) How long do you play video games in a normal working day?	1,918	61.63	944	30.33	250	8.03
(3) How long do you use technological tools in a normal working day?	780	23.53	1546	46.64	989	29.83

N = 3,602.

TABLE 4 | CFA covariance matrix.

	PIU	**CBP**	**PM**	**OT**
Problematic Internet use (PIU)				
Cyberbullying (CBP)	0.422***			
Parental monitoring (PM)	−0.416***	−0.286***		
Online time (OT)	0.589***	0.398***	−0.264***	
Emotional symptoms (ES)	0.262***	0.131***	0.145***	0.101***

***$p < 0.001$.

SE = 0.041; females: β = −0.302, *SE* = 0.040) and emotional symptoms (males: β = 0.352, *SE* = 0.052; females: β = 0.248, *SE* = 0.044) and a weaker effect of online time (males: β = 0.425, *SE* = 0.044; females: β = 0.581, *SE* = 0.057) on PIU compared to females. As a consequence, the mediation of online time accounted for a bigger portion of the effects of both parental monitoring and emotional symptoms on PIU in females (27.9% for parental monitoring and 27.3% for emotional symptoms) compared to males (15.8 and 14.6%, respectively).

School level held similar effects for males and females, with the exception of emotional symptoms, which were more severe in Upper Secondary School compared to Lower Secondary School for girls (β = 0.267, $p < 0.001$) while not being affected by school level for boys (β = −0.018, $p = 0.567$).

Moreover, males highlighted significant residual covariances both between CBP and PIU (β = 0.238, $p = 0.001$) and between parental monitoring and emotional symptoms (β = 0.132, $p < 0.001$), while no residual covariance was significant for females. Consistently, the model accounted for slightly more variance in females, resulting in higher R^2 values for online time (R^2 = 0.150), cyberbullying (R^2 = 0.280), and PIU (R^2 = 0.557) compared with males (R^2 = 0.090, R^2 = 0.232, and R^2 = 0.491, respectively).

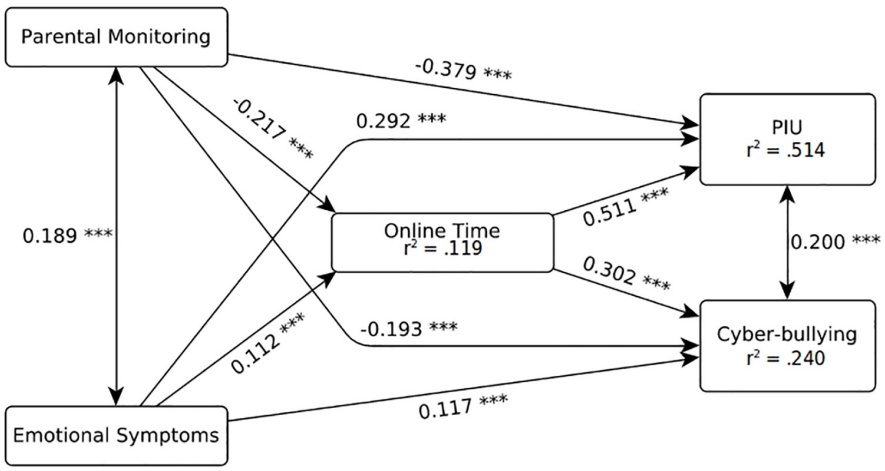

FIGURE 1 | SEM model fitted on the whole dataset. ***$p < 0.001$.

DISCUSSION

Our study sought to investigate the role of emotional symptoms and parental monitoring of online activities on CBP and PIU, taking into account the time spent online as a mediator. This study presents an important element of innovation, since it considers both CBP and PIU as outcomes of common risk pathways, within an ecological framework by exploring the contribution of individual and contextual factors.

According to our results, both CBP and PIU are behaviors with a worrisome diffusion among Italian adolescents. Concerning CBP, about one-quarter of the adolescents admitted some forms of CBP. Our data confirmed high involvement in cyberbullying among Italian students, as already described in previous studies in Europe (Genta et al., 2012; Del Rey et al., 2015). Concerning PIU, indexes of serious PIU were displayed by about 30% of the adolescents, with some signs of an addictive relationship with communication technologies. These results are alarming, since the result from a meta-analysis reported prevalence rates of PIU from 1 to 18%, with an average rate around 7.5% (Pontes et al., 2015). In our sample, high exposure to the Internet was observed, with almost a fourth of the sample spending more than 3 h online per working day. This result is consistent with a study carried out in 2017 involving preadolescents and adolescents in Italy (IPSOS, 2017) that showed that about one-third of teenagers are connected for more than 5 h a day.

Concerning individual and contextual factors, more than half of respondents did not report any kind of parental monitoring over their online activity, depicting an image of distance between parents and children in reference to what happens on the Internet. Almost one-third of adolescents reported negative emotional symptoms. This result is in line with HBSC and PISA national Italian surveys (Cavallo et al., 2015; OECD, 2017), where almost one-third of students were found to have two or more psychosomatic symptoms (Cavallo et al., 2015). Higher scores for stress, anxiety, and psychosomatic symptoms were reported in the Italian sample, compared to students from other European Countries (OECD, 2017).

Analyzing how emotional symptoms and parental monitoring of online activities could be connected to CBP and PIU, and as problematic outcomes of the interplay between individual and contextual factors, our results highlighted that negative emotional symptoms and a lack of parental monitoring both had a direct effect and an indirect effect, mediated by time spent online, on CBP and PIU, increasing the risk for both of them. However, it is worth noting that time online alone was not a sufficient risk factor for CBP and PIU as its mediation explained only about one-fourth of the effects. It increased, instead, the risk, starting from a situation of vulnerability. Time online, in fact, seemed to add further risk, in the framework of a general underlying risky configuration, where high emotional symptoms and lack of parental monitoring depicted a scenario of potential vulnerability to CBP and PIU.

The direct and mediated effects of negative emotional symptoms on CBP and PIU can be explained by the assumptions made by De Leo and Wulfert (2013) who suggested that PIU appeared to be related to internalizing behavioral problems, such as depression and social interaction anxiety. In our results, this seems true also for CBP that shares with PIU the same risk pathways, confirming findings reported by

TABLE 5 | Direct, indirect, and total effects of parental monitoring and emotional symptoms on CB and PIU.

Outcome	Predictor	Direct effect	Indirect effect	Total effect
CBP	Parental monitoring	−0.193	−0.066	−0.258
	Emotional symptoms	0.117	0.034	0.151
PIU	Parental monitoring	−0.379	−0.111	−0.49
	Emotional symptoms	0.292	0.057	0.349

The table reports fully standardized coefficients; CBP, cyberbullying; PIU, problematic Internet use.

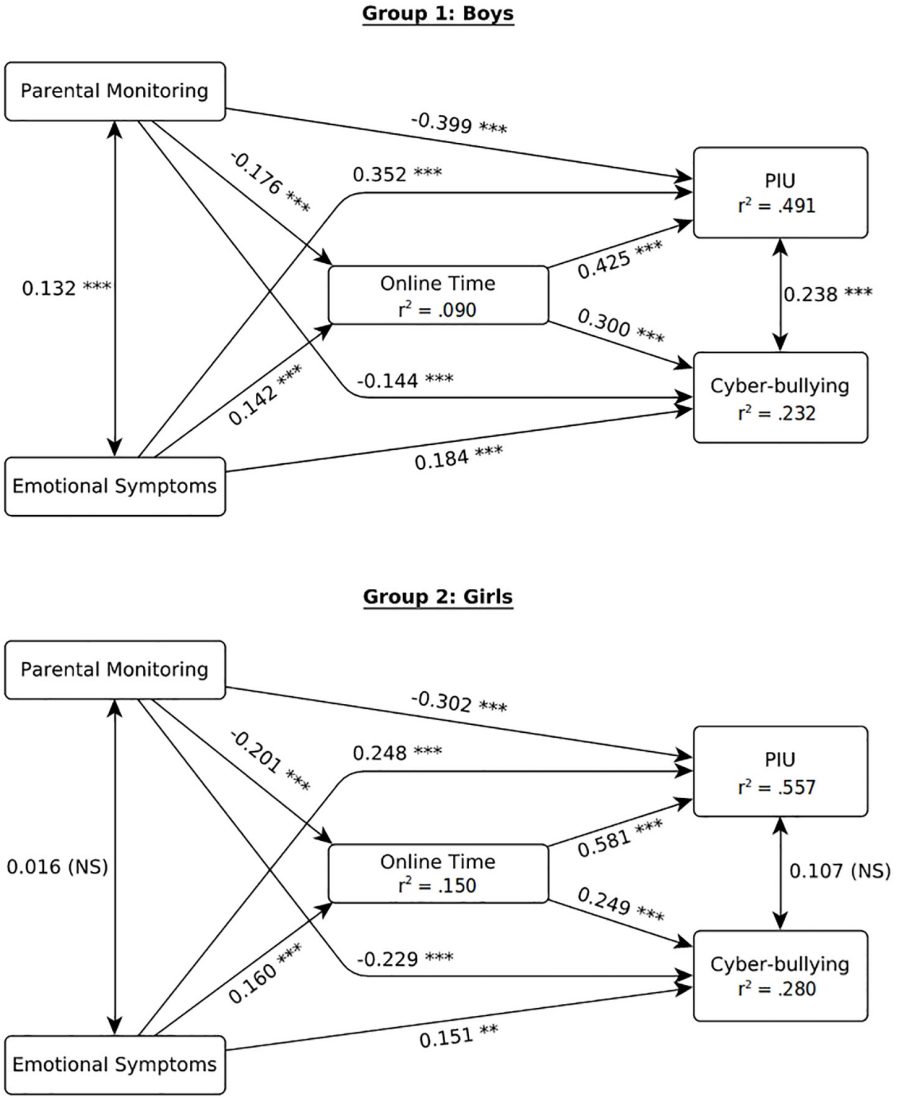

FIGURE 2 | SEM model fitted with gender as grouping variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; NS $p \leq 0.05$.

Guo (2016). This assumption was confirmed by the longitudinal study by Gámez-Guadix et al. (2013) who demonstrated that adolescents who are bully/victims of cyberbullying were more likely to develop depressive symptoms (Orth et al., 2008; Kırcaburun and Baştug, 2016) and PIU.

The association between emotional symptoms and online risky behaviors can be explained by the Social Compensation Theory (Valkenburg and Peter, 2009). Internet may be used to reduce anxiety, feelings of isolation, or negative emotions (Caplan, 2002; Gámez-Guadix et al., 2012) and can provide an easy access to dealing with suppressed anger, aggression, and hostility (Gackenbach, 2011; Fumero et al., 2018). In addition, the Internet may represent a way of coping with life difficulties, taking the form of problem solving through avoidance. The anonymous environment of the cyber world may lead to the psychological effect termed as "online disinhibition effect" (Yen et al., 2008; Ko et al., 2014) as a predisposing factor of abusive Internet use and for CBP. Thus, PIU and CBP can be conceptualized as a form of maladaptive self-regulatory strategy (Spada et al., 2008; Spada, 2014). This was supported by the mediation exerted by time spent online.

Concerning parental monitoring, our study confirms that this may play an important role in CBP and PIU, partly through a control of the amount of time that adolescents spend online and also by parents soliciting information from their children about their activities online. The construct of parental monitoring adopted in our study included not only the role of control but also items pertaining more to the quality of the dialogue with parents around Internet issues. Parental monitoring, in fact, has been conceptualized as a multidimensional construct, not limited to the dimension of control, but also including adolescents' disclosure and parental trust, which is embedded and

develops in a two-way relational process between parents and children (Stattin and Kerr, 2000). Indeed, parental bonding with children inhibits problematic behavior and serves as a protective factor for adolescent problematic behaviors (Liu et al., 2013), both offline and online (Brighi et al., 2012a). The relationship among parental monitoring and CBP has been consistently confirmed in literature, although the specific dimensions of parental monitoring could exert different influences on children's behavior, as highlighted by research on adolescent's deviant behaviors. Melotti et al. (2018) showed that adolescents reporting low control, low trust, and low disclosure were involved more often in physical, psychological, and CBP compared to groups not at risk for these behaviors. This result has been confirmed for CBP also by Law et al. (2010) and Brighi et al. (2012a) who demonstrated that low trust and low child disclosure were more predictive of CBP than high control itself. Thus, given the strict relation between CBP and PIU with parental monitoring reported in our study, it could be relevant for future research to investigate the role of different dimensions of parental monitoring that may differently be related to risky behaviors online.

It may also be relevant to consider how flexible parental monitoring should be across development, according to the developmental needs of preadolescents and adolescents, because a dimension such as control could be a protective factor at a young age, while it may play a negative role when the requests for autonomy increase during later adolescence. In this regard, the suggestion made by Zych et al. (2019), to also consider as protective factors those variables that can be protective and risky at the same time, depending on their intensity and timing, seems particularly relevant. Therefore, parental monitoring can be a protective factor against CBP and PIU when it is balanced between control and openness, and is adequate for the child's self-regulation competencies, while it may act as a risk factor when it is low or over-controlling.

Concerning possible differences between males and females in the effect of emotional symptoms and parental CBP and PIU, our study suggested similar patterns in functioning of gender, even if two slight differences were found. First, the model explained a higher portion of the variability both for CBP and PIU among females, highlighting for boys a significant residual covariance between CBP and PIU. This result supports the claim that the proposed model accounts for most of the relationship between CBP and PIU, at least for female adolescents. On the other hand, additional shared risk pathways, such as externalizing symptoms, could contribute in a relevant way to the manifestation of CBP and PIU in male adolescents. Second, the portion of un-mediated effects of emotional symptoms and parental monitoring on PIU was higher in the male group compared to the female sample.

Our evidence suggests that most of the impact of both emotional symptoms and parental monitoring on the risks of becoming a cyberbully or developing PIU is not due to the associated increase or reduction of online time. Adolescents (boys in particular) seem to benefit more from parental monitoring in terms of a reduction in risk than indicated by the decrease in the time they spend online, confirming the importance of establishing a dialogue between parents and adolescents on the topics of online environments and behaviors.

A specular situation can be described for emotional symptoms, whose disruptive effects in terms of risky online behavior cannot be counterbalanced by simply reducing the time adolescents spend online. These results are consistent with the hypothesis that CBP and PIU may share complex multi-level risk and protective pathways, both at individual and contextual levels. Moreover, the differentiation of risk pathways between males and females suggests that different populations might be variously sensitive to different risk factors and mediators.

Although the present study suggests that individuals experiencing mood disruptions or family lack of control and of dialogue may be at greater risk of developing PIU and CBP, the link between PIU and CBP still lacks a conceptual framework that could explain it. In addition, the residual covariance of the proposed model remains high (at least for boys), so it would be important to investigate further underlying factors—both at individual and at contextual levels—that may help to disentangle the relationship between the two risky online behaviors. Therefore, it is important to further develop an understanding of other relevant factors that are associated with PIU and CBP, which might act to influence the relative salience of Internet use as a reinforcing agent in the environment. Future research, for example, might identify those cognitive distortions about the self that accompany pathological Internet behavior and those linked with motivational states that provoke CBP.

Cognitions about the self may include such thoughts as "I am only good on the Internet," "I am worthless offline, but online I am someone," and "I am a failure when I am offline" (Davis, 2001). Motivational states could be described as "People treat me badly offline." These kinds of thoughts have been considered to be maladaptive cognitive distortions that exacerbate the individual's Internet dependence. These distortions of thought are automatically enacted whenever a stimulus associated with the Internet is available, fueling through gratification an increase of negative behaviors online (Davis, 2001). Thus, similarly to PIU, CBP may also be the result of cognitive distortions and as such could benefit from cognitive behavioral intervention, tackling both representations about the self and motivations for PIU and CBP.

The findings should be considered in light of several limitations. First, we used only self-report questionnaires; thus, it is possible that some participants misunderstood questions or underreported socially undesirable behaviors. Although we adopted all the possible precautions in order to ensure confidentiality and anonymity of the respondents, it is possible that their responses were influenced by social desirability. Second, our study adopted a transversal design, allowing us to depict a picture of the relationship among the variables considered significant in previous studies. However, in order to make appropriate assumptions about cause–effect relationships among variables, a longitudinal investigation would have been more appropriate and fruitful.

While it is clear that problem behaviors typically emerge from an interplay of individual and environmental contexts, more research is needed to identify what factors in the offline context may play a role in the online experience. Indeed, as revealed by several studies, the strongest risk factor for CBP is school bullying (Baldry et al., 2016). In line with the suggestions of De Leo and Wulfert (2013), we support the idea of extending the definitions of "problematic behaviors" to both online and offline individual factors (e.g., motivational) and contextual considerations. Further research should continue to focus on the intersection between how individuals effectively regulate and manage both their online and offline experiences. Finally, assuming an ecological framework (Baldry et al., 2016), in the present study, only emotional symptoms, parental monitoring, and time spent online were taken into account, while other factors and mediators, at individual (self-esteem, moral disengagement), interpersonal (peer support), and community levels (school policy), could explain CPB and PIU phenomena. In addition, Internet-specific approaches (Davis, 2001) aimed at exploring cognitive and motivational distortions (e.g., "I am worthless offline, but online I am someone"; Davis, 2001), potentially associated with pathological Internet behavior and to its problematic uses, could be helpful in tackling self-reinforcing schemas that fuel both aggressive behaviors online and an addictive–compensative use of Internet.

CONCLUSION

Our study confirmed negative emotional symptoms and low parental monitoring as risk factors for CBP and PIU, with a mediation role of the time spent online, suggesting several implications for educational interventions aimed at preventing and contrasting PIU and CBP. In particular, our results suggest the need to promote prevention programs for all parents, in order to foster a sensitive but coherent parental monitoring of adolescents' activities online, wherein the control of adolescents' activities is accompanied by communication about their experiences online. Improving the quality of dialogue among parents and children would be a means to strengthen a crucial protective factor also for emotional symptoms. At the same time, the intervention for adolescents should focus on developing a responsible and self-regulated use of the Internet, a sort of "internalization of parental monitoring," helping students to learn how to monitor themselves, while offering additional attention to potential emotional symptoms.

Moreover, the link between emotional maladjustive functioning and PIU/CBP points out to the necessity to tackle some specific types of emotion regulation deficiencies, i.e., awareness, management, and coping, that may underlie internalizing and externalizing symptoms. Deficits in these areas, in fact, have been hypothesized to underlie adolescents' risk for both internalizing (e.g., anxiety and depression) and externalizing (e.g., oppositional defiance and aggression) problems (Cole et al., 1994), with specific emotional regulation strategies interacting in predicting emotional outcomes. Indeed, literature has shown that adaptive strategies such as reappraisal and acceptance of emotion-eliciting situations were associated with reduced psychopathology symptoms among those who used maladaptive strategies such as rumination, suppression, and avoidance (Aldao and Nolen-Hoeksema, 2012; Webb et al., 2012). This indication suggests that treatments focusing on developing effective and adaptive emotional regulation strategies may also be effective in reducing maladjusted compensatory uses of the Internet among adolescents.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Ethical Committee of the University of Bologna with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the Ethical committee of the University of Bologna on November, 26th, 2012.

AUTHOR CONTRIBUTIONS

AB and AG contributed to the conception and design of the study. AG managed the coordination of the research activity and the acquisition of the financial support for the project and assisted in the interpretation of the results. GS performed the statistical analysis and assisted in the interpretation of the results. AB and DM wrote the first draft of the manuscript. DM organized the database and performed the statistical analysis. All authors wrote sections of the manuscript, contributed to its revision, and read and approved the submitted version.

FUNDING

This research was funded by the "Comitato Regionale per le Comunicazioni della Regione Emilia-Romagna" (CORECOM) (coordinator of the project: AG). This work was supported by the Open Access Publishing Fund of the Free University of Bozen-Bolzano.

ACKNOWLEDGMENTS

We are grateful to the teachers, the students, and their families that took part in the research. Thanks to Davide Barbieri and Elena Ferrari for their support in data collection and sampling design. We are also grateful to Primarosa Fini, Gianluca Gardini, and Maria Luisa Genta for having believed in this project and having supported it both at the scientific and financial level.

REFERENCES

Aldao, A., and Nolen-Hoeksema, S. (2012). When are adaptive strategies most predictive of psychopathology? *J. Abnorm. Child. Psychol.* 121:276. doi: 10.1037/a0023598

Anderson, E. L., Steen, E., and Stavropoulos, V. (2017). Internet use and problematic internet use: a systematic review of longitudinal research trends in adolescence and emergent adulthood. *Int. J. Adolesc. You.* 22, 430–454. doi: 10.1080/02673843.2016.1227716

Baldry, A. C., Farrington, D. P., and Sorrentino, A. (2016). Cyberbullying in youth: a pattern of disruptive behaviour. *Psicología Educativa* 22, 19–26. doi: 10.1016/j.pse.2016.02.001

Baldry, A. C., Sorrentino, A., and Farrington, D. P. (2019). Cyberbullying and cybervictimization versus parental supervision, monitoring and control of adolescents' online activities. *Child You. Serv. Rev.* 96, 302–307. doi: 10.1016/j.childyouth.2018.11.058

Bányai, F., Zsila, Á, Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., et al. (2017). Problematic social media use: results from a large-scale nationally representative adolescent sample. *PLoS One* 12:e0169839. doi: 10.1371/journal.pone.0169839

Beauducel, A., and Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Struct. Equ. Model.* 13, 186–203. doi: 10.1207/s15328007sem1302_2

Brighi, A., Melotti, G., Guarini, A., Genta, M., Ortega, R., Mora-Merchán, J., et al. (2012a). "Self-esteem and loneliness in relation to cyberbullying in three European countries," in *Cyberbullying in the Global Playground: Res. from Intern. Perspect*, eds Q. Li, D. Cross, and P. Smith (Hoboken, NJ: Wiley-Blackwell).

Brighi, A., Ortega, R., Scheitauer, H., Smith, P. K., Tsormpatzoudis, C., Barkoukis, V., et al. (eds) (2012b). *European Bullying Intervention Project Questionnaire (EBIPQ)*. Bologna: University of Bologna.

Brochado, S., Soares, S., and Fraga, S. (2017). A scoping review on studies of cyberbullying prevalence among adolescents. *Trauma Viol. Abuse* 18, 523–531. doi: 10.1177/1524838016641668

Byrne, B. (2006). *Structural Equation Modeling With EQS: Basic Concepts, Applications, and Programming (Multivariate Applications)*. Thousand Oaks, CA: SAGE Publications.

Cacioppo, M., Barni, D., Correale, C., Mangialavori, S., Danioni, F., and Gori, A. (2019). Do attachment styles and family functioning predict adolescents' problematic internet use? a relative weight analysis. *J. Child Fam. Stud.* 28, 1263–1271. doi: 10.1007/s10826-019-01357-0

Campbell, M. A., Slee, P. T., Spears, B., Butler, D., and Kift, S. (2013). Do cyberbullies suffer too? cyberbullies' perceptions of the harm they cause to others and to their own mental health. *School Psychol. Int.* 34, 613–629. doi: 10.1177/0143034313479698

Cao, F., Su, L., Liu, T., and Gao, X. (2007). The relationship between impulsivity and internet addiction in a sample of chinese adolescents. *Eur. Psychiatry* 22, 466–471. doi: 10.1016/j.eurpsy.2007.05.004

Cao, H., Sun, Y., Wan, Y., Hao, J., and Tao, F. (2011). Problematic internet use in chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Publ. Health* 11:802. doi: 10.1186/1471-2458-11-802

Caplan, S. E. (2002). Problematic internet use and psychosocial well-being: development of a theory-based cognitive–behavioral measurement instrument. *Comput. Hum. Behav.* 18, 553–575. doi: 10.1016/S0747-5632(02)00004-3

Casas, J. A., Del Rey, R., and Ortega-Ruiz, R. (2013). Bullying and cyberbullying: convergent and divergent predictor variables. *Comput. Hum. Behav.* 29, 580–587. doi: 10.1016/j.chb.2012.11.015

Cavallo, F., Lemma, P., Dalmasso, P., Vieno, A., Lazzeri, G., and Galeone, D. (2015). *Rapporto sui dati HBSC Italia. 2014*. Torino: Dipartimento di Scienze della Sanità Pubblica e Pediatriche.

Cole, P. M., Michel, M. K., and Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: a clinical perspective. *Monogr. Soc. Res. Child. Dev.* 59, 73–102. doi: 10.1111/j.1540-5834.1994.tb01278.x

Cross, D., Barnes, A., Papageorgiou, A., Hadwen, K., Hearn, L., and Lester, L. (2015). A social–ecological framework for understanding and reducing cyberbullying behaviours. *Aggress. Viol. Behav.* 23, 109–117. doi: 10.1016/j.avb.2015.05.016

Davis, R. A. (2001). A cognitive-behavioral model of pathological internet use. *Comput. Hum. Behav.* 17, 187–195. doi: 10.1016/S0747-5632(00)00041-8

De Leo, J. A., and Wulfert, E. (2013). Problematic internet use and other risky behaviors in college students: an application of problem-behavior theory. *Psychol. Addict. Behav.* 27:133. doi: 10.1037/a0030823

Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., et al. (2015). Structural validation and cross-cultural robustness of the european cyberbullying intervention project questionnaire. *Comput. Hum. Behav.* 50, 141–147. doi: 10.1016/j.chb.2015.03.065

Di Riso, D., Salcuni, S., Chessa, D., Raudino, A., Lis, A., and Altoè, G. (2010). The strengths and difficulties questionnaire (sdq). early evidence of its reliability and validity in a community sample of italian children. *Pers. Individ. Dif.* 49, 570–575. doi: 10.1016/j.paid.2010.05.005

Durkee, T., Kaess, M., Carli, V., Parzer, P., Wasserman, C., Floderus, B., et al. (2012). Prevalence of pathological internet use among adolescents in europe: demographic and social factors. *Addiction* 107, 2210–2222. doi: 10.1111/j.1360-0443.2012.03946.x

van den Eijnden, R. J., Spijkerman, R., Vermulst, A. A., van Rooij, T. J., and Engels, R. C. (2010). Compulsive internet use among adolescents: bidirectional parent–child relationships. *J. Abnorm. Child. Psychol.* 38, 77–89. doi: 10.1007/s10802-009-9347-8

Eksi, F. (2012). Examination of narcissistic personality traits' predicting level of internet addiction and cyber bullying through path analysis. *Educ. Sci. Theory Prac.* 12, 1694–1706.

Erdur-Baker, Ö (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media Soc.* 12, 109–125. doi: 10.1177/1461444809341260

Fumero, A., Marrero, R. J., Voltes, D., and Peñate, W. (2018). Personal and social factors involved in internet addiction among adolescents: a meta-analysis. *Comput. Hum. Behav.* 86, 387–400. doi: 10.1016/j.chb.2018.05.005

Gackenbach, J. (2011). *Psychology and the Internet: Intrapersonal, interpersonal, and Transpersonal Implications*. Amsterdam: Elsevier.

Gainsbury, S. M., Browne, M., and Rockloff, M. (2018). Identifying risky internet use: associating negative online experience with specific online behaviours. *New Media Soc.* 21, 1232–1252. doi: 10.1177/1461444818815442

Gámez-Guadix, M., Orue, I., Smith, P. K., and Calvete, E. (2013). Longitudinal and reciprocal relations of cyberbullying with depression, substance use, and problematic internet use among adolescents. *J. Adolesc. Health* 53, 446–452. doi: 10.1016/j.jadohealth.2013.03.030

Gámez-Guadix, M., Villa-George, F. I., and Calvete, E. (2012). Measurement and analysis of the cognitive–behavioral model of generalized problematic internet use among mexican adolescents. *J. Adolesc.* 35, 1581–1591. doi: 10.1016/j.adolescence.2012.06.005

Garaigordobil, M., and Aliri, J. (2013). Relaciones del sexismo con justificación de la violencia, y con otras formas de prejuicio como la dominancia social y el autoritarismo. *Estud. Psicol.* 34, 127–139. doi: 10.1174/021093913806751384

Genta, M. L., Smith, P. K., Ortega, R., Brighi, A., Guarini, A., Thompson, F., et al. (2012). "Comparative aspects of cyberbullying in Italy, England, and Spain," in *Cyberbullying in the Global Playground: Research from International Perspectives*, eds Q. Li, D. Cross, and P. Smith (Oxford: Wiley Blackwell).

Goodman, R. (1997). The strengths and difficulties questionnaire: a research note. *J. Child Psychol. Psychiatry* 38, 581–586. doi: 10.1111/j.1469-7610.1997.tb01545.x

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *J. Am. Acad. Child Adolesc. Psychiatry* 40, 1337–1345. doi: 10.1097/00004583-200111000-00015

Griffiths, M. D., and Parke, J. (2002). The social impact of internet gambling. *Soc. Sci. Comput. Rev.* 20, 312–320. doi: 10.1177/089443930202000308

Guarini, A., Brighi, A., and Genta, M. L. (2013). "Quaderni del Corecom," in *Stili di Vita Online e Offline Degli Adolescenti in Emilia-Romagna*, eds A. Guarini, A. Brighi, and M. L. Genta (Bologna: Centro Stampa regionale Emilia-Romagna).

Guarini, A., Passini, S., Melotti, G., and Brighi, A. (2012). Risk and protective factors on perpetration of bullying and cyberbullying. *Stud. Eduka.* 23, 33–55.

Guo, S. (2016). A meta-analysis of the predictors of cyberbullying perpetration and victimization. *Psychol. Sch.* 53, 432–453. doi: 10.1002/pits.21914

Hancock, G. R., and Mueller, R. O. (2001). "Rethinking construct reliability within latent variable systems," in *Structural Equation Modeling: Present and Future-A Festschrift in Honor of Karl Jöreskog*, eds R. Cudeck, S. D. Toit, and D. Soerbom (Lincolnwood, IL: Scientific Software International).

Hinduja, S., and Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Arch. Suicide Res.* 14, 206–221. doi: 10.1080/13811118.2010.494133

Hu, L.-T., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct. Equ. Model.* 6, 1–55. doi: 10.1080/10705519909540118

IPSOS (2017). *Il Consenso in Ambiente Digitale: Percezione e Consapevolezza tra gli Adulti*. Paris: IPSOS.

Jung, Y. E., Leventhal, B., Kim, Y. S., Park, T. W., Lee, S. H., Lee, M., et al. (2014). Cyberbullying, problematic internet use, and psychopathologic symptoms among korean youth. *Yonsei Med. J.* 55, 826–830. doi: 10.3349/ymj.2014.55.3.826

Keith, S., and Martin, M. E. (2005). Cyber-bullying: creating a culture of respect in a cyber world. *Reclaim. Child. You.* 13, 224–228.

Kenny, D. A. (2015). *Measuring Model Fit*. Available at: http://davidakenny.net/cm/fit.htm (accessed November 24, 2015).

Kim, K., Ryu, E., Chon, M. Y., Yeun, E. J., Choi, S. Y., Seo, J. S., et al. (2006). Internet addiction in korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. *Int. J. Nurs. Stud.* 43, 185–192. doi: 10.1016/j.ijnurstu.2005.02.005

Ko, C. H., Liu, T. L., Wang, P. W., Chen, C. S., Yen, C. F., and Yen, J. Y. (2014). The exacerbation of depression, hostility, and social anxiety in the course of internet addiction among adolescents: a prospective study. *Compr. Psychiatry* 55, 1377–1384. doi: 10.1016/j.comppsych.2014.05.003

Ko, C. H., Wang, P. W., Liu, T. L., Yen, C. F., Chen, C. S., and Yen, J. Y. (2015). Bidirectional associations between family factors and Internet addiction among adolescents in a prospective investigation. *Psychiatry Clin. Neurosci.* 69, 192–200. doi: 10.1111/pcn.12204

Ko, C. H., Yen, J. Y., Yen, C. F., Lin, H. C., and Yang, M. J. (2007). Factors predictive for incidence and remission of internet addiction in young adolescents: a prospective study. *Cyberpsychol. Behav.* 10, 545–551. doi: 10.1089/cpb.2007.9992

Kormas, G., Critselis, E., Janikian, M., Kafetzis, D., and Tsitsika, A. (2011). Risk factors and psychosocial characteristics of potential problematic and problematic internet use among adolescents: a cross-sectional study. *BMC Publ. Health* 11:595. doi: 10.1186/1471-2458-11-595

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol. Bull.* 140:1073. doi: 10.1037/a0035618

Kowalski, R. M., Limber, S. P., and McCord, A. (2018). A developmental approach to cyberbullying: prevalence and protective factors. *Aggress. Violent Behav.* 45, 20–32 doi: 10.1016/j.avb.2018.02.009

Kırcaburun, K., and Baştug, I. (2016). Problematic internet use as the predictor of cyberbullying tendencies among adolescents. *J. Acad. Soc. Sci. Stud.* 48, 385–396. doi: 10.1007/s11469-018-9894-8

Kırcaburun, K., Kokkinos, C. M., Demetrovics, Z., Király, O., Griffiths, M. D., and Çolak, T. S. (2018). Problematic online behaviors among adolescents and emerging adults: associations between cyberbullying perpetration, problematic social media use, and psychosocial factors. *Int. J. Ment. Health Addict.* 16, 1–18. doi: 10.1007/s11469-018-9894-8

Khurana, A., Bleakley, A., Jordan, A. B., and Romer, D. (2015). The protective effects of parental monitoring and internet restriction on adolescents' risk of online harassment. *J. You. Adolesc.* 44, 1039–1047. doi: 10.1007/s10964-014-0242-4

Law, D. M., Shapka, J. D., and Olson, B. F. (2010). To control or not to control? parenting behaviours and adolescent online aggression. *Comput. Hum. Behav.* 26, 1651–1656. doi: 10.1016/j.chb.2010.06.013

Lee, J. Y., Shin, K. M., Cho, S. M., and Shin, Y. M. (2014). Psychosocial risk factors associated with internet addiction in korea. *Psychiatry Investig.* 11, 380–386. doi: 10.4306/pi.2014.11.4.380

Li, C. H. (2016). The performance of ML, DWLS, and ULS estimation with robust corrections in structural equation models with ordinal variables. *Psychol. Methods* 21:369. doi: 10.1037/met0000093

Li, Q. (2007). Bullying in the new playground: research into cyberbullying and cyber victimisation. *Austr. J. Educ. Technol.* 23, 435–454. doi: 10.14742/ajet.1245

Liau, A. K., Choo, H., Li, D., Gentile, D. A., Sim, T., and Khoo, A. (2015). Pathological video-gaming among youth: a prospective study examining dynamic protective factors. *Addict. Res. Theory* 23, 301–308. doi: 10.3109/16066359.2014.987759

Liu, Q. X., Fang, X. Y., Zhou, Z. K., Zhang, J. T., and Deng, L. Y. (2013). Perceived parent-adolescent relationship, perceived parental online behaviors and pathological internet use among adolescents: gender-specific differences. *PLoS One* 8:e75642. doi: 10.1371/journal.pone.0075642

Livingstone, S., Haddon, L., Görzig, A., and Ólafsson, K. (2011). *Risks and Safety on the Internet: the UK Report*. London: EU Kids Online.

Livingstone, S., and Smith, P. K. (2014). Annual research review: harms experienced by child users of online and mobile technologies: the nature, prevalence and management of sexual and aggressive risks in the digital age. *J. Child Psychol. Psychiatry* 55, 635–654. doi: 10.1111/jcpp.12197

Melotti, G., Potì, S., Gianesini, G., and Brighi, A. (2018). Adolescents at risk of delinquency. the role of parental control, trust, and disclosure. *Deviant. Behav.* 39, 347–362. doi: 10.1080/01639625.2017.1286172

Mesch, G. S. (2009). Parental mediation, online activities, and cyberbullying. *Cyberpsychol. Behav.* 12, 387–393. doi: 10.1089/cpb.2009.0068

Morahan-Martin, J., and Schumacher, P. (2000). Incidence and correlates of pathological internet use among college students. *Comput. Hum. Behav.* 16, 13–29. doi: 10.1016/S0747-5632(99)00049-7

Nartgün, Ş, and Cicioğlu, M. (2015). Problematic internet use and cyber bullying in vocational school students. *Int. J. Educ. Res. Sci.* 7, 10–26. doi: 10.15345/iojes.2015.03.018

Nocentini, A., Fiorentini, G., Di Paola, L., and Menesini, E. (2018). Parents, family characteristics and bullying behavior: a systematic review. *Aggress. Violent Behav.* 45, 41–50. doi: 10.1016/j.avb.2018.07.010

OECD (2017). "PISA 2015 Results (Volume III)," in *Students' Well-Being, PISA*, (Paris: OECD Publishing). doi: 10.1787/9789264273856-en (accessed January 19, 2019).

Orth, U., Robins, R. W., and Roberts, B. W. (2008). Low self-esteem prospectively predicts depression in adolescence and young adulthood. *J. Pers. Soc. Psychol.* 95:695. doi: 10.1037/0022-3514.95.3.695

Park, S., Hong, K. E. M., Park, E. J., Ha, K. S., and Yoo, H. J. (2013). The association between problematic internet use and depression, suicidal ideation and bipolar disorder symptoms in korean adolescents. *Aust. N. Z. J. Psychiatry* 47, 153–159. doi: 10.1177/0004867412463613

Pontes, H. M., Kuss, D., and Griffiths, M. (2015). Clinical psychology of internet addiction: a review of its conceptualization, prevalence, neuronal processes, and implications for treatment. *Neurosci. Neuroecon.* 4, 11–23. doi: 10.2147/NAN.S60982

Pyżalski, J. (2009). *Lodz Electronic Aggression Prevalence Questionnaire—A Tool for Measuring Cyberbullying*. Available at: http://www.abs-center.si/gbccd/papers/P191.pdf (accessed January 23, 2019).

Rhemtulla, M., Brosseau-Liard, P. E., and Savalei, V. (2012). When can categorical variables be treated as continuous? a comparison of robust continuous and categorical sem estimation methods under suboptimal conditions. *Psychol. Methods* 17:354. doi: 10.1037/a0029315

Romer, D., and Moreno, M. (2017). Digital media and risks for adolescent substance abuse and problematic gambling. *Pediatrics* 140, S102–S106. doi: 10.1542/peds.2016-1758L

Schultze-Krumbholz, A., Göbel, K., Scheithauer, H., Brighi, A., Guarini, A., Tsorbatzoudis, H., et al. (2015). A comparison of classification approaches for cyberbullying and traditional bullying using data from six european countries. *J. Sch. Viol.* 14, 47–65. doi: 10.1080/15388220.2014.961067

Shapira, N. A., Lessig, M. C., Goldsmith, T. D., Szabo, S. T., Lazoritz, M., Gold, M. S., et al. (2003). Problematic internet use: proposed classification and diagnostic criteria. *Depress. Anx.* 17, 207–216. doi: 10.1002/da.10094

Slonje, R., Smith, P. K., and Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Comput. Hum. Behav.* 29, 26–32. doi: 10.1016/j.chb.2012.05.024

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., and Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *J. Child Psychol. Psychiatry* 49, 376–385. doi: 10.1111/j.1469-7610.2007.01846.x

Spada, M. M. (2014). An overview of problematic internet use. *Addict. Behav.* 39, 3–6. doi: 10.1016/j.addbeh.2013.09.007

Spada, M. M., Langston, B., Nikčević, A. V., and Moneta, G. B. (2008). The role of metacognitions in problematic internet use. *Comput. Hum. Behav.* 24, 2325–2335. doi: 10.1016/j.chb.2007.12.002

Stattin, H., and Kerr, M. (2000). Parental monitoring: a reinterpretation. *Child Dev.* 71, 1072–1085. doi: 10.1111/1467-8624.00210

Tokunaga, R. S. (2010). Following you home from school: a critical review and synthesis of research on cyberbullying victimization. *Comput. Hum. Behav.* 26, 277–287. doi: 10.1016/j.chb.2009.11.014

Valkenburg, P. M., and Peter, J. (2009). Social consequences of the internet for adolescents. *Curr. Dir. Psychol. Sci.* 18, 1–5. doi: 10.1111/j.1467-8721.2009.01595.x

Wade, A., and Beran, T. (2011). Cyberbullying: the new era of bullying. *Can. J. Sch. Psychol.* 26, 44–61. doi: 10.1177/0829573510396318

Wartberg, L., Kammerl, R., Rosenkranz, M., Hirschhäuser, L., Hein, S., Schwinge, C., et al. (2014). The interdependence of family functioning and problematic internet use in a representative quota sample of adolescents. *Cyberpsychol. Behav. Soc. Netw.* 17, 14–18. doi: 10.1089/cyber.2012.0494

Wellman, B. (2004). Connecting communities: on and offline. *Contexts* 3, 22–28. doi: 10.1177/1357633X17731444

Webb, T. L., Miles, E., and Sheeran, P. (2012). Dealing with feeling: a meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation. *Psychol. Bull.* 138, 775–808. doi: 10.1037/a002760

Ybarra, M. L. (2004). Linkages between depressive symptomatology and internet harassment among young regular internet users. *Cyberpsychol. Behav.* 7, 247–257. doi: 10.1089/109493104323024500

Yen, J.-Y., Ko, C.-H., Yen, C.-F., Chen, S.-H., Chung, W.-L., and Chen, C.-C. (2008). Psychiatric symptoms in adolescents with Internet addiction: comparison with substance use. *Psychiatry Clin. Neurosci.* 62, 9–16. doi: 10.1111/j.1440-1819.2007.01770.x

Young, K. S. (1998). Internet addiction: the emergence of a new clinical disorder. *Cyberpsychol. Behav.* 1, 237–244. doi: 10.1007/s10899-011-9287-4

Yu, L., and Shek, D. T. L. (2013). Internet addiction in hong kong adolescents: a three-year longitudinal study. *J. Pediatr. Adolesc. Gynecol.* 26, S10–S17. doi: 10.1016/j.jpag.2013.03.010

Zych, I., Farrington, D. P., and Ttofi, M. M. (2019). Protective factors against bullying and cyberbullying: ass systematic review of meta-analyses. *Aggress. Viol. Behav.* 45, 4–19. doi: 10.1016/j.avb.2018.06.008

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 16 July 2019
doi: 10.3389/fpsyg.2019.01572

Sensation Seeking's Differential Role in Face-to-Face and Cyberbullying: Taking Perceived Contextual Properties Into Account

Daniel Graf, Takuya Yanagida and Christiane Spiel*

Department of Applied Psychology, Work, Education and Economy, Faculty of Psychology, University of Vienna, Vienna, Austria

Several studies have demonstrated a relationship between sensation seeking and aggression. However, few studies have examined the relationships between sensation seeking and face-to-face and cyberbullying. The few existing studies assessed sensation seeking with items partly referring to antisocial behavior. This could have led to tautological findings. Moreover, contextual properties that could account for differences between bullying contexts (face-to-face, cyberspace) were neglected. Therefore, the first goal of this study was to investigate the relationships between sensation seeking and face-to-face and cyberbullying in a way that avoids tautological findings. Thus, sensation seeking was operationalized as a motivational disposition encompassing the dimensions "need for stimulation" and "avoidance of rest." Furthermore, students' perceptions of the contextual properties of the face-to-face and cyber context and their relevance for the relationships between the dimensions of sensation seeking and face-to-face and cyberbullying were examined. A total of 523 students (M_{age} = 17.83; *SD* = 2.13; ♀ = 37.4%) from four vocational schools answered online questionnaires on face-to-face and cyberbullying involvement, perceived contextual properties, and the two dimensions of sensation seeking during regular school hours. Structural equation modeling revealed positive associations between need for stimulation and both forms of bullying. Avoidance of rest, however, was positively related to cyberbullying only. The differences in all regression slopes between contexts were statistically significant. That is, the positive associations with the two dimensions of sensation seeking were stronger for cyberbullying than for face-to-face bullying. Dependent *t*-tests revealed differences in students' perceptions of contextual properties between contexts (face-to-face, cyberspace). Nevertheless, no significant relationships between either dimension of sensation seeking and either form of bullying were moderated by any perceived contextual property. Our results demonstrate sensation seeking's greater role in cyberbullying and confirm differences in perceived contextual properties between the face-to-face and cyber context. Furthermore, the fact that no perceived contextual property moderated the significant relationships between the dimensions of sensation seeking and face-to-face or cyberbullying shows the relatively greater role of a single person factor compared to single contextual properties.

Keywords: bullying, cyberbullying, sensation seeking, need for stimulation, avoidance of rest

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain

Reviewed by:
Evangelia Karagiannopoulou, University of Ioannina, Greece
Rosario Del Rey, University of Seville, Spain

****Correspondence:***
Daniel Graf
Daniel.graf@univie.ac.at

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *28 February 2019*
Accepted: *21 June 2019*
Published: *16 July 2019*

Citation:
Graf D, Yanagida T and Spiel C (2019) Sensation Seeking's Differential Role in Face-to-Face and Cyberbullying: Taking Perceived Contextual Properties Into Account. Front. Psychol. 10:1572. doi: 10.3389/fpsyg.2019.01572

INTRODUCTION

Research on human aggression investigates both contextual and person factors to identify the causes and conditions for the emergence of aggressive behavior (Anderson and Bushman, 2002). Among person factors, sensation seeking is a frequently studied risk factor for engaging in aggressive behavior, and research repeatedly has shown positive relationships between sensation seeking and aggression (Zuckerman, 2007; Wilson and Scarpa, 2011; Bacon et al., 2014). However, although bullying is seen as a subset of aggression (e.g., Smith, 2004), little is known about the role of sensation seeking in bullying (Kowalski et al., 2014).

Bullying is considered a complex social phenomenon (Simon and Nail, 2013) and is defined as aggressive behavior that is intended to hurt another individual (Berkowitz, 1993). In addition to aggressive behavior, bullying involves a power imbalance and repetitiveness (Olweus, 1993). Bullying behavior can take various forms, such as physical, verbal, or relational (Olweus, 2013). Moreover, in light of the spread of new information and communication technologies (ICTs) and the differences in contextual properties between face-to-face and computer-mediated communication (CMC; see, for example, Gunawardena, 2004), there is growing evidence that considering the context (face-to-face, cyberspace) in which bullying occurs is of great importance (Suler, 2004; Runions, 2013; Runions and Bak, 2015; Graf et al., 2019). As it is unclear whether bullying in the face-to-face context and bullying via ICTs (i.e., cyberbullying) can be considered equivalent (Olweus, 2012), investigating contextual differences between face-to-face and cyberbullying regarding the role of risk factors (i.e., sensation seeking) is crucial in order to inform the development of evidence-based prevention and intervention strategies.

Sensation Seeking

Sensation seeking is "... defined by the seeking of varied, novel, complex, and intensive sensations and experiences, and the willingness to take physical, social, legal and financial risks for the sake of such experiences" (Zuckerman, 1994, p. 27). Sensation seeking can be explained by genetic, biological, psychophysiological, and social factors (Zuckerman, 1994, 1996), and sensation seekers are described as individuals who engage in behaviors to increase the amount of experienced stimulation, thus seeking out arousal (Roberti, 2004). According to sensation seeking theory (Zuckerman, 1979), this might be due to a chronic low arousal state that is perceived as aversive. Individuals who suffer from this low state of arousal seek out stimulating situations in order to increase their arousal level to their personal optimum. In this context, some authors argue that sensation seeking comprises both socialized and unsocialized modes, with the latter leading to aggressive behavior to a certain extent (Glicksohn and Abulafia, 1998). Consequently, low levels of arousal have been found in face-to-face bullies (Woods and White, 2005).

However, Arnett (1994) emphasizes that environmental factors may shape the expression of sensation seeking. For example, Rogers et al. (2018) found person–context interactions in sensation seeking-related alcohol use. These authors demonstrated that the relationship between sensation seeking and alcohol use was more pronounced for adolescents who lived in less structured environments. Moreover, based on a review of behavioral and biological correlates of sensation seeking, Roberti (2004) argues that sensation seekers prefer contexts in which they can participate in activities suitable to their needs. Thus, given the contextual differences between face-to-face communication and CMC, differential relationships between sensation seeking and face-to-face and cyberbullying might also be conceivable.

In any event, a person may gratify their tendency to seek out stimulating experiences in different areas, such as in occupational, recreational, sports, and social interactions (Roberti, 2004). Consequently, sensation seeking is related not only to aggressive behaviors, but also to a variety of other risky behaviors, such as substance use and risky driving (Crawford et al., 2003; Dunlop and Romer, 2010). However, while sensation seekers may tend to find themselves in risky situations, risk is a correlate and not the primary motive of sensation seeking (Zuckerman, 1994). Instead, sensation seeking is thought to be an appetitive and primarily reward-related motivational construct (Steinberg, 2008; Steinberg et al., 2008; Runions, 2013). Thus, for high sensation seekers, rewarding goal states are states of stimulation, whereas situations characterized by rest might be perceived as unpleasant (Roth and Hammelstein, 2012). In accordance with these considerations, Roth and Hammelstein (2012) postulated two dimensions of sensation seeking as a motivational disposition: "need for stimulation" and "avoidance of rest."

Bullying

Whereas aggressive behavior is defined as behavior with the intention to harm another person (Bushman and Anderson, 2001), bullying – as a prevalent subtype of aggressive behavior – must additionally happen repeatedly in a situation characterized by a power imbalance (Olweus, 1993; Smith and Ananiadou, 2003). Moreover, with the spread of ICTs in recent years, new bullying practices have emerged that occur online (e.g., editing and publishing embarrassing pictures and videos). Research on bullying via ICTs, or cyberbullying, has largely adopted the paradigms developed in face-to-face bullying research and typically defines this form of bullying using the same criteria such as in face-to-face bullying (Smith et al., 2008; Tokunaga, 2010; Vivolo-Kantor et al., 2014).

Just as with sensation seeking, rewards are thought to play a significant role in (cyber)bullying: Both forms of bullying are often referred to as an instrumental, proactive, and deliberate act of aggression that is used to gain resources (e.g., Crick and Dodge, 1996; Sutton et al., 1999; Roland and Idsøe, 2001; Gradinger et al., 2012). Consequently, face-to-face and cyberbullying behavior is mostly seen as planned, unprovoked, and goal-directed behavior related to the anticipation of rewarding outcomes such as social dominance, non-social resources (e.g., wealth), or reproductive gains (Volk et al., 2014). Immediate affective rewards, such as excitement and thrill, have also been discussed as motives for engaging in face-to-face and cyberbullying behavior (Howard, 2011; Runions, 2013).

Differences Between Face-to-Face and Cyberbullying

Applying the same framework to bullying in the face-to-face and cyber contexts may lead the influences of context-inherent properties on (cyber)bullying behavior to be overlooked (Suler, 2004; Vandebosch and Van Cleemput, 2008; Dooley et al., 2009; Menesini and Nocentini, 2009; Runions, 2013; Runions and Bak, 2015). From the perpetrator's perspective, cyberbullying might be seen as a more convenient form of bullying due to properties of ICTs (Antoniadou and Kokkinos, 2015). For example, CMC makes it possible to act anonymously, reducing one's accountability (Kowalski and Limber, 2007; Dooley et al., 2009). Moreover, authorities such as parents and teachers might have less of a presence in the cyber context compared to the face-to-face context and might therefore underestimate their own children's involvement in cyberbullying incidents (Dehue et al., 2008). In terms of social rewards, the perceived audience size may be seen as potentially bigger in cyberspace than in the face-to-face context (Slonje et al., 2013; Kowalski et al., 2014), which can function as an incentive to act out during adolescence (Steinberg, 2005; Chein et al., 2011). Furthermore, others' reactions are delayed in CMC compared to face-to-face communication (Sourander et al., 2010; Kowalski et al., 2012a,b). In some cases, there is even a complete lack of reactions by others in cyberspace. From the perpetrator's perspective, this lack of reaction may prevent empathy from being triggered, inhibiting feelings of remorse (Slonje et al., 2012) and thus facilitating continued cyberbullying (Graf et al., 2019). In this study, we addressed adolescents' actual perceptions of these contextual properties (i.e., perceived anonymity, lack of authorities, audience size, and immediacy of reactions by others) when communicating in cyberspace and in face-to-face context, thus complementing previous largely theoretically-derived conceptual analyses (e.g., Kowalski et al., 2012b, 2014; Runions, 2013; Runions et al., 2013).

Sensation Seeking and Face-to-Face and Cyberbullying

Only a few studies have examined the relationships between sensation seeking and face-to-face and cyberbullying simultaneously (e.g., Antoniadou et al., 2016). Their findings suggest that sensation seeking is a common correlate of bullying in both contexts (e.g., Antoniadou et al., 2016). However, the aim of these studies was to identify common predictors for face-to-face and cyberbullying. They did not focus on the relationships between (cyber)bullying and sensation seeking *per se* but investigated them alongside other assumed predictors. These studies measured sensation seeking with Zuckerman's Sensation Seeking Scale Form V (SSS-V; Zuckerman et al., 1978) or adapted forms (e.g., SSS-A; Hoyle et al., 2002), even though the assessment of sensation seeking with the SSS-V has been criticized repeatedly (e.g., Arnett, 1994; Roth et al., 2007) due to the inclusion of items describing concrete antisocial behavior. According to Roth et al. (2007), this may lead to tautological findings due to the conflation of predictors (e.g., sensation seeking) and outcomes (e.g., bullying). To avoid tautological findings, the authors suggest operationalizing sensation seeking as a motivational disposition focusing on the aim of a behavior and not on the behavior *per se*.

However, although differential relationships between sensation seeking and face-to-face and cyberbullying are conceivable, to the best of our knowledge, no study has investigated the different dimensions of sensation seeking as a motivational disposition in relation to face-to-face and cyberbullying so far. For example, bullying behavior is seen as more convenient in cyberspace than in the face-to-face context (e.g., fewer authorities, more anonymity, a larger perceived audience may lead to higher anticipated rewards, a lack of or delayed reactions by others hamper or inhibit empathy and remorse), which may facilitate sensation seeking-related cyberbullying. Additionally, in cyberspace, the set of potential actions that sensation seekers can take to increase their arousal to a personal optimal level may be restricted. Thus, sensation seekers may engage in unsocialized modes of sensation seeking more often in cyberspace than in the face-to-face context, again facilitating sensation seeking-related cyberbullying.

The Present Study

Although it has been theoretically discussed in the literature (e.g., Runions, 2013), there is still a lack of empirical evidence on how sensation seeking may be differentially related to engagement in face-to-face and cyberbullying. Therefore, the aim of our study was to examine whether sensation seeking relates to face-to-face and cyberbullying in similar or different ways. To ensure that we did not measure concrete antisocial behaviors within the construct of sensation seeking, we operationalized sensation seeking along two dimensions, in accordance with Roth and Hammelstein (2012): "need for stimulation" and "avoidance of rest."

Moreover, taking into account the proposed role of environmental factors for the expression of sensation seeking-related behavior and aiming to gain deeper insight into contextual differences between face-to-face and cyberbullying, we were further interested in whether perceived contextual properties (i.e., anonymity, audience size, lack of authorities, and immediacy of reactions by others) were perceived differently in face-to-face communication versus CMC, and whether these perceived contextual properties moderated the associations between the two dimensions of sensation seeking and face-to-face and cyberbullying.

First, differential relationships and differences in the strength of these relationships between the dimensions of sensation seeking and face-to-face and cyberbullying would indicate that sensation seeking is differentially relevant for bullying in the two contexts (face-to-face, cyberspace). Second, differences in perceived properties between contexts (face-to-face, cyberspace) may shed light on the contextual properties that are relevant for these differential relationships. Third, investigating interactions between the dimensions of sensation seeking and the perceived contextual properties of face-to-face and cyberbullying may contribute to our understanding of how perceived contextual properties may affect these relationships.

On the basis of previous research (e.g., Wilson and Scarpa, 2011; Antoniadou et al., 2016), we hypothesized positive relationships between the two dimensions of sensation seeking and face-to-face and cyberbullying (Hypothesis 1). We further hypothesized a stronger association between the two dimensions of sensation seeking and cyberbullying compared to face-to-face bullying (Hypothesis 2).

Moreover, we assumed that anonymity is perceived as higher in the cyber than in the face-to-face context (Hypothesis 3a). We further hypothesized that authorities are perceived as more present in the face-to-face than in the cyber context (Hypothesis 3b), that audience size is perceived as larger in the cyber than in the face-to-face context (Hypothesis 3c), and finally, that reactions by others are perceived as more immediate in the face-to-face than in the cyber context (Hypothesis 3d).

Next, we hypothesized positive moderating effects of perceived anonymity, perceived audience size, and perceived lack of authorities on the relationships between both dimensions of sensation seeking and face-to-face and cyberbullying (Hypotheses 4a–4c). Finally, we assumed that the higher the perceived immediacy of reactions by others, the weaker the relationship between the dimensions of sensation seeking and both forms of bullying (Hypothesis 4d).

MATERIALS AND METHODS

Procedure and Sample

This study was embedded in a larger survey on intrapersonal risk and protective factors for face-to-face and cyberbullying. Distinct research questions (i.e., the role of empathy in face-to-face and cyberbullying) have been examined and published before (see Graf et al., 2019). We randomly invited the school principals of 39 Lower Austrian vocational schools to participate in our study. Four of them agreed. We chose to conduct our study in vocational schools, as evidence suggests higher self-reported bullying rates for vocational school students than students enrolled in traditional schools (e.g., Menesini et al., 2009; Zych et al., 2017). This study was approved and supported by the school board of the federal state of Lower Austria. The federal state school board and the participating school principals ensured that parental consent was given in accordance with the school board's official guidelines. According to these guidelines, parents' informed consent in written form is not required for vocational school students.

A total of 523 students (37.4% girls; M_{age} = 17.83 years; *SD* = 2.13; age range 15–28 years) from 32 school classes answered online questionnaires during regular school hours in their school's computer lab. Research assistants were present at all times. Participation was voluntary, participants gave informed consent, and the consent rate was above 99%. The age distribution of the sample is shown in **Table 1**.

Measures

Below, we present the measures we used in our survey.

Sensation Seeking

We assessed self-reported sensation seeking with the Need Inventory of Sensation Seeking (NISS, Roth and Hammelstein, 2012). Following need theory (Cattell, 1979), the NISS focuses on a psychological or physical sensation as a goal state rather than assessing concrete behaviors. The NISS comprises 17 items measuring two dimensions, namely need for stimulation (11 items, e.g., "I like the feeling of excitement in my body") and avoidance of rest (six items, e.g., "I like to just sit back and enjoy a peaceful moment"). Participants had to indicate on a five-point response scale (1 = almost never, 2 = rarely, 3 = sometimes, 4 = often, 5 = almost always) how often they felt the way described in the given statements. In this study, Cronbach's alpha was $\alpha = 0.86$ for need for stimulation and 0.78 for avoidance of rest.

Cyberbullying and Face-to-Face Bullying

Self-reported cyberbullying and face-to-face bullying behavior was assessed with the European Cyberbullying Intervention Project Questionnaire (ECIPQ; Del Rey et al., 2015). On a five-point response scale (1 = no, 2 = yes, one or two times, 3 = yes, one or two times per month, 4 = yes, approximately one time per week, 5 = yes, more than once a week), students had to indicate whether they had intentionally engaged in cyberbullying (example item: "I hacked into someone's account and stole personal information") or face-to-face bullying (example item: "I hit, kicked, or pushed someone") behavior within the last 2 months. The cyberbullying scale includes 11 items and the face-to-face bullying scale 7 items. The ECIPQ has been structurally validated in six countries (Del Rey et al., 2015). In this study, Cronbach's alpha was $\alpha = 0.95$ for cyberbullying and 0.89 for face-to-face bullying.

Perceived Contextual Properties

We measured perceived contextual properties of face-to-face communication and CMC using semantic differentials. The semantic differential is a measurement technique allowing for the measurement of evaluative judgments by presenting bipolar attributes (Osgood et al., 1957). This procedure is frequently used in environmental research (e.g., Humpel et al., 2004; Michon et al., 2005; Fielding et al., 2008). We decided to use semantic differentials because we assumed high face validity with respect to the measurement of the intended contextual properties and

TABLE 1 | Age distribution of the sample.

Age in years	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Frequencies	38	111	115	111	59	35	15	14	10	4	1	3	2	1
Percentages (%)	7.3	21.4	22.2	21.4	11.4	6.7	2.9	2.7	1.9	0.8	0.2	0.6	0.4	0.2

Percentages have been rounded and may not total 100%.

sought to avoid socially desirable answers and acquiescence bias (see, for example, Friborg et al., 2006). We generated the statements used in this study on the basis of the considerations outlined in the section "Differences Between Face-to-Face and Cyberbullying." On a five-point response scale, students had to indicate their perceptions of the context when communicating on the Internet/with smartphones or face-to-face (not on the Internet or with smartphones). Two opposite statements were presented for each property, and participants had to choose where their own position lay between them. The statements for perceived anonymity were "You will be recognized quickly" and "You will remain unrecognized." The statements presented to measure perceived audience size were "You have a small audience" and "You have a large audience." The statements measuring perceived lack of authorities were "There are many people who can punish you" and "There are few people who can punish you." Perceived immediacy of reactions by others was assessed by presenting the statements "You notice others' reactions to your own behavior very slowly" and "You quickly notice others' reactions to your own behavior."

Covariates

We included gender and age as covariates, as research has shown higher prevalence rates of face-to-face bullying among boys and younger adolescents (Kowalski et al., 2014). Moreover, as there is evidence that social media use effects cyberbullying (Best et al., 2014), we considered social media use by asking participants how often they check social media right after waking up on a five-point response scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always).

Missing Data

A total of 0.12% of data were missing, stemming from 21 incomplete records. The percentage of missing values across the 46 variables ranged from 0.00 to 2.87%.

A series of two-sample Wilcoxon tests with continuity correction and Bonferroni–Holm correction for multiple comparisons were conducted as a missing data analysis. The results revealed no differences between students with complete and incomplete data on any variable (effect sizes ranged between $r = 0.00$ and $r = 0.16$).

Full information maximum likelihood (FIML) under the missing at random (MAR) assumption was used to deal with missing data (see Enders, 2010).

Measurement Models

Confirmatory factor analysis (CFA, see Brown, 2015) was conducted in Mplus 8.1 (Muthén and Muthén, 1998–2018) to test the measurement models for the present study. CFA with ordered categorical indicators using robust weighted least squares estimator (WLSMV) was applied in order to take into account the ordered categorical nature of the scale items (see Bovaird and Koziol, 2012). Measurement models were evaluated using the fit indices CFI, RMSEA, and SRMR based on common cut-off criteria (see Kline, 2015).

The results revealed a good model fit for sensation seeking comprising the factors need for stimulation and avoidance of rest (CFI = 0.963, RMSEA = 0.044, and SRMR = 0.045), with standardized factor loadings ranging from 0.41 to 0.77. Similarly, the measurement model for cyberbullying and face-to-face bullying exhibited good model fit (CFI = 0.975, RMSEA = 0.035, and SRMR = 0.058), with standardized factor loadings ranging from 0.53 to 0.89. In sum, the results revealed a good model fit for all scales, indicating that all scales had sound measurement properties (**Table 2**).

Analytic Strategy

A structural equation modeling (SEM) approach based on the measurement models with ordered-categorical indicators was used to test the main hypotheses of the study (see Kline, 2015).

First, in order to investigate differential relationships between the dimensions of sensation seeking and face-to-face and cyberbullying, face-to-face and cyberbullying were predicted by need for stimulation and avoidance of rest while statistically controlling for gender, age, and social media use (Hypothesis 1). Next, to examine differences in the strength of these relationships, we tested the differences in regression slopes for need for stimulation and avoidance of rest between the face-to-face and cyber contexts for statistical significance (Hypothesis 2). To assure a common metric across face-to-face and cyberbullying, effect coding method (Little et al., 2006) was used to identify and scale the latent variables. Subsequently, to test for differences between the face-to-face and cyber contexts for each perceived context variable, we applied dependent *t*-tests with Bonferroni–Holm correction for multiple comparisons (Hypotheses 3a–3d). Lastly, to examine if perceived contextual properties affect the investigated relationships, we predicted face-to-face and cyberbullying using need for stimulation, avoidance of rest, and all four perceived context variables while also including latent interaction terms with need for stimulation and avoidance of rest for each perceived context variable and statistically controlling for gender, age, and social media use (Hypotheses 4a–4d).

Statistical analyses were conducted using Mplus version 8.1 (Muthén and Muthén, 1998–2018). Models were estimated using the robust WLSMV. We account for the hierarchical data structure (i.e., students nested within classes) by adjusting the

TABLE 2 | Confirmatory factor analysis (CFA) results: sensation seeking and cyberbullying and face-to-face bullying.

Scale	χ^2	*df*	CFI	RMSEA	SRMR
Sensation seeking	237.49	118	0.963	0.044	0.045
Cyberbullying and face-to-face bullying	205.27	125	0.975	0.035	0.058

standard errors using a sandwich estimator taking into account the non-independence of observations.

All analyses were conducted based on a statistical significance level $\alpha = 0.05$.

RESULTS

Descriptive Statistics

Correlation coefficients, means, and standard deviations for all variables are shown in **Table 3**. The results showed that cyberbullying was positively correlated with need for stimulation (r = 0.21), face-to-face bullying (r = 0.62) and social media use (r = 0.14). Face-to-face bullying was positively correlated with need for stimulation (r = 0.20), cyberbullying (r = 0.62), social media use (r = 0.10), face-to-face perceived audience size (r = 0.10) and face-to-face perceived lack of authorities (r = 0.15).

Relationships Between Sensation Seeking and Face-to-Face and Cyberbullying

The model investigating relationships between both dimensions of sensation seeking and face-to-face and cyberbullying while statistically controlling for gender, age, and social media use (**Table 4**) showed a good model fit [$\chi^2(641) = 819.37$, CFI = 0.952, RMSEA = 0.023, SRMR = 0.080]. As expected, need for stimulation was related to cyberbullying ($\hat{\beta} = 0.40$, $p < 0.001$) and face-to-face bullying ($\hat{\beta} = 0.31$, $p < 0.001$) when statistically controlling for gender, age, and social media use. Avoidance of rest, however, was related to cyberbullying only ($\hat{\beta} = 0.21$, $p < 0.001$), but not to face-to-face bullying ($\hat{\beta} = 0.07$, $p = 0.215$) (Hypothesis 1; see **Figure 1**).

The difference in regression slopes was statistically significant for need for stimulation ($\hat{\beta} = -0.10$, $p = 0.024$) and avoidance of rest ($\hat{\beta} = -0.14$, $p = 0.002$). That is, the positive relationships between both dimensions of sensation seeking and bullying were stronger in the cyber context compared to the face-to-face context (Hypothesis 2).

Differences in Perceived Contextual Properties Between the Face-to-Face and Cyber Contexts

A series of dependent t-tests with Bonferroni–Holm correction for multiple testing were conducted to examine differences in perceived anonymity, perceived lack of authorities, perceived

TABLE 3 | Descriptive statistics: bivariate correlations, means, and standard deviations.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Need for stimulation															
2. Avoidance of rest	−0.02														
3. Cyberbullying	**0.21**	0.06													
4. Face-to-face bullying	**0.20**	0.02	**0.62**												
5. Cyber perceived anonymity	0.06	−0.08	0.01	0.01											
6. Cyber perceived audience size	**0.12**	−0.07	−0.03	0.04	**0.42**										
7. Cyber perceived lack of authorities	**0.10**	−0.04	−0.02	−0.03	**0.31**	**0.40**									
8. Cyber perceived immediacy of reactions by others	**0.11**	0.00	0.01	0.07	**0.32**	**0.35**	**0.35**								
9. Face-to-face perceived anonymity	0.06	0.04	0.02	0.06	0.07	**0.16**	0.04	**0.14**							
10. Face-to-face perceived audience size	0.05	−0.06	0.04	**0.10**	**0.09**	−0.04	−0.01	0.02	**0.37**						
11. Face-to-face perceived lack of authorities	0.05	−0.04	0.08	**0.15**	−0.04	0.08	**0.10**	0.08	**0.38**	**0.40**					
12. Face-to-face perceived immediacy of reactions by others	0.04	−0.01	0.00	0.01	0.08	**0.11**	0.08	**0.13**	**0.59**	**0.28**	**0.40**				
13. Gender	**0.12**	**−0.13**	0.04	0.07	−0.03	−0.06	**−0.10**	−0.07	0.04	0.06	0.04	0.00			
14. Age	0.05	0.05	−0.04	−0.04	0.04	0.04	0.00	0.07	**0.13**	−0.01	0.00	0.05	**0.19**		
15. Social media use	0.06	0.02	**0.14**	**0.10**	0.06	**0.12**	0.01	0.05	0.01	0.04	0.06	0.02	**−0.16**	−0.08	
M	2.91	3.14	1.19	1.36	2.79	3.06	3.28	3.00	2.17	2.79	3.06	3.71	0.63	17.83	3.25
SD	0.74	0.82	0.38	0.49	1.21	1.29	1.26	1.23	1.34	1.30	1.32	1.31		2.13	1.39

N = 523; gender is coded as 0 = females and 1 = males; statistically significant results at α = 0.05 are in boldface.

audience size, and perceived immediacy of reactions by others between the face-to-face and cyber contexts (**Table 5**). The results showed that perceived anonymity [$t(521) = 8.17$, $p < 0.001$, $d = 0.36$], perceived audience size [$t(521) = 3.32$, $p = 0.002$, $d = 0.15$], and perceived lack of authorities [$t(520) = 2.94$, $p = 0.003$, $d = 0.13$] were higher in the cyber context compared to the face-to-face context, while perceived immediacy of reactions by others [$t(521) = -9.74$, $p < 0.001$, $d = 0.43$] was lower in the cyber context than in the face-to-face context (Hypotheses 3a–3d).

Interactions Between Perceived Contextual Properties and Sensation Seeking

The model including latent interaction terms between all four context variables and need for stimulation and avoidance of rest was estimated while statistically controlling for gender, age, and social media use (**Table 6**).

With respect to cyberbullying, no statistically significant interactions between either dimension of sensation seeking and

TABLE 4 | Structural equation modeling (SEM) results: cyberbullying and face-to-face bullying.

Model	Cyberbullying		Face-to-face bullying	
	Est. (*SE*)	Std. Est.	Est. (*SE*)	Std. Est.
$\chi^2(641) = 819.37$, CFI = 0.952, RMSEA = 0.023, SRMR = 0.080				
Need for stimulation	**0.40** (0.06)	0.32	**0.31** (0.07)	0.26
Avoidance of rest	**0.21** (0.05)	0.16	0.07 (0.06)	0.06
Gender	**0.22** (0.11)	0.28	**0.22** (0.09)	0.30
Age	−0.02 (0.02)	−0.04	−0.03 (0.02)	−0.08
Social media use	**0.10** (0.03)	0.18	**0.08** (0.03)	0.15

Est., unstandardized estimate; SE, standard error; Std. Est., standardized estimate; gender is coded as 0 = females and 1 = males; statistically significant results at α = 0.05 are in boldface.

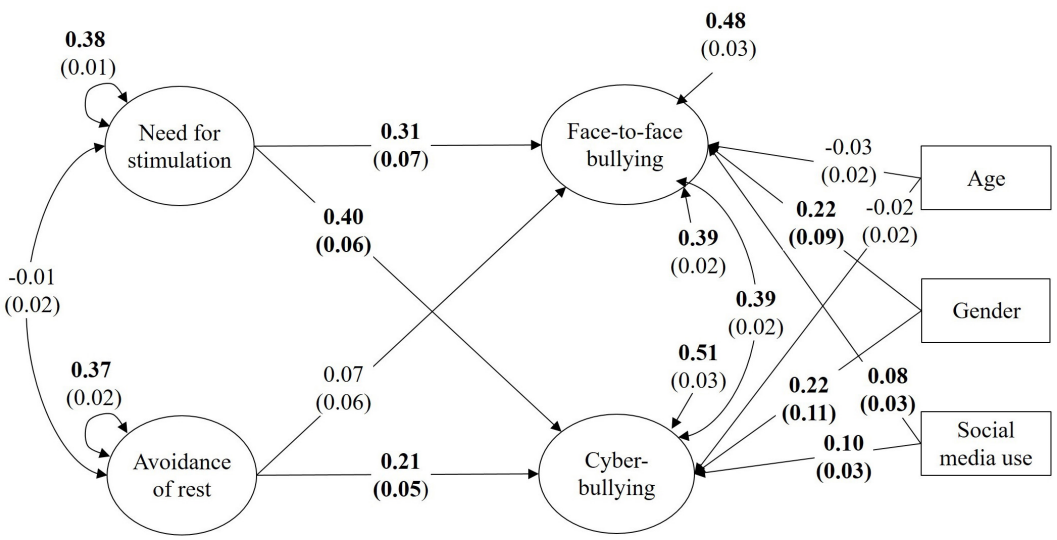

FIGURE 1 | Unstandardized estimates and standard errors in parentheses. Cyberbullying and face-to-face bullying on need for stimulation and avoidance of rest with covariates age, gender, and social media use. Statistically significant results at α = 0.05 are in boldface.

TABLE 5 | Dependent *t*-tests results: cyber and face-to-face contexts.

Variable	Cyber context		Face-to-face context		Dependent *t*-test	Cohen's *d*
	M	*SD*	*M*	*SD*		
Perceived anonymity	2.79	1.21	2.17	1.34	$t(521) = 8.17$, $p < 0.001$	0.36
Perceived audience size	3.06	1.29	2.79	1.30	$t(521) = 3.32$, $p = 0.002$	0.15
Perceived lack of authorities	3.28	1.26	3.06	1.32	$t(520) = 2.94$, $p = 0.003$	0.13
Perceived immediacy of reactions by others	3.00	1.23	3.71	1.31	$t(521) = -9.74$, $p < 0.001$	0.43

Bonferroni–Holm correction for multiple testing was applied.

TABLE 6 | SEM with latent variable interaction results: cyberbullying and face-to-face bullying.

Model	Cyberbullying		Face-to-face bullying	
	Est. (*SE*)	Std. Est.	Est. (*SE*)	Std. Est.
Need for stimulation	**0.42** (0.21)	0.27	**0.26** (0.11)	0.19
Avoidance of rest	**0.25** (0.12)	0.16	0.11 (0.08)	0.08
Perceived anonymity	**−0.52** (0.22)	−0.17	0.01 (0.17)	−0.00
Perceived audience size	−0.10 (0.09)	−0.06	**0.25** (0.09)	0.17
Perceived lack of authorities	0.16 (0.09)	0.05	−0.27 (0.14)	−0.11
Perceived immediacy of reactions by others	0.10 (0.11)	0.05	−0.04 (0.08)	−0.03
Need for stimulation × perceived anonymity	−0.01 (0.17)	0.04	−0.16 (0.12)	−0.09
Avoidance of rest × perceived anonymity	−0.10 (0.13)	−0.06	0.08 (0.12)	0.05
Need for stimulation × perceived audience size	−0.03 (0.09)	−0.03	0.03 (0.06)	0.03
Avoidance of rest × perceived audience size	0.02 (0.07)	0.02	−0.11 (0.07)	−0.11
Need for stimulation × perceived lack of authorities	−0.20 (0.14)	−0.11	−0.05 (0.13)	−0.03
Avoidance of rest × perceived lack of authorities	0.11 (0.13)	0.06	**0.21** (0.10)	0.12
Need for stimulation × perceived immediacy of reactions by others	−0.09 (0.07)	−0.07	0.03 (0.07)	0.03
Avoidance of rest × perceived immediacy of reactions by others	0.00 (0.08)	0.00	−0.05 (0.11)	−0.05
Gender	0.47 (0.33)	0.21	0.41 (0.25)	0.20
Age	−0.11 (0.09)	−0.11	−0.07 (0.04)	−0.07
Social media use	**0.31** (0.16)	0.19	0.14 (0.08)	0.09

Model fit is not available in latent interaction models. Est., unstandardized estimate; SE, standard error; Std. Est., standardized estimate; gender is coded as 0 = females and 1 = males; statistically significant results at α = 0.05 are in boldface.

any of the four perceived context variables were found. For face-to-face bullying, a statistically significant interaction between avoidance of rest and perceived lack of authorities was found ($\hat{\beta} = 0.21$, $p = 0.020$), indicating that the (non-significant) relationship between avoidance of rest and face-to-face bullying increases with an increasing perceived lack of authorities. All other interaction effects were statistically insignificant (Hypotheses 4a–4d).

DISCUSSION

Sensation seeking is widely considered a risk factor for aggressive behavior (Zuckerman, 2007; Wilson and Scarpa, 2011; Bacon et al., 2014). However, studies investigating the relationship between sensation seeking and bullying – a subtype of aggressive behavior (e.g., Smith, 2004) are scarce and have mostly operationalized sensation seeking in ways that also partially measure antisocial behavior, creating a risk of obtaining tautological findings. Moreover, as it remains questionable whether bullying in the face-to-face context and in cyberspace may be considered equivalent (Olweus, 2012), the context (face-to-face, cyberspace) should not be neglected when investigating bullying (e.g., Graf et al., 2019).

Thus, the present study examined sensation seeking's associations with both face-to-face and cyberbullying. Moreover, our operationalization of sensation seeking as a need (Cattell, 1979), without measuring concrete antisocial behaviors, allowed us to ensure that this study's findings are not biased due to tautologies. Hence, we avoided a situation in which we regressed self-descriptions of concrete antisocial behavior – as is partially the case in the most common measurement instruments for sensation seeking (e.g., SSS-V; Zuckerman et al., 1978) – on self-descriptions of antisocial behavior used to operationalize face-to-face and cyberbullying behavior. Consequently, this approach improved the interpretability of our results.

Moreover, by investigating differential relationships between sensation seeking and face-to-face and cyberbullying, this study contributes to recent discussions about similarities and differences between face-to-face and cyberbullying. Additionally, we provide deeper insights into how contextual properties may account for sensation seeking's differential role in face-to-face and cyberbullying by examining perceived differences in contextual properties between contexts (face-to-face vs. cyberspace) and how the perception of these contextual properties may shape the relationships between sensation seeking and bullying in both contexts.

Overall, our results indicate that sensation seeking should be recognized as a risk factor for both face-to-face and cyberbullying. Moreover, we found that sensation seeking plays a stronger role in cyberbullying than in face-to-face bullying. Additionally, we observed differences between face-to-face communication and CMC in students' perceptions of all investigated contextual properties. However, perceived contextual properties had no influence on the significant relationships between sensation seeking and face-to-face and cyberbullying.

Although we hypothesized positive relationships between both dimensions of sensation seeking and face-to-face and cyberbullying (Hypothesis 1), we found that avoidance of rest solely predicted cyberbullying. Furthermore, as hypothesized (Hypothesis 2), we observed a significantly stronger association between both dimensions of sensation seeking and cyberbullying compared to face-to-face bullying. These results indicate that sensation seeking might be differentially relevant as a risk factor

for face-to-face vs. cyberbullying, playing a more important role for cyberbullying. The unique relationship between avoidance of rest and cyberbullying might be explained by findings suggesting a relationship between boredom, defined as "a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment" (Mikulas and Vodanovich, 1993, p. 1), and aggressive behavior (e.g., Rupp and Vodanovich, 1997). Obviously, cyberbullying is just one possible behavior that can counteract the "restless, irritable feeling" (Barbalet, 1999, p. 631) resulting from a situation which holds no appeal (Barbalet, 1999). However, following the assumption that communication in cyberspace may take place in less stimulating environments compared to face-to-face communication, e.g., due to a smaller set of possible actions or greater remove from the social situation (see social presence theory; Gunawardena, 2004), future research should investigate state experiences such as boredom in relation to bullying incidents. We propose that state boredom could be a mediator variable between avoidance of rest and cyberbullying. In contrast, this might not be the case for face-to-face bullying or only be so to a lesser extent.

Moreover, our findings show that theoretically assumed differences between contexts are indeed perceived as such (Hypotheses 3a–3d). Anonymity, audience size, and lack of authorities were perceived as higher in CMC compared to face-to-face communication. In contrast, the immediacy of reactions by others was perceived as higher in face-to-face communication than in communication with electronic devices. We found the strongest differences between the cyber and face-to-face contexts for perceived anonymity and perceived immediacy of reactions by others, with small-to-medium effect sizes. Further research on contextual differences between face-to-face and cyberbullying may wish to address these specific contextual properties in greater detail. For example, perceived anonymity and perceived immediacy of reactions by others with respect to the target of the bullying behavior, the authorities, or even bystanders might be considered (regarding anonymity, see also Wright, 2013).

While we found differential relationships between the two dimensions of sensation seeking and both forms of bullying, as well as differences in perceived contextual properties, we only found one moderation of perceived contextual properties on the investigated relationships (Hypotheses 4a–4d). A perceived lack of authorities reinforced the relationship between avoidance of rest and face-to-face bullying, as hypothesized, but did not play the same role for cyberbullying. Moreover, the practical relevance of this finding is questionable due to the non-significant relationship between avoidance of rest and face-to-face bullying. Nevertheless, while interpretations should be tentative, this result may indicate the importance of being aware of authorities when it comes to preventing face-to-face bullying incidents motivated by avoidance of rest. In contrast, the protective role of the perceived presence of authorities might not be that important in cyberspace. In combination with our finding that authorities are perceived as more present in face-to-face context than in cyberspace, this might partially explain the non-significant relationship between avoidance of rest and face-to-face bullying compared to the significant positive association with cyberbullying. Further, the lack of significant interactions between need for stimulation and the perceived contextual properties investigated in our study indicates that need for stimulation might be a common dispositional risk factor for face-to-face and cyberbullying resistant to situational influences.

The fact that we only found one significant interaction (reinforcing a non-significant relationship), in contrast to our hypotheses that all perceived contextual properties would affect the relationships investigated in this study, indicates that further studies should not solely consider single contextual properties but should take a more holistic approach.

With respect to the covariates, we found no relationships between age and self-reported face-to-face and cyberbullying after controlling for both dimensions of sensation seeking and all other covariates. Although the existing literature suggests variations in the prevalence rates of face-to-face and cyberbullying across different age groups (e.g., Kowalski et al., 2014), we were unable to find such associations. One explanation for this finding could be the fact that we controlled for a set of other variables in the model. Another explanation could be the unequal age distribution in our sample (i.e., almost two-thirds of the participants were between 16–18 years old). However, our results were in line with recent findings concerning gender and social media use. Like Best et al. (2014), we found statistically significant associations between social media use and both face-to-face and cyberbullying (even while controlling for both dimensions of sensation seeking and all other covariates). Moreover, we found greater involvement in both face-to-face and cyberbullying among boys, as previously suggested (e.g., Kowalski et al., 2014).

Limitations

First, we acquired our information via self-reports. While some studies criticize the susceptibility of self-reports to social desirability mechanisms (Beran et al., 2012), the literature has repeatedly shown self-reports to be a valid method to assess bullying and personality (Pellegrini and Bartini, 2000; Lee and Ashton, 2004). Nevertheless, taking a multi-informant approach in further studies would enrich the depth of information available. In addition, we draw our conclusions based on cross-sectional data, meaning that we are not able to make causal interpretations. Therefore, future studies should replicate our findings using longitudinal data or experimental designs. Moreover, we used a variable-oriented approach. The results and conclusions drawn from our study could be complemented and extended with person-oriented approaches such as latent-class analyses or cluster analyses (see von Eye and Spiel, 2010). Finally, we operationalized the perceived contextual properties using one-item measures. Thus, the reliability and validity of these measures could be subject to critique. Follow-up research should develop measures to assess contextual properties in more detail.

CONCLUSION

Our study provides useful insights into the perceived differences in contextual properties between face-to-face and online communication, providing a base for future studies. Moreover, our study adds to the current literature discussing similarities and differences between face-to-face and cyberbullying by

demonstrating differential relationships between dimensions of sensation seeking and face-to-face and cyberbullying, with sensation seeking playing a more negative role in cyberbullying. By demonstrating differences in the associations between an intrapersonal risk factor and face-to-face and cyberbullying, our findings provide additional evidence to inform the evidence-based development of effective prevention and intervention strategies that consider the contexts (face-to-face vs. cyberspace) in which bullying appears.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

This study was carried out in compliance with ethical standards of the Austrian Federal Ministry of Health (1995) and the American Psychological Association (2010). Prior to participation, students gave written informed consent. The consent form informed participants about duration, procedure, and goals of this study. Participants were guaranteed anonymity and confidentiality of their data and were informed that participation was voluntary and could be withdrawn at any point of the questionnaire. According to Austrian and European (EU) law, approval of an ethics committee was not necessary as this study did not involve patients, was non-invasive, and participation was voluntary and anonymous.

AUTHOR CONTRIBUTIONS

DG and CS developed the study concept. DG and TY prepared the draft manuscript and CS provided critical revisions. All authors contributed meaningfully to the manuscript and the study design, analyzed or interpreted the data, and approved the final version of the manuscript for submission.

FUNDING

This work was supported by the open access funding provided by the University of Vienna.

ACKNOWLEDGMENTS

We thank our working group Bildung-Psychology and Evaluation for supporting us with a constructive, fruitful, and pleasant working climate.

REFERENCES

American Psychological Association (2010). *Publication Manual of the American Psychological Association*, 6th ed. Washington, DC: American Psychological Association.

Anderson, C. A., and Bushman, B. J. (2002). Human aggression. *Annu. Rev. Psychol.* 53, 27–51. doi: 10.1146/annurev.psych.53.100901.135231

Antoniadou, N., and Kokkinos, C. M. (2015). Cyber and school bullying: same or different phenomena? *Aggress. Violent Behav.* 25, 363–372. doi: 10.1016/j.avb.2015.09.013

Antoniadou, N., Kokkinos, C. M., and Markos, A. (2016). Possible common correlates between bullying and cyber-bullying among adolescents. *Psicol. Educ.* 22, 27–38. doi: 10.1016/j.pse.2016.01.003

Arnett, J. (1994). Sensation seeking: a new conceptualization and a new scale. *Pers. Individ. Dif.* 16, 289–296. doi: 10.1016/0191-8869(94)90165-1

Bacon, A. M., Burak, H., and Rann, J. (2014). Sex differences in the relationship between sensation seeking, trait emotional intelligence and delinquent behaviour. *J. Foren. Psychiatry Psychol.* 25, 673–683. doi: 10.1080/14789949.2014.943796

Barbalet, J. M. (1999). Boredom and social meaning. *Br. J. Sociol.* 50, 631–646. doi: 10.1080/000713199358572

Beran, T. N., Rinaldi, C., Bickham, D. S., and Rich, M. (2012). Evidence for the need to support adolescents dealing with harassment and cyber-harassment: prevalence, progression, and impact. *Sch. Psychol. Int.* 33, 562–576. doi: 10.1177/0143034312446976

Berkowitz, L. (1993). *McGraw-Hill Series in Social Psychology. Aggression: Its Causes, Consequences, and Control*. New York, NY: England: Mcgraw-Hill Book Company.

Best, P., Manktelow, R., and Taylor, B. (2014). Online communication, social media and adolescent wellbeing: a systematic narrative review. *Child. Youth Serv. Rev.* 41, 27–36. doi: 10.1016/j.childyouth.2014.03.001

Bovaird, J. A., and Koziol, N. A. (2012). "Measurement models for ordered-categorical indicators," in *Handbook of Structural Equation Modeling*, ed. R. H. Hoyle (New York, NY: Guilford Press), 495–511.

Brown, T. A. (2015). *Confirmatory Factor Analysis for Applied Research*, 2nd Edn. New York, NY: Guilford Press.

Bushman, B. J., and Anderson, C. A. (2001). Media violence and the american public: scientific facts versus media misinformation. *Am. Psychol.* 56, 477–489. doi: 10.1037/0003-066X.56.6-7.477

Cattell, R. B. (1979). *Personality and Learning Theory. The Structure of Personality and its Environment*. NewYork, NY: Springer.

Chein, J., Albert, D., O'Brien, L., Uckert, K., and Steinberg, L. (2011). Peers increase adolescent risk taking by enhancing activity in the brain's reward circuitry. *Dev. Sci.* 14, 1–10. doi: 10.1111/j.1467-7687.2010.01035.x

Crawford, A. M., Pentz, M. A., Chou, C.-P., Li, C., and Dwyer, J. H. (2003). Parallel developmental trajectories of sensation seeking and regular substance use in adolescents. *Psychol. Addict. Behav.* 17, 179–192. doi: 10.1037/0893-164X.17.3.179

Crick, N. R., and Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Dev.* 67, 993–1002. doi: 10.1111/j.1467-8624.1996.tb01778.x

Dehue, F., Bolman, C., and Völlink, T. (2008). Cyberbullying: youngsters' experiences and parental perception. *CyberPsychol. Behav.* 11, 217–223. doi: 10.1089/cpb.2007.0008

Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., et al. (2015). Structural validation and cross-cultural robustness of the european cyberbullying intervention project questionnaire. *Comput. Hum. Behav.* 50, 141–147. doi: 10.1016/j.chb.2015.03.065

Dooley, J. J., Pyżalski, J., and Cross, D. (2009). Cyberbullying versus face-to-face bullying. *J. Psychol.* 217, 182–188. doi: 10.1027/0044-3409.217.4.182

Dunlop, S. M., and Romer, D. (2010). adolescent and young adult crash risk: sensation seeking, substance use propensity and substance use behaviors. *J. Adoles. Health* 46, 90–92. doi: 10.1016/j.jadohealth.2009.06.005

Enders, C. (2010). *Applied Missing Data Analysis*. New York, NY: Guilford.

Federal Ministry of Health, (1995). *Ethics Guideline for Clinical Psychologists and Health Psychologists* [Ethical Guidelines for Clinical and Health Psychologists]. Vienna: Federal Ministry of Health.

Fielding, K. S., McDonald, R., and Louis, W. R. (2008). Theory of planned behaviour, identity and intentions to engage in environmental activism. *J. Environ. Psychol.* 28, 318–326. doi: 10.1016/j.jenvp.2008.03.003

Friborg, O., Martinussen, M., and Rosenvinge, J. H. (2006). Likert-based vs. semantic differential-based scorings of positive psychological constructs: a psychometric comparison of two versions of a scale measuring resilience. *Pers. Individ. Dif.* 40, 873–884. doi: 10.1016/j.paid.2005.08.015

Glicksohn, J., and Abulafia, J. (1998). Embedding sensation seeking within the big three. *Pers. Indiv. Dif.* 25, 1085–1099. doi: 10.1016/S0191-8869(98)00096-8

Gradinger, P., Strohmeier, D., and Spiel, C. (2012). "Motives for Bullying Others in Cyberspace: A study on bullies and bully-victims in Austria" in *Cyberbullying in the Global Playground*, eds Q. Li, D. Cross and P. K. Smith (Hoboken, NJ: Wiley-Blackwell)

Graf, D., Yanagida, T., and Spiel, C. (2019). Through the magnifying glass: empathy's differential role in preventing and promoting traditional and cyberbullying. *Comput. Hum. Behav.* 96, 186–195. doi: 10.1016/j.chb.2019.02.007

Gunawardena, C. N. (2004). "Designing the social environment for online learning: The role of social presence," in *Distance Education and Technology: Issues and Practice*, eds D. Murphy, R. Carr, J. Taylor, and T. Wong (Hong Kong: Open University of Hong Kong Press), 255–270.

Howard, R. C. (2011). The quest for excitement: a missing link between personality disorder and violence? *J. Forens. Psychiatry Psychol.* 22, 692–705. doi: 10.1080/14789949.2011.617540

Hoyle, R. H., Stephenson, M. T., Palmgreen, P., Lorch, E. P., and Donohew, R. L. (2002). Reliability and validity of a brief measure of sensation seeking. *Pers. Indiv. Dif.* 32, 401–414. doi: 10.1016/S0191-8869(01)00032-0

Humpel, N., Owen, N., Iverson, D., Leslie, E., and Bauman, A. (2004). Perceived environment attributes, residential location, and walking for particular purposes. *Am. J. Prev. Med.* 26, 119–125. doi: 10.1016/j.amepre.2003.10.005

Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling*, 4th Edn. Boca Raton, FL: CRC Press.

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol. Bull.* 140, 1073–1137. doi: 10.1037/a0035618

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Reese, H. H. (2012a). "Cyber bullying among college students: evidence from multiple domains of college life," in *Misbehavior Online in Higher Education. Cutting-Edge Technologies in Higher Education*, eds L. A. Wankel and C. Wankel (Bingley: Emerald Group Publishing Limited), 293–321. doi: 10.1108/s2044-9968(2012)0000005016

Kowalski, R. M., and Limber, S. P. (2007). Electronic bullying among middle school students. *J. Adolesc. Health* 41, S22–S30. doi: 10.1016/j.jadohealth.2007.08.017

Kowalski, R. M., Limber, S. P., and Agatston, P. W. (2012b). *Cyberbullying: Bullying in the Digital Age*. Hoboken, NJ: Wiley & Sons.

Lee, K., and Ashton, M. C. (2004). Psychometric Properties of the HEXACO Personality Inventory. *Multivariate Behav. Res.* 39, 329–358. doi: 10.1207/s15327906mbr3902_8

Little, T. D., Slegers, D. W., and Card, N. (2006). A non-arbitrary method of identifying and scaling latent variables in SEM and MACS models. *Struct. Equ. Model.* 13, 59–72. doi: 10.1207/s15328007sem1301_3

Menesini, E., Modena, M., and Tani, F. (2009). Bullying and victimization in adolescence: concurrent and stable roles and psychological health symptoms. *J. Genet. Psychol.* 170, 115–134. doi: 10.3200/GNTP.170.2.115-134

Menesini, E., and Nocentini, A. (2009). Cyberbullying definition and measurement. *J. Psychol.* 217, 230–232. doi: 10.1027/0044-3409.217.4.230

Michon, R., Chebat, J.-C., and Turley, L. W. (2005). Mall atmospherics: the interaction effects of the mall environment on shopping behavior. *J. Busin. Res.* 58, 576–583. doi: 10.1016/j.jbusres.2003.07.004

Mikulas, W., and Vodanovich, S. (1993). The essence of boredom. *Psychol. Rec.* 43, 3–12. doi: 10.3390/ijerph14010097

Muthén, L. K., and Muthén, B. O. (1998–2018). *Mplus User's Guide*, 8th Edn. Los Angeles, CA: Muthén & Muthén.

Olweus, D. (1993). *Bullying at School: What We Know And What We Can do*. Hoboken, NJ: Blackwell Publishing.

Olweus, D. (2012). Cyberbullying: an overrated phenomenon? *Eur. J. Dev Psychol.* 9, 520–538. doi: 10.1080/17405629.2012.682358

Olweus, D. (2013). School bullying: development and some important challenges. *Annu. Rev. Clin. Psychol.* 9, 751–780. doi: 10.1146/annurev-clinpsy-050212-185516

Osgood, C. E., Suci, G. J., and Tannenbaum, P. H. (1957). *The Measurement of Meaning*. Chicago, IL: University of Illinois Press.

Pellegrini, A. D., and Bartini, M. (2000). An empirical comparison of methods of sampling aggression and victimization in school settings. *J. Educ. Psychol.* 92, 360–366. doi: 10.1037//0022-0663.92.2.360

Roberti, J. W. (2004). A review of behavioral and biological correlates of sensation seeking. *J. Res. Pers.* 38, 256–279. doi: 10.1016/S0092-6566(03)00067-9

Rogers, A. A., Elam, K. K., Chassin, L., Sternberg, A., and Bui, L. (2018). Proximal and distal effects of sensation seeking and parenting environments on alcohol use trajectories from early adolescence to early adulthood. *J. Youth Adolesc.* 47, 2206–2219. doi: 10.1007/s10964-018-0874-x

Roland, E., and Idsøe, T. (2001). Aggression and bullying. *Aggress. Behav.* 27, 446–462. doi: 10.1002/ab.1029

Roth, M., and Hammelstein, P. (2012). The need inventory of sensation seeking (NISS). *Eur. J. Psychol. Assess.* 28, 11–18. doi: 10.1027/1015-5759/a000085

Roth, M., Hammelstein, P., and Brähler, E. (2007). Beyond a youthful behavior style – age and sex differences in sensation seeking based on need theory. *Pers. Indiv. Dif.* 43, 1839–1850. doi: 10.1016/j.paid.2007.06.004

Runions, K., Shapka, J. D., Dooley, J., and Modecki, K. (2013). Cyber-aggression and victimization and social information processing: integrating the medium and the message. *Psychol. Violence* 3, 9–26. doi: 10.1037/a0030511

Runions, K. C. (2013). Toward a conceptual model of motive and self-control in cyber-aggression: rage, revenge, reward, and recreation. *J. Youth Adolesc.* 42, 751–771. doi: 10.1007/s10964-013-9936-2

Runions, K. C., and Bak, M. (2015). Online moral disengagement, cyberbullying, and cyber-aggression. *Cyberpsychol. Behav. Soc. Netw.* 18, 400–405. doi: 10.1089/cyber.2014.0670

Rupp, D., and Vodanovich, S. J. (1997). The role of boredom proneness in self-reported anger and aggression. *J. Social behav. Pers.* 12, 925–936.

Simon, J. B., and Nail, P. R. (2013). Introduction to special issue on bullying: a social influence perspective. *Soc. Influ.* 8, 81–86. doi: 10.1080/15534510.2013.771882

Slonje, R., Smith, P. K., and Frisén, A. (2012). Processes of cyberbullying, and feelings of remorse by bullies: a pilot study. *Eur. J. Dev. Psychol.* 9, 244–259. doi: 10.1080/17405629.2011.643670

Slonje, R., Smith, P. K., and Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Comput. Hum. Behav.* 29, 26–32. doi: 10.1016/j.chb.2012.05.024

Smith, P. K. (2004). Bullying: recent developments. *Child Adolesc. Mental Health* 9, 98–103. doi: 10.1111/j.1475-3588.2004.00089.x

Smith, P. K., and Ananiadou, K. (2003). The nature of school bullying and the effectiveness of school-based interventions. *J. Appl. Psychoanalytic Stud.* 5, 189–209. doi: 10.1023/A:1022991804210

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., and Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *J. Child Psychol. Psychiatry* 49, 376–385. doi: 10.1111/j.1469-7610.2007.01846.x

Sourander, A., Brunstein Klomek, A., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., et al. (2010). Psychosocial risk factors associated with cyberbullying among adolescents. *Arch. Gen. Psychiatry* 67:720. doi: 10.1001/archgenpsychiatry.2010.79

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends Cogn. Sci.* 9, 69–74. doi: 10.1016/j.tics.2004.12.005

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Dev. Rev.* 28, 78–106. doi: 10.1016/j.dr.2007.08.002

Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., and Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: evidence for a dual systems model. *Dev. Psychol.* 44, 1764–1778. doi: 10.1037/a0012955

Suler, J. (2004). The online disinhibition effect. *CyberPsychol. Behav.* 7, 321–326. doi: 10.1089/1094931041291295

Sutton, J., Smith, P. K., and Swettenham, J. (1999). Social cognition and bullying: social inadequacy or skilled manipulation? *Br. J. Dev. Psychol.* 17, 435–450. doi: 10.1348/026151099165384

Tokunaga, R. S. (2010). Following you home from school: a critical review and synthesis of research on cyberbullying victimization. *Comput. Hum. Behav.* 26, 277–287. doi: 10.1016/j.chb.2009.11.014

Vandebosch, H., and Van Cleemput, K. (2008). Defining cyberbullying: a qualitative research into the perceptions of youngsters. *CyberPsychol. Behav.* 11, 499–503. doi: 10.1089/cpb.2007.0042

Vivolo-Kantor, A. M., Martell, B. N., Holland, K. M., and Westby, R. (2014). A systematic review and content analysis of bullying and cyber-bullying measurement strategies. *Aggress. Violent Behav.* 19, 423–434. doi: 10.1016/j.avb.2014.06.008

Volk, A. A., Dane, A. V., and Marini, Z. A. (2014). What is bullying? a theoretical redefinition. *Dev. Rev.* 34, 327–343. doi: 10.1016/j.dr.2014.09.001

von Eye, A., and Spiel, C. (2010). Conducting person-oriented research. *J Psychol.* 218, 151–154. doi: 10.1027/0044-3409/a000024

Wilson, L. C., and Scarpa, A. (2011). The link between sensation seeking and aggression: a meta-analytic review. *Aggress. Behav.* 37, 81–90. doi: 10.1002/ab.20369

Woods, S., and White, E. (2005). The association between bullying behaviour, arousal levels and behaviour problems. *J. Adolesc.* 28, 381–395. doi: 10.1016/j.adolescence.2004.09.002

Wright, M. F. (2013). The relationship between young adults' beliefs about anonymity and subsequent cyber aggression. *Cyberpsychol. Behav. Soc. Netw.* 16, 858–862. doi: 10.1089/cyber.2013.0009

Zuckerman, M. (1979). *Sensation Seeking: Beyond the Optimal Level of Arousal*. Hillsdale, NJ: L. Erlbaum. Associates.

Zuckerman, M. (1994). *Behavioral Expressions and Biosocial Bases of Sensation Seeking*. Cambridge, MA: Cambridge University Press.

Zuckerman, M. (1996). Item revisions in the sensation seeking scale form V (SSS-V). *Pers. Indiv. Dif.* 20:515. doi: 10.1016/0191-8869(95)00195-6

Zuckerman, M. (2007). *Sensation Seeking and Risky Behavior*. Washington, DC: American Psychological Association, doi: 10.1037/11555-000

Zuckerman, M., Eysenck, S. B. G., and Eysenck, H. J. (1978). Sensation seeking in Europe and America: cross-cultural, age, and sex comparisons. *J. Consult. Clin. Psychol.* 46, 139–149. doi: 10.1037//0022-006x.46.1.139

Zych, I., Ortega-Ruiz, R., and Llorent, V. J. (2017). Nature and dynamics of peer violence in polish upper secondary schools. *Soc. Psychol. Educ.* 20, 427–443. doi: 10.1007/s11218-017-9378-x

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 17 July 2019
doi: 10.3389/fpsyg.2019.01620

Differential Analysis of Psychopathological Impact of Cyberbullying in University Students

Elena Felipe-Castaño, Benito León-del-Barco*, Mª Isabel Polo-del-Río, Santiago Mendo-Lázaro, Teresa Gómez-Carroza and Fernando Fajardo-Bullón*

Departamento de Psicología y Antropología, Facultad de Formación del Profesorado, University of Extremadura, Cáceres, Spain

The new technologies (NT) and Internet are now a part of our lives and they are even changing the way in which we relate to each other, in both a positive and a negative sense, especially among young people. One of the negative aspects is their use to harass others, a phenomenon known as Cyberbullying. The aim of this study was to describe the frequency of cyberbullying, the characteristics of victims and aggressors in a sample of university students, and to analyze the relationships between the use of Internet and the presence of psychopathological symptomatology, as well as the differences in the psychopathological dimensions in relation to the intensity of the cyberbullying, cyberaggression and gender. The participants were 1108 university students selected using a randomized cluster sample. The results demonstrate the presence of cyberbullying in our participants. No differences were found with respect to gender in the frequency of being a victim; but differences were found in this respect in the case of the aggressors, as well as there being different symptomatology profiles in males and females and according to the intensity of the aggression. The results are discussed in relation to the differences according to gender, as well as the need to carry out longitudinal studies and to design prevention and intervention programs for university campuses that are sensitive to the differences between males and females.

Keywords: cyberbullying, cyberbullies, cybervictims, college students, psychopathological symptoms

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Cristina Maria Coimbra Vieira, University of Coimbra, Portugal
Annalisa Guarini, University of Bologna, Italy
Natalio Extremera, University of Málaga, Spain

****Correspondence:***
Elena Felipe-Castaño
efelipe@unex.es
Benito León-del-Barco
bleon@unex.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *21 February 2019*
Accepted: *27 June 2019*
Published: *17 July 2019*

Citation:
Felipe-Castaño E, León-del-Barco B, Polo-del-Río Mª I, Mendo-Lázaro S, Gómez-Carroza T and Fajardo-Bullón F (2019) Differential Analysis of Psychopathological Impact of Cyberbullying in University Students. Front. Psychol. 10:1620. doi: 10.3389/fpsyg.2019.01620

INTRODUCTION

Cyberbullying is defined as intentional and recurrent aggression by a group or individual toward another individual, using electronic communication devices (Campbell, 2005; Smith et al., 2006).

Cyberbullying is considered to be a disguised form of verbal and written harassment (Mason, 2008), a characteristic it shares with traditional forms of harassment, but with some important differences, such as, for instance, that in cyberbullying there is nowhere you can be protected from it. In many cases, the harassment is public and may be observed indefinitely; the physical strength and size of the aggressor has no influence; the digital aggressor usually has good interpersonal relationships and cannot always be identified (Ybarra and Mitchell, 2004; Li, 2008; Ortega et al., 2008; Slonje and Smith, 2008; Heirman and Walrave, 2009).

Cyberbullying can be classified according to the means by which it is produced (Smith et al., 2006) and according to the type of harassment performed (Willard, 2006). Any kind of

technological device and Internet can be used for this type of harassment: e-mail, mobile, social networks, instant messaging, and web pages. It must also be taken into account that, in cyberspace, the forms of harassment change and are reinvented as technological tools and resources develop.

The first studies on cyberbullying were published in the United States at the end of the last century and focused on the adolescent population (Finkelhor et al., 2000), since it was considered that adolescence was a time of particular risk due to the increase in the ease of access to new technologies (Tokunaga, 2010). Nevertheless, we are now seeing that cyberbullying continues into the university years and even later (Misawa, 2011). Research carried out on university students establishes different frequency percentages, with percentages of those involved in situations of cyberbullying being between 20 and 60%, independently of the role assumed (Dilmac, 2009; MacDonald and Roberts-Pittman, 2010; Turan et al., 2011; Walker et al., 2011; Selkie et al., 2015). As for the differences with respect to gender there is no agreement concerning the victims: so, in the studies reviewed, it has been pointed out that there are no differences between male and female university students concerning cybervictimization (Balakrishnan, 2015); while others do find differences with respect to gender, pointing to a greater frequency of female victims and male aggressors in both adolescents (Li, 2006; Calvete et al., 2010) and university students (Dilmac, 2009; Schenk et al., 2013).

Interest in the study of the consequences of cyberbullying comes from research carried out into traditional school bullying. In general, people who suffer traumatic experiences or situations have different types of psychopathological symptomatology (van der Kolk, 2005; Briere et al., 2008). Traditional bullying at school sets off, in both victims and aggressors, clearly negative effects that make integration in the school environment and the normal development of learning more difficult, not to mention the negative consequences on physical and mental health, especially in the victims (Kumpulainen and Räsänen, 2000; Espelage and Holt, 2001; Ivarsson et al., 2005; Anderson and Hunter, 2012; Felipe-Castaño et al., 2013). In addition, there is a high probability that both the psychosocial maladjustment and the psychopathological symptomatology may last the rest of a person's life (Kumpulainen et al., 2001). Cyberbullying in adolescents has the same negative effects on mental health as traditional bullying (Wolak and Finkelhor, 2006; Hinduja and Patchin, 2007, 2010; Tokunaga, 2010), and could have an even greater impact on the victim (Slonje and Smith, 2008; Smith et al., 2008), as there is a higher correlation with suicidal behavior patterns and depression than traditional bullying (Bonanno and Hymel, 2013; van Geel et al., 2014).

University students involved as either victims or aggressors in situations of cyberbullying show an increase in depressive symptoms, alcohol consumption (Selkie et al., 2015) and a decrease in social skills (Kokkinos et al., 2014). Similar psychopathological profiles are to be found in aggressors and aggressors/victims, as well as an increase in anxiety and greater levels of distress in the students involved in comparison with those not involved (Schenk and Fremouw, 2012; Schenk et al., 2013).

Although more and more studies of cyberbullying in university students are becoming available, we believe it is necessary to continue acquiring more knowledge and better analyses of the characteristics and associated risk factors. Thus, the aim of this study was to describe the frequency of victims and aggressors involved in cyberbullying in a randomized sample of university students, and to analyze the relationship between the use of Internet and the Dimensions of the SA-45, as well as the differences in the psychopathological dimensions with respect to the intensity of the cyberbullying, cyberaggression and gender.

We will find differences between men and women regarding the experimentation of cyberbullying, so that women are more likely to be cyber-victims while men are cyber-aggressors. Then, the psychopathology associated with these profiles will be different for men and women. Men will present higher scores in dimensions related to externalizing symptoms such as hostility and psychoticism, while women will get higher scores in internalizing symptoms such as anxiety and depression.

MATERIALS AND METHODS

Participants

There were 1108 university students participating in the study, of whom 655 were female (59%), between 18 and 41 years of age, with an average age of 20.95 (SD = 3.43), students from all 4 years of undergraduate studies, belonging to 40 different degree subjects from 14 different Faculties in the public universities. The number of participants was determined on the basis of the number of students registered in the previous year, considering a sample error of 3% and a confidence interval of 95%. A randomized cluster sampling was carried out using the Center or Faculty as the unit, while in each degree subject two class groups of students were randomly selected.

Instruments

Sociodemographic Data and Information About the Use of Internet

Questions referred to gender, age, year of studies, and Center or Faculty, whether they owned a computer and cell phone; How much time was spent dedicated to Internet in hours (daily and weekly), use and profiles in social networks.

Scale of Victimization Through Internet (CYB-VIC, Buelga et al., 2012)

This is made up of ten items with a Likert type response scale with four intervals ranging from 1 (*never*) to 4 (*always*). This scale measures whether the participants have suffered from bullying according to the modalities, proposed by Willard (2006), of harassment, persecution, vilification, identity theft and violation, invasion of privacy and social exclusion. The value of internal consistency obtained using Cronbach's α was 0.761.

Who Is the Aggressor?

The participants were asked who they considered the aggressor to be. The options to answer were: companions from the faculty, persons from outside the faculty, persons met through Internet,

ex-friends or ex-partners, acquaintances, but unsure whether it was them or not, or strangers.

Duration

This refers to how long the aggression lasted. The options for answering were: 1 month or less, from 3 to 6 months, and a year or more.

Scale of Aggression Through Internet (CYB-AGRE, Buelga and Pons, 2012)

This scale is made up of ten items that evaluate aggressions committed over the previous year through Internet according to the modalities proposed by Willard (2006). It uses a Likert type scale with five response options ranging from 1 (*never*) to 5 (*many times*). The value of the reliability coefficient obtained through Cronbach's α was 0.771.

Who Are Cyberaggressions Aimed at?

This question referred to who the victim was. The options for answering were: companions of the faculty, persons from outside the faculty, persons met through Internet, ex-friends or ex-partners, and strangers.

Duration

This question referred to the time the aggression was maintained. The options for answering were: a month or less, from 3 to 6 months, and a year or more.

SA-45 (Symptom Assessment-45 Questionnaire; Davison et al., 1997)

We used the adaptation of Sandín et al. (2008). This version maintains the same psychometric characteristics as the original version. SA-45 is a revised version of the original SCL-90 (*Symptom CheckList-90*; Derogatis et al., 1973) that evaluates the degree of psychological unease experienced by a subject through 45 symptoms that make up nine symptomatic dimensions: Depression, Hostility, Somatization, Obsession-compulsion, Interpersonal sensitivity, Anxiety, Phobic anxiety, Paranoid ideation and Psychoticism. The subject has to indicate how much each of the 45 symptoms has been present over the previous week, following a Likert type scale of five options for answering from 0 (*not at all*) to 4 (*a lot or extremely*). Internal consistency values were obtained from our participants, using the Cronbach's α value, of 0.94 for the total score of the scale and in each symptomatology dimension: Somatization (α = 0.752), Obsession-compulsion (α = 0.741), Interpersonal sensitivity (α = 0.784), Depression (α = 0.783), Anxiety (α = 0.776), Hostility (α = 0.752), Phobic anxiety (α = 0.761), Paranoid ideation (α = 0.711) and Psychoticism (α = 0.701). This values were similar to original version.

Procedure

Once the class groups had been selected, the teachers of the selected courses were contacted to gain permission to carry out the data gathering among the students during class hours. Once the permission had been obtained, we personally informed the collaborating teachers of the aims of the study and attended the classrooms at the agreed times. Once in the classroom, the researchers informed the participants of the aims of the research and the fact that their participation was voluntary, as well as the anonymous and confidential nature of the data collected. Finally, we asked for the participants' informed consent in writing and asked them to respond sincerely to the questions.

Data collection was carried out over a 6 month period in the centers to which the students belonged, during class time and in the presence of the researchers. The time used to complete the questionnaires ranged from 30 to 40 min. No incident occurred during data collection that could affect the research.

Data Analysis

The statistical package SPSS 20.0 for Windows was used to codify and analyze the data. To establish the different groups of intensity of cyberbullying, K-means clustering analyses were carried out. In order to analyze the differences of frequency between groups, contingency tables were created and we were using the Chi-square (χ^2) test. We were used Pearson's correlation to calculate the relationships between the variables. The analysis of the interaction between the intensity of the harassment and aggression and gender on the scores in the Dimensions of the SA-45 was carried out using a *MANOVA,* the value of the partial square (η^2) was used as the size index of the effect. The calculation of the internal consistency of the scores in the Scales and Dimensions was performed using the value of Cronbach's α.

RESULTS

Use of Technological Devices and Internet

The percentage of participants who had a computer was the 98.5%, and 99% had a mobile phone, of whom 97% had access to Internet through the mobile phone. They dedicated between 0 and 17 h, with an average of 31.32 (*SD* = 23.62) hours a week and 4.47 h a day (*SD* = 3.37), to surfing the net. Virtually all participants (98%) had, at least, one profile in the social networks and of those 85% kept it up to date on a daily basis.

Frequency of Cyber-Victimization and Cyber-Aggression, Duration and Persons Involved

The percentage of participants who had indicated having suffered at least one situation of cyber-bullying was 77.6%, while 51.2% stated they had committed at least one cyber-aggression over the previous year. As for the duration of the bullying, 19.5% (n = 218) was for 1 month or less, 1.7% (n = 19) between 3 and 9 months, and 0.9% (n = 10) a year or more. While for the aggressors, 15.5% (n = 172) was for a month or less, 1.3% (n = 14) between 3 and 9 months, and 0.9% (n = 10) a year or more.

In order to analyze the frequency of cases according to the intensity of the cyberbullying and gender, groups (low, moderate and severe), according to the score on the CYB-VIC and CYB-AGRE Scales (**Table 1**). To establish these groups we consider that the negative consequences of the victimization begin with

TABLE 1 | CY-VIC and CY-AGRE group intensity by gender, frequency and percentage of participants, and descriptive statistics.

		Gender					
	Group	**Total**		**Male**		**Female**	
		***n* (%)**	***M* (*SD*)**	***n* (%)**	***M* (*SD*)**	***n* (%)**	***M* (*SD*)**
CY- VIC	L	616 (56)	10.88 (0.83)	267 (58.9)	10.78 (0.81)	349 (53.3)	10.97 (0.83)
	M	452 (41)	14.39 (1.44)	168 (37.1)	14.52 (1.53)	284 (43.4)	14.31 (1.38)
	S	40 (4)	21.55 (3.95)	18 (4)	22.39 (5.12)	22 (3.4)	20.86 (2.59)
CY-AGRE	L	709 (64)	10.23 (0.42)	265 (58.5)	10.22 (0.42)	444 (67.8)	10.24 (0.43)
	M	390 (35)	13.80 (2.24)	181 (40)	14.34 (2.60)	209 (31.9)	13.32 (1.75)
	S	9 (1)	33.11 (7.88)	7 (1.5)	34.29 (8.67)	2 (0.3)	29 (1.41)

L: Low; M: Moderate; S: Severe.

TABLE 2 | Frequency and percentage of participants: who harasses and who is harassed by gender – Chi-square (χ^2) test.

	Cyber-victims			**Cyber-bullies**		
	Male	**Female**	χ^2	**Male**	**Female**	χ^2
	***n* (%)**	***n* (%)**		***n* (%)**	***n* (%)**	
Faculty friends	13 (2.9)	16 (2.4)	0.186	38 (8.4)	21 (3.2)	14.266**
Persons outside the faculty	39 (8.6)	52 (7.9)	0.151	78 (17.2)	63 (9.6)	13.928**
Ex-friends or ex-partners	43 (9.5)	92 (14)	5.248*	35 (7.7)	73 (11.1)	3.558
Known persons but unsure	33 (7.3)	59 (9)	1.066	11 (2.4)	17 (2.6)	2.322
Unknown persons	19 (4.2)	28 (4.3)	0.005	12 (2.5)	19 (2.8)	0.03
Total	147 (32.5)	247 (37.6)		174 (38.2)	193 (29.2)	

$^{**}p < 0.001$; $^{*}p < 0.05$.

a frequency of occurrence two to three times a month (Soldberg and Olweus, 2003). We found statistically significant differences in the frequency of aggressors, in the sense that there were more males in the moderate and severe groups of aggressors, while we also found more females in the low intensity aggression group ($\chi^2(2) = 16.04$; $p < 0.000$).

As for who carries out the harassment (**Table 2**), we find statistically significant differences in that women said they were harassed more frequently by ex-friends or ex-partners ($\chi^2(1) = 5.24$; $p = 0.022$), while men said they more frequently harassed faculty friends (χ^2 (1) = 14.26; $p < 0.000$) and persons outside the faculty (χ^2 (1) = 13.92; $p < 0.000$). It should be pointed out that 24.8% ($n = 139$) of the victims and 10.3% ($n = 59$) of the aggressors did not know who was harassing them or who they were harassing, or they were not sure.

Time Dedicated to Internet, CYB-VIC, CYBAGRESS and Score in the SA-45 Dimensions

The correlation coefficients were calculated between the scores in the SA-45 Dimensions and the hours dedicated to Internet per day by gender. We found direct and statistically significant correlations in males, although they were of low intensity, between the hours dedicated to surfing the net and all the SA-45 Dimensions, in the following order from greater to lesser intensity: Interpersonal sensitivity ($r = 0.164$; $p < 0.001$); Psychoticism ($r = 0.141$; $p < 0.01$); Phobic anxiety ($r = 0.138$; $p < 0.01$); Depression ($r = 0.113$; $p < 0.01$); Hostility ($r = 0.109$; $p < 0.01$); Paranoid Ideation ($r = 0.102$; $p < 0.01$) and Somatization, Anxiety and Obsession-compulsion ($r = 0.100$; $p < 0.01$). We found direct statistically significant correlations between the dimensions of the SA-45 and the score in CYB-VIC and CYB-AGRESS, both male and female (see **Table 3**).

Intensity of Cyberbullying and Cyberaggression by Gender

An analysis of the variance of the factors (*MANOVA*) was calculated in order to analyze the interaction between gender and intensity of the cyber-victim and cyber-aggressor on the scores in the SA-45 Dimensions and we found that the interaction was significant for the gender and cyber-victim groups (*Wilks*$\lambda = 0.954$; $F = 2.89$, $p < 0.000$, $\eta^2 = 0.023$), in the sense that the observed differences in the SA-45 Dimensions between males and females are not the same in all the cyber-victim groups. To be precise, we found statistically significant differences in the dimensions of Hostility ($F = 4.670$; $p = 0.010$;$\eta^2 = 0.008$), Anxiety ($F = 6.769$; $p = 0.001$; $\eta^2 = 0.012$) and Psychoticism ($F = 6.964$; $p = 0.001$; $\eta^2 = 0.013$), in the sense that the males obtained higher scores than the females in the dimensions of Anxiety of the severe victimization group and Psychoticism and Hostility in the severe and moderate victimization groups; while the females obtained higher scores

TABLE 3 | Correlation analysis.

	Daily		CYBVIC			CYBAGRESS		
	Male	**Female**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Depression	0.132**	−0.057	0.271**	0.270**	0.270**	0.183**	0.213**	0.166**
Hostility	0.118*	0.048	0.442**	0.243**	0.340**	0.477**	0.312**	0.394**
Interpersonal sensitivity	0.179**	−0.009	0.366**	0.238**	0.292**	0.308**	0.199**	0.212**
Somatization	0.109*	0.034	0.385**	0.217**	0.287**	0.381**	0.141**	0.239**
Anxiety	0.112*	−0.064	0.460**	0.233**	0.335**	0.380**	0.157**	0.244**
Psychoticism	0.145**	−0.060	0.480**	0.236**	0.356**	0.429**	0.221**	0.337**
Obsession-compulsion	0.111*	0.011	0.271**	0.234**	0.249**	0.177**	0.180**	0.144**
Phobic anxiety	0.155**	−0.043	0.378**	0.237**	0.298**	0.431**	0.190**	0.288**
Paranoid ideation	0.106*	0.008	0.402**	0.287**	0.340**	0.367**	0.281**	0.298**

*SA-45 Dimensions and daily hours dedicated to surfing the Internet, and CYBVIC and CYBAGRESS by gender. **$p < 0.001$; *$p < 0.05$. CYB-VIC: Scale of victimization through Internet; CYB-AGRES.*

TABLE 4 | Mean and standard deviation: contrasts according to gender by cybervictim group.

Gender	***Male***			***Female***		
Groups CIB-VIC	***Low* (*n* = 264)**	***Moderate* (*n* = 166)**	***Severe* (*n* = 18)**	***Low* (*n* = 348)**	***Moderate* (*n* = 282)**	***Severe* (*n* = 22)**
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
Hostility	1.90 (2.95)	3.47 (3.92)	8.50 (5.17)	2.03 (2.92)	3.16 (3.30)	5.41 (4.56)
p			0.003			0.003
Anxiety	2.10 (2.78)	3.57 (3.30)	8.28 (5.99)	3.11 (2.98)	4.47 (3.48)	5.41 (4.68)
p	0.000	0.004	0.005	0.000	0.004	0.005
Psychoticism	1.25 (1.96)	2.67 (2.85)	6.17 (5.02)	1.50 (2.07)	2.06 (2.36)	4.23 (3.49)
p		0.008	0.010		0.008	0.010

CIB-VIC: Scale of victimization through Internet.

in comparison to males in the dimension of Anxiety in the low and moderate victimization groups (**Table 4**). Males who described themselves as victims of cyberbullying obtained significantly higher scores than the females in Anxiety, Hostility and Psychoticism, which are conceived as clinical manifestations of anxiety and general signs of emotional tension and their psychosomatic manifestations, together with thoughts, feelings and behavior patterns characteristic in states of aggressiveness, anger and irritability as well as feelings of social alienation and isolation, with interpersonal difficulties.

DISCUSSION

The aim of this study was to describe the frequency and characteristics of cybervictims and cyberaggressors in a random sample of university students, and to analyze the relationships between the use of Internet and the SA-45 Dimensions, as well as the differences in the psychopathological Dimensions according to the intensity of the cyberbullying and cyberaggression and gender.

Practically all the participants had cell phones with access to Internet and used them daily, having at least one active profile in the social networks. Access to and use of Internet has become widespread since the appearance of smartphones, which allow rapid access similar to that of a PC.

The results show high percentages of cybervictims and cyberaggressors, but percentages which are lower than those found for university students in other countries (Dilmac, 2009; Turan et al., 2011; Selkie et al., 2015). The social and cultural characteristics of the different countries could explain these differences, as well as the use of different data gathering instruments based on different definitions of cyberbullying. We can conclude that cyberbullying takes place at all educational levels and is quickly becoming a social problem (Misawa, 2010) due, among other things, to the rapid development of the technological tools and the population's quick and easy access.

As for differences regarding gender in the question of being victim or aggressor, our results coincide with those obtained by other researchers who find a greater frequency of male aggressors (Li, 2006; Smith et al., 2008; Dilmac, 2009; Calvete et al., 2010), but not with respect to the victims, since no differences were found between males and females, a result similar to that obtained by Balakrishnan (2015). It would be necessary to continue investigating, since much of the research work was carried out with samples of adolescents, while our results were obtained from university students, who are older and have different social characteristics.

As for the identity of the aggressor, a significant percentage of female participants were harassed by ex-friends or ex-partners. The break-up of interpersonal relationships, especially those of

friendship or partners, could be another factor associated with the presence of cyberbullying, in addition to jealousy, envy and racial and sexual intolerance (Hoff and Mitchell, 2009). This fact connects directly with aspects related to gender violence in so far as the ICTs are used as another tool with which to continue the aggressions. We believe this aspect should be dealt with in particular through the need to control the behavior patterns of cyberbullying. It is also important to stress the fact that, in many cases, the aggressor cannot be identified, which means that the victim feels defenseless against the attacks and therefore the consequences can be even more devastating (Li, 2008; Heirman and Walrave, 2009).

Among males, we find a significant relation between the hours dedicated to surfing the net and the scores in the SA-45 Dimensions, but not so with females. In addition, we find different psychopathological profiles in men and women who describe themselves as victims. This result demonstrates that being a victim of cyberbullying is related with a different symptomatology in men and women. Male victims are characterized by greater anxiety, hostility and psychoticism. We should note the presence of anxiety, a psychopathological symptom in which women usually obtain higher scores than men (Derogatis, 2002; Sandín et al., 2008).

It still remains to be seen whether the presence of psychopathological symptoms are the cause or the consequence of the situations of harassment (Menesini et al., 2009). We also believe, however, that it would be necessary to investigate these results in greater depth through the design of longitudinal studies that would allow the behavioral and psychopathological antecedents to be established, as well as the consequences that these experiences may have on a person's mental and physical health.

We consider it necessary to always analyze cyberbullying from the perspective of differences according to gender, as both the role played (where the aggressors are more often male) and the associated psychopathological correlations are different in men and women. Knowledge of the differential psychopathological profiles will be useful when it comes to designing prevention and intervention programs sensitive to the differences, as well as for the formulation of explanatory hypotheses concerning cyberbullying.

It can be concluded that generalized access to the ICTs by our adolescents and young adults is modifying the styles of interaction and interpersonal relationships. Face to face relationships are not the same as when one is not sure who the other person is or whether that person is really who they say they are. In our society, we depend to an ever greater extent on technological tools for studying, for social relationships and leisure; in fact, universities facilitate and recommend access to Internet and social networks as another tool in a person's formation. Making a good use of these tools and being able to detect when there is inadequate behavior, as well as what to do in such circumstances, is essential for the protection of our students. It is, therefore, ever more necessary to implement prevention programs at all educational levels, especially in university, as this is a stage when access to Internet and social networks is especially facilitated, if not actually required, by the institution itself. We therefore agree with the proposal of Washington (2014) with respect to the idea that universities should develop informative programs and prevention and intervention procedures that will guarantee security, in the widest sense of the word, on campuses. In view of our results, we consider that psychotherapy interventions aimed at preventing cyberbullying in university context may best focus on specific pattern in males and females and specific levels of intensity of cyberbullying.

LIMITATIONS

The study we have carried out has several limitations to the scope of the conclusions. This study was cross-sectional and therefore the relationship between variables cannot be examined theoretical, so the use of self-reporting in the information gathering, which may affect the honesty of the responses and the social desirability. Future work should have other instruments for data collection that can help to contrast the results, such as individual interviews or self-registration, and should use more sophisticated analysis to examine potential prediction the role of SA-45 Dimensions on use of Internet. Participants were, a priory, healthy and that the findings may not generalize to victims of cyberbullying diagnosed with post-traumatic stress disorder and belong to a group with very homogeneous educational and sociodemographic characteristics; it would therefore be necessary to complement this with other groups of non-university participants of the same age and with different social and demographic characteristics, as well as a different access and use profile. For these reasons, the results cannot be generalized to other population groups.

DATA AVAILABILITY

All datasets generated for this study are included in the manuscript and/or the supplementary files.

ETHICS STATEMENT

As for ethical norms, the study received approval from the Ethics Committee of the University of Extremadura. Prior to administering the questionnaire, following the ethical directives of the American Psychological Association (2009), the students gave their informed consent to participate in the research, guaranteeing the anonymity and confidentiality of the data and their exclusive use for research purposes.

AUTHOR CONTRIBUTIONS

EF-C and BL-d-B analyzed and interpreted the data. EF-C, M-IP-d-R, and SM-L drafted the work. EF-C, BL-d-B, M-IP-d-R, TG-C, and FF-B conceived and designed the work.

REFERENCES

Anderson, S., and Hunter, S. C. (2012). Cognitive appraisals, emotional reactions, and their associations with three forms of peer-victimation. *Psicothema* 24, 621–627.

Balakrishnan, V. (2015). Cyberbullying among young adults in Malaysia. The roles of gender, age and internet frequency. *Comput. Hum. Behav.* 46, 149–157. doi: 10.1016/j.chb.2015.01.021

Bonanno, R. A., and Hymel, S. (2013). Cyber bullying and internalizing difficulties: above and beyond the impact of traditional forms of bullying. *J. Youth Adolesc.* 42, 685–697. doi: 10.1007/s10964-013-9937-1

Briere, J., Kaltman, S., and Green, B. L. (2008). Accumulated childhood trauma and symptom complexity. *J. Trauma Stress* 21, 223–226. doi: 10.1002/jts.20317

Buelga, S., Cava, M. J., and Musitu, G. (2012). Validación de la Escala de Victimización entre Adolescentes a través del Teléfono Móvil y de Internet [Validation of the adolescent victimization through mobile phone and the internet scale]. *Rev. Panam. Salud Pública* 32, 36–42. doi: 10.1590/s1020-49892012000700006

Buelga, S., and Pons, J. (2012). Agresiones entre adolescentes a través del teléfono móvil y de Internet [Aggressions among adolescents through mobile phones and the internet]. *Psychosoc. Interv.* 21, 91–101. doi: 10.5093/in2012v21n1a2

Calvete, E., Orue, I., Estévez, A., Villardón, L., and Padilla, P. (2010). Cyberbullying in adolescents: modalities and aggressors' profile. *Comput. Hum. Behav.* 26, 1128–1135. doi: 10.1016/j.chb.2010.03.017

Campbell, M. A. (2005). Cyberbullying: an old problem in a new guise? *Aust. J. Guid. Counc.* 15, 68–76. doi: 10.1375/ajgc.15.1.68

Davison, M. K., Bershadsky, B., Bieber, J., Silversmith, D., Maruish, M. E., and Kane, R. L. (1997). Development of a brief, multidimensional, self-report instrument for treatment outcomes assessment in psychiatric settings: preliminary findings. *Assessment* 4, 259–276. doi: 10.1177/107319119700400306

Derogatis, L. R. (2002). *SCL-90-R. Cuestionario de 90 síntomas. Manual [SCL90R. SymptomCheckList-90-Revised. Mannual]*. Madrid: TEA Ediciones.

Derogatis, L. R., Lipman, R. S., and Covi, L. (1973). SCL-90: an outpatient psychiatric rating scale—preliminary report. *Psychopharmacol. Bull.* 9, 13–27.

Dilmac, B. (2009). Psychological needs as a predictor of cyber bullying: a preliminary report on college students. *Educ. Sci. Theory Pract.* 9, 1307–1325.

Espelage, D. L., and Holt, M. K. (2001). "Bullying and victimation during early adolescence. Peer influences and psychosocial correlates," in *Bullying Behavior: Current Issues, Research and Interventions*, eds R. A. Geffner, M. Loring, and C. Young (New York, NY: Haworth), 123–142. doi: 10.1300/j135v02n02_08

Felipe-Castaño, E., León, B., and Fajardo, F. (2013). Perfiles psicopatológicos en participantes en situaciones de bullying en Educación secundaria [Psychopathological profiles in participants in situations of bullying in Secondary Education]. *Behav. Psychol.* 21, 475–490.

Finkelhor, D., Mitchell, K. J., and Wolak, J. (2000). *Online Victimization: A Report on the Nation's Youth*. Alexandria, VA: National Center for Missing and Exploited Children.

Heirman, W., and Walrave, M. (2009). Asseing issues and concerns about the mediation of technology in cyberbullying. *Trípodos Extra* 1, 317–329.

Hinduja, S., and Patchin, J. W. (2007). Offline consequences of online victimation, school violence and delinquency. *J. Sch. Violence* 6, 89–112. doi: 10.1300/j202v06n03_06

Hinduja, S., and Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Arch. Suicide Res.* 14, 206–221. doi: 10.1080/13811118.2010.494133

Hoff, D. L., and Mitchell, S. N. (2009). Cyberbullying: causes, effects, and remedies. *J. Educ. Admin.* 47, 652–665. doi: 10.1080/13811118.2010.494133

Ivarsson, T., Broberg, A. G., Arridsson, T., and Gillberg, C. (2005). Bullying in adolescence: psychiatric problems in victims and bullyies as measured by the youth self report (YSR) and de Depression self-rating scale (DSRS). *Norwegian J. Psychiatry* 59, 365–373. doi: 10.1080/08039480500227816

Kokkinos, C. M., Antoniadou, N., and Markos, A. (2014). Cyber-bullying: an investigation of the psychological profile of university student participants. *J. Appl. Dev. Psychol.* 35, 204–214. doi: 10.1016/j.appdev.2014.04.001

Kumpulainen, K., and Räsänen, E. (2000). Children involved in bullying at elementary school age: their psychiatric symptoms and deviance in adolescence. An epidemiological sample. *Child Abuse Reject* 24, 1567–1577. doi: 10.1016/s0145-2134(00)00210-6

Kumpulainen, K., Räsänen, E., and Puura, K. (2001). Psychiatric disorders and the use of mental health services among children involved in bullying. *Aggress. Behav.* 27, 102–110. doi: 10.1002/ab.3

Li, Q. (2006). Cyberbullying in schools: a research of gender differences. *Sch. Psychol. Int.* 27, 157–170. doi: 10.1177/0143034306064547

Li, Q. (2008). A cross-cultural comparison of adolescents experience related to Cyberbullying. *Educ. Res.* 50, 223–234. doi: 10.1080/00131880802309333

MacDonald, C. D., and Roberts-Pittman, B. (2010). Cyberbullying among college students: prevalence and demographic difference. *Procedia Soc. Behav. Sci.* 9, 2003–2009. doi: 10.1016/j.sbspro.2010.12.436

Mason, K. L. (2008). Cyberbullying: a preliminary assessment for school personnel. *Psychol. Sch.* 45, 323–348. doi: 10.1002/pits.20301

Menesini, E., Modena, M., and Tani, F. (2009). Bullying and victimization in adolescence: concurrent and stable roles and psychological health symptoms. *J. Genet. Psychol.* 170, 115–133. doi: 10.3200/GNTP.170.2.115-134

Misawa, M. (2010). Racist and homophobic bullying in adulthood: narratives from gay men of color in higher education. *New Horizons Adult Educ. Hum. Resour. Dev.* 24, 7–23. doi: 10.1002/nha3.10370

Misawa, M. (2011). "The intersection of racist and homophobic bullying in adult and higher education," in *Proceedings of the 30th Annual Midwest Research-to-Practice Conference in Adult, Continuing, Community and Extension Education*, (St. Louis, MO: Lindenwood University), 1–6.

Ortega, R., Calmaestra, J., and Mora, J. (2008). Cyberbullying. *Int. J. Psychol. Psychol. Ther.* 8, 183–192.

Sandín, B., Valiente, R. M., Chorot, P., Santed, M. A., and Lostao, L. (2008). SA-45: forma abreviada del SCL-90 [SA-45: a brief form of SCL-90]. *Psicothema* 20, 290–296.

Schenk, A. M., and Fremouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *J. Sch. Violence* 11, 21–37. doi: 10.1080/15388220.2011.630310

Schenk, A. M., Fremouw, W. J., and Keelan, C. M. (2013). Characteristics of college cyberbullies. *Comput. Hum. Behav.* 29, 2320–2327. doi: 10.1016/j.chb.2013.05.013

Selkie, E. M., Kota, R., Chan, Y.-F., and Moreno, M. (2015). Cyberbullying, depression, and problem alcohol use in female college students: a multisite study. *Cyberpsychol. Behav. Soc. Netw.* 18, 79–86. doi: 10.1089/cyber.2014.0371

Slonje, R., and Smith, P. K. (2008). Cyberbullying: another main type of bullying? *Scand. J. Psychol.* 49, 147–154. doi: 10.1111/j.1467-9450.2007.00611.x

Smith, P. K., Mahdavi, J., Carvalho, C., Fisher, S., Russell, S., and Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *J. Child Psychol. Psychiatry* 49, 376–385. doi: 10.1111/j.1469-7610.2007.01846.x

Smith, P. K., Mahdavi, J., Carvalho, C., and Tippett, N. (2006). *An Investigation into Cyberbullying, its Forms, Awareness and Impact, and the Relationship Between Age and Gender in Cyberbullying*. London: Anti-Bullying Alliance.

Soldberg, M. E., and Olweus, D. (2003). Prevalence estimation of school bullying with the olweus bully/victim questionnaire. *Aggress. Behav.* 29, 239–268. doi: 10.1002/ab.10047

Tokunaga, R. S. (2010). Following you home from school: a critical review and synthesis of research on cyberbullying victimization. *Comput. Hum. Behav.* 26, 277–287. doi: 10.1016/j.chb.2009.11.014

Turan, N., Polat, O., Karapirli, M., Uysal, C., and Turan, S. G. (2011). The new violence type of the era: cyber bullying among university students. Violence among university students. *Neurol. Psychiatry Brain Res.* 17, 21–26. doi: 10.1016/j.npbr.2011.02.005

van der Kolk, B. A. (2005). Developmental trauma disorder: a new, rational diagnosis for children with complex trauma histories. *Psychiatr. Ann.* 35, 401–408. doi: 10.3928/00485713-20050501-06

van Geel, M., Vedder, P., and Tanilon, J. (2014). Relationship between peer victimization, cyberbullying, and suicide in children and adolescents: a Meta-analysis. *JAMA Pediatr.* 168, 435–442. doi: 10.1001/jamapediatrics.2013.4143

Walker, C. M., Sockman, B. R., and Koehn, S. (2011). An exploratory study of cyberbullying with undergraduate university students. *TechTrends* 55, 31–38. doi: 10.1007/s11528-011-0481-0

Washington, E. T. (2014). An overview of cyberbullying in higher education. *Adult Learn.* 26, 21–27. doi: 10.1177/1045159514558412

Willard, N. E. (2006). *Cyberbullying and Cyberthreats: Responding to the Challenge of Online Social Cruelty, Threats, and Distress.* Eugene, OR: Center for Safe and Responsible Internet Use.

Wolak, J., and Finkelhor, D. (2006). Examining characteristics and associated distress related to internet harassment: findings from the second youth internet safety survey. *Pediatrics* 118, 1169–1177.

Ybarra, M. L., and Mitchell, K. J. (2004). Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. *J. Child Psychol. Psychiatry* 45, 1308–1316. doi: 10.1111/j.1469-7610.2004.00328.x

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 24 July 2019
doi: 10.3389/fpsyg.2019.01723

Friendship Quality and Gender Differences in Association With Cyberbullying Involvement and Psychological Well-Being

Mairéad Foody, Lian McGuire, Seffetullah Kuldas and James O'Higgins Norman*

National Anti-Bullying Research and Resource Centre, Dublin City University, Dublin, Ireland

Current literature has documented the detrimental effects of cyberbullying which include a range of internalizing and externalizing problems for those involved. Although critical, this research can sometimes ignore social-ecological aspects of a child's life that can potentially 'buffer' the negative psychological effects of such involvement. With this in mind, this cross-sectional investigation of 12–16 year olds [M(SD): 13.5(1) years] in Ireland focused on the role of friendship quality and gender in association with cyberbullying involvement and psychological well-being (N = 2410). The Cyberbullying and Online Aggression Scale was used to measure cyber perpetration and victimization. A modified version of the Cambridge Friendship Questionnaire was included to investigate peer friendship quality. Finally, the Moods and Feeling Questionnaire and the Strengths and Difficulties Questionnaire were chosen to provide a measurement of psychological well-being. Prevalence rates for various types of cyberbullying roles (cyber bullies, victims and bully/victims) are presented, as well as differences for psychological well-being, friendship quality and cyberbullying involvement. In addition, regression models were used to determine the associations between gender, age, friendship quality and involvement in cyberbullying with psychological well-being. The results are considered in terms of the current literature and directions for future research are suggested.

Keywords: cyberbullying, friendship quality, gender, psychological well-being, post-primary

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Raúl Navarro, University of Castilla La Mancha, Spain
David Álvarez-García, University of Oviedo, Spain

****Correspondence:***
Mairéad Foody
mairead.foody@dcu.ie

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *19 March 2019*
Accepted: *11 July 2019*
Published: *24 July 2019*

Citation:
Foody M, McGuire L, Kuldas S and O'Higgins Norman J (2019) Friendship Quality and Gender Differences in Association With Cyberbullying Involvement and Psychological Well-Being. Front. Psychol. 10:1723. doi: 10.3389/fpsyg.2019.01723

INTRODUCTION

Whilst the advantages of digital technology are of great use to adolescents and have been widely embraced, the increasingly ubiquitous use of online technologies has also brought with it increased risk in the form of cyberbullying (Cross et al., 2009). Cyberbullying has been defined as 'negative or hurtful, repetitive behavior, by the means of electronic communication tools, which involve an imbalance of power with the less-powerful person or group being unfairly attacked' (Smith et al., 2008). Common forms involve relational and verbal bullying, including the distributing of rumors and/or hurtful comments, the issuing of images, threats, or disclosure of true or false personal information via phone text messages email, websites, gaming or social networking sites (e.g., Twitter, Facebook, YouTube, Snapchat).

Contextual factors in regards to cyberbullying, as with most stressors, are key, and studies have found that different forms of cyberbullying may elicit differing emotional responses. For example, being bullied online may evoke a different emotional response than being bullied via text (Ortega et al., 2009). Furthermore, there are types of cyberbullying that are perceived as less harmful than traditional bullying, such as insults and threats, while other forms (e.g., where pictures or videos are used/shared or where there is a perception of high risk of personal injury such as blackmail) may be considered more damaging (Smith et al., 2008). Of note, is that traditional and cyber acts of bullying can also be intertwined, with face to face conflict leading to issues online, or vice versa (Kowalski et al., 2008; Gleeson, 2014).

Unlike traditional forms of bullying, cyberbullying of teenagers relies on the direct provision and use of tools, i.e., hardware and internet access to teens most commonly provided by parents. These tools help to provide anonymity, making it harder to control; harder to remove due to proliferation on networks that redistribute the content; and allowing the cyberbullying to invade the adolescent's personal space (e.g., home, downtime) in a way that traditional bullying cannot (O'Moore, 2014). In addition, cyberbullying may not directly involve the school environment, while trying to deal with social networks, phone companies and authorities can be complex and intimidating. As a result, it is to be expected that a greater onus for coping and support may fall more frequently upon the teenager's own coping mechanisms and their personal social network (e.g., friends).

Gender

Prevalence rates of cyberbullying amongst teens vary widely globally, ranging from 10 (Smith et al., 2008), to 20% (Garett et al., 2016) to up beyond 70% (Selkie et al., 2016) and there are mixed findings when it comes to gender involvement in cyberbullying. Some studies have reported that across a range of educational settings females are more likely than males to be involved in cyberbullying as a victim (Marcum et al., 2012; Beckman et al., 2013; Heiman and Olenik-Shemesh, 2015; Smith et al., 2019) In contrast, the amount of females versus males involved in cyberbullying perpetration shows great variation across studies with some reporting no significant differences (e.g., Mishna et al., 2010). There are many reasons why this may be the case, one of which was noted recently by Smith (2019) as being age, where the early adolescence period showed more females than males as perpetrators and the opposite to be the case for later adolescence. In addition, there is some evidence to suggest that there are gender differences in the way young people use the internet and ultimately the methods used to cyber bully. For example, girls are more likely to use the internet to talk to friends and share pictures, while boys are more likely to play video games (e.g., Mishna et al., 2010). Also, given that gender is often understood as a socially constructed term, this may influence how research participants respond to questions about gender. For the purposes of the current study we understand the term gender to relate to the sex of the participants (i.e., male or female).

Smith et al. (2019) highlighted the importance of factoring in cultural and sociological contexts when considering gender and cyberbullying. One recent study found that males are more involved in cyberbullying perpetration with the greatest gender difference in Asian countries, followed by North America, and it was least in European countries and Australia (Sun et al., 2016). In order to elaborate on why gender differences may occur in bullying behavior we can also look to both dispositional and structural explanations of different social behaviors observed among males and females offline and online. Dispositional approaches provide an understanding of male and female behavior arising from biological and early-life cultural socialization, whereas structural approaches explain the differences by the positions male and females take in society and their differential access to political, economic and ideological resources (Fischer and Olicker, 1983). Some significant differences have been observed between friendships among girls and those among boys, arising from socially constructed gender norms. Girls' friendships have been observed to be more intensive and intimate than those of boys, and usually involve a limited number of girlfriends whereas boys are socialized to be autonomous and goal-oriented. Girls' socialization and positive sense of self is very much focussed on relationships and empathetic connectedness. In this sense, threats to relationships can also be experienced as a threat to girls' sense of self. This suggests that (gender-normative) girls have a greater vested interest than (gender-normative) boys in maintaining friendships and resolving conflict (Ging and O'Higgins Norman, 2016). In this context, we are interested in exploring the extent to which gender influences friendship quality and how girls and boys manage experiences of cyberbullying.

Effects on Well-Being

Cyberbullying research has mostly evolved from psychological researchers (Zych et al., 2015) across the globe who have focused on the impact and correlates of the negative experience on mental health (see Smith, 2019 for a review). One large scale population based study into cyberbullying and adolescent well-being in England (N = 110,000 students), found that traditional bullying accounted for greater variability in mental well-being than cyberbullying (Przybylski and Bowes, 2017). However, it concluded that both were associated with poorer mental well-being. Indeed, much evidence indicates that cyber victimization is a predictor of mental health problems, particularly when age and involvement in traditional bullying are accounted for (Kim et al., 2018). For example, such experiences have also been linked longitudinally to depression and anxiety (e.g., Rose and Tynes, 2015; Fahy et al., 2016). In addition, numerous cross-sectional studies have linked cyberbullying involvement to a range of negative psychological outcomes including poorer well-being (Spears et al., 2015), reduced self-esteem (Hinduja and Patchin, 2010), body image dissatisfaction (Ramos Salazar, 2017), Post Traumatic Stress Disorder (PTSD; Ranney et al., 2016) and even psychosis (Magaud et al., 2013).

Such effects of cyberbullying on psychological well-being have in turn been related to a range of negative offline coping behaviors such as increased drug and drink usage (Goebert et al., 2011;

Chan and La Greca, 2016) which can in turn place adolescents, especially females at greater risk of assault, sexual assault and forceful sexual relationships (Welsh et al., 2017). From a gendered perspective some studies also indicate that female victims experience higher rates of depression experiencing negative effects from relatively minor or infrequent cyberbullying, and that the effects on their mental well-being can last long after the cyberbullying has ceased (Turner et al., 2013; Selkie et al., 2015).

Nor is it just the victims who are affected. Campbell et al. (2013) investigated a large sample ($N > 3000$) of children and adolescents in Australia and found that cyber bullies had higher scores for conduct problems, hyperactivity, peer problems and emotional problems compared to those not involved in bullying. In addition, a recent systematic review found cyber bullies to be at increased risk of exhibiting suicidal behaviors and worse quality of life compared to non-involved youth (González-Cabrera et al., 2018; John et al., 2018). However, it is the cyber bully/victims that appear to be the most high risk group reporting higher levels of psychological and health issues including post-traumatic stress, mental health impairment, anxiety, self-esteem, academic performance, and depression (Wang et al., 2011; Kowalski and Limber, 2013; Baldry et al., 2018) than either cyber bullies or victims alone.

Although all students involved in cyberbullying are at risk of the effects mentioned, studies show that not all who experience stressors such as bullying exhibit detrimental effects (Hinduja and Patchin, 2007) and can in fact demonstrate positive developmental outcomes in a show of 'resilience'. As research into cyberbullying continues, an increasing number of global studies have drawn the conclusion that research into factors fostering resilience in every day contexts, may be key to protecting and improving adolescents well-being (Hinduja and Patchin, 2017; Przybylski and Bowes, 2017). Understanding the factors that might increase resilience or protect against the negative effects of cyberbullying is best and most often approached from – a social-ecological system perspective (Papatraianou et al., 2014; Cross et al., 2015). From this perspective, a recent meta-analysis outlined many potential protective factors from the individual to family network which could protect the adverse psychological impact of cyberbullying involvement (Zych et al., 2019).

In a parallel vein, an emerging theme of research has revolved around social factors. This recognizes that more complex issues such as social competence (e.g., Romera et al., 2017), social skills (e.g., Savage and Tokunaga, 2017), social connectedness (McLoughlin et al., 2019) and peer defending (e.g., Lambe et al., 2018) are important for understanding the relationship between cyberbullying involvement and well-being. In particular, one important factor in resilience research is peer friendship and the positive role it can have in buffering against the negative effects of victimization (Kendrick et al., 2012).

Friendships and Coping

Given the frequency with which studies on cyberbullying mirror those of traditional bullying, it is not surprising that research has demonstrated that young people are more likely to speak to peers about negative online experiences compared to adults, parents, teachers, officials or the authorities (Smith et al., 2008; Jones et al., 2015). Research indicates that peer attachment can be a protective factor against both traditional- and cyber-bullying (Burton et al., 2013), indicating that strong peer attachment may significantly lessen bullying behaviors, with those not involved in bullying reporting considerably higher peer attachment than that of bullies or victims. Further studies indicate, however, that a large diverse group of friends, is not necessarily building resilience, with a lack of association between the number of close friends and levels of depression following traditional bullying (Sapouna and Wolke, 2013). Rather, it is suggested that it is the quality of friendships, and their levels of prosocial behavior, rather than the quantity, that is more important in mitigating such associations as peer victimization (You and Bellmore, 2012) and depression (Kendrick et al., 2012). These studies, however, tend to relate to traditional forms of bullying rather than cyberbullying.

Cyber specific studies appear more varied. For example, a Spanish study of 10-12-year olds indicated that a lack of social skills and difficulties in communicating with peers, which would affect quality of friendship, increased the likelihood of cyberbullying victimization (Navarro et al., 2012). However, other studies show an array of outcomes that appear at variance with these traditional outcomes. For instance, a study of cyberbullying among German adolescents in a classroom context (Festl et al., 2013), showed that real life friendships do not mitigate online victimization. This finding is corroborated by a Hong Kong study of 625 children (Leung and McBride-Chang, 2013) involved in multiplayer video games where online friendships significantly added to pro-social behaviors (e.g., social competence), friendship satisfaction, and self-esteem. However, in a Texan study of high school students, friendship quality did not seem to moderate the negative psychological effects of cyberbullying (Aoyama et al., 2011). These inconsistent findings are attributable to different situational contexts (e.g., age, gender, and friendship quality) in which these studies were carried out. To explain this variation requires further research on whether gender differences in friendship quality are associated with cyberbullying victimization and its psychological consequences.

Therefore, the current study investigated possible associations of gender differences in friendship quality with cyberbullying experiences and psychological well-being. There were three specific aims to this research. The first was to investigate the types of cyberbullying behaviors a large sample of adolescents are engaging in. The second was to determine if there were differences in psychological well-being for cyberbullying involvement, using the Strengths and Difficulties Questionnaire (SDQ) and the Moods and Feelings Questionnaire (MFQ). The third was to explore the association of gender, along with friendship quality and cyberbullying involvement on self-reported well-being of the adolescents. We were not able to determine a formal hypothesis regarding the amount or types of cyberbullying the participants would be engaging in, seeing as there is little available evidence in Ireland on this topic. However, we did hypotheses that there would be some gender differences, in that males would be more likely to engage in cyberbullying through online gaming, as this fact is well-established in the international literature. Furthermore, we

hypothesized that higher scores on the well-being measures (the SDQ and MFQ) would be associated with involvement in cyberbullying (as either a victim, bully or both) and lower friendship quality, regardless of gender. Understandably we are limited by the cross-sectional nature of the current study, but we are of the opinion that the benefits in terms of increased understanding outweigh the problems.

MATERIALS AND METHODS

Participants

This study forms part of a wider research project which investigated the prevalence rates of traditional and cyberbullying in Ireland. A brief description of the sample is included here but authors are referred to Foody et al. (2019) for more details on the population and ethical approval. Originally, all post-primary schools in Ireland were invited by email to participate in this study. If interest was noted, the researcher gave more information by email or phone to the principal. Once principals agreed to take part, information and consent forms were sent to the principal to distribute among parents. Principals decided on the classes/age groups to which they would administer the survey, depending on what their own timetable and resources allowed. A final sample of over two thousand participants from 30 different post-primary schools participated (N = 2410; 43.2% males and 56.8% females) representing 3.7% of the entire post-primary school population in Ireland. Participants were aged between 12 and 16 years [M(SD): 13.5(1)] and attending 1st to 3rd year in schools across the country.

Procedure

Once parental consent was obtained, students completed the survey online during school time and in a quiet environment (as determined by school staff). The survey took approximately 30 minutes to complete. Data collection took place between March-May 2017.

Ethics Statement

This study was carried out in accordance with the recommendations of Dublin City University Research Ethics Committee with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the above committee. All principals, parents and students were provided with information about the project. Informed and written consent was obtained from principals, students and their parents. Once, principals agreed to complete the survey, they were provided with a link that they could administer to the pupils. All responses were anonymous at the individual and school level and participants were told that they could withdraw from participation at any stage. Thus, answers on the survey could not be traced back to individual students. Both parents and students were advised in their information letter and before completing the survey (for the students) that their answers would be anonymous and completely confidential.

Survey Instruments

Participants were presented with several questionnaires which are outlined below. In addition, they answered a question on their sex (male/female). Although the question specifically related to sex, it was actually phrased 'What is your gender?'. We are using the term gender as opposed to 'sex' throughout this manuscript. Age and nationality (coded as Irish/non-Irish) was also obtained for all participants. The internal consistency reliability of all the scales and subscales was estimated using both Cronbach's alpha (α) and McDonald's omega coefficients (ω), using JASP, a graphical statistical software for common statistical designs (JASP Team, 2019; Love et al., 2019). McDonald's omega is one of the best alternatives for estimating internal consistency reliability, as it corrects either the underestimation or underestimation bias of Cronbach's alpha (Revelle and Zinbarg, 2009; Trizano-Hermosilla and Alvarado, 2016).

Cyberbullying Questionnaire

In order to assess cyberbullying perpetration and victimization, participants were presented with the Cyberbullying and Online Aggression Scale (Hinduja and Patchin, 2015). Participants were first provided with the following definition of cyberbullying: *"Cyberbullying is when someone repeatedly harasses, mistreats, or makes fun of another person online or while using mobile phones, the Internet or other electronic devices"*. This definition was followed by two initial questions asking participants if they had experienced cyberbullying (victims), or were they perpetrators of such (bullies) in the current school term. Answers included: 'Never', 'Once', 'A few times', 'Several times' and 'Many times'. The scale included two further sections requiring more detail about their experiences with cyberbullying (see **Tables 1**, **2**). The scale required participants to rate the extent and type to which a range of negative experiences had happened to them online (e.g., someone posted mean or hurtful comments about me online) and in which online environments (e.g., in a chat room). Similar answer options were included here: 'Never', 'Once', 'A few times', 'Several times' and 'Many times'. The instrument had good internal consistency for all the subscales. The Cronbach's and McDonald's coefficients for the cyber victimization scale were α = 0.90 and ω = 0.90, for the cyber perpetration scale were α = 0.94 and ω = 0.95. For the victimization medium subscale they were α = 0.93 and ω = 0.94, and for the perpetration medium subscale they were α = 0.98 and ω = 0.98. Overall involvement in cyberbullying in *the current term* was categorized into four groups: bully, victim, bully/victim (both a victim and a bully) and non-involved (no involvement in cyberbullying). Response frequencies were coded such that answers from 'once' to 'many times' was coded as involvement (either as a victim or a bully), while 'never' was coded as uninvolved. This is in keeping with previous research using such responses (e.g., O'Moore, 2013).

Depression

The Moods and Feelings Questionnaire short version (MFQ, Angold et al., 1995; Messer et al., 1995) was used to determine how participants were feeling in the past 2 weeks. Answer options included: not true (0), sometimes (1) and true (2). A higher overall score indicated higher depression. This instrument had

good internal consistency in the current study (Cronbach's and McDonald's coefficients were α = 0.94 and ω = 0.94).

Friendship Quality

A modified version of the Cambridge Friendship Questionnaire was included to investigate the quality of the friendships participants reported having with their peers (Goodyer et al., 1989, 1990). It contained five questions: (1) Are you happy with the number of friends you have? (2) Do your friends know what makes you happy or sad? (3) How often do you see your friends outside of school? (4) Do you talk to your friends about problems? (5) Overall, are you happy with your friends? Response options to the second and fourth question required simple YES/NO answers, while to the first, third and fifth questions they required Likert type answers (i.e., (1) very happy, (2) quite happy, (3) quite unhappy, and (4) unhappy). Regardless of the question type, the response options were considered as continuous such that a higher score was a measure of poorer friendship quality. For example, on question two, an answer 'No' indicated poorer friendship quality in the same way as an answer 'unhappy' would for question five. Scores were coded and added together such that a *higher* score indicated *poorer* friendship quality. This instrument had internal consistency with Cronbach's and McDonald's coefficients of α = 0.60 and ω = 0.65.

Psychological Well-Being

The Strengths and Difficulties Scale (SDQ, Goodman, 1997, 2001) is a behavioral screening questionnaire containing statements about psychological attributes relating to five specific subscales. These include behavioral and emotional symptoms (e.g., "I worry a lot"); conduct problems (e.g., "I get very angry and often lose my temper); hyperactivity (e.g., "I am restless, I cannot stay still for long"), peer relationship problems (e.g., "I am usually on my own. I generally play alone or keep to myself") and prosocial behavior (e.g., I try to be nice to other people. I care about their feelings). Response options are 'not true', 'somewhat true', and 'certainly true'. The answer options were coded (0, 1 and 2) and added to give a total score for each individual subscale and an overall difficulties scale that included all subscales except the prosocial behavior. A higher score indicates lower psychological well-being. This instrument had good internal consistency in the current study with Cronbach's and McDonald's coefficients of α = 0.76 and ω = 0.77 for the total difficulties scale, α = 0.60 and ω = 0.64 for the conduct problems subscale, α = 0.60 and ω = 0.63 for the hyperactivity subscale, α = 0.70 and ω = 0.77for emotional problems subscale, and α = 0.80 and ω = 0.80 for pro-social subscale. The reliability of the peer problems subscale was, however, not as strong (Cronbach's and McDonald's coefficients were α = 0.30 and ω = 0.38.). As such, the peer problems subscale was excluded from further analysis.

Statistical Analysis

In order to explore our first aim, descriptive statistics were generated for cyberbullying and cyber victimization prevalence as per responses on the Cyberbullying and Online Aggression Scale. Chi square and Cramer's V were conducted to investigate gender differences on the scale. In order to determine if there were differences in psychological well-being for cyberbullying involvement (aim 2) four categories were created using responses to the global question on cyberbullying relating to involvement in cyberbullying perpetration and victimization in the current school term. These included: bullies, victims, bully/victims (both a victim and a bully) and non-involved (no involvement in bullying). One-way ANOVAs with Bonferroni *post hoc* tests were then generated to compare involvement in cyberbullying and total scores on the MFQ, SDQ and SDQ subscales of emotional problems, conduct problems, hyperactivity and prosocial behavior. The peer problems sub-scale was not included because of its low reliability in the current sample. Finally, when investigating our third research aim, multiple regression analysis using the enter method was conducted to determine the significant factors in determining higher scores on the MFQ, SDQ and the SDQ subscales. All variables were entered into the model, including gender, age, friendship quality, cyber victim, cyber bully and cyber/victim for predicting scores of depression, total difficulties, emotional difficulties, conduct problems, hyperactivity and prosocial behavior.

RESULTS

Cyberbullying

Overall involvement in cyberbullying in *the current term* was categorized into four groups: bully (N/% = 34/1.5), victim (N/% = 279/12.4), bully/victim [both a victim and a bully; (N/% = 65/2.9) and non-involved (no involvement in bullying; 1867/83.2%)]. The Cyberbullying and Online Aggression scale contained specific questions relating to how cyber victimization and cyberbullying happened, in addition to the specific medium or apps that it happened on. Participants were asked how often these things happened in the current school year and coding of responses was the same for the general question (above) on cyberbullying involvement. The results are presented in **Tables 1**, **2**.

Cyberbullying and Psychological Well-Being

A series of one-way ANOVAs found significant differences between the role in cyberbullying involvement and scores on the MFQ [($F(3, 2002) = 62.8$, $p = 0.00$, partial eta squared = 0.086], total difficulties [($F(3, 2005) = 40$, $p = 0.00$, partial eta squared = 0.057], emotional problems [($F(3, 2030) = 35.96$, $p = 0.00$, partial eta squared = 0.05], conduct problems [($F(3, 2040) = 21.37$, $p = 0.00$, partial eta squared = 0.03]; hyperactivity [($F(3, 2040) = 17.2$, $p = 0.00$, partial eta squared = 0.025]; and prosocial behavior [($F(3, 2037) = 12.99$, $p = 0.00$, partial eta squared = 0.019] scales (see **Table 3**).

Post hoc tests with Bonferroni revealed significant differences between the four types of bullying involvement and outcomes on the MFQ, SDQ and subscales. Both victims and bully/victims reported significantly higher scores for depression, total difficulties and conduct problems compared to the non-involved (all *p*s = 0.00). Cyber victims also reported significantly more depression ($p = 0.001$) and emotional problems compared to

TABLE 1 | Frequencies for each question on the Cyberbullying and Online Aggression Scale.

Questions	Frequency f/% (of sample)	Sig (for gender)	Cramer's V (for gender)
Cyber victimization Questions (*N* = 2410)			
Someone posted mean or hurtful comments about me online	325/14.4	< 0.001	0.13
Males	86/26.5		
Females	239/73.5		
Someone posted a mean or hurtful picture online of me	207/9.2	< 0.001	0.1
Males	57/27.5		
Females	150/72.5		
Someone posted a mean or hurtful video online of me	72/3.2	< 0.01	0.06
Males	19/26.4		
Females	53/73.6		
Someone created a mean or hurtful web page about me	35/1.6	< 0.01	0.06
Males	6/17.1		
Females	29/82.9		
Someone spread rumors about me online	388/17.2	< 0.001	0.15
Males	100/25.8		
Females	288/74.2		
Someone threatened to hurt me through a text/WhatsApp message	192/8.5	< 0.001	0.08
Males	58/30.2		
Females	134/69.8		
Someone threatened to hurt me online	214/9.5	< 0.01	0.06
Males	72/33.6		
Females	142/66.4		
Someone pretended to be me online and acted in a way that was mean or hurtful to me	153/6.8	< 0.05	0.04
Males	53/34.6		
Females	100/65.4		
Cyber Perpetration Questions (*N* = 2410)			
I posted mean or hurtful comments about someone online	83/3.7	> 0.05	0.02
Males	30/36.1		
Females	53/63.9		
I posted a mean or hurtful picture online of someone	60/2.7	> 0.05	0.00
Males	25/41.7		
Females	35/58.3		
I posted a mean or hurtful video online of someone	25/1.1	> 0.05	0.01
Males	12/48		
Females	13/52		
I spread rumors about someone online	75/3.4	> 0.05	0.03
Males	25/33.3		
Females	50/66.7		
I threatened to hurt someone online	51/2.3	> 0.05	0.02
Males	25/49		
Females	26/51		
I threatened to hurt someone through a text/WhatsApp message	32/1.4	> 0.05	0.01
Males	15/46.9		
Females	17/53.1		
I created a mean or hurtful web page about someone	7/.3	> 0.05	0.03
Males	5/71.4		
Females	2/28.6		
I pretended to be someone else online and acted in a way that was mean or hurtful to them	33/1.5	> 0.05	0.04
Males	19/57.6		
Females	14/42.4		

bullies (both *p*s = 0.018) while cyber bullies showed significantly less prosocial behavior compared to victims ($p = 0.002$). Cyber bullies showed significantly more conduct problems compared to non-involved ($p = 0.002$) whereas non-involved students showed significantly more prosocial behavior compared to bullies ($p = 0.006$).

Friendship Quality

The mean friendship quality score for the overall sample was 7.71 (SD = 2.63). A one-way ANOVA found a significant effect for gender on the friendship quality scale [$F(1, 2136) = 4.55$; $p = 0.033$, eta squared = 0.002] where males (M/SD = 7.86/2.6) reported poorer friendship quality compared to females (M/SD = 7.6/2.61).

A one-way ANOVA was conducted to determine if there were any differences for friendship quality depending on the role in cyberbullying. There was an overall significant main effect [$F(3, 2161) = 5.158$; $p = 0.001$, eta squared = 0.007] with all groups involved in bullying [i.e., victims (M/SD = 8/2.8), bullies (M/SD = 8/2.3) and bully/victims (M/SD = 8.7/3.4)] demonstrating poorer friendship quality compared to the non-involved participants (M/SD = 7.6/2.6). *Post hoc* tests with Bonferroni found a significant difference between friendship quality for the non-involved and bully/victims ($p = 0.007$) but no other significant comparisons (all *p*s > 0.05).

Associations Between Gender and Friendship Quality on Psychological Well-Being

Multiple regression analyses were conducted to determine the association of friendship quality, gender and involvement in cyberbullying (as either victim, bully or bully/victim) on

TABLE 2 | 4 Medium used for cyber bullying/victimization occurs: prevalence and gender.

Location/place of occurrence	Cyber victimization			Cyber perpetration		
	n/%	Significants (for gender difference)	Cramer's V (for gender)	n/%	Significants (for gender difference)	Cramer's V (for gender)
In a chat room	122/5.4	> 0.05	0.02	35/1.6	> 0.05	0.02
Males	47/38.5			17/48.6		
Females	75/61.5			18/51.4		
Through email	17/0.8	< 0.05	0.05	12/0.5	> 0.05	0.04
Males	12/70.6			8/66.7		
Females	5/29.4			4/33.3		
Through instant messages	177/8.7	< 0.001	0.08	33/1.6	> 0.05	0.02
Males	49/27.7			16/48.5		
Females	128/72.3			17/51.5		
Through text message/WhatsApp	166/7.4	< 0.001	0.09	32/1.4	> 0.05	0.02
Males	43/25.9			11/34.4		
Females	123/74.1			21/65.6		
Through mobile phone	217/9.6	< 0.001	0.10	45/2	> 0.05	0.03
Males	59/27.2			23/51.1		
Females	158/72.8			22/48.9		
Through Picture Mail or Video Mail	42/1.9	> 0.05	0.01	14/.6	> 0.05	0.01
Males	17/40.5			5/35.7		
Females	25/59.5			9/64.3		
On Facebook	138/6.1	< 0.01	0.05	34/1.5	> 0.05	0.01
Males	44/31.9			16/47.1		
Females	94/68.1			18/52.9		
On a different social networking website	186/8.3	< 0.001	0.09	32/1.4	> 0.05	0.01
Males	50/26.9			15/46.9		
Females	136/73.1			17/53.1		
On Twitter	31/1.4	> 0.05	0.01	14/0.6	< 0.05	0.05
Males	12/38.7			10/71.4		
Females	19/61.3			4/28.6		
On Snapchat	425/20.9	< 0.001	0.17	147/7.3	< 0.05	0.06
Males	104/24.5			46/31.3		
Females	321/75.5			101/68.7		
On Yellow	28/1.2	> 0.05	0.00	12/0.5	> 0.05	0.04
Males	12/42.9			8/66.7		
Females	16/57.1			4/33.3		
On YouTube	46/2	< 0.001	0.11	22/1	< 0.01	0.06
Males	36/78.3			16/72.7		
Females	10/21.7			6/27.3		
On Instagram	245/10.9	< 0.001	0.12	63/2.8	> 0.05	0.04
Males	62/25.3			20/31.7		
Females	183/74.7			43/68.3		
In virtual worlds such as Second Life, Gaia, or Habbo Hotel	26/1.3	> 0.05	0.02	11/0.5	< 0.05	0.04
Males	13/50			8/72.7		
Females	13/50			3/27.3		
While playing a massive multiplayer online game such as World of Warcraft, Everquest, GuildWars, Runescape	80/3.6	< 0.001	0.13	38/1.7	< 0.001	0.13
Males	61/76.3			34/89.5		
Females	19/23.8			4/10.5		
While playing online Xbox, playstation, Wii, PSP or similar device	156/6.9	< 0.001	0.20	71/3.2	< 0.001	0.18
Males	123/78.8			64/90.1		
Females	33/21.2			7/9.9		

TABLE 3 | Scores on the well-being measures for four groups of cyberbullying involvement by gender.

Variable	Non-involved *n* = 1686 M(SD)	Cyber bully *n* = 17 M(SD)	Cyber victim *n* = 108 M(SD)	Cyber bully/ victims *n* = 19 M(SD)
Depression	4.1 (4.5)	4.5 (4.79)	8.09 (5.02)***	7.87 (5.08)***
Males	3.15 (4.1)	4.9 (4.7)	7.13 (5.59)	7.67 (5.29)
Females	4.77 (4.68)	4.27 (5)	8.36 (4.74)	6.87 (4.96)
Total difficulties	13.22 (5.97)	15.62 (5.99)	17.3 (6.08)***	17.44 (7.76)***
Males	13 (6.28)	16.23 (6.3)	15.98 (5.98)	14.53 (6.1)
Females	13.2 (5.65)	15.18 (5.74)	17.76 (6)	17.93 (7.11)
Emotional problems	3.67 (2.66)	4 (2.95)	5.52 (2.64)***	4.79 (3.24)*
Males	2.88 (2.5)	3.4 (3)	4.44 (2.59)	3.1 (2.68)
Females	4.2 (2.59)	5 (2.79)	5.9 (2.3)	5.61 (2.91)
Conduct problems	2.37 (1.9)	3.69 (2.2)**	3.08 (1.98)***	3.75 (2.5)***
Males	2.74 (2.04)	4.06 (2.3)	2.9 (1.87)	3.26 (2.13)
Females	2.05 (1.7)	3.27 (2.1)	3.12 (2)	3.58 (2.4)
Hyperactivity	4.44 (2.29)	5.13 (2.19)	5.38 (2.32)***	5.63 (1.92)**
Males	4.6 (2.19)	5.17 (1.8)	4.85 (2.3)	5 (1.7)
Females	4.2 (2.3)	5.17 (1.8)	5.59 (2.3)	5.77 (1.86)
Prosocial behavior	7.47 (2.3)	6.07 (2.95)**	7.6 (2.19)	5.86 (3.14)***
Males	6.87 (2.54)	5.41(2.9)	7.3 (2.67)	4.66 (3.39)
Females	7.9 (2)	7.5 (2)	7.8 (1.97)	6.9 (2.44)

*Significant effect when compared to non-involved individuals: ***p = 0.000 **p = 0.005 *p = <0.05.*

depression levels, total difficulties, emotional problems, conduct problems, hyperactivity and prosocial behavior (see **Table 4**).

For depression, the resultant model (R^2 = 0.161, adjusted = 0.158; p = 0.000) demonstrated that being female, older, having poorer friendship quality, being a cyber victim and a cyber bully/victim were associated with higher depression scores (see **Table 4**). The significant predictor variables for the other scales are presented in **Table 4**. All resultant models were significant [total difficulties; (R^2 = 0.083, adjusted = 0.08; p = 0.000); emotional problems (R^2 = 0.144, adjusted = 0.141; p = 0.000); conduct problems (R^2 = 0.053, adjusted = 0.05; p = 0.000); hyperactivity (R^2 = 0.028, adjusted = 0.025; p = 0.000); and prosocial behavior (R^2 = 0.035, adjusted = 0.032; p = 0.000)]. From **Table 4** it can be seen that being female was associated with depression, emotional difficulties and being prosocial while males were prone to conduct problems and hyperactivity problems.

DISCUSSION

This study was concerned with the association of friendship quality, gender and cyberbullying involvement and the psychological well-being of a large cross-sectional sample of post-primary pupils (aged 12–16 years) in Ireland. The measures used to investigate psychological well-being were the SDQ and MFQ. The results support earlier studies which have examined the impact of cyberbullying on the psychological health of young people involved in bullying either as cyber victims, bullies or bully/victims. For example, the finding that cyber victims as compared to their non-involved counterparts reported more depression, emotional, conduct and hyperactivity problems finds support in much of the existing literature (e.g., Wang et al., 2009; Perren et al., 2010). Similarly, the finding that the cyber bullies as compared to the non-involved demonstrated more conduct problems and were less prosocial supports earlier studies which examined psychosocial risk factors associated with cyberbullying (e.g., Sourander et al., 2010). However, our findings did not fully support those of Campbell et al. (2013) who found, in their Australian sample of 9-19-year olds, that cyber bullies differed from the non-involved on all the SDQ sub scales. Accounting for the differences may be cultural and age differences and the frequency of bullying which the current study did not factor in when examining the SDQ.

As with earlier studies, our cyber bully/victims also demonstrated more depression, total difficulties overall, emotional problems, conduct problems and less pro-social behavior compared to their non-involved counterparts. This is not surprising when one considers the literature which demonstrates these individuals as the highest risk group for a range of internalizing problems (Kowalski and Limber, 2013; Kennedy, 2018). In terms of overall friendship quality, the current results found a significant difference between cyber bully/victims and non-involved students where the latter reported higher friendship quality. Of note, *post hoc* tests did not find significant differences between cyber victims and bullies suggesting that in the current sample of young people, both victims and bullies reported similar friendship quality to youth not involved in bullying.

Friendship quality of the males was poorer than that of the females in the current sample, although it is worth noting that the effect size was very low. The other finding that males across the entire sample had lower prosocial behavior compared to females is perhaps not unexpected in light of earlier research. This points to the impact of gender on children's lives and in particular on their relationships (Kehily, 2004; Rysst, 2015). Where relationships are specifically concerned, it has been shown that adolescent females who identify with a more traditional feminine gender role are more likely to perceive themselves as using relational aggression than adolescent females who identified with a non-traditional gender role (Crothers et al., 2005). Similarly, other research has shown that males who identify more with traditional masculine gender are more likely to engage in physical forms of aggression as a means of maintaining popularity and status among their peers (Woods, 2009). Recent research suggests that cyberbullying can also provide males with a means to acquire or maintain popularity in early adolescence (Wegge et al., 2016). However, how this manifests itself in relation to the traditional masculine gender needs further evidence.

As seen from **Table 1** there were no significant differences between the males and females in the tactics they used to bully their peers. However, **Table 2** demonstrates that significant differences were found in the mediums of which cyber

TABLE 4 | Significant predictors of scores on outcome measures using multiple regression.

Variable	*B*	S.E	Beta	*t*	95% confidence interval for B		Significants (*p*)
					Lower bond	Upper bond	
Depression							
Gender (female)	1.6	0.2	0.16	7.88	1.2	1.9	< 0.001
Friendship quality (poorer)	0.39	0.04	0.22	10.34	0.32	0.46	< 0.001
Age (older)	0.23	0.1	0.05	2.29	0.03	0.42	< 0.05
Cyber victim	3.5	0.3	0.24	11.63	3	4.16	< 0.001
Cyber bully/victim	1.03	0.2	0.11	5.13	0.63	1.42	< 0.001
Total Difficulties							
Age (older)	0.34	0.13	0.06	2.5	−0.08	0.99	< 0.05
Friendship quality (poorer)	0.34	0.05	0.15	6.67	0.24	0.44	< 0.001
Cyber victim	3.8	0.41	0.2	9.3	3.03	4.6	< 0.001
Cyber bully/victim	1.2	0.27	1	4.6	0.7	1.77	< 0.001
Emotional Difficulties							
Gender (female)	1.45	0.12	0.26	12.53	1.23	1.68	< 0.001
Friendship quality (poorer)	16	0.02	0.16	7.5	0.12	0.2	< 0.001
Age (older)	0.15	0.06	0.06	2.71	0.42	0.27	< 0.01
Cyber victim	1.54	0.18	0.18	8.77	1.19	1.88	< 0.001
Cyber bully/victim	0.26	0.11	0.05	2.26	0.034	0.48	< 0.05
Conduct problems							
Gender (male)	−0.57	0.08	−0.14	−6.53	−0.74	−0.4	< 0.001
Cyber bully	0.61	0.18	0.08	3.45	0.26	0.96	< 0.01
Cyber victim	0.79	0.13	0.13	6	0.53	1.1	< 0.001
Cyber bully/victim	0.46	0.09	0.12	5.3	0.29	0.63	< 0.001
Hyperactivity							
Gender (male)	−0.22	0.1	−0.05	−2.16	−0.43	−0.02	< 0.05
Cyber victim	0.97	0.16	0.14	6.23	0.66	1.27	< 0.001
Cyber bully/victim	0.39	0.1	0.09	3.84	0.19	0.59	< 0.001
Prosocial behavior							
Gender (female)	1.03	0.1	0.22	10	0.83	1.23	< 0.001
Friendship quality (stronger)	−0.09	0.02	−0.11	−4.92	−0.13	−0.06	< 0.001
Cyber bully (not)	−0.6	0.21	−0.06	−2.89	−1.01	−0.19	< 0.01
Cyber bully/victim (not)	−0.5	0.1	−0.11	−4.94	−0.7	−0.3	< 0.001

victimization and bullying occurred. In respect of victimization, significantly more females than males were found to be subjected to instant messaging, WhatsApp, mobile phones, Facebook, Snapchat, and Instagram, whereas males were more often subjected to bullying on email, YouTube, multiplayer online games and Xbox, PlayStation, Wii, PSP and similar devices. These findings are similar to previous studies where females have been found to be at a higher risk from social networking sites than males (Rey et al., 2018).

Of note, when considering cyberbullying prevalence rates of our sample, our findings in **Table 1** provide further support to studies which have indicated that females are at greater risk of cyber victimization than males (Li et al., 2012). Also supporting earlier studies (e.g., O'Moore and Minton, 2009) was our finding that while more males than females admitted to cyberbullying, the differences failed to reach statistical significance. However, of note, was the difference in prevalence rate compared to a recent meta-analysis of cyberbullying for Irish students. The current rate of cyberbullying (i.e., 1.5%) was much lower than that reported by Foody et al. (2017), while the cyber victimization rate was higher (12.4% compared to a pooled estimate of 9.6% for the previous meta-analysis). The higher incidence in victimization may be explained by an increased level of awareness of cyberbullying and the ease with which the ever-increasing variety of mediums can be used to target someone. On the other hand, the lower prevalence rate found in respect of cyber bullies may reflect a greater level of disengagement again due to the increased level of awareness raised through educational programs. It is also worth noting that the same meta-analysis found that there were other factors which influence prevalence rates across studies such as the inclusion or exclusion of a definition of bullying (Foody et al., 2017). It could be argued that the current definition of cyberbullying that was quite general and as such could have led to under-reporting of the phenomenon. However, this is unlikely considering the fact that the participants had to complete the Cyberbullying and Online Aggression Scale which asked details questions about the mediums and modes of cyberbullying and victimization (see **Tables 1**, **2**).

The multiple regression allowed us to determine if scores on the MFQ and SDQ could be predicted by involvement in gender,

age, cyberbullying and friendship quality (albeit limited when considering the cross-sectional nature of the study). The results generated particular results for each of the subscales so that we could attempt to scope out which factors might be important to account for scores on the depression, conduct problems, hyperactivity, emotional problems and prosocial behavior scales. In terms of depression, the results suggested that being an older female, having poorer friendship quality, being a cyber victim and cyber bully/victim were all important for higher scores on the MFQ. In parallel, similar variables also predicted higher scores on the emotional subscales. These results are not particularly surprising when one considers the extensive literature base on gender differences in coping styles. Peer socialization along gendered lines begins from infancy with boys, even through use of toys, geared toward problem solving and mechanical tasks, and girls to more pro-social activities, their friendship groups becoming more gender homogenous and reinforcing of social approaches as they grow older (Hanish and Fabes, 2014). In keeping with this, studies have found that women tend to use coping strategies aimed at changing their emotional responses to a stressful situation, while men use more problem-focused methods of handling stressors (Kelly et al., 2008). Poor friendship quality, as mentioned previously does not mean few numbers of friends. Pro-social behaviors exhibited by friends, few or many, who can be bystanders to the cyberbullying, also play a part. Studies show that in regards to cyberbullying only cognitive empathy activation, or mental perspective taking is effective in increasing prosocial bystander behavior in regards to cyberbullying specifically (Barlińska et al., 2015, 2018). That is, not just experiencing another's emotions, as in affective empathy, but knowing how to put these feelings to use, taking action to not participate, or intervene in the negative online behavior causing those feelings. Given its more active/action focused aspect, it is possible that pro-social behavior, when it comes to females, may correlate with gendered peer socialization. The friends in question do not just need to feel the need to act, but need to be confident in how to act on their empathy. For that reason, anti-bullying programs advocating for increased empathy training may need to incorporate a problem solving element.

Along similar lines, the significant predictors for conduct and hyperactivity problems were being male and involvement in cyberbullying at any level (victim, bully or bully/victim). In this case, age and/or friendship quality were not significant factors in the model. This supports the limited avenue of research which shows that bullying behavior is associated with conduct problems and aggression, particularly among males (e.g., Llola et al., 2016). With that said, it is essential for us to point out that the variables explored (e.g., age, gender, friendship quality and cyberbullying involvement) explained small percentages of the variance in psychological well-being in some cases (e.g., only 2.8% of the variance in hyperactivity was explained by these variables and 3.5% for pro-social behavior). As such, there appears to be many more important variables at play when it comes to determining externalizing behaviors like hyperactivity and conduct problems, particularly, as friendship quality was not a significant predictor variable for determining scores on these measures. It may be that exploring these issues in a separate research stream, as opposed to combined with internalizing behaviors might be one way forward to determine important predictor variables or risk factors. Indeed, the significant variables were better suited to explaining the variance in depression scores (16%) and emotional problems (14.4%). In both cases, poorer friendship quality contributed to this explanation as it has in previous research focusing on internalizing problems within the context of bullying (e.g., Bayer et al., 2018). However, research exploring the role of friendships, bullying/cyberbullying and externalizing issues is less straight forward. Although there is an established link between externalizing problems and bullying involvement (e.g., Boyes et al., 2014; Fite et al., 2014; Hennig et al., 2017), the literature on the role of friendship quality in buffering or mediating this relationship is less well-established. As such we feel this study might make an incremental contribution to the extant literature as we call for more specific and in-depth investigations of cyberbullying along with specific elements of well-being.

That said, there are other limitations to our results which are important to take into account when considering the results presented here. The most obvious limitation is the purely cross-sectional nature of the research which limits the conclusions that can be drawn. Longitudinal research is needed in particular, to parse out the detailed role that friendship quality has in terms of promoting individual resilience and coping skills which may reduce negative mental health outcomes for young people. It is also needed to determine if friendship quality alone does indeed prevent or buffer cyber victimization or if it is only another factor for females and/or individuals of certain age or background. It is also important to point out the low level of Cronbach's alpha or McDonald's omega coefficient for the friendship quality questionnaire ($\alpha = 0.60$ and $\omega = 0.65$). This low coefficient might be due to the YES/NO response option of the second and fourth questions in the questionnaire, given that scale items with two categories may lead to smaller coefficient values compared to those with more than two categories (Peterson, 1994). Nevertheless, a low coefficient value above 0.60 or close to 0.70 can still be considered sufficient reliability for research purposes, while recognizing that it is not ideal for applied settings (Nunnally, 1978; Peterson, 1994). Another limitation is that the results cannot be generalized to the wider population. Although the sample was large, the schools that participated were located across the country and over various socio-economic areas and communities. Going forward, it would be beneficial to draw a population-based sample so that the results could be considered representative of all post-primary pupils in the country.

An avenue for future research might be to investigate the differences between online and offline friendships and their role in buffering the impact of cyberbullying. There are many positives aspects of the internet which include support and friendship groups (with people all across the globe) which some vulnerable individuals might even find more beneficial than interactions offline (Sundberg, 2018). Extant anti-bullying interventions such as KiVa (Kärnä et al., 2011) do focus on promoting friendships and prosocial behavior, along with other elements designed to encourage bystanders to take an active role in bullying reduction. For example, in KiVa students are encouraged to think about ways they can support

their classmates to prevent negative experiences like bullying (Salmivalli and Poskiparta, 2012). The use of KiVa is limited in Ireland and no standard anti-cyberbullying program currently exists that all schools draw from. The National Action Plan on bullying (provided by the Department of Education in Ireland) details a set of guidelines and practical steps that principals should follow to prevent and deal with cyberbullying in their schools. However, this is believed to be of limited utility in terms of reducing cyberbullying as it does not direct principals to specific preventative strategies (Foody et al., 2018). Furthermore, it does not provide details around the social and psychosocial factors (e.g., friendship quality) which could be used to enhance current initiatives in the school. Going forward, we argue for principals to consider this research and the wider arena of psycho-social factors when planning and implementing their anti-cyberbullying programs in schools.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

AUTHOR CONTRIBUTIONS

MF designed the study, collected and analyzed the data. MF wrote the first draft of the Materials and Methods, Results, and Discussion. LM wrote the first draft of the Introduction. SK conducted analysis, gave feedback and edited the final draft of the manuscript. JO'HN gave feedback and edited all drafts of the manuscript. All authors edited the final draft.

FUNDING

This research was funded by the Irish Research Council Government of Ireland Postdoctoral Research Scheme. MF is currently funded by the Marie Skłodowska-Curie Actions COFUND Collaborative Research Fellowships for a Responsive and Innovative Europe (CAROLINE).

ACKNOWLEDGMENTS

The authors would like to thank Professor Mona O'Moore for her valuable feedback on the article.

REFERENCES

Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., and Silver, D. (1995). The development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *Int. J. Methods Psychiatr. Res.* 5, 237–249.

Aoyama, I., Saxon, T. F., and Fearon, D. D. (2011). Internalizing problems among cyberbullying victims and moderator effects of friendship quality. *Multicult. Educ. Technol. J.* 5, 92–105. doi: 10.1108/17504971111142637

Baldry, A. C., Sorrentino, A., and Farrington, D. P. (2018). Post-traumatic stress symptoms among Italian preadolescents involved in school and cyber bullying and victimization. *J. Child Fam. Stud.* 1–7. doi: 10.1007/s10826-018-1122-4

Barlińska, J., Szuster, A., and Winiewski, M. (2015). The role of short- and long-term cognitive empathy activation in preventing cyberbystander reinforcing cyberbullying behavior. *Cyberpsychol. Behav. Soc. Netw.* 18, 241–244. doi: 10.1089/cyber.2014.0412

Barlińska, J., Szuster, A., and Winiewski, M. (2018). Cyberbullying among adolescent bystanders: role of affective versus cognitive empathy in increasing prosocial cyberbystander behavior. *Front. Psychol.* 9:799. doi: 10.3389/fpsyg.2018.00799

Bayer, J. K., Mundy, L., Stokes, I., Hearps, S., Allen, N., and Patton, G. (2018). Bullying, mental health and friendship in Australian primary school children. *Child Adolesc. Ment. Health* 23, 334–340. doi: 10.1111/camh.12261

Beckman, L., Hagquist, C., and Hellström, L. (2013). Discrepant gender patterns for cyberbullying and traditional bullying-An analysis of swedish adolescent data. *Comput. Hum. Behav.* 29, 1896–1903. doi: 10.1016/j.chb.2013.03.010

Boyes, M. E., Bowes, L., Cluver, L. D., Ward, C. L., and Badcock, N. A. (2014). Bullying victimisation, internalising symptoms, and conduct problems in South African children and adolescents: a longitudinal investigation. *J. Abnorm. Child Psychol.* 42, 1313–1324. doi: 10.1007/s10802-014-9888-3

Burton, K. A., Florell, D., and Wygant, D. B. (2013). The role of peer attachment and normative beliefs about aggression on traditional bullying and cyberbullying. *Psychol. Sch.* 50, 103–115. doi: 10.1002/pits.21663

Campbell, M. A., Slee, P. T., Spears, B., Butler, D., and Kift, S. (2013). Do cyberbullies suffer too? cyberbullies' perceptions of the harm they cause to others and to their own mental health. *Sch. Psychol. Int.* 34, 613–629. doi: 10.1177/0143034313479698

Chan, S. F., and La Greca, A. M. (2016). Cyber victimization and aggression: are they linked with adolescent smoking and drinking? *Child Youth Care Forum* 5, 47–63. doi: 10.1007/s10566-015-9318-x

Cross, D., Barnes, A., Papageorgiou, A., Hadwen, K., Hearn, L., and Lester, L. (2015). A social-ecological framework for understanding and reducing cyerbullying behaviours. *Aggress. Violent Behav.* 23, 109–117. doi: 10.1016/j.avb.2015.05.016

Cross, E., Piggen, R., Douglas, T., and Vonkaenel-Flatt, J. (2009). *Virtual Violence: Protecting Children from Cyberbullying*. London: Beatbullying.

Crothers, L. M., Field, J. E., and Kolbert, J. B. (2005). Navigating power, control, and being nice: aggression in adolescent females' friendships. *J. Couns. Devel.* 83, 349–354. doi: 10.1002/j.1556-6678.2005.tb00354.x

Fahy, A., Stansfeld, S. A., Smuk, M., Smith, N. R., Cummins, S., and Clark, C. (2016). Longitudinal associations between cyberbullying involvement and adolescent mental health. *J. Adolesc. Health* 59, 502–509. doi: 10.1016/j.jadohealth.2016.06.006

Festl, R., Scharkow, M., and Quandt, T. (2013). Peer influence, internet use and cyberbullying: a comparison of different context effects among German adolescents. *J. Child. Media* 7, 446–462. doi: 10.1080/17482798.2013.781514

Fischer, C. S., and Olicker, S. J. (1983). A research note on friendship, gender and the lifecycle. *Soc. Forces* 62, 124–133. doi: 10.1093/sf/62.1.124

Fite, P. J., Evans, S. C., Colley, J. L., and Rubens, S. L. (2014). Further evaluation of associations between attention-deficit/hyperactivity and oppositional defiant disorder symptoms and bullying-victimization in adolescence. *Child Psychiatry Hum. Dev.* 45, 32–41. doi: 10.1007/s10578-013-0376-8

Foody, M., Murphy, H., Downes, P., and O'Higgins Norman, J. (2018). Anti-bullying procedures for schools in Ireland: principals responses and perceptions. *J. Pastoral Care Educ.* 36, 126–140. doi: 10.1080/02643944.2018.1453859

Foody, M., Samara, M., and O'Higgins Norman, J. (2017). Bullying and cyberbullying studies in the school-aged population on the island of Ireland: a meta-analysis. *Br. J. Educ. Psychol.* 87, 535–557. doi: 10.1111/bjep.12163

Foody, M., Samara, M., and O'Higgins Norman, J. (2019). Bullying by siblings and peers: poly-setting victimization and the association with problem behaviours and depression. *Br. J. Educ. Psychol.* doi: 10.1111/bjep.12311 [Epub ahead of print].

Garett, R., Lord, L. R., and Young, S. D. (2016). Associations between social media and cyberbullying: a review of the literature. *mHealth* 2:46. doi: 10.21037/mhealth.2016.12.01

Ging, D., and O'Higgins Norman, J. (2016). Cyberbullying, conflict management or just messing? teenage girls' understandings and experiences of gender, friendship, and conflict on facebook in an Irish second-level school'. *Fem. Media Stud.* 16, 805–821. doi: 10.1080/14680777.2015.1137959

Gleeson, H. (2014). *The Prevalence of Bullying Linked to Social Media on The Mental Health and Suicidal Behaviour Among young People*. Dublin: Department of Education & Skills.

Goebert, D., Else, I., Matsu, C., Chung-Do, J., and Chang, J. Y. (2011). The impact of cyberbullying on substance use and mental health in a multiethnic sample. *Maternal Child Health J.* 15, 1282–1286. doi: 10.1007/s10995-010-0672-x

González-Cabrera, J., León-Mejía, A., Beranuy, M., Gutiérrez-Ortega, M., Alvarez-Bardón, A., and Machimbarrena, J. M. (2018). Relationship between cyberbullying and mental health-related quality of life in a sample of children and adolescents. *Qual. Life Res.* 27, 2609–2618. doi: 10.1007/s11136-018-1901-9

Goodman, R. (1997). The strength and difficulties questionnaire: a research note. *J. Child Psychol. Psychiatry* 38, 581–586. doi: 10.1016/j.ridd.2017.01.018

Goodman, R. (2001). Psychometric properties of the strength and difficulties questionnaire. *J. Am. Acad. Child Adolesc. Psychiatry* 40, 1337–1345. doi: 10.1097/00004583-200111000-00015

Goodyer, I., Wright, C., and Altham, P. (1990). The friendships and recent life events of anxious and depressed school-age children. *Br. J. Psychiatry* 156, 689–698. doi: 10.1192/bjp.156.5.689

Goodyer, I. M., Wright, C., and Altham, P. M. E. (1989). Recent friendships in anxious and depressed school age children. *Psychol. Med.* 19, 165–174.

Hanish, L. D., and Fabes, R. A. (2014). *Peer Socialization of Gender in Young Boys and Girls*. http://www.child-encyclopedia.com/sites/default/files/textes-experts/en/2492/peer-socialization-of-gender-in-young-boys-and-girls.pdf (accessed July 01, 2019).

Heiman, T., and Olenik-Shemesh, D. (2015). Cyberbullying experience and gender differences among adolescents in different educational settings. *J. Lear. Disabil.* 48, 146–155. doi: 10.1177/0022219413492855

Hennig, T., Jaya, E. S., and Lincoln, T. M. (2017). Bullying mediates between attention-deficit/hyperactivity disorder in childhood and psychotic experiences in early adolescence. *Schizophr. Bull.* 43, 1036–1044. doi: 10.1093/schbul/sbw139

Hinduja, S., and Patchin, J. (2010). Bullying, cyberbullying and suicide. *Arch. Suicide Res.* 14, 206–221. doi: 10.1080/13811118.2010.494133

Hinduja, S., and Patchin, J. W. (2007). Offline consequences of online victimization: school violence and delinquency. *J. Sch. Violence* 6, 89–112. doi: 10.1300/j202v06n03_06

Hinduja, S., and Patchin, J. W. (2015). *Bullying Beyond the Schoolyard: Preventing and Responding to Cyberbullying*, 2nd Edn. Thousand Oaks, CA: Sage Publications.

Hinduja, S., and Patchin, J. W. (2017). Cultivating youth resilience to prevent bullying and cyberbullying victimization. *Child Abuse Negl.* 73, 51–62. doi: 10.1016/j.chiabu.2017.09.010

JASP Team (2019). *JASP (Version 0.10)*. Retrieved from https://jasp-stats.org/download/ (accessed July 01, 2019).

John, A., Glendenning, A. C., Marchant, A., Montgomery, P., Stewart, A., Wood, S., et al. (2018). Self-harm, suicidal behaviours, and cyberbullying in children and young people. *J. Med. Int. Res.* 20:e129. doi: 10.2196/jmir.9044

Jones, L. M., Mitchell, K. J., and Turner, H. A. (2015). Victim reports of bystander reactions to in-person and online peer harassment: a national survey of adolescents. *J. Youth Adolesc.* 44, 2308–2320. doi: 10.1007/s10964-015-0342-9

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., and Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: grades 4-6. *Child Dev.* 82, 311–330. doi: 10.1111/j.1467-8624.2010.01557.x

Kehily, M. J. (2004). "Gender and sexuality: continuities and change for girls in school," in *All About the Girl: Culture, Power and Identity*, ed. A. Harris (Abingdon: Routledge), 205–218.

Kelly, M. M., Tyrka, A. R., Price, L. H., and Carpenter, L. L. (2008). Sex differences in the use of coping strategies: predictors of anxiety and depressive symptoms. *Depress. Anxiety* 25, 839–846. doi: 10.1002/da.20341

Kendrick, K., Jutengren, G., and Stattin, H. (2012). The protective role of supportive friends against bullying perpetration and victimization. *J. Adolesc.* 35, 1069–1080. doi: 10.1016/j.adolescence.2012.02.014

Kennedy, R. S. (2018). Bully-Victims: an analysis of subtypes and risk characteristics. *J. Interpers. Violence.* doi: 10.1177/0886260517741213 [Epub ahead of print].

Kim, S., Colwell, S. R., Kata, A., Malele, M. H., and Georgiades, K. (2018). Cyberbullying victimization and adolescent mental health: Evidence of differential effects by sex and mental health problem type. *J. Youth Adolesc.* 47, 661–672. doi: 10.1007/s10964-017-0678-4

Kowalski, R., Limber, S., and Agatston, P. (2008). *Cyberbullying: Bullying in the Digital Age*. Oxford: Blackwell.

Kowalski, R. M., and Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *J. Adolesc. Health* 53, 13–20. doi: 10.1016/j.jadohealth.2012.09.018

Lambe, L. J., Della Cioppa, V., Hong, I. K., and Craig, W. M. (2018). Standing up to bullying: a social ecological review of peer defending in offline and online contexts. *Aggress. Violent Behav.* 45, 51–74. doi: 10.1016/j.avb.2018.05.007

Leung, A. N., and McBride-Chang, C. (2013). Game On? online friendship, cyberbullying, and psychosocial adjustment in hong kong chinese children. *J. Soc. Clin. Psychol.* 32, 159–185. doi: 10.1521/jscp.2013.32.2.159

Li, Q., Smith, P. K., and Cross, D. (2012). "Research into cyberbullying: context," in *The Global Playground: Research from International Perspectives* eds Q. Li, D. Cross, and P. K. Smith (Hoboken : Wiley-Blackwell), 3–12. doi: 10.1002/9781119954484.ch1

Llola, A.-M., Lempinen, L., Huttunen, J., Riskari, T., and Sourander, A. (2016). Bullying and victimisation are common in four-year-old children and are associated with somatic symptoms and conduct and peer problems. *Acta Paediactr.* 105, 522–528. doi: 10.1111/apa.13327

Love, J., Selker, R., Marsman, M., Jamil, T., Dropmann, D., Verhagen, A. J., et al. (2019). JASP: graphical statistical software for common statistical designs. *J. Statist. Softw.* 88, 1–17. doi: 10.18637/jss.v088.i02

Magaud, E., Nyman, K., and Addington, J. (2013). Cyberbullying in those at clinical high risk for psychosis. *Early Interv. Psychiatry* 7, 427–430. doi: 10.1111/eip.12013

Marcum, C. D., Higgins, G. E., Freiburger, T. L., and Ricketts, M. L. (2012). Battle of the sexes: an examination of male and female cyberbullying. *Int. J. Cyber Criminol.* 6, 904–911.

McLoughlin, L. T., Spears, B. A., Taddeo, C. M., and Hermens, D. F. (2019). Remaining connected in the face of cyberbullying: why social connectedness is important for mental health. *Psychol. Sch.* 56, 945–958. doi: 10.1002/pits.22232

Messer, S. C., Angold, A., Costello, E. J., Loeber, R., Van Kammen, W., and Stouthamer- Loeber, M. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents: factor composition and structure across development. *Int. J. Methods Psychiatr. Res.* 5, 251–262.

Mishna, F., Cook, C., Gadealla, T., Daciuk, J., and Solomon, S. (2010). Cyber bullying behaviors among middle and high school students. *Am. J. Orthopsychiatry* 80, 362–374. doi: 10.1111/j.1939-0025.2010.01040.x

Navarro, R., Yubero, S., Larrañaga, E., and Martínez, V. (2012). Children's cyberbullying victimization: associations with social anxiety and social competence in a spanish sample. *Child Indic. Res.* 5, 281–295. doi: 10.1007/s12187-011 9132-9134

Nunnally, J. C. (1978). *Psychometric Theory*, 2nd Edn. New York: McGraw-Hill.

O'Moore, M. (2013). "The Prevalence of bullying and Cyber-bullying in Irish Schools," in *Bullying in Irish Education: Perspectives in Research and Practice*, eds M. O'Moore and P. Stevens (Cork: University Press).

O'Moore, M. (2014). *Understanding Cyberbullying: A Guide for Parents and Teachers*. Dublin: Veritas.

O'Moore, M., and Minton, S. J. (2009). "Cyber-bullying: the Irish experience," in *Handbook of Aggressive Behaviour Research*, eds C. Quin and S. Tawse (New York,NY: Nova Science), 269–292.

Ortega, R., Elipe, P., Mora-Merchán, J. A., Calmaestra, J., and Vega, E. (2009). The emotional impact on victims of traditional bullying and cyberbullying: a study

of Spanish adolescents. *J. Psychol.* 217, 197–204. doi: 10.1027/0044-3409.217.4.197

Papatraianou, L. H., Levine, D., and West, D. (2014). Resilience in the face of cyberbullying: an ecological perspective on young people's experiences of online adversity. *Pastoral Care Educ.* 32, 264–283. doi: 10.1080/02643944.2014.974661

Perren, S., Dooley, J., Shaw, T., and Cross, T. (2010). Bullying in school and cyberspace: associations with depressive symptoms in Swiss and Australian adolescents. *Child Adolesc. Psychiatry Ment. Health* 4:28. doi: 10.1186/1753-2000-4-28

Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *J. Consum. Res.* 21, 381–391. doi: 10.1086/209405

Przybylski, A. K., and Bowes, L. (2017). Cyberbullying and adolescent well-being in England: a population-based cross-sectional study. *Lancet Child Adolesc Health* 1, 19–26. doi: 10.1016/S2352-4642(17)30011-1

Ramos Salazar, L. (2017). Cyberbullying victimization as a predictor of cyberbullying perpetration, body image dissatisfaction, healthy eating and dieting behaviors, and life satisfaction. *J. Int. Violence* doi: 10.1177/0886260517725737 [Epub ahead of print].

Ranney, M. L., Patena, J. V., Nugent, N., Spirito, A., Maleer, E., Zatzick, D., et al. (2016). PTSD, cyberbullying and peer violence: prevalence and correlates among adolescent emergency department patients. *Gen. Hosp. Psychiatry* 39, 32–38. doi: 10.1016/j.genhosppsych.2015.12.002

Revelle, W., and Zinbarg, R. (2009). Coefficients alpha, beta, omega, and the glb: comments on Sijtsma. *Psychometrika* 74, 145–154. doi: 10.1007/s11336-008-9102-z

Rey, L., Quintana-Orts, C., and Extremera, N. (2018). Emotional intelligence and peercyber-victimisation in adolescents: gender as a moderator. *Communicar* 56, 9–18.

Romera, E. M. M., Herrera-López, M., Casas, J. A., Ortega-Ruiz, R., and Gómez-Ortiz, O. (2017). Multidimensional social competence, motivation and cyberbullying: a cultural approach with Colombian and Spanish adolescents. *J. Cross cult. Psychol.* 48, 1183–1197. doi: 10.1177/0022022116687854

Rose, C., and Tynes, B. M. (2015). Longitudinal associations between cybervictimization and mental health among U.S. *Adolesc.. J. Adolesc. Health* 57, 305–312. doi: 10.1016/j.jadohealth.2015.05.002

Rysst, M. (2015). Friendship and gender identity among girls in a multicultural setting in Oslo. *Childhood* 22, 490–505. doi: 10.1177/0907568214549081

Salmivalli, C., and Poskiparta, E. M. (2012). Making bullying prevention a priority in finnish schools: the KiVa antibullying program. *New Dir. Youth Dev.* 133, 41–53. doi: 10.1002/yd.20006

Sapouna, M., and Wolke, D. (2013). Resilience to bullying victimization: the role of individual, family and peer characteristic. *Child Abuse Negl.* 37, 997–1006. doi: 10.1016/j.chiabu.2013.05.009

Savage, M. E., and Tokunaga, R. S. (2017). Moving toward a theory: testing an integrated model of cyberbullying perpetration, aggression, social skills and Internet self-efficacy. *Comput. Hum. Behav.* 71, 353–361. doi: 10.1016/j.chb.2017.02.016

Selkie, E. M., Fales, J. L., and Moreno, M. A. (2016). Cyberbullying prevalence among United States middle and high school aged adolescents: a systematic review and quality assessment. *J. Adolesc. Health* 58, 125–133. doi: 10.1016/j.jadohealth.2015.09.026

Selkie, E. M., Kota, R., Chan, Y. F., and Moreno, M. (2015). Cyberbullying, depression, and problem alcohol use in female college students: a multisite study. *Cyberpsychol. Behav. Soc. Netw.* 18, 79–86. doi: 10.1089/cyber.2014.0371

Smith, P. K. (2019). "Research on Cyberbullying: strengths and Limitations," in *'Narratives in Research and Interventions on Cyberbullying Among Young People'*, eds H. Vandebosch and H. L. Green (Switzerland: Springer).

Smith, P. K., López-Castro, L., Robinson, S., and Görzig, A. (2019). Consistency of gender differences in bullying in cross-cultural surveys. *Aggress. Violent Behav.* 45, 33–40. doi: 10.1016/j.avb.2018.04.006

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., and Tippet, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *J. Child Psychol. Psychiat.* 49, 376–385. doi: 10.1111/j.1469-7610.2007.01846.x

Sourander, A., Brunstein Klomek, A., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., et al. (2010). Psychosocial risk factors associated with cyberbullying among adolescents: a population-based study. *Arch. Gen. Psychiat.* 67, 720–728. doi: 10.1001/archgenpsychiatry.2010.79

Spears, B. A., Taddeo, C. M., Daly, A. L., Stretton, A., and Karklins, L. T. (2015). Cyberbullying, help-seeking and mental health in young Australians: implications for public health. *Int. J. Public Health* 60, 219–226. doi: 10.1007/s00038-014-0642-y

Sun, S., Fan, X., and Du, J. (2016). Cyberbullying perpetration: a meta-analysis of gender differences. *Int. J. Int. Sci.* 11, 61–81.

Sundberg, M. (2018). Online gaming, loneliness and friendships among adolescents and adults with ASD. *Comput. Hum. Behav.* 79, 105–110. doi: 10.1016/j.chb.2017.10.020

Trizano-Hermosilla, I., and Alvarado, J. M. (2016). Best alternatives to cronbach's alpha reliability in realistic conditions: congeneric and asymmetrical measurements. *Front. Psychol.* 7:769. doi: 10.3389/fpsyg.2016.00769

Turner, M. G., Exum, M. L., Brame, R., and Holt, T. J. (2013). Bullying victimization and adolescent mental health: general and typological effects across sex. *J. Crim. Justice* 41, 53–59. doi: 10.1016/j.jcrimjus.2012.12.005

Wang, J., Ionnotti, R. J., and Nansel, T. R. (2009). School bullying among US adolescents: physical, verbal, relational and cyber. *J. Adolesc. Health* 45, 368–375. doi: 10.1016/j.jadohealth.2009.03.021

Wang, J., Nansel, T. R., and Iannotti, R. J. (2011). Cyber-bullying and traditional bullying: differential association with depression. *J. Adolesc. Health* 48, 415–417. doi: 10.1016/j.jadohealth.2010.07.012

Wegge, D., Vandebosch, H., Eggermont, S., and Pabian, S. (2016). Popularity through online harm: the longitudinal associations between cyberbullying and sociometric status in early adolescence. *J. Early Adolesc.* 36, 86–107. doi: 10.1177/0272431614556351

Welsh, J. W., Knight, J. R., Hou, S. S., Malowney, M., Schram, P., Sherritt, L., et al. (2017). Association between substance use diagnoses and psychiatric disorders in an adolescent and young adult clinic-based population. *J. Adolesc. Health* 60, 648–652. doi: 10.1016/j.jadohealth.2016.12.018

Woods, R. (2009). The use of aggression in primary school males' decisions about inclusion in and exclusion from playground football games. *Br. J. Educ. Psychol.* 79, 223–238. doi: 10.1348/000709908X336122

You, J.-I., and Bellmore, A. (2012). Relational peer victimization and psychosocial adjustment: the mediating role of best friendship qualities. *Pers. Relatsh.* 19, 340–353. doi: 10.1111/j.1475-6811.2011.01365.x

Zych, I., Farrington, D. P., and Ttofi, M. M. (2019). Protective factors against bullying and cyberbullying: a systematic review of meta-analyses. *Aggress. Violent. Behav.* 45, 4–19. doi: 10.1016/j.avb.2018.06.008

Zych, I., Ortega-Ruiz, R., and Del Rey, D. (2015). Scientific research on bullying and cyberbullying: where have we been and where are we going. *Aggress. Violent Behav.* 24, 188–198. doi: 10.1016/j.avb.2015.05.015

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

CORRECTION
published: 24 January 2020
doi: 10.3389/fpsyg.2019.02931

Corrigendum: Friendship Quality and Gender Differences in Association With Cyberbullying Involvement and Psychological Well-Being

Mairéad Foody, Lian McGuire, Seffetullah Kuldas and James O'Higgins Norman*

National Anti-Bullying Research and Resource Centre, Dublin City University, Dublin, Ireland

Keywords: cyberbullying, friendship quality, gender, psychological well-being, post-primary

A Corrigendum on

Friendship Quality and Gender Differences in Association With Cyberbullying Involvement and Psychological Well-Being

by Foody, M., McGuire, L., Kuldas, S., and O'Higgins Norman, J. (2019). Front. Psychol. 10:1723. doi: 10.3389/fpsyg.2019.01723

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Daniel Falla, Universidad de Córdoba, Spain

****Correspondence:***
Mairéad Foody
mairead.foody@dcu.ie

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *25 October 2019*
Accepted: *11 December 2019*
Published: *24 January 2020*

Citation:
Foody M, McGuire L, Kuldas S and O'Higgins Norman J (2020) Corrigendum: Friendship Quality and Gender Differences in Association With Cyberbullying Involvement and Psychological Well-Being. Front. Psychol. 10:2931. doi: 10.3389/fpsyg.2019.02931

In the original article, there was an error. Under the Participants section, a previous publication by the first author was written as BLINDED PUBLICATION. This should read as Foody et al. (2019).

A correction has been made to the **Materials and Methods** section, subsection **Participants**:

"This study forms part of a wider research project which investigated the prevalence rates of traditional and cyberbullying in Ireland. A brief description of the sample is included here but authors are referred to Foody et al. (2019) for more details on the population and ethical approval. Originally, all post-primary schools in Ireland were invited by email to participate in this study. If interest was noted, the researcher gave more information by email or phone to the principal. Once principals agreed to take part, information and consent forms were sent to the principal to distribute among parents. Principals decided on the classes/age groups to which they would administer the survey, depending on what their own timetable and resources allowed. A final sample of over two thousand participants from 30 different post-primary schools participated ($N = 2410$; 43.2% males and 56.8% females) representing 3.7% of the entire post-primary school population in Ireland. Participants were aged between 12 and 16 years [M(SD): 13.5(1)] and attending 1st to 3rd year in schools across the country."

The reference list has also been updated to reflect this correction.

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

REFERENCES

Foody, M., Samara, M., and O'Higgins Norman, J. (2019). Bullying by siblings and peers: poly-setting victimization and the association with problem behaviours and depression. *Br. J. Educ. Psychol.* doi: 10.1111/bjep.12311. [Epub ahead of print].

frontiers in Psychology

ORIGINAL RESEARCH
published: 30 July 2019
doi: 10.3389/fpsyg.2019.01753

How Do You Think the Victims of Bullying Feel? A Study of Moral Emotions in Primary School

Eva M. Romera[1], Rosario Ortega-Ruiz[1], Sacramento Rodríguez-Barbero[2] and Daniel Falla[1]*

[1] Department of Psychology, Universidad de Córdoba, Córdoba, Spain, [2] High School Berenguela, Castilla La Mancha, Spain

The important role of morality in the transgressive behavior which occurs within peer groups, such as bullying, has often been observed. However, little attention has been paid to this kind of violence in the initial stages of primary education. This study aims to analyze the attribution of moral emotions (self and other) to victims in different bullying types (verbal, physical, relational, and exclusion) and roles (aggressor and victim). An *ad hoc* questionnaire with supporting stick-figure cartoons was used. In total, 1150 schoolchildren between the ages of 6 and 11 years took part in the study (50.3% girls). The results showed that over 80% of schoolchildren had been involved in any type of aggressive behavior, and that there were significant differences by gender, year, and involvement in self- and other-attributed moral emotions. Aggressors showed less shame in general. In self-attribution situations, there was a greater indifference in aggressors. Victims had less shame and greater indifference in self-attributions for verbal and physical aggression. Girls recognized higher percentages of guilt in victims. The main moral emotion in the first stage was shame. This tendency changed to guilt as the children got older in both situations. Results support the need for the study of moral emotions development of victims and aggressors. How the experience of being involved in bullying biases the moral interpretation toward from the feelings of the victim is discussed.

Keywords: moral emotion attribution, victimization, cartoons, bullying types, gender

OPEN ACCESS

Edited by:
José Jesús Gázquez, University of Almería, Spain

Reviewed by:
José Carlos Núñez, Universidad de Oviedo, Spain
Giulio Arcangeli, University of Florence, Italy
Evangelia Karagiannopoulou, University of Ioannina, Greece

****Correspondence:***
Eva M. Romera
eva.romera@uco.es

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *12 May 2019*
Accepted: *15 July 2019*
Published: *30 July 2019*

Citation:
Romera EM, Ortega-Ruiz R, Rodríguez-Barbero S and Falla D (2019) How Do You Think the Victims of Bullying Feel? A Study of Moral Emotions in Primary School. Front. Psychol. 10:1753. doi: 10.3389/fpsyg.2019.01753

INTRODUCTION

From an early age, human beings are capable of attributing emotional and intentional states to others, both by reading facial expressions and by understanding the nature of the situation (Newman and Newman, 2010; Pozzoli et al., 2017). It has been noted that from the age of 4 years, children are able to recognize facial expressions of primary emotions (sadness, anger, joy, fear, surprise, or disgust), and can understand the events which precede and cause them (Lagattuta et al., 1997), and that these skills are basic steps in the development of psycho-social adjustment (Trentacosta and Fine, 2010). However, emotions such as guilt, shame, or pride, linked to a subjective interpretation made by the individual in complex social situations, are acquired at a later stage (Bosacki and Moore, 2004). Moral emotions entail a greater cognitive competence in order to interpret other people's feelings, as do making moral judgments of situations based on

the consequences arising from the protagonists' actions and internalizing moral standards and shared social norms (Eisenberg, 2000; Malti et al., 2013b). Around 4–5 years old, children have no difficulty understanding the acts of victimization as morally wrong from a cognitive point of view (Nunner-Winkler and Sodian, 1988).

The cognitive-evolutionary tradition has held sway in studies of morality ever since the works of Kohlberg (1984), Piaget (1932), and Turiel (1983), in which the part played by emotions has been given less importance (Malti and Dys, 2015). Against this cognitive-evolutionary perspective, recent studies have stressed how emotions play a major role in moral action as they serve as a precedent for moral judgments and help to promote adherence to one's own moral standards (Buon et al., 2016). Malti and Krettenauer (2013) carried out a meta-analysis in which they observed how moral emotions predicted high levels of prosocial and low levels of antisocial behavior. Moral emotions therefore play a regulatory role in social interaction, promoting or inhibiting maladaptive behavior and attitudes, as is the case of bullying in schools (Barón et al., 2018).

Moral Emotions and Bullying Among Peers

Bullying is an interactive manifestation of aggression which can be categorized as antisocial behavior, since, regardless of the greater or lesser degree of harm one or more schoolchildren can cause to another (the victim), there is always a factor of unjustified, malicious, harmful, and intentional violence which makes it immoral (Ortega, 2010). This immoral behavior is linked to serious consequences in all participants, mainly in victims, who may suffer mental health and social adjustment problems (Romera et al., 2016; Garaigordobil et al., 2019; Krusell et al., 2019; Naveed et al., 2019).

A considerable body of research has highlighted the connection between moral emotions and bullying behavior [see Romera et al. (2019) for a review]. Social behavior is particularly regulated by the twin emotions of shame and guilt, although there are important conceptual differences between them (Stuewig et al., 2010). Shame involves a negative evaluation of the self when faced with social and moral standards, whereas guilt relates to specific behavior which does not comply with these standards (Tracy and Robins, 2006; Tangney et al., 2007). The feeling of guilt stresses the negative consequences of aggressive acts and reduces the likelihood that they will occur again in the future (Arsenio, 2014). Pride involves an emphasis on public recognition and social dominance (Krettenauer and Casey, 2015), while indifference involves the absence of negative emotions when faced with transgressive behavior (Gini et al., 2014; Carrera-Fernández et al., 2018). Both emotions, pride and indifference, were considered by some authors as self-evaluating emotions of moral disengagement arising from a transgression, which reveals the absence of empathy toward the victim through mechanisms of moral disengagement (Caurcel and Almeida, 2008). In the case of the aggressors in bullying, they showed greater degrees of pride and indifference (Menesini et al., 2015) and lower levels of shame and guilt (Mazzone et al., 2016).

Research has shown how girls tend to experience more guilt and shame than boys in situations of aggression (Walter and Burnaford, 2006; Roos et al., 2011). On the other hand, boys are reported to show more pride when they are aggressive toward others (Ferguson et al., 2000). As far as age is concerned, expressions of guilt seem to increase in frequency and intensity from early to middle childhood. This evolutionary trend has been linked to a gradual internalization of moral norms ranging from strict compliance to parental discipline or school norms through to adopting one's own moral norms (Kochanska et al., 2002; Malti et al., 2013a; Herrera et al., 2016).

Most research into moral emotions and bullying has assessed how individuals feel after performing an immoral act toward their peers. However, it is also important to explore how school children understand the emotional repercussions of that aggression on their victims (Peplak et al., 2017). Studies of moral attributions stress the importance of differentiating between self-attribution (where schoolchildren are asked to put themselves in the victim's position) and other-attribution (in which they are asked to assign an emotion to a victim other than themselves). In studies of emotional attribution to others, boys and girls more often refer to the victims using emotions of shame and guilt (Caurcel and Almeida, 2008; Gasser and Keller, 2009). As for aggressors, greater levels of indifference and moral disengagement toward the victims have been noted (Perren et al., 2012). These studies stress that schoolchildren tend to dehumanize and blame the victim, as a means of justifying and accounting for another people's aggression (Garland et al., 2017; Thornberg and Wänström, 2018). In the research into self-attribution, the emotions of shame and guilt decrease and there is a marked rise in pride and indifference (Caurcel and Almeida, 2008). The different results found in these two types of attributions are due not so much to a deficit in cognitive abilities, but rather to a closer personal connection with self-attributed antisocial situations (Malti and Krettenauer, 2013). However, the majority of the studies were carried out in secondary schools (Caurcel and Almeida, 2008) or in the later years of primary school (Gasser and Keller, 2009) and up to now, very little attention has been paid to these attributional processes in younger boys and girls, at vital ages in the development and formation of moral criteria. It may be due to the fact that most of studies about moral attribution use self/hetero-report that requires comprehensive reading skills. The study of emotional moral attributions in younger children is very useful for the design of prevention programs adapted to moral emotions development in bullying, but requires the use of instruments adapted to them (Kutnick et al., 2007). Cartoons have been useful to measure aggressive behavior in young children (Huitsing and Monks, 2018). Likewise, although some recent studies have pointed out the moral and emotional differences in direct and indirect forms of bullying (Kokkinos and Kipritsi, 2018; Bjärehed et al., 2019), very few studies have focused on the possible differences in the emotional attribution to the victims and the different aggression types. There are good reasons for combining aggression types, because there is a strong conceptual overlap between the aggression types.

The Aims of This Study

This study aims to analyze the attribution of moral emotions (to oneself and to others) in primary schoolchildren (6–11 years old) in the various manifestations of bullying processes among peers (verbal, physical, relational, and exclusion).

In particular, we set the following objectives:

(a) To analyze the differences in the attribution (self and other) of moral emotions in peer victimization depending on bullying type (verbal, physical, relational, or social exclusion) and role (aggressor or victim).
(b) To explore the differences in the attribution of moral emotions (self and other) to the victims of physical, verbal, relational aggression, and social exclusion in relation to gender and stage of schooling.

This study is based on the following hypotheses:

(a) Schoolchildren who admit to being victims of bullying will attribute more shame and guilt to the victims than those who are not involved.
(b) Girls will point out more moral attributions of guilt, while boys will express pride and indifference to the victims.
(c) Children in the early years of primary school will express a greater feeling of shame than the children in the later years.

MATERIALS AND METHODS

Participants

A theoretical intentional sampling (Singleton and Straits, 2004) was used to select schools. Different characteristics of the context (type of center – public or private – and socio-economical level) were controlled to allow the adequate comparison of the data (principle of heterogeneity) (Valles, 1997). Eight schools were selected. All students of each school participated in the study. The incidental sample was made up of 1150 students (50.3% girls) in primary education, aged between 6 and 11 years old (M = 8.58, SD = 1.87), divided into in three educational stages (first 33.7%, second 31.4%, and third 34.9%).

Instruments

We designed an *ad hoc* questionnaire in which different bullying incidents were narrated in a text illustrated with stick-figure cartoons, as used in previous research (Ortega-Ruiz et al., 2002; Monks and Smith, 2006; Huitsing and Monks, 2018). The first picture shows a situation of exclusion and had the following accompanying text: "Some children play football together every day. Another child asks if he/she can play, but every day the others say he/she can't play with them." The second illustrates physical violence and is accompanied by the following text: "A boy or girl goes to the playground in the break ready to play with their classmates, but then bumps into another boy or girl who kicks them for no apparent reason." The third involves indirect relational violence, with its accompanying text: "A group of friends go out to the playground and criticize another child." The fourth one focuses on verbal violence and has the following text: "A boy or girl goes out to the playground and starts to insult another boy or girl." These stick-figure cartoons were taken from original works by Smith et al. (2002).

In order to understand the involvement of schoolchildren in bullying, we asked two questions which referred to the stick-figure cartoons: "Have you ever done it?" and "Have someone ever done it to you?." The answers were "Yes/No." Moral self-attribution was measured using the following question for each of the stick-figure cartoons: "Here are four emotions the boy or girl might feel when they are not allowed to play. How do you think they will feel?." Four exclusive response options were given: *shame*, *guilt*, *pride*, and *indifference*. To measure moral self-attribution, the same response options were used for the question "How would you feel if you were that child?"

Procedure

Once we had obtained permission for this research from the Ethic Committee for Bioethics and Biosafety at the University of Córdoba, a meeting was held with the school heads involved to inform them of aims of the study. We asked the children's families for their consent in writing to participate in the study using a printed letter. The confidentiality, anonymity, and voluntary nature of the study were guaranteed throughout the process. All the interviews were supervised by the researchers involved in the study. The schoolchildren aged between 8 and 11 years answered the questions individually on paper during normal class time, while the 6- and 7-year-olds gave their answers orally, and this interview took place in a specially appointed room outside the classroom. Each child was shown the stick-figure cartoons referring to the different situations of bullying and the questions were read out loud. Their answers were written down by the interviewer.

Statistical Analysis

Contingency tables with the chi-square statistic (χ^2) were used. This non-parametric test was used according to the categorical variables of study. Adjusted standardized residual (ASR) values were taken into account $> |1.96|$ $y > |2.58|$ to check for significant differences. Cramer's V index was included to note the strength of the association between the variables. SPSS software package version 20.0 was used to analyze the data. The level of significance was set at $p < 0.05$.

RESULTS

The data showed that out of the 1150 schoolchildren interviewed, 83.8% said that they had been involved occasionally in the behavior shown in the stick-figure cartoons, and most of them identified themselves either as victims or aggressors of verbal bullying (46.2% aggressors and 74.4% victims), followed by other forms of relational aggression (36% aggressors and 66.7% victims) (**Table 1**). 6.6% (n = 76) stated they had been involved in all the types of bullying as aggressors and 24.2% (n = 278) as victims.

TABLE 1 | Percentage of roles of involvement and types of aggression manifested.

	Aggressor	Non-aggressor	Victim	Non-victim
E	28.2%	71.8%	64.5%	35.5%
	(*n* = 272)	(*n* = 692)	(*n* = 623)	(*n* = 341)
IR	36.0%	64.0%	66.7%	33.3%
	(*n* = 347)	(*n* = 617)	(*n* = 643)	(*n* = 321)
P	30.3%	69.7%	65.4%	34.6%
	(*n* = 292)	(*n* = 672)	(*n* = 630)	(*n* = 334)
V	46.2%	53.8%	74.4%	25.6%
	(*n* = 445)	(*n* = 519)	(*n* = 718)	(*n* = 246)

E, exclusion; IR, indirect relational; P, physical; V, verbal.

Moral Attribution to Others and Involvement in Bullying

Significant differences were observed in other-attributed moral emotions between schoolchildren who admitted being involved as aggressors and those who did not, in each of the forms of bullying shown. Those who admitted to being aggressors showed less shame and more indifference toward the victims in the case of physical aggression, $\chi^2(3.964) = 15{,}166$, $p = 0.002$, and relational, $\chi^2(3.964) = 12{,}343$, $p = 0.006$. As regards of verbal bullying, lower levels of attribution of shame and higher levels of indifference were observed, as well as high levels of pride, $\chi^2(3.964) = 34{,}344$, $p < 0.001$. Cramer's V values ranged between 0.11 and 0.18. No differences were observed in situations of exclusion (**Table 2**).

No significant differences were observed in the attributions to others by those involved in bullying.

Moral Attribution to Others and Educational Stages

Higher percentages for shame were found in early primary age (age 6–8 years) in all kinds of situations of bullying (verbal, physical, relational, and exclusion), while these percentages decreased in subsequent years. In contrast, all the other moral emotions increased as the children got older. The differences were significant in all forms of bullying: exclusion $\chi^2(6.964) = 73{,}107$, $p < 0.001$; physical $\chi^2(6.964) = 57{,}152$, $p < 0.001$; relational $\chi^2(6.963) = 18{,}652$, $p = 0.005$; and verbal $\chi^2(6.964) = 29{,}341$, $p < 0.001$. Cramer's V values were in the range 0.09–0.19 (**Table 3**).

Moral Attribution to Others in Bullying Among Peers and Gender

When analyzing the relationship between moral attribution to others and gender, the following results were seen: girls attributed more blame in exclusion $\chi^2(3.964) = 13{,}526$, $p = 0.004$; physical aggression $\chi^2(3.964) = 9{,}441$, $p = 0.02$; and relational aggression $\chi^2(3.963) = 9{,}269$, $p = 0.02$. Boys showed greater attributions of indifference in exclusion, $\chi^2(3.964) = 13{,}526$, $p = 0.004$, and of shame in physical aggression, $\chi^2(3.964) = 9{,}441$, $p = 0.02$. Cramer's V values ranged from 0.09 to 0.11. No significant differences were found in the forms of verbal bullying (**Table 4**).

Moral Self-Attributions: Putting Themselves in the Position of the Victim

Statistically significant differences were observed between those who admitted to being aggressors and those who did not. Lower percentages of shame and greater indifference were found in exclusion $\chi^2(3.964) = 8{,}518$, $p = 0.03$; physical aggression $\chi^2(3.964) = 25{,}359$, $p < 0.001$; and relational $\chi^2(3.964) = 16{,}664$, $p < 0.001$. In verbal aggression, higher percentages of pride and indifference were found in those who admitted to being involved in bullying, but these were lower than attributions of shame, $\chi^2(3.964) = 30{,}916$, $p < 0.001$. Cramer's V values ranged from 0.09 to 0.17 (**Table 5**).

In schoolchildren who had admitted to being victims of bullying, there were only significant differences in the self-attributions of physical aggression, $\chi^2(3.964) = 10{,}059$, $p = 0.01$; and verbal aggression, $\chi^2(3.964) = 14{,}283$, $p = 0.003$. In both forms of bullying, higher percentages of attribution of shame were observed in those who had never been victims and of indifference in those who had been victims, according to the ASR (**Table 6**). Cramer's V values were between 0.01 and 0.12.

Moral Self-Attribution and Cycle of Schooling

As regards the educational cycle, significant differences were found in all the manifestations of bullying studied: exclusion

TABLE 2 | Percentages of moral hetero-attribution and forms of bullying of aggressors.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion (not involved)	299 (43.2%)	–	193 (27.9%)	–	183 (26.4%)	–	17 (2.5%)	–	692
Exclusion (involved)	93 (34.2%)		92 (33.8%)		77 (28.3%)		10 (3.7%)		272
Physical (not involved)	323 (48.1%)	3.0**	239 (35.6%)	−0.3	93 (13.8%)	−3.5**	17 (2.5%)	−0.2	672
Physical (involved)	110 (37.7%)	−3.0**	107 (36.6%)	0.3	67 (22.9%)	3.5**	8 (2.7%)	0.2	292
Indirect relational (not involved)	340 (55.1%)	3.4**	144 (23.3%)	−1.4	118 (19.1%)	−2.2*	15 (2.4%)	−1.2	617
Indirect relational (involved)	151 (43.6%)	−3.4**	95 (27.5%)	1.4	87 (25.1%)	2.2*	13 (3.8%)	1.2	346
Verbal (not involved)	289 (55.7%)	4.6**	151 (29.1%)	−0.4	76 (14.6%)	−4.5**	3 (0.6%)	−2.6**	519
Verbal (involved)	181 (40.7%)	−4.6**	135 (30.3%)	0.4	117 (26.3%)	4.5**	12 (2.7%)	2.6**	445

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

TABLE 3 | Percentages of moral attribution to others and the stage of schooling.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion	154	6.6**	37 (13.8%)	−6.7**	76	0.6	1	−2.8**	268
First stage	(57.5%)				(28.4%)		(0.4%)		
Exclusion	105	−3.8**	110	2.1*	101	2.0*	9	0.0	325
Second stage	(32.3%)		(33.8%)		(31.1%)		(2.8%)		
Exclusion	133	−2.4*	138	4.1**	83	−2.5*	17	2.7**	371
Third stage	(35.8%)		(37.2%)		(22.4%)		(4.6%)		
Physical	169	7.0**	55	−6.2**	42	−0.5	2	−2.2*	268
First stage	(63.1%)		(20.5%)		(15.7%)		0.7%)		
Physical	126	−2.7**	136	2.7**	52	−0.4	11	1.1	325
Second stage	(38.8%)		(41.8%)		(16.0%)		(3.4%)		
Physical	138	−3.8**	155	3.0**	66	0.8	12	1.0	371
Third stage	(37.2%)		(41.8%)		(17.8%)		(3.2%)		
Indirect relational	162	3.6**	44	−3.7**	54	−0.5	8	0.1	268
First stage	(60.4%)		(16.4%)		(20.1%)		(3.0%)		
Indirect relational	158	−1.1	86	0.8	73	0.6	8	−0.6	325
Second stage	(48.6%)		(26.5%)		(22.5%)		(2.5%)		
Indirect relational	171	−2.3*	109	2.6**	78	−0.1	12	0.5	371
Third stage	(46.2%)		(29.5%)		(21.1%)		(3.2%)		
Verbal	168	5.4**	59	−3.2**	38	−2.8**	3	−0.7	268
First stage	(62.7%)		(22.0%)		(14.2%)		(1.1%)		
Verbal	145	−1.8	104	1.1	71	1.0	5	0.0	325
Second stage	(44.6%)		(32.0%)		(21.8%)		(1.5%)		
Verbal	157	−3.2**	123	1.9	84	1.6	7	0.7	371
Third stage	(42.3%)		(33.2%)		(22.6%)		(1.9%)		

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

TABLE 4 | Percentages of moral attribution to others and gender.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion	216	1.1	126	−3.5**	153	2.2*	16	0.7	511
Boys	(42.3%)		(24.7%)		(29.9%)		(3.1%)		(100%)
Exclusion	176	−1.1	159	3.5**	107	−2.2*	11	−0.7	453
Girls	(38.9%)		(35.1%)		(23.6%)		(2.4%)		(100%)
Physical	248	2.4*	161	−3.0**	89	0.7	13	−0.1	511
Boys	(48.5%)		(31.5%)		(17.4%)		(2.5%)		(100%)
Physical	185	−2.4*	185	3.0**	71	−0.7	12	0.1	453
Girls	(40.8%)		(40.8%)		(15.7%)		(2.6%)		(100%)
Indirect relational	266	0.8	108	−2.8**	118	1.5	18	1.2	511
Boys	(52.2%)		(21.2%)		(23.1%)		(3.5%)		(100%)
Indirect relational	225	−0.8	131	2.8**	87	−1.5	10	−1.2	453
Girls	(49.7%)		(28.9%)		(19.2%)		(2.2%)		(100%)
Verbal	259	–	134	–	108	–	10	–	511
Boys	(50.7%)		(26.2%)		(21.1%)		(2.0%)		(100%)
Verbal	211	–	152	–	85	–	5	–	453
Girls	(46.6%)		(33.6%)		(18.8%)		(1.1%)		(100%)

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

$\chi^2(6.964) = 50{,}601$, $p < 0.001$; physical $\chi^2(6.964) = 37{,}116$, $p < 0.001$; relational $\chi^2(6.964) = 46{,}602$, $p < 0.001$; and verbal $\chi^2(6.964) = 37{,}686$, $p < 0.001$. The ASR showed that shame was the most commonly identified emotion in the first stage of schooling for all forms of bullying. In contract, blame was the least commonly recognized emotion the first stage for all

TABLE 5 | Percentages of moral self-attribution of aggressors and those not involved.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion (not involved)	283 (40.9%)	2.2*	196 (28.3%)	0.5	202 (29.2%)	−2.5*	11 (1.6%)	−1.0	692 (100%)
Exclusion (involved)	90 (33.1%)	−2.2*	73 (26.8%)	−0.5	102 (37.5%)	2.5*	7 (2.6%)	1.0	272 (100%)
Physical (not involved)	312 (46.4%)	4.6**	245 (36.5%)	−1.6	105 (15.6%)	−3.4**	10 (1.5%)	−1.3	672 (100%)
Physical (involved)	89 (30.5%)	−4.6**	122 (41.8%)	1.6	73 (25.0%)	3.4**	8 (2.7%)	1.3	292 (100%)
Indirect relational (not involved)	336 (54.5%)	3.7**	138 (22.4%)	−0.7	129 (20.9%)	−3.5**	14 (2.3%)	−0.3	617 (100%)
Indirect relational (involved)	146 (42.1%)	−3.7**	84 (24.2%)	0.7	108 (31.1%)	3.5**	9 (2.6%)	0.3	347 (100%)
Verbal (not involved)	271 (52.2%)	3.7**	140 (27.0%)	0.7	105 (20.2%)	−3.7**	3 (0.6%)	−3.7**	519 (100%)
Verbal (involved)	180 (40.4%)	−3.7**	111 (24.9%)	−0.7	136 (30.6%)	3.7**	18 (4.0%)	3.7**	445 (100%)

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

TABLE 6 | Percentages of moral self-attribution of victims and those not involved.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion (not involved)	128 (37.6%)	–	93 (27.4%)	–	117 (34.4%)	–	2 (0.6%)	–	340 (100%)
Exclusion (involved)	245 (39.3%)	–	176 (28.2%)	–	187 (30.0%)	–	16 (2.6%)	–	624 (100%)
Physical (not involved)	155 (46.4%)	2.2*	128 (38.3%)	0.1	48 (14.4%)	−2.4*	3 (0.9%)	−1.6	334 (100%)
Physical (involved)	246 (39.0%)	−2.2*	239 (37.9%)	−0.1	130 (20.6%)	2.4*	15 (2.4%)	1.6	630 (100%)
Indirect relational (not involved)	167 (52.0%)	–	79 (24.6%)	–	68 (21.2%)	–	7 (2.2%)	–	321 (100%)
Indirect relational (involved)	315 (49.0%)	–	143 (22.2%)	–	169 (26.3%)	–	16 (2.5%)	–	643 (100%)
Verbal (not involved)	136 (55.1%)	3.0**	65 (26.3%)	0.1	41 (16.6%)	−3.5**	5 (2.0%)	−0.2	247 (100%)
Verbal (involved)	315 (43.9%)	−3.0**	186 (25.9%)	−0.1	200 (27.9%)	3.5**	16 (2.2%)	0.2	717 (100%)

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

manifestations of bullying, although it was identified increasingly more in the higher cycles for the forms of exclusion and physical bullying. In verbal bullying, indifference and pride were commonly identified in the last educational stage (**Table 7**). Cramer's *V* values ranged from 0.13 to 0.16.

Self-Attribution and Gender: Gender Differences in the Moral Attribution of Bullying

As regards gender, significant differences were found in the sample studied, as seen below: after seeing the sketch on exclusion, boys generally made attributions of indifference, while girls mainly attributed blame $\chi^2(3.964) = 29{,}474$, $p < 0.001$; for physical aggression, boys tended to mention pride $\chi^2(3.964) = 9{,}017$, $p = 0.02$, as they did in the case of the stick-figure cartoons showing relational aggression, $\chi^2(3.964) = 11{,}729$, $p = 0.008$. Cramer's *V* values were between 0.09 and 0.17. No significant differences were found for the cartoon of verbal aggression (**Table 8**).

DISCUSSION

After >30 years of research on bullying, today it is known that affective and moral life is deeply involved in this phenomenon. The interpretation that school children make of their own and other feelings reveals the moral conception that is built in the years of primary school. The ethical schemes move the social climate of the school and, in a world in crisis of solidarity and commitment to the needs of health and social welfare (Giorgi et al., 2015; Mucci et al., 2016), the construction of the moral criterion can be at risk. This work shows that bullying is a social phenomenon which is prevalent even in the early years of primary education, although it does not necessarily manifest itself in very serious cases (García et al., 2015). In general, the moral criterion is different when you have been a victim than when you have not. This implies a selfishness and a lack of moral sensitivity in school children that only makes them appreciate more ethically what happens to the victim when they have been previously victimized. What is clear is that most boys and girls at these ages recognize the phenomenon of bullying and assign moral emotions to the victims. This study has attempted to demonstrate that the moral attribution made by primary school children for the four commonest types of bullying (verbal, physical, relational, and social exclusion) depends to a large extent on the perspective from which they view and analyze the phenomenon. They adopt certain roles when they see the stick-figure cartoons representing these types of behavior, and this has a decisive influence on what they think the victim of bullying feels. We have analyzed the moral self-attributions and attributions to others made by primary school students for the victims of bullying in order to check whether the differences depend on the role they take (victim, aggressor, or not involved). Similarly, we have tried to describe the variations

TABLE 7 | Percentages of moral self-attribution and the educative cycle.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion	147	6.4**	40	−5.6**	78	−1.0	3	−1.1	268
First stage	(54.9%)		(14.9%)		(29.1%)		(1.1%)		(100%)
Exclusion	100	−3.6**	112	3.2**	107	0.7	6	0.0	325
Second stage	(30.8%)		(34.5%)		(32.9%)		(1.8%)		(100%)
Exclusion	126	−2.4*	117	2.0*	119	0.3	9	1.0	371
Third stage	(34.0%)		(31.5%)		(32.1%)		(2.4%)		(100%)
Physical	149	5.5**	67	−5.2**	49	−0.1	3	−1.1	268
First stage	(55.6%)		(25.0%)		(18.3%)		(1.1%)		(100%)
Physical	122	−1.8	136	1.7	62	0.3	5	−0.5	325
Second stage	(37.5%)		(41.8%)		(19.1%)		(1.5%)		(100%)
Physical	130	−3.3**	164	3.1**	67	−0.3	10	1.5	371
Third stage	(35.0%)		(44.2%)		(18.1%)		(2.7%)		(100%)
Indirect relational	180	6.6**	40	−3.7**	44	−3.7**	4	−1.1	268
First stage	(67.2%)		(14.9%)		(16.4%)		(1.5%)		(100%)
Indirect relational	147	−2.1*	86	1.8	86	1.0	6	−0.8	325
Second stage	(45.2%)		(26.5%)		(26.5%)		(1.8%)		(100%)
Indirect relational	155	−4.0**	96	1.7	107	2.4*	13	1.8	371
Third stage	(41.8%)		(25.9%)		(28.8%)		(3.5%)		(100%)
Verbal	159	4.8**	57	−2.1*	52	−2.5*	0	−2.9**	268
First stage	(59.3%)		(21.3%)		(19.4%)		(0.0%)		(100%)
Verbal	147	−0.7	93	1.3	80	−0.2	5	−1.0	325
Second stage	(45.2%)		(28.6%)		(24.6%)		(1.5%)		(100%)
Verbal	145	−3.8**	101	0.7	109	2.5*	16	3.6**	371
Third stage	(39.1%)		(27.2%)		(29.4%)		(4.3%)		(100%)

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

TABLE 8 | Percentages of moral self-attribution and gender.

	Shame		Guilt		Indifference		Pride		Total
	n (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)	ASR	*n* (%)
Exclusion	205	1.0	107	−5.1**	188	3.7*	11	0.7	511
Boys	(40.1%)		(20.9%)		(36.8%)		(2.2%)		(100%)
Exclusion	168	−1.0	162	5.1**	116	−3.7*	7	−0.7	453
Girls	(37.1%)		(35.8%)		(25.6%)		(1.5%)		(100%)
Physical	207	−0.7	184	−1.4	106	1.9	14	2.1*	511
Boys	(40.5%)		(36.0%)		(20.7%)		(2.7%)		(100%)
Physical	194	0.7	183	1.4	72	−1.9	4	−2.1*	453
Girls	(42.8%)		(40.4%)		(15.9%)		(0.9%)		(100%)
Indirect relational	266	1.4	111	−1.0	115	−1.6	19	2.9**	511
Boys	(52.1%)		(21.7%)		(22.5%)		(3.7%)		(100%)
Indirect relational	216	−1.4	111	1.0	122	1.6	4	−2.9**	453
Girls	(47.7%)		(24.3%)		(26.9%)		(0.9%)		(100%)
Verbal	247	–	120	–	131	–	13	–	511
Boys	(48.3%)		(23.5%)		(25.6%)		(2.5%)		(100%)
Verbal	204	–	131	–	110	–	8	–	453
Girls	(45.0%)		(28.9%)		(24.3%)		(1.8%)		(100%)

**Adjusted standardized residuals ≥1.96. **Adjusted standardized residuals ≥2.58.*

that seem to exist depending on the participants' educational stage and gender.

The results show that most primary school students admit to having been involved, occasionally, in situations of verbal, physical, relational, and exclusion bullying. All of them recognize the situations, and 8 out of 10 acknowledge that they have been involved at some time in the behavior shown in the stick-figure cartoons. They tell us that verbal and relational aggression are

the commonest forms of bullying in primary schools. These results are similar to those found in previous studies where self-report instruments were used (Zych et al., 2015; López-Castedo et al., 2018). The procedure used in this study let go deeper in the way of thinking and moral attribution of children aged 6–8 years, about whom there is little information available, mainly because they have only just learnt how to read or write. We may confirm from these results, however, that bullying in its simplest and most characteristic forms occurs frequently at these ages. In fact, most of them affirm to have previous experience of being victimized, and many have experience in using verbal, physical, relational aggression, or exclusion against one of their peers. Primary school children recognize that this behavior entails a moral transgression, but so far it has been difficult to explore these moral attitudes in detail, for many different reasons, one of them is the natural cognitive egocentricity existent at this age. The use of stick-figure cartoons, in which it is easy to externalize behavior where there is a clear transgressor, allows them to express their moral attributions and analyze the emotional shades of feeling they are able to recognize in the victim (Gutzwiller-Helfenfinger et al., 2010).

The commonest moral attributions made by primary school students about the emotions of the victims of bullying were shame and guilt, which is in line with previous work (Caurcel and Almeida, 2008). However, their recognition of these moral emotions is significantly affected when schoolchildren have had personal experiences in bullying. Children who admitted to having played the role of aggressor tended to produce less attributions of shame and more emotional attribution of indifference to the pain felt by the victim, except in the case of social exclusion. Gasser and Keller (2009), Menesini et al. (2003), and Perren et al. (2012) already recognized a greater moral disengagement in schoolchildren who admitted to being aggressors of their peers. The results presented therefore show a certain disengagement in the moral interpretation and recognition of the victim's pain in cases of children with experience as an aggressor, even in cases where this experience was not either very prolonged or very serious. This may be because being aggressor is related with low levels of moral sensitivity. Perhaps the denial of guilt enables them to avoid emotional discomfort – or shame – when faced with these types of moral transgressions. On the other hand, students who admitted to having occasionally been victims of the kind of bullying situations shown in the stick-figure cartoons (verbal, physical, relational, and exclusion aggression) tended to make the same moral attributions as those who had never been through such an experience.

When schoolchildren were asked to put themselves in the victim's position (self-attribution), there was a greater feeling of indifference among those who admitted to being experienced aggressors in bullying, even when it referred to occasions where they had not been involved. These differences were significant in the case of aggressors for all forms of violence. On the other hand, among those who admitted to having been bullied, the differences were significant in the attributions of verbal and physical aggression, but not in the relational ones. It seems, therefore, that experience of having been bullied is linked to the attribution of indifference, at least in the commonest and most direct forms of bullying. This differs with the results in attributions to others, where no emotional difference was observed between victims and non-victims of bullying. These results could imply that when it comes to putting oneself in the victim's position, the viewpoint of those who have previously been victims is morally distorted, allowing them to distance themselves from the pain they might be suffering, at least in forms of direct violence (verbal and physical). Similar reflections were already mentioned in the studies by Caurcel and Almeida (2008) in which the use of cognitive distortions to justify the transgression is interpreted in terms of keeping up positive self-esteem, neutralizing guilt and avoiding cognitive and moral dissonance when faced with an act which harms others, and it allows the victims to minimize or deny their suffering. As regards the second objective, we looked at the emotional attributions of the three educational stages that make up primary education. The main moral emotion in the first stage was shame, although this tendency changed to guilt as the children got older. Both emotions reflect the recognition and assumption of sociomoral values and norms (Malti et al., 2013b), but guilt clearly requires more complex cognitive and emotional processes and was therefore more common in the later stages. This increase of guilt is linked also to a higher individual internationalization of own moral norms (Kochanska et al., 2002). Particularly, guilt is present in relational aggression, physical and social exclusion, and hardly appears at all in verbal aggression, which seems to stimulate very little moral attribution in schoolchildren. The frequent use of language riddled with insults and swear words may also blur their ethical qualification of this behavior. However, physical and relational aggression and social exclusion certainly do trigger a sense of guilt for the victim's feelings, especially from 8 years old upward (Garland et al., 2017; Thornberg and Wänström, 2018). In a similar way, the older children assigned more pride, in cases of bullying, than the younger ones. The attribution of feelings of pride to acts of bullying obviously requires a moral disengagement which may result more from socialization and habituation to the phenomena of bullying. These results differ from those found by Malti et al. (2013a), who showed that there were no significant differences in the moral attributions about bullying according to age, although the children studied by Malti et al. (2013a) were of secondary school age (12–16 years). It may be that the understanding of the immoral component of social exclusion always stays with us once it has been acquired, which would account for the differences between primary and secondary schoolchildren. In the case of emotional self-attribution, the results show higher percentages of shame in the first educational stages and an increased sense of blame in the third stage, as well as in attributions to others. In self-attributions, however, there seems to be a greater moral disengagement from the relational and verbal forms of bullying and increased indifference among the older children.

As far as the differences between boys and girls are concerned, the attributions to others clearly show that girls recognize higher percentages of guilt in the victims for all kinds of bullying. Other studies (Menesini et al., 2003; Gini, 2008; Roos et al., 2011) have pointed out that girls attribute blame to the aggressors, but in this work, we have observed that they also blame the

victims. This discovery is rather difficult to interpret, although other authors have understood it as an expression of stereotypes and gender biases (Walter and Burnaford, 2006; Else-Quest et al., 2012). In boys, exclusion is related with attributions of shame when bullying involves physical aggression, perhaps because males associate the humiliation suffered by the victim of physical bullying with shame. Previous studies highlight this relation as a result of the influence of male role stereotypes (Else-Quest et al., 2012).

As regards self-attribution, the results are similar to those found in attributions to others for exclusion: in other words, girls attribute more guilt and boys more indifference; as shown in other studies, boys showed more pride when they make a moral interpretation of physical and relational bullying (Menesini et al., 2003; Gini, 2008; Roos et al., 2011).

In short, in primary schoolchildren, having previous experiences as aggressor were linked to less attributions of shame and greater indifference in both and self- and other-attributions. This could be due to an attempt to justify the damage they are causing in their peers (moral disengagement). While the previous experience as a victim was not related to significant differences in the moral attributions in children. Likewise, this study is in line with other studies that show an increase in guilt and a decrease in shame with the age, while by gender girls show more emotions of guilt and boys of indifference and pride. This study highlights the risks of setting a moral criterion based on the lack of solidarity and sensitivity to the suffering of others of school children.

CONCLUSION

This research has used the novel methodology of an interview and a questionnaire supported by stick-figure cartoons representing the four most frequent types of bullying (verbal, physical, relational, and social exclusion). It allowed us to analyze the attributions of moral emotions made by primary schoolchildren for the feelings experienced by a victim of bullying, from the age of 6 years, an age which up to now has been the object of very little research. It has been shown that primary school children interpret and evaluate aggressive bullying behavior as a moral transgression which triggers emotions such as guilt, shame, and indifference and even the pride of the aggressor. It is also clear that moral attributions of the phenomenon depend on one's perspective, especially when the children have experience of being involved. Being an aggressor toward one's peers, for instance, significantly biases the moral criterion toward the suppression of emotions such as shame, while being a victim leads to emotional indifference or disengagement from the harm they may be suffering, mainly in direct forms of bullying.

The limitations of this study should be taken into account in future research: firstly, we have not considered the frequency of violent behavior when defining victims and aggressors; in addition, the size of the effects of association between variables is rather low. It may be because bullying is a complex behavior and different variables are related with it. Other variables like peer support or antibullying programs in schools could be interesting to be considered in future studies to deep in this violent dynamic. However, this work represents important progress in understanding the moral impact of a morally unjustifiable phenomenon, as well as in how young schoolchildren understand it, showing that the experience of having been involved in bullying biases this moral interpretation toward disengagement from the victim's feelings. Future research should continue to explore our understanding of these emotional attributions through the use of methodologies which may allow to pinpoint more exactly the nature of the ethical inference made by schoolchildren of a social problem which affects them in their daily life at school. The study of moral emotions attributions in bystander could be of interest in future studies.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

This research was approved by the Ethic Committee for Bioethics and Biosafety at the University of Córdoba. We asked the children's families for their consent in writing to participate in the study using a printed letter. The confidentiality, anonymity, and voluntary nature of the study were guaranteed throughout the process.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

FUNDING

ER and RO-R were supported by the Ministerio de Industria, Economía y Competitividad, Spain (I+D+i, project PSI2016-74871-R).

ACKNOWLEDGMENTS

We thank the schools and the children who participated in this study.

REFERENCES

Arsenio, W. (2014). "Moral emotion attributions and aggression," in *Handbook of Moral Development*, eds M. Killen and J. Smetana (New York, NY: Psychology Press), 235–255.

Barón, M. J. O., Bilbao, I. E., Urquijo, P. A., López, S. C., and Jimeno, A. P. (2018). Moral emotions associated with prosocial and antisocial behavior in school-aged children. *Psicothema* 30, 82–88. doi: 10.7334/psicothema2016.143

Bjärehed, M., Thornberg, R., Wänström, L., and Gini, G. (2019). Mechanisms of moral disengagement and their associations with indirect

bullying, direct bullying, and pro-aggressive bystander behavior. *J. Early Adolesc.* 1–28.

Bosacki, S. L., and Moore, C. (2004). Preschoolers' understanding of simple and complex emotions: links with gender and language. *Sex Roles* 50, 659–675. doi: 10.1023/b:sers.0000027568.26966.27

Buon, M., Seara-Cardoso, A., and Viding, E. (2016). Why (and how) should we study the interplay between emotional arousal, theory of mind, and inhibitory control to understand moral cognition? *Psychon. Bull. Rev.* 23, 1660–1680. doi: 10.3758/s13423-016-1042-5

Carrera-Fernández, M. V., Cid-Fernández, X. M., Almeida, A., González-Fernández, A., and Lameiras-Fernández, M. (2018). Actitudes hacia la diversidad cultural de adolescentes de secundaria españoles y portugueses: influencia de la heteronormatividad y la desconexión moral hacia el bullying. *Rev. Psicodidáctica* 23, 17–25. doi: 10.1016/j.psicod.2017.07.004

Caurcel, M. J., and Almeida, A. (2008). La perspectiva moral de las relaciones de victimización entre iguales: un análisis exploratorio de las atribuciones de adolescentes españoles y portugueses. *Eur. J. Educ. Psychol.* 1, 51–68.

Eisenberg, N. (2000). Emotion, regulation and moral development. *Ann. Rev. Psychol.* 39, 349–371.

Else-Quest, N. M., Higgins, A., Allison, C., and Morton, L. C. (2012). Gender differences in self-conscious emotional experience: a meta-analysis. *Psychol. Bull.* 138:947. doi: 10.1037/a0027930

Ferguson, T., Stegge, H., Eyre, H., Volmer, R., and Asbaker, H. (2000). Context effects and the (mal) adaptative nature of guilt and shame in children. *Gene. Soc. Gen. Psychol. Monogr.* 126, 319–345.

Garaigordobil, M., Bernaras, E., and Jaureguizar, J. (2019). Evaluación de un programa universal de prevención de la depresión en niños y niñas de educación primaria. *Rev. Psicología Educ.* 14, 87–98. doi: 10.23923/rpye2019.02.174

García, C., Romera, E. M., and Ortega-Ruiz, R. (2015). Explicative factors of face-to-face harassment and cyberbullying in a sample of primary students. *Psicothema* 27, 347–353. doi: 10.7334/psicothema2015.35

Garland, T. S., Policastro, C., Richards, T. N., and Miller, K. S. (2017). Blaming the victim: university student attitudes toward bullying. *J. Aggress. Maltreat. Trauma.* 26, 69–87. doi: 10.1080/10926771.2016.1194940

Gasser, L., and Keller, M. (2009). Are the competent the morally good? perspective taking and moral motivation of children involved in bullying. *Soc. Dev.* 18, 798–816. doi: 10.1111/j.1467-9507.2008.00516.x

Gini, G. (2008). Italian elementary and middle school students' blaming the victim of bullying and perception of school moral atmosphere. *Elem. Sch. J.* 108, 335–354. doi: 10.1086/528975

Gini, G., Pozzoli, T., and Hymel, S. (2014). Moral disengagement among children and youth: a meta-analytic review of links to aggressive behavior. *Aggress. Behav.* 40, 56–68. doi: 10.1002/ab.21502

Giorgi, G., Arcangeli, G., Mucci, N., and Cupelli, V. (2015). Economic stress in the workplace: the impact of fear of the crisis on mental health. *Work* 51, 135–142. doi: 10.3233/WOR-141844

Gutzwiller-Helfenfinger, E., Gasser, L., and Malti, T. (2010). "Moral emotions and moral judgments in children's narratives: comparing real-life and hypothetical transgressions," in *New Directions for Child and Adolescent Development*, eds B. Latzko and T. Malti, (San Francisco, CA: Jossey-Bass), 11–31. doi: 10.1002/cd.273

Herrera, M., Romera, E. M., Ortega- Ruiz, R., and Gómez- Ortiz, O. (2016). Influence of social motivation, self-perception of social efficacy and normative adjustment in the peer setting. *Psicothema* 28, 32–39. doi: 10.7334/psicothema2015.135

Huitsing, G., and Monks, C. P. (2018). Who victimizes whom and who defends whom? a multivariate social network analysis of victimization, aggression, and defending in early childhood. *Aggress. Behav.* 44, 394–405. doi: 10.1002/ab.21760

Kochanska, G., Gross, J. N., Lin, M.-H., and Nichols, K. E. (2002). Guilt in young children: development, determinants, and relations with a broader system of standards. *Child Dev.* 73, 461–482. doi: 10.1111/1467-8624.00418

Kohlberg, L. (1984). *The Psychology of Moral Development: Volume 2. Essays on Moral Development*. New York, NY: Harper and Row.

Kokkinos, C. M., and Kipritsi, E. (2018). Bullying, moral disengagement and empathy: exploring the links among early adolescents. *Educ. Psychol.* 38, 535–552. doi: 10.1080/01443410.2017.1363376

Krettenauer, T., and Casey, V. (2015). Moral identity development and positive moral emotions: differences involving authentic and hubristic pride. *Identity* 15, 173–187. doi: 10.1080/15283488.2015.1023441

Krusell, M. K., Hohwü, L., Bjereld, Y., Madsen, K. B., and Obel, C. (2019). The impact of childhood bullying on the daily lives of Nordic children and young adolescents. *Acta paediatr.* 108, 1096–1102. doi: 10.1111/apa.14642

Kutnick, P., Brighi, A., Avgitidou, S., Genta, M. L., Hännikäinen, M., Karlsson-Lohmander, M., et al. (2007). The role and practice of interpersonal relationships in European early education settings: sites for enhancing social inclusion, personal growth and learning? *Eur. Early Child. Educ. Res. J.* 15, 379–406. doi: 10.1080/13502930701679429

Lagattuta, K., Wellman, H., and Flavell, J. (1997). Preschooler's understanding of the link between thinking and feeling: cognitive cuing emotional change. *Child Dev.* 68, 1081–1104. doi: 10.1111/j.1467-8624.1997.tb01986.x

López-Castedo, A., Álvarez, D., Domínguez, J., and Álvarez, E. (2018). Expressions of school violence in adolescence. *Psicothema* 30, 395–400. doi: 10.7334/psicothema2018.130

Malti, T., and Dys, S. P. (2015). A developmental perspective on moral emotions. *Topoi* 34, 453–459. doi: 10.1007/s11245-013-9224-5

Malti, T., Keller, M., and Buchmann, M. (2013b). Do moral choices make us feel good? the development of adolescents' emotions following moral decision making. *J. Res. Adolesc.* 23, 389–397. doi: 10.1111/jora.12005

Malti, T., Eisenberg, N., Kim, H., and Buchmann, M. (2013a). Developmental trajectories of sympathy, moral emotion attributions, and moral reasoning: the role of parental support. *Soc. Dev.* 22, 773–793.

Malti, T., and Krettenauer, T. (2013). The relation of moral emotion attributions to prosocial and antisocial behavior: a meta-analysis. *Child Dev.* 84, 397–412. doi: 10.1111/j.1467-8624.2012.01851.x

Mazzone, A., Camodeca, M., and Salmivalli, C. (2016). Interactive effects of guilt and moral disengagement on bullying, defending and outsider behavior. *J. Moral Educ.* 45, 419–432. doi: 10.1080/03057240.2016.1216399

Menesini, E., Palladino, B. E., and Nocentini, A. (2015). Emotions of moral disengagement, class norms, and bullying in adolescence: a multilevel approach. *Merrill Palmer Q.* 61, 124–143.

Menesini, E., Sánchez, V., Fonzi, A., Ortega, R., Costabile, A., and Lo Feudo, G. (2003). Moral emotions and bullying: a cross-national comparison of differences between bullies, victims and outsiders. *Aggres. Behav.* 29, 515–530. doi: 10.1002/ab.10060

Monks, C. P., and Smith, P. K. (2006). Definitions of bullying: age differences in understanding of the term, and the role of experience. *Br. J. Dev. Psychol.* 24, 801–821. doi: 10.1348/026151005x82352

Mucci, N., Giorgi, G., Roncaioli, M., Perez, J. F., and Arcangeli, G. (2016). The correlation between stress and economic crisis: a systematic review. *Neuropsychiatr. Dis. Treat.* 12, 983–993. doi: 10.2147/NDT.S98525

Naveed, S., Waqas, A., Aedma, K. K., Afzaal, T., and Majeed, M. H. (2019). Association of bullying experiences with depressive symptoms and psychosocial functioning among school going children and adolescents. *BMC Res. Notes* 12:198. doi: 10.1186/s13104-019-4236-x

Newman, B., and Newman, P. (2010). *Development Through Life: A Psychosocial Approach*. New York, NY: Wadsworth Cengage Learning.

Nunner-Winkler, G., and Sodian, B. (1988). Children's understanding of moral emotions. *Child Dev.* 59, 1323–1338. doi: 10.2307/1130495

Ortega, R. (2010). *Agresividad Injustificada, Bullying y Violencia Escolar*. Madrid: Alianza Editorial.

Ortega-Ruiz, R., Sánchez Jiménez, V., and Menesini, E. (2002). Violencia entre iguales y desconexión moral: un análisis transcultural. *Psicothema* 14, 37–49.

Peplak, J., Song, J. H., Colasante, T., and Malti, T. (2017). Only you can play with me!" Children's inclusive decision making, reasoning, and emotions based on peers' gender and behavior problems. *J. Exp. Child Psychol.* 162, 134–148. doi: 10.1016/j.jecp.2017.04.019

Perren, S., Gutzwiller-Helfenfinger, E., Malti, T., and Hymel, S. (2012). Moral reasoning and emotion attributions of adolescent bullies, victims, and bully-victims. *Br. J. Dev. Psychol.* 30, 511–530. doi: 10.1111/j.2044-835X.2011.02059.x

Piaget, J. (1932). *The Moral Development of the Child*. London: Kegan Paul.

Pozzoli, T., Gini, G., and Altoè, G. (2017). Associations between facial emotion recognition and young adolescents' behaviors in bullying. *PloS One* 12:e0188062. doi: 10.1371/journal.pone.0188062

Romera, E. M., Casas, J. A., Gómez-Ortiz, O., and Ortega-Ruiz, R. (2019). Moral domain as a risk and protective factor against bullying. An integrating

perspective review on the complexity of morality. *Aggress. Violent Behav.* 45, 75–82. doi: 10.1016/j.avb.2018.07.005

Romera, E. M., Gómez-Ortiz, O., and Ortega-Ruiz, R. (2016). The mediating role of psychological adjustment between peer victimization and social adjustment in adolescence. *Front. Psychol.* 7:1749. doi: 10.3389/fpsyg.2016.01749

Roos, S., Salmivalli, C., and Hodges, E. (2011). Person x context effects on anticipated moral emotions following aggression. *Soc. Dev.* 20, 685–702. doi: 10.1111/j.1467-9507.2011.00603.x

Smith, P. K., Cowie, H., Olafsson, R. F., and Liefooghe, A. P. (2002). Definitions of bullying: a comparison of terms used, and age and gender differences, in a fourteen–country international comparison. *Child Dev.* 73, 1119–1133. doi: 10.1111/1467-8624.00461

Singleton, R. A., and Straits, B. C. (2004). *Approaches to Social Research*. New York, NY: Oxford University Press.

Stuewig, J., Tangney, J. P., Heigel, C., Harty, L., and McCloskey, L. (2010). Shaming, blaming, and maiming: functional links among the moral emotions, externalization of blame, and aggression. *J. Res. Pers.* 44, 91–102. doi: 10.1016/j.jrp.2009.12.005

Tangney, J. P., Stuewig, J., and Mashek, D. J. (2007). Moral emotions and moral behavior. *Ann. Rev. Psychol.* 58, 345–372.

Thornberg, R., and Wänström, L. (2018). Bullying and its association with altruism toward victims, blaming the victims, and classroom prevalence of bystander behaviors: a multilevel analysis. *Soc. Psychol. Educ.* 21, 1133–1151. doi: 10.1007/s11218-018-9457-7

Tracy, J. L., and Robins, R. W. (2006). Appraisal antecedents of shame and guilt: support for a theoretical model. *Pers. soc. psychol. Bull.* 32, 1339–1351. doi: 10.1177/0146167206290212

Trentacosta, C. J., and Fine, S. E. (2010). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: a meta-analytic review. *Soc. Dev.* 19, 1–29. doi: 10.1111/j.1467-9507.2009.00543.x

Turiel, E. (1983). *The Development of Social Knowledge: Morality and Convention*. Cambridge: Cambridge University Press.

Valles, M. (1997). *Técnicas Cualitativas de Investigación Social: Reflexión Metodológica y Práctica Profesional*. Madrid: Síntesis.

Walter, J. L., and Burnaford, S. M. (2006). Developmental changes in adolescents' guilt and shame: the role of family climate and gender. *North Am. J. Psychol.* 8, 321–338.

Zych, I., Ortega-Ruiz, R., and Del Rey, R. (2015). Systematic review of theoretical studies on bullying and cyberbullying: facts, knowledge, prevention, and intervention. *Aggress. Violent Behav.* 23, 1–21. doi: 10.1016/j.avb.2015.10.001

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 31 July 2019
doi: 10.3389/fpsyg.2019.01752

Individual and Classroom Social-Cognitive Processes in Bullying: A Short-Term Longitudinal Multilevel Study

Robert Thornberg[1], Linda Wänström[2] and Shelley Hymel[3]*

[1] Department of Behavioral Sciences and Learning, Linköping University, Linköping, Sweden, [2] Department of Computer and Information Science, Linköping University, Linköping, Sweden, [3] Educational and Counselling Psychology, and Special Education, The University of British Columbia, Vancouver, BC, Canada

The aim of this study was to examine whether individual and classroom collective social-cognitive processes (moral disengagement and self-efficacy) were associated with bullying perpetration among schoolchildren. An additional aim was to examine whether changes in these processes from grade 4 (Time 1) to grade 5 (Time 2) were associated with a change in bullying perpetration. Self-reported survey data were collected from 1,250 Swedish students from 98 classrooms. Results of multilevel analysis indicated that individual and classroom collective moral disengagement (CMD) were positively associated with bullying, and defender self-efficacy (DSE) was negatively associated with bullying. The effect of changes in individual moral disengagement on changes in bullying was positive, and the effects of changes in DSE and classroom collective efficacy on changes in bullying were negative. Thus, the findings demonstrate the changeability of moral disengagement, DSE and collective efficacy over time, and how these changes are linked to changes in bullying perpetration.

Keywords: bullying, moral disengagement, defender self-efficacy, collective efficacy, social-cognitive theory, peer influence

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain

Reviewed by:
René Veenstra, University of Groningen, Netherlands
Hong Jiang, Georgia State University, United States

****Correspondence:***
Robert Thornberg
robert.thornberg@liu.se

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *28 February 2019*
Accepted: *15 July 2019*
Published: *31 July 2019*

Citation:
Thornberg R, Wänström L and Hymel S (2019) Individual and Classroom Social-Cognitive Processes in Bullying: A Short-Term Longitudinal Multilevel Study. Front. Psychol. 10:1752. doi: 10.3389/fpsyg.2019.01752

INTRODUCTION

Bullying reflects a "systematic abuse of power in interpersonal relationships" (Rigby, 2008, p. 22) characterized by repeated aggression toward someone in a less powerful situation (Olweus, 2010). Bullying victimization in school is associated with a greater risk of depression, suicidal ideation and behavior, anxiety, and psychosomatic problems in childhood and adolescence (Gini and Pozzoli, 2013; Holt et al., 2015; Silberg et al., 2016), and also predicts mental health problems in adulthood (Copeland et al., 2013; Klomek et al., 2015; Lereya et al., 2015; Evans-Lacko et al., 2017; see McDougall and Vaillancourt, 2015 for a review). Although children, in general, judge bullying as morally wrong by referring to the harm it causes its victims (Thornberg, 2010; Thornberg et al., 2016), bullying still takes place among them at school (Craig et al., 2009; Chester et al., 2015), which indicates a gap between moral standards and actions. As an essentially immoral behavior with demonstrated links to delinquency and other antisocial behavior in adulthood (Bender and Lösel, 2011; Farrington and Ttofi, 2011; Olweus, 2011; Klomek et al., 2015), the presence of school

bullying is a failure of moral education (Hymel et al., 2010), and a violation against the United Nations Conventions on the Rights of the Child (Lundy, 2012).

Social-Cognitive Theory of Moral Agency

According to social-cognitive theory (Bandura, 1999, 2002, 2016), the exercise of moral agency involves the power to refrain from inhumane behavior (inhibitive morality) and the power to behave humanely (proactive morality). It includes the acquisition of moral standards and reasoning, but that is not enough. Moral agency also involves motivational and self-regulatory mechanisms in order to translate conceptions of morality into moral action. Moral self-regulation includes self-monitoring and self-evaluation linked with personal moral standards and environmental circumstances. In self-evaluation, individuals react to themselves with either self-approval for behaving in accordance with their moral standards or self-sanctions, such as feelings of guilt and remorse, for violating them. People's beliefs in their capacity to conduct a certain moral action successfully will further influence their motivation either to act or to inhibit action, depending on how much they believe in their capacity to perform with success (also see Bandura, 1997).

A comprehensive theoretical understanding of bullying perpetration cannot be reduced to the individual characteristics of the bully, and has to include the social context (Hymel et al., 2015; Swearer et al., 2012; Salmivalli and Peets, 2018). In understanding school bullying, the most immediate context is the classroom group. Considering bullying as a group phenomenon, several scholars have emphasized the importance of examining group processes underlying bullying, including classroom dynamics, peer norms, peer socialization, group influences, collective efficacy, and peer pressure (for reviews, see Salmivalli, 2010; Hymel et al., 2015). With reference to social-cognitive theory (Bandura, 1986, 1997, 2002, 2016), how people think and act in relation to social and moral issues needs to be understood as an ongoing result of the interplay between individual and contextual factors. "Moral agency is socially situated and exercised in particularized ways depending on the life conditions under which people transact their affairs. Social cognitive theory, therefore, adopts an interactionist perspective to morality. Moral actions are the products of the interplay of personal and social influences" (Bandura, 2002, p. 115). In their 1-year longitudinal social network analysis, Caravita et al. (2014) showed that students in early adolescence, but not in late childhood, became more similar to their friends in their proneness to morally disengage. They also found that the early adolescents became more similar to their friends in bullying (Sijtsema et al., 2014). Whereas these two studies examined possible peer influence at the friendship network level, the present study was designed to examine possible social influence at the classroom level. More precisely, we focus on social-cognitive correlates at the individual and classroom level in relation to bullying perpetration.

Individual Factors

Bandura (1999, 2002, 2016) proposed the concept *moral disengagement* as one possible factor in understanding the links between moral standards and behavior. It refers to social and psychological maneuvers that deactivate self-regulation mechanisms, thereby reducing or disengaging self-sanctions against immoral conduct (see Hymel et al., 2010 for in-depth discussion). Examples of moral disengagement mechanisms include moral justification, diffusion of responsibility, cognitively distorting the harmful consequences, dehumanization, and victim blaming. Previous research has consistently shown that bullying is associated with greater moral disengagement (see Gini et al., 2014, for a meta-analysis). However, the vast majority of studies have used a cross-sectional design (e.g., Hymel et al., 2005; Gini et al., 2011; Caravita et al., 2012; Thornberg et al., 2015). Only a few longitudinal studies have examined the association between moral disengagement and bullying over time.

In a short-term longitudinal study of Australian adolescents, conducted by Barchia and Bussey (2011a), moral disengagement predicted aggression 8 months later. Similarly, Sticca and Perren (2015) found that initial levels of moral deficiencies (i.e., an index of high moral disengagement, low moral responsibilities, and weak feelings of remorse) predicted an increase in bullying perpetration over a 2-year period among Swiss adolescents. In line with these two longitudinal studies, Wang et al. (2017) demonstrated that moral disengagement predicted bullying perpetration 6 months later among American adolescents. Although social-cognitive theory assumes an interplay or a reciprocal influence between behavior, personal factors, and external environment (the so-called triadic codetermination process; Bandura, 1986, 1997, 2016), it is still unknown whether changes in moral disengagement are related to changes in bullying perpetration.

Moral agency also depends on the belief in one's capacity to act in accordance with moral standards (Bandura, 2016). The concept of *self-efficacy* refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Whereas high self-efficacy motivates action if the action is in line with personal standards and goals, low self-efficacy will inhibit action (Bandura, 1997). In peer aggression and bullying situations, *defender self-efficacy*, defined as the belief in one's capacities to intervene successfully in bullying or peer aggression to defend a victim (Thornberg et al., 2017), has been shown to be associated with greater defender behavior (Thornberg and Jungert, 2013; Doramajian and Bukowski, 2015; Peets et al., 2015; Thornberg et al., 2017), and less pro-bullying behavior (Thornberg and Jungert, 2013). Thus, children with high levels of defender self-efficacy (DSE) are more inclined to defend victims and less inclined to assist bullies or reinforce bullying by laughing or cheering on the bullies, which in turn indicates greater moral conduct in bullying situations. Of interest in the present study is whether and how DSE is related to bullying perpetration. Of additional interest is whether a *change* in DSE is associated with a *change* in bullying perpetration, as this has not yet been examined in the literature. Considering that DSE is a self-concept that makes students more inclined to defend victims and less inclined to assist bullies and reinforce bullying, it is plausible that high DSE indicates an anti-bullying stance which is often

translated into action, and thus, may be associated with less bullying perpetration.

Classroom Contextual Factors

Moral disengagement has largely been studied at the individual level (Gini et al., 2014), despite arguments for consideration at both individual and group levels (White et al., 2009). *Collective moral disengagement* refers to moral disengagement beliefs that are shared within a significant social group (Gini et al., 2015). According to Bandura (2016), collective moral disengagement (CMD) is not simply the aggregation of the moral disengagement of its individual members, but is a group-level phenomenon of perceived shared beliefs produced by the group dynamics. Therefore, as Gini et al. (2015) argue, it is important to measure its influence "through a collective measure that is independent of the personal measure, yet operates through the same set of mechanisms as the personal one" (p. 444). In the literature, this has been done by measuring and aggregating at the classroom level the students' perceptions of the degree to which moral disengagement mechanisms are shared by their classmates (Gini et al., 2015; Kollerová et al., 2017). Classroom CMD is thus a group characteristic at the classroom level with the potential to influence group members' attitudes and behaviors, and has been linked to aggression (Gini et al., 2015) and bullying (Kollerová et al., 2017). To date, studies investigating the association between CMD and bullying are still very few, and not one has a longitudinal design.

Collective efficacy is an also group-level property, one that represents a group's capacity to work together to produce given attainments (Hymel et al., 2015). Bandura (1997) defines it as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (p. 477). Because group functioning is more than just the sum of individual efficacies (Bandura, 1997; Fernández-Ballesteros et al., 2002; Barchia and Bussey, 2011a), its measurement should involve "aggregating members' appraisals of their groups' capacity as a whole" (Bandura, 1997, p. 478) rather than simply summing appraisals of one's own individual capacities (also see Barchia and Bussey, 2011a) to cover the interactive and coordinated nature of group dynamics (Bandura, 1997; Fernández-Ballesteros et al., 2002). In peer aggression situations, *collective efficacy to stop peer aggression* refers to shared beliefs in "the ability of students and teachers to work together to stop peer aggression in schools" (Barchia and Bussey, 2011a, p. 107), and has been found to be associated with less peer aggression 8 months later among adolescents (Barchia and Bussey, 2011a).

Barchia and Bussey (2011a) argue that teachers play a significant role in inhibiting peer aggression and therefore were included in their measure of collective efficacy to stop peer aggression. Ttofi and Farrington's (2011) meta-analysis suggests that teachers play a potentially crucial role in addressing school bullying because, among the most important bullying prevention program components associated with reductions in bullying, were: improved playground supervision, disciplinary methods, classroom management, teacher training and classroom rules. These are all aspects of the classroom context that teachers, as an "invisible hand" (Farmer et al., 2011), can orchestrate in ways that diminish or enhance the likelihood of bullying. As well, teachers have professional, and in many countries including Sweden, legal responsibilities to stop peer aggression in school (e.g., Sabia and Bass, 2017; Lunneblad et al., 2019); and because they have formal leadership roles in school classes (Hamm and Hoffman, 2016), it is reasonable to include teachers within the construct of classroom collective efficacy to stop peer aggression.

As with CMD, collective efficacy to stop peer aggression is a group-level property that reflects shared beliefs in the group's ability to stop peer aggression, and is not adequately assessed an aggregation of individual beliefs in one's own ability to stop peer aggression. Whereas Barchia and Bussey (2011a) examined collective efficacy at the individual level (i.e., individual perceptions of collective efficacy to stop peer aggression in school), the current study was designed to examine collective efficacy as a group characteristic, hypothesizing that a strong shared belief in the group's ability to stop peer aggression would function as peer pressure against bullying perpetration.

Aim and Hypotheses

The aim of the current study was to examine whether individual and classroom collective social-cognitive processes were associated with bullying perpetration among schoolchildren. A further goal was to examine whether changes in these processes from grade 4 (Time 1) to grade 5 (Time 2) were associated with concomitant changes in bullying perpetration. Gender was included as a co-variable, since previous research has found that males score higher than females on bullying (for a meta-analysis, see Cook et al., 2010). First, we hypothesized that individual and classroom CMD would be positively associated with bullying, and that changes in these processes would be positively associated with bullying changes over time. Second, we proposed a "defender efficacies as bullying refraining" hypothesis. That is, both DSE (indicating a personal anti-bullying stance often translated into anti-bullying action in bullying situations) and classroom collective efficacy to stop peer aggression (indicating anti-bullying peer pressure linked with a higher risk of social sanction and less social reward/reinforcement when bullying) are assumed to motivate individuals to refrain from bullying perpetration. Therefore, we hypothesized that DSE and classroom collective efficacy to stop peer aggression would be negatively associated with bullying, and that changes in these processes would be associated with concomitant bullying changes over time.

MATERIALS AND METHODS

Participants

The present study is part of an ongoing longitudinal project investigating social and moral correlates of bullying in Swedish primary schools, in which students have one classroom in which most of their learning take place, and they have the same classroom teacher across most school subjects. The original sample included 2,408 fourth grade students (48% female,

52% male) from 116 primary classrooms in 74 public schools. However, 782 of those students (32%) did not participate for various reasons (599 did not obtain parental consent; 183 were absent on the day of testing or chose not to participate). Thus, at Time 1 in fourth grade, 1,626 students participated (52% female, 48% male). Out of the 1,626 students who completed the questionnaire in fourth grade, 1,344 students completed all the scales used in the current study in fifth grade as well (Time 2). A final reduction in sample size was the result of changes at the classroom level. One classroom split into two and eight classrooms merged into three classrooms from grade 4 to grade 5. In addition, twelve students changed classrooms during the study period. These classrooms and students were omitted from our study. Thus, the final sample included 1,250 students (52% females, 48% male) from 98 Swedish primary classrooms in 69 public schools who participated in the study in both fourth grade (Time 1, Age: M = 10.55, SD = 0.34) and about 1 year later in fifth grade (Time 2, Age: M = 11.55, SD = 0.32).

Although socioeconomic status was not measured at an individual level, based on a strategic sampling of schools, our sample included students from a wide range of socioeconomic backgrounds (from lower to upper-middle socioeconomic status) and socio-geographic locations (a large city, middle-sized cities, small towns, and the countryside). The majority were of Swedish ethnicity, whereas 18% had a foreign background (i.e., born in another country and/or both parents born in another country). Finally, the student composition of the 98 classrooms included in the study was highly stable; on average, 86% of students remained in the same class from fourth to fifth grade (SD = 10%).

Procedure

School principals and teachers were informed of the study and gave researchers access to the classrooms. Both written, informed parental consent and student assent were obtained from all participants. Data were collected with a web-based, self-report questionnaire, which each participant completed on tablets in their regular classrooms in Grade 4 and 1 year later in Grade 5. Either a member of the research team or a teacher was present throughout the session to be available to explain the study procedure and assist participants who needed help. Teachers received instructions from the first author through a 21-min video. Team members and teachers were instructed to neither look at nor interfere with participants' responses, but to clarify instructions, questions and words in the questionnaire if requested by participants.

Measure

Individual Moral Disengagement in Peer Victimization

An 18-item scale (Bjärehed et al., 2019) was used to measure individual moral disengagement with regard to peer aggression. Students rated each item (e.g., "People who get teased don't really get too sad about it." "If you can't be like everybody else, it is your own fault if you get bullied.") on a seven-point scale (1 = "strongly disagree" to 7 = "strongly agree"). The resulting composite index of moral disengagement, with responses averaged across items, was found to be internally consistent, with Cronbach's α of 0.82 at Time 1 and 0.89 at Time 2.

Collective Moral Disengagement in Peer Victimization

An 18-item scale (Bjärehed et al., 2019) was used to measure classroom CMD in peer aggression, using the same items as those measuring individual moral disengagement in order to avoid the risk of test effects due to different items when comparing individual and CMD. To capture the collective dimension of the construct (cf. Gini et al., 2015), this scale asked, "How many students in your classroom agree with the following?" and offered five response options ("none," "about a quarter," "about half," "about three quarters," "all"). An index of CMD was obtained by calculating the average score for each individual in the classroom, and then obtaining the classroom mean. Cronbach's α was 0.91 at Time 1 and 0.93 at Time 2.

Defender Self-Efficacy

A six-item self-report scale was devised to measure DSE (e.g., "I feel that I'm very good at helping students who are bullied"), with responses made on a seven-point scale (1 = "strongly disagree" to 7 = "strongly agree") and responses averaged across items. Cronbach's α was 0.92 at both Time 1 and Time 2.

Collective Efficacy to Stop Peer Aggression

A Swedish translated version (Wänström et al., 2017) of Barchia and Bussey's (2011a,b) scale was used to measure classroom collective efficacy to stop peer aggression. Students were asked "How well can the students and teachers at your school..." followed by 10 statements such as "... work together to stop bullying?", "... work together to stop students punching each other?", and "... work together to stop students spreading rumors about each other?" Students rated each item on a seven-point scale (from 1 = "not well" to 7 = "very well"). Cronbach's α was 0.97 at Time 1 and 0.96 at Time 2. Collective efficacy was obtained by calculating the average score for each individual in the classroom, and then computing the classroom mean.

Bullying Behavior

We used an 11-item, self-report scale (Bjärehed et al., 2019) to measure bullying perpetration. Instead of providing an a priori definition of bullying, the students were asked, "Think of the past 3 months: How frequently have you done the following things toward someone who is weaker, less popular or less in charge in comparison to you?" The following behavioral items included physical (five items, e.g., "Beat or kicked someone in order to hurt him or her"), verbal (three items, e.g., "Teased and called the person mean names"), and relational bullying (three items, e.g., "Spread mean rumors or lied about the person"). For each item, students responded on a 5-point scale, from 1 = "I have never done it" to 5 = "Several times a week." Averaging responses across items, the resulting composite index of bullying perpetration was internally consistent, with Cronbach's α of 0.86 at Time 1 and 0.89 at Time 2.

Statistical Models

We were interested in estimating effects of change in moral disengagement (MD) and DSE on change in bullying, as well as effects of initial levels of moral disengagement and DSE on bullying levels, while controlling for gender. This was done using a three-level regression model for which the intercept and time slope were allowed to vary across classes, as well as across individuals within classes. We estimated this model in three steps.

First, a three-level model was estimated, with the individual level variables gender, moral disengagement in fourth grade (MD_{T1}), and DSE in fourth grade (DSE_{T1}), as well as the time varying variable, grade (grade 4 = T1, grade 5 = T2). The intercept was allowed to vary across individuals within classes and across classes:

$$\begin{aligned} \text{Bully}_{tij} &= \beta_{0ij} + \beta_1 \text{Grade} + \varepsilon_{tij} \\ \beta_{0ij} &= \beta_{0j} + \beta_2 \text{Gender} + \beta_3 \text{MD}_{T1} + \beta_4 \text{DSE}_{T1} + u_{0ij} \\ \beta_{0j} &= \beta_0 + v_{0j} \end{aligned} \quad \text{(Model 1)}$$

where bully_{tij} is the bullying score for the i:th student in the j:th classroom at the t:th time point, β_{0ij} is the intercept for student i in classroom j, β_1 is the time slope, ε_{tij} is a first level residual, β_{0j} is the intercept for classroom j, β_2 to β_4 are slopes for individual effects, u_{0ij} is a student residual, β_0 is the mean intercept across classes, and v_{oj} is a classroom residual. All residuals are assumed to be normally distributed. In this model, we were able to assess the effects of the initial levels of moral disengagement and DSE on bullying, while controlling for gender.

In the second model, classroom level variables of CMD in grade four (CMD_{T1}) and collective efficacy (CE) in grade four (CE_{T1}) were added:

$$\begin{aligned} \text{Bully}_{tij} &= \beta_{0ij} + \beta_1 \text{Grade} + \varepsilon_{tij} \\ \beta_{0ij} &= \beta_{0j} + \beta_2 \text{Gender} + \beta_3 \text{MD}_{T1} + \beta_4 \text{DSE}_{T1} + u_{0ij} \\ \beta_{0j} &= \beta_0 + \beta_7 \text{CMD}_{T1} + \beta_8 \text{CE}_{T1} + v_{0j} \end{aligned} \quad \text{(Model 2)}$$

where β_7 and β_8 are class level slopes. The assumptions for model 2 are the same as for model 1. In this model, we were able to assess the effects of the initial levels of CMD and collective efficacy on bullying, while controlling for gender and individual moral disengagement and self-efficacy scores.

In the third model, the time slope (grade) was allowed to vary across individuals and across classes. Individual level variables that reflected the change between grades in moral disengagement (MD_{T2}-MD_{T1}) and defender self-efficacy (DSE_{T2}-DSE_{T1}) were added on the second level. In addition, class level variables reflecting the change in collective moral disengagement (CMD_{T2}-CMD_{T1}) and collective self-efficacy (CE_{T2}-CE_{T1}) were added on the third level:

$$\begin{aligned} \text{Bully}_{tij} &= \beta_{0ij} + \beta_{1ij} \text{Grade} + \varepsilon_{tij} \\ \beta_{0ij} &= \beta_{0j} + \beta_2 \text{Gender} + \beta_3 \text{MD}_{T1} + \beta_4 \text{DSE}_{T1} + u_{0ij} \\ \beta_{1ij} &= \beta_{1j} + \beta_5 (\text{MD}_{T2} - \text{MD}_{T1}) \\ &\quad + \beta_6 (DSE_{T2} - DSE_{T1}) + u_{1ij} \\ \beta_{0j} &= \beta_0 + \beta_7 \text{CMD}_{T1} + \beta_8 \text{CE}_{T1} + v_{0j} \\ \beta_{1j} &= \beta_1 + \beta_9 (\text{CMD}_{T2} - \text{CMD}_{T1}) \\ &\quad + \beta_{10} (CE_{T2} - CE_{T1}) + v_{1j} \end{aligned} \quad \text{(Model 3)}$$

where β_{1ij} is the time slope for individual i in class j, β_{1j} is the time slope for class j, and β_1 is the mean time slope across classes, β_5 and β_6 are slopes for individual variables, and β_9 and β_{10} are slopes for class level variables. Substitutions into the first row equation lead to four cross-level interactions in which Grade is a first level (varies over time) variable, the MD and DSE change variables are second level (vary over individuals) variables, and the CMD and CE change variables are third level (vary over classes) variables. This model allowed us to assess the effects of changes in individual predictors on changes in bullying, and the effects of changes in the class predictors on changes in bullying, while controlling for gender and initial levels of individual and class predictors.

Our models were evaluated by investigating Deviance (-2LL) and explained variance (R^2). A significantly smaller Deviance and a larger proportion of explained variance indicated a better model. The chosen model was finally reduced by eliminating redundant terms (non-significant variables) from the model. The variable with the largest *p*-value was omitted first, and the model was re-estimated. If the increase in Deviance was non-significant, this model was kept, and the variable (in this new model) with the largest *p*-value was omitted, and the model was re-estimated. If the increase in Deviance was significant, the previous model was instead kept. The models were estimated using Proc Mixed in SAS. The estimation method REML (Restricted Maximum Likelihood) was used to estimate all parameters, however, the Deviance measure was calculated based on maximum likelihood (ML) estimation.

TABLE 1 | Means (M), standard deviations (SD), minimum and maximum observations (Min, Max) for individual- (*N* = 1250) and class level (*N* = 98) variables.

	M	*SD*	Min	Max
Individual variable				
Bullying $_{T1}$	1.14	0.27	1.00	4.00
Moral disengagement $_{T1}$	1.50	0.59	1.00	4.83
Defender self-efficacy $_{T1}$	5.07	1.56	1.00	7.00
Bullying $_{T2}$	1.16	0.32	1.00	5.00
Moral disengagement $_{T2}$	1.41	0.62	1.00	7.00
Defender self-efficacy $_{T2}$	4.95	1.52	1.00	7.00
Class variable				
Mean bullying $_{T1}$	1.15	0.13	1.00	1.82
Collective moral disengagement $_{T1}$	1.55	0.25	1.06	2.29
Collective efficacy $_{T1}$	4.91	0.59	2.35	6.30
Mean bullying $_{T2}$	1.16	0.12	1.00	1.60
Collective moral disengagement $_{T2}$	1.53	0.24	1.03	2.29
Collective efficacy $_{T2}$	4.78	0.62	3.00	6.09

RESULTS

Descriptive Statistics and Correlations

Table 1 presents descriptive statistics for individual- and classroom-level variables at grades four (T1) and five (T2). Pairwise correlations at the individual level within and between grades are presented in **Table 2**. As expected, bullying was positively correlated with moral disengagement and negatively correlated with DSE both within and between grades. In addition, scores on the same constructs correlated positively over time. **Table 3** shows pairwise correlations at the classroom level within and between grades. The same pattern is seen here, and correlations are generally stronger at the class level. Mean bullying scores were positively correlated with CMD, and negatively correlated with collective efficacy both within and between grades, and scores were positively correlated over time.

Multilevel Analyses

Table 4 displays estimates and standard errors from the multilevel analyses for models 1, 2 and 3, and for the final model. All variables, except grade and gender, were grand mean centered. The intraclass correlation (ICC) for the empty model was 0.07, indicating that 7% of the total variance in bullying was between classes. As shown in model 1, initial levels of moral disengagement were positively associated with bullying, and initial levels of DSE were negatively associated with bullying, when controlling for gender. In addition, boys scored higher than girls. The class intercept variance was significant, indicating that the classes varied in their mean bullying scores. The individual variables explained 9.4% of the variance in bullying.

As class level variables were added in model 2, initial levels of moral disengagement and DSE were still significantly associated with bullying. None of the initial class level variables was significantly related to bullying. The variables explained 10% of the variance in bullying. The Deviance measure decreased from 719.7 to 710.5, which is a significant decrease [$x^2(2) = 9.2$, $p < 0.05$], indicating that model 2 is preferred over model 1.

When change variables were added in model 3, the initial levels of moral disengagement and DSE were still associated with bullying. In addition, three of the interactions, as well as Grade, were significantly associated with bullying. The variables explained 21.8% of the variance in bullying, and the decrease in Deviance was significant [$x^2(5) = 326.1$, $p < 0.001$], indicating that model 3 is preferred over model 2.

In model 3, the variable with the largest p-value was the interaction, Grade × CMD_{T2}-CMD_{T1} ($p = 0.773$). Model 3 was therefore re-estimated with this variable omitted, and the increase in Deviance was not significant [$x^2(1) = 0.1$, $p > 0.05$]. The variable with the largest p-value in the new model was CE_{T1} ($p = 0.153$) and the model was re-estimated omitting this variable. The increase in Deviance was not significant [$x^2(1) = 2.1$, $p > 0.05$]. Gender had the largest p-value in the new model ($p = 0.092$) and was omitted. The Deviance increase was not significant [$x^2(1) = 2.8$, $p > 0.05$]. The variable with the largest p-value in this model (Grade × DSE_{T2}-DSE_{T1}: $p = 0.029$) could not be omitted without resulting in a worse fitting model [$x^2(1) = 4.8$, $p < 0.05$]. The final model is thus the model in which the interaction term Grade × CMD_{T2}-CMD_{T1}, CE_{T1}, and Gender were omitted. Model results are shown in the last column in **Table 4**.

As shown, Grade was significant, indicating that bullying scores increased over time. Consistent with prior research, initial levels of individual moral disengagement and initial levels of

TABLE 2 | Correlations for individual level variables ($N = 1250$).

	2	3	4	5	6
(1) Bullying $_{T1}$	0.37***	−0.18***	0.36***	0.38***	−0.15***
(2) Moral disengagement $_{T1}$		−0.21***	0.22***	0.46***	−0.12***
(3) Defender self-efficacy $_{T1}$			−0.16***	−0.18***	0.44***
(4) Bullying $_{T2}$				0.50***	−0.22***
(5) Moral disengagement $_{T2}$					−0.27***
(6) Defender self-efficacy $_{T2}$					1

****p < 0.001.*

TABLE 3 | Correlations for class level variables ($M = 98$).

	2	3	4	5	6
(1) Mean bullying $_{T1}$	0.29**	−0.48***	0.35***	0.46***	−0.33**
(2) Collective moral disengagement $_{T1}$		−0.43***	0.37***	0.62***	−0.47***
(3) Collective efficacy $_{T1}$			−0.22*	−0.46***	0.50***
(4) Mean bullying $_{T2}$				0.56***	−0.49***
(5) Collective moral disengagement $_{T2}$					−0.70***
(6) Collective efficacy $_{T2}$					1

**p < 0.05, **p < 0.01, ***p < 0.001.*

CMD scores were positively associated with bullying, and initial levels of individual DSE scores were negatively associated with bullying. In addition, the positive effect of change in moral disengagement on change in bullying (Grade × MD_{T2}-MD_{T1}) was significant, as were the negative effects of change in DSE on change in bullying (Grade × DSE_{T2}-DSE_{T1}), and change in collective efficacy on change in bullying (Grade × CE_{T2}-CE_{T1}). The variables explained 21.8% of the variance in bullying. The increase in Deviance from model 3 to the final model was non-significant [$x^2(3) = 5.0$, $p > 0.05$], indicating that the final model is the preferable model.

In order to understand and interpret the interaction effects, we computed simple slopes. The simple slope for children with high values (one standard deviation above the mean) on MD_{T2}-MD_{T1} (an increase of 0.54; −0.09+0.63 = 0.54) was 0.16 ($p < 0.001$), and the simple slope for children with low values (one standard deviation below the mean) on MD_{T2}-MD_{T1} (a decrease of 0.72; −0.09−0.63 = −0.72) was −0.12 ($p < 0.001$). In these calculations, the value −0.09 is the mean value of MD_{T2}-MD_{T1} and the value 0.63 is the standard deviation. The simple slope for high values on DSE_{T2}-DSE_{T1} (an increase of 1.52; $SD_{DSET2-DSET1} = 1.63$) was −0.01 ($p > 0.05$), and the simple slope for low values (a decrease of 1.76) was 0.04 ($p < 0.01$). Finally, the simple slope for high values on CMD_{T2}-CMD_{T1} (an increase of 0.43; $SD_{CET2-CET1} = 0.56$) was −0.00 ($p > 0.05$), and the simple slope for low values (a decrease of 0.69) was 0.05 ($p < 0.001$).

To illustrate these slopes, we plotted them in **Figures 1–3** for "typical" children. The change variables (MD_{T2}-MD_{T1}, DSE_{T2}-DSE_{T1}, and CMD_{T2}-CMD_{T1}) were negatively correlated with the initial value variables (MD1, DSE1, and CMD1), as might be expected. A median split for each change variable resulted in datasets consisting of children with above the median values on each change variable, and below the median values on each change variable, respectively. We used the means of the initial variables in these datasets as inputs in the equation for the final model, to plot the interaction graphs. Thus, in **Figure 1**, we can see that children who increased in MD (blue line) also increased in bullying. These children had typically below average initial values of MD and above average values on DSE ($MD_{T1} = 1.24$, $DS_{T1} = 5.22$, $CMD_{T1} = 1.49$). Children who decreased in moral disengagement (red line) also decreased in bullying and they typically had above average initial values on MD, and below average values on DSE ($MD_{T1} = 1.75$, $DSE_{T1} = 4.93$, $CMD_{T1} = 1.56$).

In **Figure 2**, we can see that children who increased in DSE (blue line) did not significantly increase in bullying. These children typically had above average initial values on MD and below average values on DSE ($MD_{T1} = 1.79$, $DSE_{T1} = 4.46$, $CMD_{T1} = 1.55$). Children who decreased in DSE (red line) increased in bullying, and they typically had below average

TABLE 4 | Estimates (Est) and standard errors (SE) from multilevel regression analyses of models (1), (2), and (3) with bullying as the dependent variable.

Predictor	Model 1 Est (SE)	Model 2 Est (SE)	Model 3 Est (SE)	Final model Est (SE)
Time level				
Grade	0.02 (0.01)	0.02 (0.01)	0.02*(0.01)	0.02*(0.01)
Individual level				
Gender	0.03*(0.01)	0.03*(0.01)	0.02 (0.01)	
MD_{T1}	0.13***(0.01)	0.12***(0.01)	0.18*** (0.01)	0.19*** (0.01)
DSE_{T1}	−0.02*** (0.00)	−0.02***(0.00)	−0.02***(0.00)	−0.02***(0.00)
Classroom level				
CMD_{T1}		0.08 (0.04)	0.07 (0.04)	0.10**(0.03)
CE_{T1}		−0.02 (.02)	−0.02 (0.02)	
Cross-level interactions				
Grade × MD_{T2}-MD_{T1}			0.22***(0.01)	0.22***(0.01)
Grade × DSE_{T2}-DSE_{T1}			−0.01*(0.01)	−0.01*(0.01)
Grade × CMD_{T2}-CMD_{T1}			0.02 (0.05)	
Grade × CE_{T2}-CE_{T1}			−0.05**(0.02)	−0.05**(0.02)
Variance				
Class intercept	0.00***(0.00)[a]	0.00**(0.00)[b]	0.00**(0.00)[c]	0.00**(0.00)[c]
Class slope			0.00 (0.00)	
Individual intercept	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Individual slope			0[d]	
Within individual	0.08***(0.00)	0.08***(0.00)	0.07***(0.00)	0.07***(0.00)
Deviance	719.7	710.5	384.4	389.4
ICC	0.07			
R^2	0.09	0.10	0.22	0.22

*All predictors (except for grade and gender) were grand mean centered. Grade (0 = fourth grade, 1 = fifth grade). Gender (0 = girl, 1 = boy). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; [a]0.004 (0.001), [b]0.004 (0.001), [c]0.002**(0.0008). [d]The grade slope variance between individuals reduced to zero in model 3, and was omitted. MD, moral disengagement, DSE, defender self-efficacy, CMD, collective moral disengagement, CE, collective efficacy.*

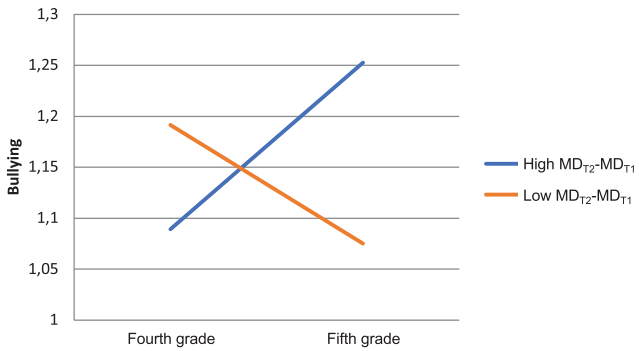

FIGURE 1 | Interaction effect on bullying change: Individual moral disengagement (MD) change × grade.

initial values on MD and above average on DSE (MD_{T1} = 1.47, DSE_{T1} = 5.69, CMD_{T1} = 1.56). Finally, in **Figure 3**, we can see that children in classrooms that increased in CE (blue line) did not significantly increase or decrease in bullying, and they typically had below average initial values on MD and DSE (MD_{T1} = 1.48, DSE_{T1} = 5.03, CMD_{T1} = 1.55). Children in classrooms that decreased in collective efficacy (red line) increased in bullying, and they typically had above average initial values on MD and DSE (MD_{T1} = 1.52, DSE_{T1} = 5.11, CMD_{T1} = 1.55).

DISCUSSION

The present study is, as far as we know, the first study to examine whether changes in individual moral disengagement, DSE, classroom CMD, and classroom collective efficacy to stop peer aggression were associated with bullying changes over time in a multilevel model. Our findings contribute to the social-cognitive literature on bullying (e.g., Thornberg and Jungert, 2013; Gini et al., 2014, 2015) by showing that changes in bullying perpetration among schoolchildren were positively associated with changes in individual moral disengagement and negatively associated with changes in DSE and classroom collective efficacy to stop peer aggression over a 1-year period. Whereas previous longitudinal studies suggest that individual moral disengagement predicts greater aggression (Barchia and Bussey, 2011a) and bullying (Wang et al., 2017; cf. Sticca and Perren, 2015) over time, our findings contribute to the literature by showing that children who decreased in individual moral disengagement (more than the average individual) became less inclined to bully others, and children who increased in individual moral disengagement became more inclined to bully others.

Our study is also the first to examine possible associations between DSE and bullying, and our findings demonstrate that greater DSE in fourth grade was linked to less bullying from grade four to five. This is an important addition to the literature in demonstrating that DSE not only increases the likelihood of defending, as shown in previous studies (Thornberg and Jungert, 2013; Doramajian and Bukowski, 2015; Peets et al., 2015; Thornberg et al., 2017), but also lowers the risk of engaging in bullying perpetration. This finding also supports our initial hypothesis that DSE reflects a personal anti-bullying stance often translated into anti-bullying action in bullying situations – including moral cognition and self-regulatory skills that increase the power not only to defend (proactive morality) but also to refrain from bullying perpetration (inhibitive morality; cf. Bandura, 2016). Future research should examine the associations between DSE, self-regulation and anti-bullying attitudes. However, whereas children who decreased in DSE became more inclined to bully others, those who increased in DSE did not change their bullying perpetration. Thus, the findings suggest that when a particular level of bullying perpetration has been established, an increase in DSE does not seem to have influence. The bivariate correlations revealed that bullying is more strongly associated with moral disengagement than DSE, and change in moral cognition might be more important than change in DSE to explain change in bullying perpetration. At the same time, students who decrease in DSE tend to be more inclined to bully others, which once again supports our "defender efficacies as bullying refraining" hypothesis.

Although moral disengagement and DSE tend to be developed into trait-like habitual patterns (Bandura, 1997, 2016), they should not be considered as fixed, stable and static personality traits (cf. Kuilman et al., 2019) like, for instance, callous-unemotional traits (Frick et al., 2018). In line with previous studies of moral disengagement (e.g., Caravita et al., 2014), our findings reveal the changeability of moral disengagement and DSE, which in turn suggests the ability to learn these individual characteristics. In other words, moral disengagement and DSE seem to be individual characteristics that could be influenced and changed in late childhood. The current findings demonstrate the interplay between personal influences (moral disengagement and DSE) and behavioral influences (bullying) over time, and thus support social-cognitive theory (Bandura, 1997, 2016), as it assumes the changing nature of these processes through triadic codetermination.

Finally, whereas Barchia and Bussey (2011a) found that individual perceptions of collective efficacy to stop peer aggression among adolescents were linked with lower aggression 8 months late, our findings show that children who belong

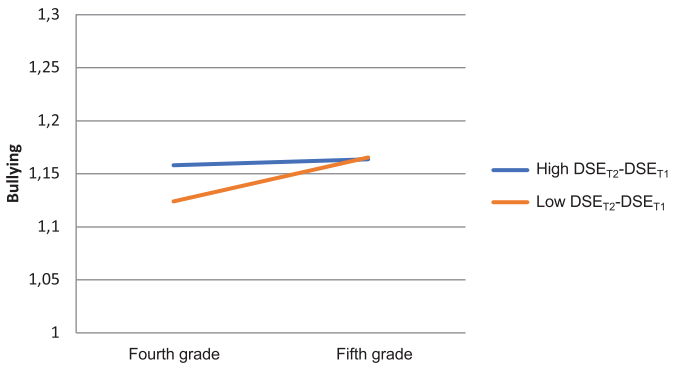

FIGURE 2 | Interaction effect on bullying change: Defender self-efficacy (DSE) change × grade.

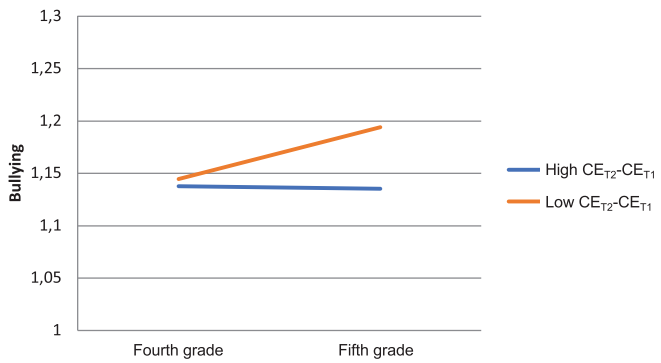

FIGURE 3 | Interaction effect on bullying change: Collective efficacy (ce) change × grade.

to a classroom that decreases in collective efficacy to stop peer aggression become more inclined to bully others. These findings further support the triadic codetermination of social-cognitive theory (Bandura, 1997, 2016) by indicating an interplay of environmental influences and behavioral influences, as well as our proposed "defender efficacies as bullying refraining" hypothesis. Not only DSE, as discussed above, but also classroom collective efficacy to stop peer aggression seem to inhibit schoolchildren from bullying others. A possible explanation is that higher levels of collective efficacy to stop peer aggression could be considered as a group process that produces anti-bullying peer pressure associated with an increased risk of social sanction and less social reward/reinforcement toward group members who perpetrate bullying. Children's individual beliefs in the collective ability of students and teachers to work together to stop peer aggression have been linked to defending in peer aggression (Barchia and Bussey, 2011b). It is plausible to assume that higher levels of collective efficacy to stop peer aggression are associated with less reinforcing and greater defending at the classroom level, which in turn have been linked to less bullying (Kärnä et al., 2010; Salmivalli et al., 2011; Nocentini et al., 2013; Thornberg and Wänström, 2018). Future studies are required to understand better the possible associations between collective efficacy to stop peer aggression, anti-bullying norms, perceived peer-pressure, and the prevalence of bullying perpetration and various bystander reactions at classroom level.

Whereas previous cross-sectional studies have shown that classroom CMD is associated with greater aggression (Gini et al., 2015) and bullying (Kollerová et al., 2017), a change in classroom CMD was not found to be associated with a change in bullying over time in the current study. A possible explanation is that the early levels of CMD might have a more long-term effect on bullying, and that change in an individual's moral disengagement is more influential in increasing or decreasing inhumane behaviors such as bullying. The cross-sectional correlations between classroom CMD and bullying prevalence at both Time 1 and Time 2, and the longitudinal correlations between classroom CMD and bullying prevalence were all significant at the classroom level. Moreover, the intercept of the bullying trend was positively associated with the initial levels of individual and classroom CMD in the final multilevel model. In other words, greater CMD in fourth grade was linked to more bullying across grades four and five (i.e., the general bullying level), suggesting that CMD functions as a protective classroom group process that lowers the risk of bullying perpetration.

Limitations

Despite the many strengths of this study, such as the longitudinal multilevel design, some limitations should

be noted. First, changes were measured during a limited period of 1 year at only two time points. Although we demonstrated that a change in bullying was associated with a change in moral disengagement, DSE and classroom collective efficacy to stop peer aggression during that 1-year period, future studies should expand these analyses by adopting a longer longitudinal design with several time points to make better predictions about the development of bullying and gain a more complete insight into the dynamics over time.

Second, we used self-report data, which are vulnerable to under- and over-estimation. To decrease the risk of under-reporting bullying perpetration, we used a bullying scale that did not include the term "bullying." Still, self-reported data are vulnerable to various biases, such as social desirability, memory distortion, careless marking, and intentionally exaggerated responses.

Third, the findings could be critically discussed in terms of norm uncertainty/ambiguity and pluralistic ignorance (cf. Veenstra et al., 2018). In the social psychological literature, pluralistic ignorance often refers to "the beliefs that one's attitudes and judgments are different from those of others, even though one's public behavior is identical" (Prentice and Miller, 2003, p. 585). Individuals might privately reject a norm at the same time as they publicly conform to this norm based on an incorrect assumption that it is shared in the peer group. One way of testing this would be to aggregate individual moral disengagement and DSE at classroom level, conceptualized as *prescriptive (or injunctive) norms* of the school class (cf. Veenstra et al., 2018). In the literature, aggregating individual moral disengagement is termed *class moral disengagement* (Pozzoli et al., 2012; Thornberg et al., 2017). A drawback with this procedure of measuring prescriptive norms to "represent perceived moral rules of the peer group" (Veenstra et al., 2018, p. 49), however, is that individual classmates' moral disengagement tendencies (like attitudes) might be more or less invisible to other members in the school class, and thus a less powerful group influence as compared to CMD.

Just as individual attitudes have been aggregated to assess prescriptive norms, individual moral disengagement and DSE can also be aggregated at the classroom level. For reasons outlined in the introduction, we considered the assessment of group functioning to be greater than the sum of individual perceptions or beliefs, and argued that the collective indices employed in the present study more accurately assess group-level shared beliefs, as proposed by Bandura (1997) and therefore assessed CMD and collective self-efficacy. Nevertheless, we reran the multilevel analyses described above, replacing our group-level indices with classroom aggregations of the individual variables of moral disengagement and DSE. Results indicated that the individual variables were still significant as well as the effects of the changes in individual moral disengagement and DSE on the change in bullying. Unlike the findings presented for our final model, however, the effect of the initial class mean of moral disengagement on bullying across the grades, and the effect of the change in the class mean of DSE on the change in bullying were not significant. One possible explanation for the different findings may be that the later model consists of the very same data at the individual level and at the classroom (aggregated) level (same scales), whereas the final model supported in our study was based on distinct assessments of individual and collective assessments (different scales). An alternative or complementary possibility is that classroom CMD (initial level) and collective efficacy to stop peer aggression (change over time) constitute more powerful group influences on bullying than classroom aggregations of individual moral disengagement and DSE.

Finally, a note of caution needs to be sounded considering generalization of the findings. The present sample consisted of students in Swedish schools and considered a very limited age span. Future research should examine the variables and their associations found in the present study in other samples of students of different age levels and in various national and cultural contexts. In addition, further research should examine whether the associations in the current findings are consistent or vary across different friendship networks nested in school classes and in relation to both perceived and sociometric popularity.

Practical Implications

The current findings have practical implications for anti-bullying programs in schools. In accordance with previous research on moral disengagement and bullying (Gini et al., 2014), anti-bullying programs should develop components that expose and inhibit moral disengagement and facilitate the development of moral agency. We agree with Pozzoli et al. (2012), in suggesting that future research consider "a randomized control trial aimed at encouraging educators to make efforts to address these distortions in morality in order to favor children's moral engagement and promote the understanding of responsibility" (p. 386). Using children's literature to discuss moral disengagement, increase awareness about bullying, teach appropriate social skills, and encourage defending in bullying situations has been found to be promising in decreasing both moral disengagement and victimization among elementary school students (Wang and Goldberg, 2017).

Teachers play a significant socialization role for moral disengagement in how they respond to bullying in school. Campaert et al. (2017) found that students who reported that their teachers responded to bullying with high-level disciplinary sanctions and victim support were less inclined to morally disengage and less likely to bully. In contrast, teacher non-intervention was associated with greater moral disengagement and bullying. The intertwined changeability in our findings highlights the importance of addressing and decreasing both the cognitive influence of moral disengagement and the behavioral influence of bullying, as these seem to interplay. Even though change in classroom CMD was not linked to change in bullying, its initial level was associated with higher levels of bullying. This suggests that teachers may benefit from professional training in influencing development at the group (classroom or school) level

in order to prevent CMD in the first place and to promote a moral climate of engagement and social responsibility from the very first days as a part of their classroom management.

Another important part of the development of a protective moral climate is, as suggested by our findings, to promote and maintain a high level of collective efficacy to stop peer aggression in school classes. Teachers' efforts in building warm and supportive relations with students (Bouchard and Smith, 2017), creating an authoritative classroom climate (Thornberg et al., 2018), and effectively preventing and intervening in bullying (Ttofi and Farrington, 2011) are crucial. Bullying victimization has been found to be lower in classes where a high proportion of students state that they are aware of the school rules and that adults intervene against bullying (Låftman et al., 2017). Espelage et al. (2014) found that schools in which staff and teachers reported a greater commitment to prevent bullying had lower prevalence of bullying; Olsson et al. (2017) reported that schools which scored high in good order, cohesion, and mutual trust tended to have fewer problems with bullying. A part of classroom collective efficacy to stop peer aggression is that students trust teachers and teachers collaborate with students to prevent bullying and other forms of peer aggression. In other words, teachers need to be committed and active in counteracting bullying at the same time as they involve and engage students in their efforts to support an anti-bullying culture. A strong collective efficacy to stop peer aggression might in turn encourage students to enhance their own DSE, as there is an interplay between self-efficacy and collective efficacy (Bandura, 1997). Considering that initial levels of CMD were linked to bullying across the grades and that decreases in collective efficacy to stop peer aggression were linked to increases in bullying, school and classroom efforts to prevent CMD and develop high collective efficacy to stop peer aggression should be designed and delivered as early as possible.

Findings from a recent meta-analysis (Lee et al., 2015) indicate that consideration of group dynamics can enhance the efficacy and impact of school-based anti-bullying interventions, and a recent review by Hymel et al. (2015) points to a number of ways in which positive group processes can be fostered in the classroom context, with teachers playing a critical role in such efforts. Support for the efficacy of such a focus come from Farmer et al. (2011, 2013), who have developed the SEALS program to enhance teachers' understanding of group processes in creating positive and supportive classroom contexts. As well, Choi et al. (2011a,b) have shown that greater experience with cooperative learning in classrooms is associated with increased prosocial behavior and decreased aggressive behavior among students.

CONCLUSION

Overall, the present findings contribute novel insights to the literature on moral disengagement, self-efficacy and collective efficacy and their links to school bullying. Due to the multilevel approach, we were able to examine children's and school classes' bullying growth curves and their correlates. Specifically, the current study reveals the changeability of moral disengagement, DSE and classroom collective efficacy to stop peer aggression over time, and how this changeability is linked to changes in bullying perpetration. We also found that, although CMD was not associated with a change in bullying, it was associated with the general level of bullying. Consistent with a social psychological stance (e.g., Salmivalli, 2010; Hymel et al., 2015) and a social-ecological perspective on school bullying (e.g., Espelage and Swearer, 2004; Swearer et al., 2012; Trach et al., 2018), results of the present study contribute to a growing body of research underscoring the importance of addressing contextual as well as individual factors in efforts to reduce school bullying, with group processes manifested as CMD and collective efficacy to stop peer aggression being shown as critical aspects of the classroom context.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

This study was approved by the Regional Ethical Review Board in Linköping. Written informed consent was obtained from the parents of all participants.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

FUNDING

This research was supported by a grant awarded to RT from the Swedish Research Council (Vetenskapsrådet) (grant number D0775301).

REFERENCES

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York, NY: Freeman and Company.

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Pers. Soc. Psychol. Rev.* 3, 193–209. doi: 10.4324/9781315799292-3

Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *J. Moral Educ.* 31, 101–119. doi: 10.1080/0305724022014322

Bandura, A. (2016). *Moral Disengagement: How People do Harm and Live with Themselves*. New York, NY: Worth.

Barchia, K., and Bussey, K. (2011a). Individual and collective social cognitive influences on peer aggression: exploring the contribution of aggression efficacy, moral disengagement, and collective efficacy. *Aggress. Behav.* 37, 107–120. doi: 10.1002/ab.20375

Barchia, K., and Bussey, K. (2011b). Predictors of student defenders of peer aggression victims: empathy and social cognitive factors. *Int. J. Behav. Dev.* 35, 289–297. doi: 10.1177/0165025410396746

Bender, D., and Lösel, F. (2011). Bullying at school as a predictor of delinquency, violence and other anti-social behaviour in adulthood. *Crim. Behav. Ment. Health* 21, 99–106. doi: 10.1002/cbm.799

Bjärehed, M., Thornberg, R., Wänström, L., and Gini, G. (2019). Mechanisms of moral disengagement and their association with indirect bullying, direct bullying, and pro-aggressive bystander behavior. *J. Early Adoles.* doi: 10.1177/0272431618824745

Bouchard, K. L., and Smith, J. D. (2017). Teacher–student relationship quality and children's bullying experiences with peers: reflecting on the mesosystem. *Educ. Forum* 81, 108–125. doi: 10.1080/00131725.2016.1243182

Campaert, K., Nocentini, A., and Menesini, E. (2017). The efficacy of teachers' responses to incidents of bullying and victimization: the mediational role of moral disengagement for bullying. *Aggress. Behav.* 43, 483–492. doi: 10.1002/ab.21706

Caravita, S. C. S., Gini, G., and Pozzoli, T. (2012). Main and moderate effects of moral cognition and status on bullying and defending. *Aggress. Behav.* 38, 456–468. doi: 10.1002/ab.21447

Caravita, S. C. S., Sijtsema, J. J., Rambaran, A. J., and Gini, G. (2014). Peer influence on moral disengagement in late childhood and early adolescence. *J. Youth Adolesc.* 43, 193–207. doi: 10.1007/s10964-013-9953-1

Chester, K. L., Callaghan, M., Cosma, A., Donnelly, P., Craig, W., Walsh, S., et al. (2015). Cross-national time trends in bullying victimization in 33 countries among children aged 11, 13 and 15 from 2002 to 2010. *Eur. J. Public Health* 25, 61–64. doi: 10.1093/eurpub/ckv029

Choi, J., Johnson, D. W., and Johnson, R. (2011a). Relationships among cooperative learning experiences, social interdependence, children's aggression, victimization, and prosocial behaviours. *J. Appl. Soc. Psychol.* 41, 976–1003. doi: 10.1111/j.1559-1816.2011.00744.x

Choi, J., Johnson, D. W., and Johnson, R. (2011b). The roots of social dominance: aggression, prosocial behavior, and social interdependence. *J. Educ. Res.* 104, 442–454. doi: 10.1080/00220671.2010.514689

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., and Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: a meta-analytic investigation. *Sch. Psychol. Q.* 25, 65–83. doi: 10.1037/a0020149

Copeland, W. E., Wolke, D., Angold, A., and Costello, E. J. (2013). Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry* 70, 419–426. doi: 10.1001/jamapsychiatry.2013.504

Craig, W., Harel-Fisch, Y., Fogel-Grinvald, H., Dostaler, S., Hetland, J., Simons-Morton, B., et al. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *Int. J. Public Health* 54, S216–S224. doi: 10.1007/s00038-009-5413-9

Doramajian, C., and Bukowski, W. M. (2015). A longitudinal study of the associations between moral disengagement and active defending versus passive bystanding during bullying situations. *Merrill Palmer Q.* 61, 144–172. doi: 10.13110/merrpalmquar1982.61.1.0144

Espelage, D. L., Polanin, J. R., and Low, S. K. (2014). Teacher and staff perceptions of school environment as predictors of student aggression, victimization, and willingness to intervene in bullying situations. *Sch. Psychol. Q.* 29, 287–305. doi: 10.1037/spq0000072

Espelage, D. L., and Swearer, S. M. (2004). *Bullying in American Schools: a Social-Ecological Perspective on Prevention and Intervention*. Mahwah, NJ: Erlbaum.

Evans-Lacko, S., Takizawa, R., Brimblecombe, N., King, D., Knapp, M., Maughan, B., et al. (2017). Childhood bullying victimization is associated with use of mental health services over five decades: a longitudinal nationally representative cohort study. *Psychol. Med.* 47, 127–135. doi: 10.1017/S0033291716001719

Farmer, T. W., Hamm, J. V., Lane, K. L., Lee, D., Sutherland, K. S., Hall, C. M., et al. (2013). Conceptual foundations and components of a contextual intervention to promote student engagement during early adolescence: the supporting early adolescent learning and social success (SEALS) model. *J. Educ. Psychol. Consult.* 23, 115–139. doi: 10.1080/10474412.2013.785181

Farmer, T. W., McAuliffe Lines, M., and Hamm, J. V. (2011). Revealing the invisible hand: the role of teachers in children's peer experiences. *J. Appl. Dev. Psychol.* 32, 247–256. doi: 10.1016/j.appdev.2011.04.006

Farrington, D. P., and Ttofi, M. M. (2011). Bullying as a predictor of offending, violence and later life outcomes. *Crim. Behav. Ment. Health* 21, 90–98. doi: 10.1002/cbm.801

Fernández-Ballesteros, R., Diez-Nicolás, J., Caprara, G. V., Barbaranelli, C., and Bandura, A. (2002). Determinants and structural relation of personal efficacy and collective efficacy. *Appl. Psychol.* 51, 107–125. doi: 10.1111/1464-0597.00081

Frick, P. J., Robertson, E. L., and Clark, J. E. (2018). "Callous–unemotional traits," in *Development Pathways to Disruptive, Impulse-Control, and Conduct Disorders*, ed. M. Martel (London: Academic Press), 139–160.

Gini, G., and Pozzoli, T. (2013). Bullied children and psychosomatic problems: a meta-analysis. *Pediatrics* 132, 720–729. doi: 10.1542/peds.2013-0614

Gini, G., Pozzoli, T., and Bussey, K. (2015). The role of individual and collective moral disengagement in peer aggression and bystanding: a multilevel analysis. *J. Abnorm. Child Psychol.* 43, 441–452. doi: 10.1007/s10802-014-9920-7

Gini, G., Pozzoli, T., and Hauser, M. (2011). Bullies have enhanced moral competence to judge relative to victims, but lack moral compassion. *Personal. Individ. Differ.* 50, 603–608. doi: 10.1016/j.paid.2010.12.002

Gini, G., Pozzoli, T., and Hymel, S. (2014). Moral disengagement among children and youth: a meta-analytic review of links to aggressive behavior. *Aggress. Behav.* 40, 56–68. doi: 10.1002/ab.21502

Hamm, J. V., and Hoffman, A. S. (2016). "Teachers' influence on students' peer relationships and peer ecologies," in *Handbook of Social Influences in School Contexts: Social-Emotional, Motivation, and Cognitive Outcome*, eds K. R. Wentzel and G. B. Ramani (New York, NY: Routledge), 208–229.

Holt, M. K., Vivolo-Kantor, A. M., Polanin, J. R., Holland, K. M., DeGue, S., Matjasko, J. L., et al. (2015). Bullying and suicidal ideation and behaviors: a meta-analysis. *Pediatrics* 135, e496–e509. doi: 10.1542/peds.2014-1864

Hymel, S., McClure, R., Miller, M., Shumka, E., and Trach, J. (2015). Addressing school bullying: insights from theories of group processes. *J. Appl. Dev. Psychol.* 37, 16–24. doi: 10.1016/j.appdev.2014.11.008

Hymel, S., Rocke-Henderson, N., and Bonanno, R. A. (2005). Moral disengagement: a framework for understanding bullying among adolescents. *J. Soc. Sci.* 8, 1–11.

Hymel, S., Schonert-Reichl, K. A., Bonanno, R. A., Vaillancourt, T., and Rocke Henderson, N. (2010). "Bullying and morality," in *Handbook of Bullying in Schools: an International Perspective*, eds S. R. Jimerson, S. M. Swearer, and D. L. Espelage (New York, NY: Routledge), 101–118.

Kärnä, A., Voeten, M., Poskiparta, E., and Salmivalli, C. (2010). Vulnerable children in varying classroom contexts: bystanders' behaviors moderate the effects of risk factors on victimization. *Merrill-Palmer Q.* 56, 261–282. doi: 10.1353/mpq.0.0052

Klomek, A. B., Sourander, A., and Elonheimo, H. (2015). Bullying by peers in childhood and effects on psychopathology, suicidality, and criminality in adulthood. *Lancet Psychiatry* 2, 930–941. doi: 10.1016/S2215-0366(15)00223-0

Kollerová, L., Soukup, P., and Gini, G. (2017). Classroom collective moral disengagement scale: validation in Czech adolescents. *Eur. J. Dev. Psychol.* 15, 184–191. doi: 10.1080/17405629.2017.1292907

Kuilman, L., Jansen, G. J., Middel, B., Mulder, L. B., and Roodbol, P. F. (2019). Moral reasoning explained by personality traits and moral disengagement: a study among Dutch nurse practitioners and physician assistants. *J. Adv. Nurs.* 75, 1252–1262. doi: 10.1111/jan.13939

Låftman, S. B., Östberg, V., and Modin, B. (2017). School climate and exposure to bullying: a multilevel study. *Sch. Eff. Sch. Improv.* 28, 153–164. doi: 10.1080/09243453.2016.1253591

Lee, S., Kim, C.-J., and Kim, D. (2015). A meta-analysis of the effect of school-based anti-bullying programs. *J. Child Health Care* 19, 136–153. doi: 10.1177/1367493513503581

Lereya, S. T., Copeland, W. E., Costello, E. J., and Wolke, D. (2015). Adult mental health consequences of peer bullying and maltreatment in childhood: two cohorts in two countries. *Lancet Psychiatry* 2, 524–531. doi: 10.1016/S2215-0366(15)00165-0

Lundy, L. (2012). Children's rights and educational policy in Europe: the implementation of the United Nations Convention on the Rights of the Child. *Oxf. Rev. Educ.* 38, 393–411. doi: 10.1080/03054985.2012.704874

Lunneblad, J., Johansson, T., and Odenbring, Y. (2019). Violence in urban schools: school professionals' categorizations and explanations of violence among

students in two different demographic areas. *Int. Stud. Sociol. Educ.* 28, 63–80. doi: 10.1080/09620214.2018.1521298

McDougall, P., and Vaillancourt, T. (2015). Long-term adult outcomes of peer victimization in childhood and adolescence: pathways to adjustment and maladjustment. *Am. Psychol.* 70, 300–310. doi: 10.1037/a0039174

Nocentini, A., Menesini, E., and Salmivalli, C. (2013). Level and change of bullying behavior during high school: a multilevel growth curve analysis. *J. Adolesc.* 36, 495–505. doi: 10.1016/j.adolescence.2013.02.004

Olsson, G., Låftman, S. B., and Modin, B. (2017). School collective efficacy and bullying behaviour: a multilevel study. *Int. J. Environ. Res. Public Health* 14:1607. doi: 10.3390/ijerph14121607

Olweus, D. (2010). "Understanding and researching bullying: some critical issues," in *Handbook of Bullying in Schools: an International Perspective*, eds S. R. Jimerson, S. M. Swearer, and D. L. Espelage (New York, NY: Routledge), 9–33.

Olweus, D. (2011). Bullying at school and later criminality: findings from three swedish community samples of males. *Crim. Behav. Ment. Health* 21, 151–156. doi: 10.1002/cbm.806

Peets, K., Pöyhönen, V., Juvonen, J., and Salmivalli, C. (2015). Classroom norms of bullying alter the degree to which children defend in response to their affective empathy and power. *Dev. Psychol.* 51, 913–920. doi: 10.1037/a0039287

Pozzoli, T., Gini, G., and Vieno, A. (2012). Individual and class moral disengagement in bullying among elementary school children. *Aggress. Behav.* 38, 378–388. doi: 10.1002/ab.21442

Prentice, D. A., and Miller, D. T. (2003). "Pluralistic ignorance and alcohol use on campus: some consequences of misperceiving the social norm," in *Social Psychology: a General Reader*, eds A. W. Kruglanski and E. T. Higgins (New York, NY: Psychology Press), 584–601.

Rigby, K. (2008). *Children and Bullying.* Malden, MA: Blackwell.

Sabia, J. J., and Bass, B. (2017). Do anti-bullying laws work? New evidence on school safety and youth violence. *J. Popul. Econ.* 30, 473–502. doi: 10.1007/s00148-016-0622-z

Sijtsema, J. J., Rambaran, J. A., Caravita, S. C., and Gini, G. (2014). Friendship selection and influence in bullying and defending: effects of moral disengagement. *Dev. Psychol.* 50, 2093–2104. doi: 10.1037/a0037145

Salmivalli, C. (2010). Bullying and the peer group: a review. *Aggress. Violent Behav.* 15, 112–120. doi: 10.1016/j.avb.2009.08.007

Salmivalli, C., and Peets, K. (2018). "Bullying and victimization," in *Handbook of Peer Interactions, Relationships, and Groups*, 2nd Edn, eds W. M. Bukowski, B. Laursen, and K. H. Rubin (New York, NY: The Guilford Press), 302–321.

Salmivalli, C., Voeten, M., and Poskiparta, E. (2011). Bystanders matter: associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *J. Clin. Child Adolesc. Psychol.* 40, 668–676. doi: 10.1080/15374416.2011.597090

Silberg, J. L., Copeland, W., Linker, J., Moore, A. A., Roberson-Nay, R., and York, T. P. (2016). Psychiatric outcomes of bullying victimization: a study of discordant monozygotic twins. *Psychol. Med.* 46, 1875–1883. doi: 10.1017/S0033291716000362

Sticca, F., and Perren, S. (2015). The chicken and the egg: longitudinal associations between moral deficiencies and bullying: a parallel process latent growth model. *Merrill-Palmer Q.* 61, 85–100.

Swearer, S. M., Espelage, D. L., Koenig, B., Berry, B., Collins, A., and Lembeck, P. (2012). "A social-ecological model of bullying prevention and intervention in early adolescence," in *Handbook of School Violence and School Safety*. eds S. R. Jimerson, A. B. Nickerson, M. J. Mayer, and M. J. Furlong (New York, NY: Routledge), 333–355.

Thornberg, R. (2010). A study of children's conceptions of school rules by investigating their judgements of transgressions in the absence of rules. *Educ. Psychol.* 30, 583–603. doi: 10.1080/01443410.2010.492348

Thornberg, R., and Jungert, T. (2013). Bystander behavior in bullying situations: basic moral sensitivity, moral disengagement and defender self-efficacy. *J. Adolesc.* 36, 475–483. doi: 10.1016/j.adolescence.2013.02.003

Thornberg, R., Pozzoli, T., Gini, G., and Jungert, T. (2015). Unique and interactive effects of moral emotions and moral disengagement on bullying and defending among school children. *J. Elem. Sch.* 116, 322–337. doi: 10.1086/683985

Thornberg, R., Thornberg, U., Alamaa, R., and Daud, N. (2016). Children's conceptions of bullying and repeated conventional transgressions: moral, conventional, structuring, and personal-choice reasoning. *Educ. Psychol.* 36, 95–111. doi: 10.1080/01443410.2014.915929

Thornberg, R., and Wänström, L. (2018). Bullying and its associations with altruism toward victims, blaming the victims, and classroom prevalence of bystander behaviors: a multilevel analysis. *Soc. Psychol. Educ.* 21, 1133–1151. doi: 10.1007/s11218-018-9457-7

Thornberg, R., Wänström, L., Hong, J. S., and Espelage, D. (2017). Classroom relationship qualities and social-cognitive correlates of defending and passive bystanding in school bullying in Sweden: a multilevel analysis. *J. Sch. Psychol.* 63, 49–62. doi: 10.1016/j.jsp.2017.03.002

Thornberg, R., Wänström, L., and Jungert, T. (2018). Authoritative classroom climate and its relations to bullying victimization and bystander behaviors. *Sch. Psychol. Int.* 39, 663–680. doi: 10.1177/0143034318809762

Trach, J., Lee, M., and Hymel, S. (2018). A Social-ecological approach to addressing emotional and behavioral problems in schools: focusing on group processes and social dynamics. *J. Emot. Behav. Disord.* 26, 11–20. doi: 10.1177/1063426617742346

Ttofi, M. M., and Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: a systematic and meta-analytic review. *J. Exp. Criminol.* 7, 27–56. doi: 10.1007/s11292-010-9109-1

Veenstra, R., Dijkstra, J. K., and Kreager, D. A. (2018). "Pathways, networks, and norms: a sociological perspective on peer research," in *Handbook of Peer Interactions, Relationships, and Groups*, 2nd Edn, eds W. M. Bukowski, B. Laursen, and K. H. Rubin (New York, NY: The Guilford Press), 45–63.

Wang, C., and Goldberg, T. S. (2017). Using children's literature to decrease moral disengagement and victimization among elementary school students. *Psychol. Sch.* 54, 918–931. doi: 10.1002/pits.22042

Wang, C., Ryoo, J. H., Swearer, S. M., Turner, R., and Goldberg, T. S. (2017). Longitudinal relationships between bullying and moral disengagement among adolescents. *J. Youth Adolesc.* 46, 1304–1317. doi: 10.1007/s10964-016-0577-0

Wänström, L., Pozzoli, T., Gini, G., Thornberg, R., and Alsaadi, S. (2017). Perceived collective efficacy to stop aggression at school: a validation of an Italian and a Swedish version of a scale for adolescents. *Eur. J. Dev. Psychol.* 16, 349–361. doi: 10.1080/17405629.2017.1414695

White, J., Bandura, A., and Bero, L. (2009). Moral disengagement in the corporate world. *Account. Res.* 16, 41–74. doi: 10.1080/08989620802689847

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 08 August 2019
doi: 10.3389/fpsyg.2019.01823

Moral Disengagement and Risk Prototypes in the Context of Adolescent Cyberbullying: Findings From Two Countries

Lambros Lazuras[1], Antonella Brighi[2], Vassilis Barkoukis[3], Annalisa Guarini[4], Haralambos Tsorbatzoudis[3] and Maria Luisa Genta[4]*

[1] Department of Psychology, Sociology and Politics, Sheffield Hallam University, Sheffield, United Kingdom, [2] Faculty of Education, Free University of Bozen-Bolzano, Bolzano, Italy, [3] Department of Physical Education and Sport Science, Aristotle University of Thessaloniki, Thessaloniki, Greece, [4] Department of Psychology, University of Bologna, Bologna, Italy

Cyberbullying is associated with a wide range of mental health difficulties and behavioral problems in adolescents and research is needed to better understand psychological correlates of this behavior. The present study used a novel model that incorporated Social Cognitive Theory and the prototype/willingness model to identify the correlates of behavioral willingness to engage in cyberbullying in two countries. Adolescent students were randomly selected from secondary schools in Italy (n = 1710) and Greece (n = 355), and completed anonymous measures of moral disengagement, descriptive norms, risk prototype evaluations and behavioral willingness to engage in cyberbullying. Hierarchical linear regression analyses showed that willingness to engage in cyberbullying was associated with moral disengagement, prototype evaluations and descriptive social norms in Italy, and with gender, moral disengagement and descriptive social norms in Greece. Regression-based multiple mediation modeling further showed that the association between moral disengagement and cyberbullying willingness was mediated by prototype evaluations in Italy and by descriptive norms in Greece. The implications of our findings are discussed in the context of self-regulating cyberbullying perpetration in adolescents and informing school-based policies and interventions to prevent cyberbullying behavior.

Keywords: cyberbullying, moral disengagement, prototype/willingness model, adolescents, willingness

OPEN ACCESS

Edited by:
Rosario Ortega-Ruiz, Universidad de Córdoba, Spain

Reviewed by:
Dirk Baier, Zurich University of Applied Sciences, Switzerland
Zhaojun Teng, Southwest University, China

***Correspondence:**
Vassilis Barkoukis
bark@phed.auth.gr

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *19 December 2018*
Accepted: *23 July 2019*
Published: *08 August 2019*

Citation:
Lazuras L, Brighi A, Barkoukis V, Guarini A, Tsorbatzoudis H and Genta ML (2019) Moral Disengagement and Risk Prototypes in the Context of Adolescent Cyberbullying: Findings From Two Countries. Front. Psychol. 10:1823. doi: 10.3389/fpsyg.2019.01823

INTRODUCTION

Cyberbullying is defined as the voluntary use of information and communication technology and social media to virtually attack a person or a group of people, and shares common features with traditional, face-to-face bullying, such as intentionality and goal-directedness (i.e., intending to harm the victim; Campbell, 2005; Li, 2007; Juvonen and Gross, 2008; Pyzalski, 2011; Slonje et al., 2013). Cyberbullying also shares common features with indirect bullying, which is typically based on rumor spreading, social exclusion, and denigration of the victim, and does not require physical proximity between the victim and the perpetrator (Smith et al., 2002; Smith, 2004; Slonje and Smith, 2008). Cyberbullying, however, has also some unique features that distinguish it from

traditional bullying experiences, such as exposure to a potentially infinite audience, and the difficulty to discern the perpetrator's identity (Shariff, 2005; Patchin and Hinduja, 2006; Li, 2007; Tokunaga, 2010). The available evidence suggests that cyberbullying can have detrimental effects on the mental health and well-being of the victims, including low self-esteem, poor academic performance, depression, social isolation and withdrawal, and suicide ideation and attempts (Beran and Li, 2007; Hinduja and Patchin, 2008, 2010; Smith et al., 2008; Brighi et al., 2012).

The first reported studies on the topic appeared within the last decade and focused largely on prevalence estimates and trends, impact of cyberbullying on victims, gender differences, and on identifying the different types and forms of cyberbullying (Ybarra and Mitchell, 2004; Strom and Strom, 2006; Li, 2008; Slonje and Smith, 2008; Smith et al., 2008; Menesini and Spiel, 2012; Schenk and Fremouw, 2012). Other studies examined the psychosocial constructs associated with cyberbullying and paid attention to moral values and moral disengagement (Pornari and Wood, 2010; Menesini et al., 2011), empathy (Schultze-Krumbholz and Scheithauer, 2009; Ang and Goh, 2010; Steffgen et al., 2011), self-control (Vazsonyi et al., 2012), personality (Corcoran et al., 2012), and normative beliefs and attitudes (Huang and Chou, 2010). However, there is a paucity of research on theory-driven process-models of cyberbullying that can explain how the different correlates of this behavior are meaningfully linked together and reflect common processes across contexts, cultures and populations.

Moral Disengagement and Cyberbullying

Bandura's (1991) social cognitive theory provides a framework for understanding perceived moral agency and the self-regulation of thought and action. Bandura (1999, 2002, 2004) also described psychological processes that explain the self-regulation of affect, cognition and action in the context of socio-moral transgressions. In this respect, moral disengagement represents a core mechanism by which transgressors can re-evaluate and cognitively re-construct their transgressions in order to alleviate negative emotional responses, such as guilt, and protect their sense of self-integrity (Bandura et al., 2000; Bandura, 2006, 2016). Moral disengagement is reflected in three groups of inter-related psychological processes which pertain to cognitively and affectively re-constructing the transgression (e.g., morally justifying the transgression or comparing it to more harmful conducts), underestimating the effects of the transgression on victims (e.g., distorting the consequences of the conduct or displacing responsibility), and denigrating the victim/target of the transgression (e.g., blaming the victim; Bandura et al., 1996; McAlister et al., 2006). Previous research in adolescent populations has shown that moral disengagement is positively associated with aggression in children and adolescents, including face-to-face bullying (for a meta-analysis, see Gini et al., 2014). Runions and Bak (2015) further argued that online environments can create the conditions under which moral disengagement enables cyberbullying perpetration. In support of this argument, different studies have shown that moral disengagement was associated with both intentions and actual cyberbullying perpetration in adolescents (Pornari and Wood, 2010; Lazuras et al., 2013; Robson and Witenberg, 2013; Kowalski et al., 2014; Bussey et al., 2015), and school-based interventions against cyberbullying were effective in changing moral disengagement processes, such as distorting the consequences and misattributing the blame for cyberbullying incidents (Barkoukis et al., 2016). Nevertheless, other studies found that moral disengagement was positively associated with face-to-face bullying but not with cyberbullying (Perren and Gutzwiller-Helfenfinger, 2012), thus, warranting further empirical investigation of the role of moral disengagement in online aggression/cyberbullying.

Risk Prototypes and Willingness to Engage in Cyberbullying

Although moral disengagement and cyberbullying behavior seem to be correlated, research has shown that this relationship is indirect and that the effects of moral disengagement on adolescents' intentions to engage in cyberbullying are mediated by more proximal and behavior-specific beliefs, such as social norms and prototype perceptions of the people who typically engage in cyberbullying (Lazuras et al., 2013). The prototype/willingness model (PWM) was firstly introduced in late 1990s and attempted to explain the initiation of adolescent health risk tendencies, such as smoking and unsafe sex (Gibbons et al., 1995, 1998). One of the main contributions of the PWM is that it provides an alternative to the Theory of Planned Behavior (TPB; Ajzen, 1991), which has been widely used to explain different types of health behaviors and risk-taking in adolescents and younger adults (Montano and Kasprzyk, 2015). Whereas the TPB focuses on intentionality and premeditation of the potential costs and benefits of a given action as the driving forces of decision-making and action initiation, the PWM introduces the concept of "social reaction" which explains how and why young people may engage in risk behaviors without necessarily having previously formed any relevant intentions or goal plans (Gerrard et al., 2008). To this end, the PWM recognizes that adolescent risk behavior may be elicited in response to situational cues to action and, for this reason, considers the construct of behavioral willingness as a more appropriate indicator of adolescent risk-taking tendencies than measures of behavioral intentions (Gibbons et al., 1998, 2009). Behavioral willingness represents the inclination to undertake risks under specific, risk-conducive circumstances (e.g., when being with friends who perform this behavior), and is assumed to be influenced by normative influences, such as the behavior of peers (descriptive social norms), and by risk prototype evaluations (e.g., the stereotypical view of a person engaging in the behavior in question; Gibbons and Gerrard, 1995; Gibbons et al., 2004, 2009). In the context of cyberbullying, the PWM would predict that a young person, who favorably evaluates cyberbullies and perceives these actor-prototypes as psychologically similar to him/herself, would display greater behavioral willingness to engage in cyberbullying given the chance (e.g., while in the company of peers who engage in cyberbullying). However, so far there has been limited research on the relationship of PWM constructs in adolescent cyberbullying. It is important to note that whereas

the TPB emphasizes the role of subjective (or injunctive) social norms that reflect perceived social approval/disapproval of a given behavior by referent others, the PWM utilizes descriptive social norms as a source of normative influence on behavior. Descriptive social norms represent the perceived prevalence or popularity of a given behavior in referent groups, and they can explain why people may reactively and automatically (i.e., without necessarily requiring intentionality) engage in certain behaviors by simply following the lead of referent others (Rivis and Sheeran, 2003; Cialdini, 2007). Descriptive social norms have been found effective in predicting several health-related behaviors such as adolescents' fruit and vegetables' consumption (Lally et al., 2011; Stok et al., 2014), adolescents' risky sexual online behavior (Baumgartner et al., 2011), alcohol consumption (Brooks-Russell et al., 2014) and physical activity (Priebe and Spink, 2011). Overall, as Cialdini (2007) and Schultz et al. (2007) pointed out social norms guide behavior as people use perceptions of what other people approve and do as a criterion for their own behavior, and descriptive social norms, in particular, are an important construct influencing human behavior.

The Present Study

In the present study we empirically examined an integrated theoretical model that incorporated moral disengagement and PWM dimensions. This integration stems from previous research which showed that the PWM constructs can be effectively integrated in other relevant theoretical approaches and increase the predicted variance in behavior (Thornton et al., 2002; Rivis et al., 2006). Furthermore, such integration can further extent theoretical models in a specific domain, and help in distinguishing between distal and proximal influences on behavior (Gibbons et al., 2004; Buunk and Gibbons, 2007). To this end, Lazuras et al. (2013) integrated constructs from the theory of planned behavior and the PWM with moral disengagement, from Bandura's (1991) Social Cognitive Theory, to predict cyberbullying intentions among Greek adolescents. They showed that the effects of moral disengagement on intentions to engage in cyberbullying were mediated by prototype similarity but not evaluations (i.e., how favorably/unfavorably cyberbullying perpetrators were evaluated). Nevertheless, the study by Lazuras et al. (2013) used intentions as a dependent/criterion variable and this approach has certain limitations because cyberbullying is a socially undesirable behavior and, therefore, intentions can be underreported. As previously explained, behavioral willingness refers to a more reactive response to a behavior as compared to intentions that reflects a deliberate reaction. It is expected that people may report higher scores on willingness as compared to intentions and, thus, it may be a more appropriate predictor of adolescent's transgressive behavior, such as cyberbullying. The findings by Lazuras et al. (2013) are in line with research showing that prototype similarity is more predictive of behavioral intentions, whereas prototype favorability is more predictive of willingness (for a meta-analysis see Todd et al., 2016). In the present study, we further extended the model presented by Lazuras et al. (2013) by specifically examining the direct and indirect, via descriptive social norms and prototype evaluations (i.e., prototype favorability), association of moral disengagement with Greek and Italian adolescents' willingness to engage in cyberbullying. In accordance with the recommendations of Todd et al. (2016), in the present study we only included prototype favorability as a predictor of willingness. It was hypothesized that moral disengagement will predict adolescents' willingness to engage in cyberbullying (Hypothesis 1), and that this association would be mediated by descriptive social norms and prototype favorability (Hypothesis 2). These hypotheses were tested in two different countries, Greece and Italy, with the aim to examine whether the proposed process model can be replicated in different contexts. Research on cyberbullying has demonstrated significant differences among countries on the prevalence of cyberbullying (Sorrentino et al., 2019). However, empirical evidence on the psychological processes underlying cyberbullying manifestation across different countries is rather scarce. For instance, Shapka et al. (2018) examined adolescents' motivation to cyberbully in different countries and Barlett et al. (2014) attitudes toward cyberbullying and self-construal. Although mean differences appeared, there is a dearth of research on the psychological processes underlying cyberbullying. In this line, Bauman and Bellmore (2015) and Lee and Shin (2017) suggested that more research is needed to better comprehend the nature of cyberbullying in different countries.

The present study consists of a preliminary test and an exploration of these hypothesized relationships in these countries. Greece and Italy were selected as they share similar educational systems, population structure, and socio-economic and demographic backgrounds (Fournier et al., 2018; Sorrentino et al., 2019)[1]. Furthermore, both countries have a high prevalence of cyberbullying behavior as compared to other European countries (Del Rey et al., 2015). Despite these similarities, they are still two different countries representing different student mentalities. Therefore, this approach allows us to test these hypotheses to different samples and offers stronger support for the generalizability of the model to different student populations.

MATERIALS AND METHODS

Participants

The sample of the study consisted of adolescent and young students attending public secondary schools in Italy and Greece. The age range of the participants was between 14 and 20 years (M = 14.7, SD = 1.20; 55.5% females). A random stratified selection procedure was employed. In the first step the region of the schools was selected. In the second step the school and in the last step the students were selected. With respect to the Greek sample (n = 355, M = 14.76 years, SD = 1.20, age range 15–18 years, 55.5% females), students were recruited from schools in Athens and Thessaloniki, the two largest cities in Greece (totaling approx. 70% of the Greek population); providing thus a representative sample of the Greek student population. Five hundred students were approached and 355 accepted to participate in the study and completed the full

[1]See for example http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_lvps01&lang=en

questionnaire (71% response rate). The Italian sample (n = 1710, M = 16.35 years old, SD = 1.49, age range 14–20 years, 54.5% females) was recruited from 39 secondary schools in two central regions of Italy (Emilia-Romagna and Tuscany). Schools included all type of secondary education (lower secondary and upper secondary schools, such as lyceums, technical institutes and vocational schools) and they were located in different socio-economic areas. In both countries data collection took place at the same period (academic season 2010–2011).

Measures

Participants completed a paper and pencil questionnaire including measures of moral disengagement, descriptive norms, prototype favorability and willingness toward cyberbullying.

Moral Disengagement

Moral disengagement was assessed with the 24-item respective measurement by Bandura et al. (1996), which reflected six mechanisms of moral disengagement: moral justification (e.g., "*It is alright to fight to protect your friends*"), advantageous comparison (e.g., "*Stealing some money is not too serious compared to those who steal a lot of money*"), displacement of responsibility (e.g., "*If kids are living under bad conditions they cannot be blamed for behaving aggressively*"), diffusion of responsibility (e.g., "*A kid in a gang should not be blamed for the trouble the gang causes*"), distorting consequences (e.g., "*It is okay to tell small lies because they don't really do any harm*"), and attribution of blame (e.g., "*If kids fight and misbehave in school it is their teacher's fault*"). In Greece, a translated version used in previous research (e.g., Lazuras et al., 2013) was employed. Responses in the Greek scale were scored on a continuous 3-point scale (from 1 = *disagree* to 3 = *agree*), and higher scores reflected higher levels of moral disengagement. In Italy, a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*) was used to record responses and higher scores reflected higher levels of moral disengagement. In both countries the same instrument was used to test moral disengagement; however, we maintained the scoring system used during the previous test of the scale in each country. Based on the recommendations by Bandura et al. (1996), an overall sum score of moral disengagement was computed in each country. The internal consistency reliability for the 24-item version was acceptable (Cronbach's $\alpha = 0.71$ for the Greek sample and $\alpha = 0.85$ for the Italian sample).

Descriptive Social Norms

Descriptive social norms were assessed with three distinct items reflecting informational influence on cyberbullying. Specifically, the first item (classmate norms) asked participants to estimate how many of their classmates engage in cyberbullying behavior (responses ranged from 1 = *nobody* to 5 = *almost all of them*); the second item assessed cyberbullying behavior among the five closest friends ("close friend norms," responses ranged from 0 = *nobody*, to 5 = *all five of them*); the third item assessed perceived prevalence of cyberbullying among same-age peers (perceived prevalence norms) in Greece/Italy (i.e., "*Out of 100%, how many people your age in Greece/Italy do you think engage or have engaged in cyberbullying?*" responses given in an open-ended format); and the fourth item asked participants whether they had witnessed or heard of other same-aged peers engaging in cyberbullying ("peer norms," responses ranged from 1 = *never to* 5 = *very often*). A composite score of the three items was used in the analyses. Due to the different response options in these items, they were transformed to z-scores, and these values were used to produce the construct's mean score.

Risk Prototype Favorability

Following the recommendations by Gibbons et al. (1998), a definition of prototypes was given, and students were asked to evaluate the prototype of a typical same-age adolescent who engages in cyberbullying. Risk prototype favorability reflected positive or negative evaluations that were, respectively, assessed with 12 items reflecting both positive (e.g., smart, popular, cool, and independent) and negative attributes (e.g., confused, careless, immature, and dull). Responses were rated along a continuous 7-point scale (1 = *not at all*, 7 = *very much*). A mean score was calculated, and internal consistency scores were adequate for both positive (Cronbach's $\alpha = 0.66$ for the Greek sample and $\alpha = 0.66$ for the Italian sample) and negative prototype attributes (Cronbach's $\alpha = 0.61$ for the Greek sample and $\alpha = 0.68$ for the Italian sample).

Willingness Toward Cyberbullying

Students willingness to participate in cyberbullying incidents was measured with three scenarios describing situations which could trigger such behaviors ("*Suppose you have had a bad fight with a friend in school. How likely is it that you will send that person nasty messages by internet or mobile phone when you get home*?," "*Suppose you receive a threatening or insulting text by internet or mobile phone. How likely is it that you would get even by sending a similar text to the sender*?" and "*Suppose your friends were thinking to send a threatening text or upload an insulting video or photo on the internet about a person you all dislike. How likely is it that you agree with this idea and help them*?"). Responses were anchored on a 7-point Likert scale ranging from 1 (*not at all likely*) to 7 (*very likely*). A composite score was computed with higher scores indicating higher willingness to participate in cyberbullying incidents (Cronbach's $\alpha = 0.61$ for the Greek sample and $\alpha = 0.60$ for the Italian sample).

Procedure

Ethical approval and permission to conduct the study was granted from the respective committee of the Greek Ministry of Education. After the selection of schools, the principals were informed that their schools had been selected to take part in a large scale European funded project and permission was requested. After obtaining principals' permission, the selection of the students was made. Students were informed about the purpose of the study and informed consent was obtained. Also, parental consent was requested; students delivered to their parents a letter explaining the purpose and the procedure of the study with a note to be returned

TABLE 1 | Means, standard deviations and correlation coefficients among the study's variables.

	1	2	3	4	5	6	7	*M*	*SD*
1. Age	–	0.12*	0.00	−0.15*	−0.17**	0.06	−0.01	14.76	1.20
2. Gender	−0.00	–	0.24***	−0.17**	−0.16**	0.26***	−0.07	–	–
3. Willingness	−0.01	−0.12***	–	−0.15**	−0.22***	0.21***	−0.00***	4.19	1.99
4. Moral disengagement	−0.10***	−0.24***	0.35***	–	0.27***	−0.28***	0.22***	1.86	0.25
5. Positive Prototype Evaluation	−0.08**	−0.08**	0.18***	0.22***	–	−0.35***	0.24***	2.95	1.17
6. Negative Prototype Evaluation	0.02	−0.12***	0.10***	0.11***	0.01	–	−0.23**	4.74	1.17
7. Descriptive Norms	0.09***	0.13***	0.15***	0.05*	0.05*	0.00	–	−0.16	0.62
M	16.35	–	3.10	2.35	2.70	3.36	0.03		
SD	1.45	–	1.40	0.57	1.07	1.27	0.68		

*Values above the diagonal present scores for Greece and below the diagonal present scores for Italy; *p < 0.05; **p < 0.005; ***p < 0.001.*

TABLE 2 | Psychological correlates of willingness to engage in cyberbullying in Greece and Italy.

		Greece				Italy			
		B	β	95% CI for B	Adjusted R^2	B	β	95% CI for B	Adjusted R^2
Step 1	Age	0.099	0.077	−0.035, 0.234	18.8%	0.016	0.017	−0.028, 0.061	13.1%
	Gender	−0.524	−0.164**	−0.855, −0.192		−0.101	−0.036	−0.234, 0.033	
	Moral disengagement	2.442	−0.396***	1.800, 3.084		0.868	0.355***	0.752, 0.984	
Step 2	Age	0.094	0.073	−0.035, 0.224	26.5%	0.006	0.006	−0.038, 0.050	16.2%
	Gender	−0.444	−0.139*	−0.771, −0.118		−0.138	−0.049*	−0.271, −0.004	
	Moral disengagement	2.002	−0.324***	1.354, 2.650		0.774	0.316***	0.656, 0.891	
	Positive Prototype Evaluation	0.064	0.046	−0.084, 0.213		0.124	0.095***	0.063, 0.184	
	Negative Prototype Evaluation	−0.004	−0.003	−0.158, 0.150		0.066	0.060*	0.016, 0.116	
	Descriptive Norms	0.742	0.285***	0.478, 1.007		0.284	0.140***	0.191, 0.378	

*$p < 0.05$; **$p < 0.005$; ***$p < 0.001$.

signed to the researchers in case parents did not want their child to participate in the study. No signed forms were returned. The completion of the questionnaire lasted approximately 20 min. The procedure was supervised by trained personnel alongside with the students' teachers. Both written and oral instructions were given to students regarding the completion of the questionnaire. Students were encouraged to ask any clarifying questions and were reassured about the confidentiality of their responses which would be used solely for research purposes.

Data Analysis

Descriptive statistics of the study's variables were tested with SPSS 22. Internal consistency of all scales was tested using Cronbach's alpha coefficients. Pearson's *r* correlations were used to assess the associations between moral disengagement, descriptive norms, risk prototype favorability and willingness to engage in cyberbullying, followed by a bootstrapped (5000 resamples) hierarchical linear regression analysis of the hypothesized relationships between the constructs. Bootstrapping is a robust alternative to standard parametric estimates, when the assumptions around the latter may be violated (Fox, 2008). Regression-based multiple mediation analysis (Preacher and Hayes, 2008) was further used to assess the mediating effect of PWM constructs (descriptive social norms and risk prototype favorability) on the association between moral disengagement and willingness to engage in cyberbullying. All data were analyzed in SPSS 22 (IBM Corp., Armonk, NT, United States). MPlus 8.1 software was used to assess the measurement invariance of the descriptive social norms, risk prototype favorability and willingness toward cyberbullying.

RESULTS

Measurement Invariance and Inter-Correlations Among the Study Variables

The measurement invariance of the descriptive social norms, risk prototype favorability and willingness toward cyberbullying was tested across the two samples. The measurement invariance of each measure was tested independently of the others. For descriptive social norms the results of the multiple group analysis demonstrated that the scales were invariant across the two samples ($\chi 2$ (4) = 14.34, p = 0.0063, CFI = 0.985, RMSEA = 0.050, SRMR = 0.035). Similar findings were reported for willingness toward cyberbullying ($\chi 2$ (4) = 41.22, p = 0.0000, CFI = 0.957, RMSEA = 0.095, SRMR = 0.034), whereas measurement invariance was not supported for risk prototype favorability. Means and standard deviations and intercorrelations among the study's variables are presented in **Table 1**.

Multivariate Associations Between Moral Disengagement, PWM Constructs and Willingness to Engage in Cyberbullying

Two bootstrapped (5000 resamples) with bias corrected and accelerated (BCa) Confidence Intervals hierarchical regression models were used to assess the associations between moral disengagement, PWM constructs (risk prototype favorability), descriptive norms and willingness to engage in cyberbullying in the Greek and Italian samples, respectively. The models were completed in two steps, with the first step including basic demographic characteristics (age and gender), and moral disengagement, and the second stage including PWM constructs, namely positive and negative risk prototype favorability, and descriptive norms.

The first model (Greek sample) predicted 26.5% (Adjusted R^2, $F = 19.16$, $p < 0.001$, multivariate $f^2 = 0.36$) of the variance in willingness to engage in cyberbullying perpetration, and tolerance levels were high (>0.784) indicating no multicollinearity among predictor variables. In the first step of the analysis being male ($\beta = -0.164$, $p = 0.002$) and higher moral disengagement ($\beta = 0.396$, $p < 0.001$) were significantly associated with cyberbullying willingness. The addition of descriptive norms and risk prototype favorability in the second step of the analysis significantly increased the predicted variance of the model by 8.4% ($F_{change} = 11.45$, $p < 0.001$) but only descriptive norms, gender and moral disengagement were significantly associated with willingness to engage in cyberbullying. The results are summarized in **Table 2**.

The second model (Italian sample) predicted 16.2% (Adjusted R^2, $F = 52.25$, $p < 0.001$, multivariate $f^2 = 0.19$) of the variance in willingness to engage in cyberbullying, and tolerance levels were high (>0.879) indicating no multicollinearity among predictor variables. In the first step of the analysis moral disengagement ($\beta = 0.355$, $p < 0.001$) was significantly associated with willingness. Adding PWM constructs in the second step of the analysis significantly increased predicted variance by 3.2% ($F_{change} = 20.57$, $p < 0.001$) and the significant predictors of willingness to engage in cyberbullying included higher moral disengagement, being self-identified as male, positive and negative risk prototype favorability, and descriptive social norms. The results are summarized in **Table 2**.

Indirect Effects of Moral Disengagement on Willingness to Engage in Cyberbullying

Multiple mediation modeling was used to assess the mediating role of risk prototype favorability and descriptive norms on the association between moral disengagement and willingness to engage in cyberbullying. For the analysis we used the SPSS Macro INDIRECT (Preacher and Hayes, 2008) with 5000 resamples and 95% confidence intervals, and the Sobel test (z) was used to enable effect size comparisons between the mediators. The results are summarized in **Figures 1**, **2**. The analysis for the Greek sample showed that descriptive social norms significantly mediated the association between moral disengagement and willingness to engage in cyberbullying ($z = 3.29$, $p = 0.001$; **Figure 1**). The analysis for the Italian data showed that the association between moral disengagement and willingness to engage in cyberbullying was mediated by positive ($z = 3.85$, $p < 0.001$) and negative risk prototype favorability ($z = 2.45$, $p < 0.05$; **Figure 2**), but not descriptive social norms. A comparison of the mediation effects showed that positive risk prototype favorability had a significantly stronger ($p < 0.05$) mediation effect than negative ones.

DISCUSSION

In the present study we empirically examined a model of adolescents' willingness to engage in cyberbullying that incorporated measures from Social Cognitive Theory (Bandura, 1999) and the PWM (Gibbons et al., 1998). The model was an extension of previous research on cyberbullying (Lazuras et al., 2013), and it was hypothesized that moral disengagement will be positively associated with willingness to engage in cyberbullying (Hypothesis 1), and that this association would be partly explained (mediated) by PWM constructs, namely descriptive social norms and risk prototype favorability (Hypothesis 2). The results supported the first hypothesis of the study by showing that moral disengagement was positively associated with willingness to engage in cyberbullying in both countries. Instead of TPB-based intention measures, in the present study we employed a more situation-based behavioral willingness measure to reflect the behavioral tendency to engage in cyberbullying perpetration in specific situations and social contexts in the future (Gibbons et al., 1998; Todd et al., 2016). This is in line with previous research showing a positive correlation between higher levels of moral disengagement and the tendency/intention to engage in cyberbullying perpetration (e.g., Lazuras et al., 2013; Kowalski et al., 2014; Bussey et al., 2015). Additionally, our results further extend the findings by Lazuras et al. (2013) by indicating that behavioral willingness can provide a useful alternative to TPB-based intention measures when assessing the association between moral disengagement and adolescents' tendencies to engage in cyberbullying perpetration.

The present findings only partially supported the second hypothesis of the study. In particular, different variables emerged as mediators in the two countries. More specifically, in the Italian sample, moral disengagement retained a significant effect on willingness after PWM constructs were controlled for and this is in line with previous research (e.g., Lazuras et al., 2013). Multiple mediation modeling further showed that the association between moral disengagement and willingness was partly explained by risk prototype favorability evaluations – with positive evaluations exhibiting a stronger mediation effect than negative ones. In contrast descriptive social norms did not significantly mediated the moral disengagement-willingness relationship in this sample. In contrast, in the Greek sample, the association between moral disengagement and willingness to engage in cyberbullying was partly explained only by descriptive social norms. On the other hand, risk prototype favorability evaluations did not have a significant

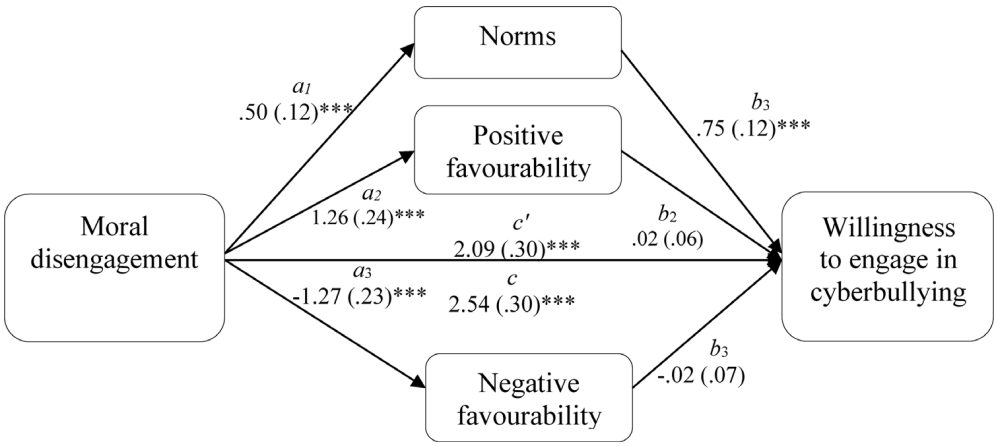

FIGURE 1 | Total and indirect effect of moral disengagement on willingness to engage in cyberbullying in the Greek sample. The total (c) and the indirect effect (c') of moral disengagement on willingness to engage in cyberbullying for the Greek sample are shown; unstandardized path coefficients are presented, with standard errors in brackets; $*p < 0.05$; $**p < 0.005$; $***p < 0.001$.

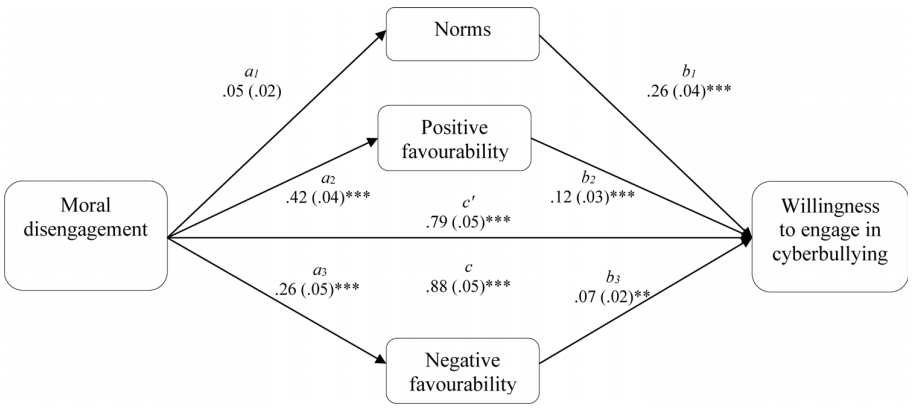

FIGURE 2 | Total and indirect effect of moral disengagement on willingness to engage in cyberbullying in the Italian sample. The total (c) and the indirect effect (c') of moral disengagement on willingness to engage in cyberbullying for the Italian sample are shown; unstandardized path coefficients are presented, with standard errors in brackets; $*p < 0.05$; $**p < 0.005$; $***p < 0.001$.

mediation effect. Those differences in mediation effects could be attributed to country-specific variation. That is, although moral disengagement was invariantly associated with willingness to engage in cyberbullying in both countries when the prototype favorability evaluations and descriptive social norms were accounted for in the model, still the mediating variables differed with prototype favorability evaluations being more relevant for the Italian participants, and descriptive social norms being more relevant for the Greek participants. Future research is needed to further confirm these associations, but we can tentatively explain our results in the following ways. In the Italian sample, risk prototype evaluation of the "typical" cyberbullying perpetrators serve as potential risk factors for the tendency to engage in cyberbullying under different situations. In the context of social cognitive theory this may mean that such evaluations facilitate the moral disengagement process (e.g., if the typical person who engages in cyberbullying is cool then it is OK to engage in cyberbullying). On the other hand, in the Greek sample the effect of moral disengagement on cyberbullying willingness seems to be facilitated by a more automatic normative process (e.g., if most people like me are doing it, then it cannot be that bad) that relies on the *perceived* sheer number of referent others who engage in cyberbullying than on the evaluation of the perpetrator's attributes as positive or negative. In this respect, descriptive social norms facilitate moral disengagement processes, and this is in line with the proposition that normative processes allow people to make an "agentic shift" in justifying their actions – a mechanism which may further enable diffusion of responsibility (Osofsky et al., 2005; Bandura, 2016). In other words, morally disengaging from cyberbullying can be facilitated when people find the normative excuses to justify their behavior. Of course, these assumptions require further empirical examination with prospective designs that will enable us to draw more robust conclusions about the temporal associations between the constructs under study.

Overall, the findings of the present study indicated that although moral disengagement is a strong predictor of willingness to cyberbully, its effect can be mediated by different constructs under different circumstances. Recently, Travlos et al. (2018) demonstrated that different personal (i.e., gender and age) variables may influence the effect of moral disengagement on traditional bullying behavior. The present study including participants of different ethnic background, age and gender distribution, also suggested that such personal and cultural variables may be responsible for the differential processes found in predicting the decision to cyberbully. Future studies should take into account such variables when attempting to investigate the decision making process toward cyberbullying too.

The study is not free of limitations. Firstly, it is a cross-sectional study and causal inferences cannot be made, since the data describe the association among the variables under study. Secondly, the present study is based on self-reports and it possible that some responses were influenced by social desirability, even if the anonymity was ensured. Further studies with a longitudinal design and including different tools for data collections will be very useful to confirm our findings. Furthermore, the two samples used in the present study are not fully comparable in terms of size and mean age. These differences, especially the small sample in Greece, did not allow for the use of more sophisticated analyses (i.e., SEM or path analysis, or multilevel analysis) that would provide a more comprehensive understanding of multilevel effects on the behavior and the related psychological processes we studied (e.g., distinguish between school-level and student-level influences on moral disengagement or self-reported cyberbullying behavior). In addition, the reliability of the willingness toward cyberbullying and prototype perceptions were marginally acceptable and caution is needed in interpreting the findings with respect to this variable. Notwithstanding these limitations, this is among the first studies to investigate the joint effect of moral disengagement and prototype perceptions on willingness to cyber bully. Importantly, in the present study data from two countries are presented and demonstrate that moral disengagement is consistently a strong predictor of transgressive behaviors, such as cyberbullying. Overall, the present study provides valuable information on the precursors of cyberbullying behavior in adolescence and can inform future research on the psychological mechanisms underpinning cyberbullying behavior.

ETHICS STATEMENT

The study design has been approved by the Hellenic Ministry of Education and Religious Affairs and is in line with the Code of Ethics in Research of the Arsitotle University of Thessaloniki.

AUTHOR CONTRIBUTIONS

All authors contributed equally in the planning of the study, data collection, and manuscript preparation.

FUNDING

This study is part of a larger project that was funded by the Daphne III Programme of the European Commission's DG Justice, Freedom and Security entitled "Cyberbullying in adolescence: investigation and intervention in six European countries."

REFERENCES

Ajzen, I. (1991). The theory of planned behaviour. *Organ. Behav. Hum. Decis. Process.* 50, 179–211.

Ang, R. P., and Goh, D. H. (2010). Cyberbullying among adolescents: the role of affective and cognitive empathy, and gender. *Child Psychiatr. Hum. Dev.* 41, 387–397. doi: 10.1007/s10578-010-0176-3

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organ. Behav. Hum. Decis. Process.* 50, 248–287. doi: 10.1016/0749-5978(91)90022-l

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Pers. Soc. Psychol. Rev.* 3, 193–209. doi: 10.1207/s15327957pspr0303_3

Bandura, A. (2002). Selective moral disengagement in the exercise of moral agency. *J. Moral Educ.* 31, 101–119. doi: 10.1080/0305724022014322

Bandura, A. (2004). Health promotion by social cognitive means. *Health Educ. Behav.* 31, 143–164. doi: 10.1177/1090198104263660

Bandura, A. (2006). "Guide for constructing self-efficacy scales," in *Self-Efficacy Beliefs of Adolescents* eds F. Pajares, and T. S. Urdan, (Charlotte, NC: Age Information Publishing) 307–337.

Bandura, A. (2016). *Moral Disengagement: How People Do Harm and Live With Themselves*. New York, NY: Worth Publishers.

Bandura, A., Barbaranelli, C., Caprara, G. V., and Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *J. Pers. Soc. Psychol.* 71, 364–374. doi: 10.1037/0022-3514.71.2.364

Bandura, A., Caprara, G. V., and Zsolnai, L. (2000). Corporate transgressions through moral disengagement. *J. Hum. Values* 6, 57–64. doi: 10.1037/a0036950

Barkoukis, V., Lazuras, L., Ourda, D., and Tsorbatzoudis, H. (2016). Tackling psychosocial risk factors for adolescent cyberbullying: evidence from a school-based intervention. *Aggress. Behav.* 42, 114–122. doi: 10.1002/ab.21625

Barlett, C. P., Gentile, D. A., Anderson, C. A., Suzuki, K., Sakamoto, A., Yamaoka, A., et al. (2014). Cross-cultural differences in cyberbullying behavior: a short-term longitudinal study. *J. Cross Cult. Psychol.* 45, 300–313. doi: 10.1177/0022022113504622

Bauman, S., and Bellmore, A. (2015). New directions in cyberbullying research. *J. Sch. Violence* 14, 1–10. doi: 10.1080/15388220.2014.968281

Baumgartner, S. E., Valkenburg, P. M., and Peter, J. (2011). The influence of descriptive and injunctive peer norms on adolescents' risky sexual online behavior. *Cyberpsychol. Behav. Soc. Netw.* 14, 753–758. doi: 10.1089/cyber.2010.0510

Beran, T., and Li, Q. (2007). The relationship between cyberbullying and school bullying. *J. Stud. Wellbeing* 1, 15–33.

Brighi, A., Guarini, A., Melotti, G., Galli, S., and Genta, M. L. (2012). Predictors of victimisation across direct bullying, indirect bullying and cyberbullying. *Emot. Behav. Diffic.* 17, 375–388. doi: 10.1080/13632752.2012.704684

Brooks-Russell, A., Simons-Morton, B., Haynie, D., Farhat, T., and Wang, J. (2014). Longitudinal relationship between drinking with peers, descriptive norms, and adolescent alcohol use. *Prev. Sci.* 15, 497–505. doi: 10.1007/s11121-013-0391-9

Bussey, K., Fitzpatrick, S., and Raman, A. (2015). The role of moral disengagement and self-efficacy in cyberbullying. *J. Sch. Violence* 14, 30–46. doi: 10.1080/15388220.2014.954045

Buunk, A. P., and Gibbons, F. X. (2007). Social comparison: the end of a theory and the emergence of a field. *Organ. Behav. Hum. Decis. Process.* 102, 3–21. doi: 10.1016/j.obhdp.2006.09.007

Campbell, M. A. (2005). Cyber bullying: an old problem in a new guise? *J. Psychol. Couns. Sch.* 15, 68–76. doi: 10.1375/ajgc.15.1.68

Cialdini, R. B. (2007). Descriptive social norms as underappreciated sources of social control. *Psychometrika* 72, 263–268. doi: 10.1007/s11336-006-1560-6

Corcoran, L., Connolly, I., and Moore, M. O. (2012). Cyberbullying in Irish schools: an investigation of personality and self-concept. *Ir. J. Psychol.* 33, 153–165. doi: 10.1080/03033910.2012.677995

Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., et al. (2015). Structural validation and cross-cultural robustness of the European cyberbullying intervention project questionnaire. *Comput. Hum. Behav.* 50, 141–147. doi: 10.1016/j.chb.2015.03.065

Fournier, Y., Lefresne, F., and Rakocevic, R. (2018). *Education in Europe: Key Figures*. Paris: Ministry of National Education.

Fox, J. (2008). *Applied Regression Analysis and Generalized Linear Models*, 2nd Edn. London: Sage.

Gerrard, M., Gibbons, F. X., Houlihan, A. E., Stock, M. L., and Pomery, E. A. (2008). A dual-process approach to health risk decision making: the prototype willingness model. *Dev. Rev.* 28, 29–61. doi: 10.1016/j.dr.2007.10.001

Gibbons, F. X., and Gerrard, M. (1995). Predicting young adults' health risk behaviour. *J. Pers. Soc. Psychol.* 69, 505–517.

Gibbons, F. X., Gerrard, M., Blanton, H., and Russell, D. W. (1998). Reasoned action and social reaction: willingness and intention as independent predictors of health risk. *J. Pers. Soc. Psychol.* 74, 1164–1180. doi: 10.1037//0022-3514.74.5.1164

Gibbons, F. X., Gerrard, M., Lune, L. S. V., Wills, T. A., Brody, G., and Conger, R. D. (2004). Context and cognitions: environmental risk, social influence, and adolescent substance use. *Pers. Soc. Psychol. Bull.* 30, 1048–1061. doi: 10.1177/0146167204264788

Gibbons, F. X., Gerrard, M., and McCoy, S. B. (1995). Prototype perception predicts (lack of) pregnancy prevention. *Pers. Soc. Psychol. Bull.* 21, 85–93. doi: 10.1177/0146167295211009

Gibbons, F. X., Houlihan, A. E., and Gerrard, M. (2009). Reason and reaction: the utility of a dual-focus, dual-processing perspective on promotion and prevention of adolescent health risk behaviour. *Br. J. Health Psychol.* 14, 231–248. doi: 10.1348/135910708X376640

Gini, G., Pozzoli, T., and Hymel, S. (2014). Moral disengagement among children and youth: a meta-analytic review of links to aggressive behavior. *Aggress. Behav.* 40, 56–68. doi: 10.1002/ab.21502

Hinduja, S., and Patchin, J. W. (2008). Personal information of adolescents on the internet: a quantitative content analysis of myspace. *J. Adolesc.* 31, 125–146. doi: 10.1016/j.adolescence.2007.05.004

Hinduja, S., and Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Arch. Suicide Res.* 14, 206–221. doi: 10.1080/13811118.2010.494133

Huang, Y. Y., and Chou, C. (2010). An analysis of multiple factors of cyberbullying among junior high school students in Taiwan. *Comput. Hum. Behav.* 26, 1581–1590. doi: 10.1016/j.chb.2010.06.005

Juvonen, J., and Gross, E. (2008). Extending the school grounds? *J. Sch. Health* 78, 496–505. doi: 10.1111/j.1746-1561.2008.00335.x

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., and Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol. Bull.* 140, 1073–1137. doi: 10.1037/a0035618

Lally, P., Bartle, N., and Wardle, J. (2011). Social norms and diet in adolescents. *Appetite* 57, 623–627. doi: 10.1016/j.appet.2011.07.015

Lazuras, L., Barkoukis, V., Ourda, D., and Tsorbatzoudis, H. (2013). A process model of cyberbullying in adolescence. *Comput. Hum. Behav.* 29, 881–887. doi: 10.1016/j.chb.2012.12.015

Lee, C., and Shin, N. (2017). Prevalence of cyberbullying and predictors of cyberbullying perpetration among Korean adolescents. *Comput. Hum. Behav.* 68, 352–358. doi: 10.1016/j.chb.2016.11.047

Li, Q. (2007). New bottle but old wine: a research of cyberbullying in schools. *Comput. Hum. Behav.* 23, 1777–1791. doi: 10.1016/j.chb.2005.10.005

Li, Q. (2008). A cross-cultural comparison of adolescents' experience related to cyberbullying. *Educ. Res.* 50, 223–234. doi: 10.1080/00131880802309333

McAlister, A. L., Bandura, A., and Owen, S. V. (2006). Mechanisms of moral disengagement in support of military force: the impact of Sept. 11. *J. Soc. Clin. Psychol.* 25, 141–165. doi: 10.1521/jscp.2006.25.2.141

Menesini, E., Nocentini, A., and Calussi, P. (2011). The measurement of cyberbullying: dimensional structure and relative item severity and discrimination. *Cyberpsychol. Behav. Soc. Netw.* 14, 267–274. doi: 10.1089/cyber.2010.0002

Menesini, E., and Spiel, C. (2012). Introduction: cyberbullying: development, consequences, risk and protective factors. *Eur. J. Dev. Psychol.* 9, 163–167. doi: 10.1080/17405629.2011.652833

Montano, D. E., and Kasprzyk, D. (2015). "Theory of reasoned action, theory of planned behavior, and the integrated behavioral model," in *Health Behavior: Theory, Research and Practice*, eds K. Glanz, B. K. Rimer, and K. V. Viswanath, (San Francisco, CA: Jossey-Bass), 95–124.

Osofsky, M. J., Bandura, A., and Zimbardo, P. G. (2005). The role of moral disengagement in the execution process. *Law Hum. Behav.* 29, 371–393. doi: 10.1007/s10979-005-4930-1

Patchin, J. W., and Hinduja, S. (2006). Bullies move beyond the schoolyard. *Youth Violence Juv. Justice* 4, 148–169. doi: 10.1177/1541204006286288

Perren, S., and Gutzwiller-Helfenfinger, E. (2012). Cyberbullying and traditional bullying in adolescence: differential roles of moral disengagement, moral emotions, and moral values. *Eur. J. Dev. Psychol.* 9, 195–209. doi: 10.1080/17405629.2011.643168

Pornari, C. D., and Wood, J. (2010). Peer and cyber aggression in secondary school students: the role of moral disengagement, hostile attribution bias, and outcome expectancies. *Aggress. Behav.* 36, 81–94. doi: 10.1002/ab.20336

Preacher, K. J., and Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Methods* 40, 879–891. doi: 10.3758/BRM.40.3.879

Priebe, C. S., and Spink, K. S. (2011). When in Rome: descriptive norms and physical activity. *Psychol. Sport Exerc.* 12, 93–98. doi: 10.1016/j.psychsport.2010.09.001

Pyzalski, J. (2011). "Electronic aggression among adolescents: an old house with a new facade (or even a number of houses)?," in *Youth Culture and Net Culture: Online Social Practices*, eds E. Dunkels, G. M. Franberg, and C. Hallgren, (New York, NY: Information Science Reference), 278–295. doi: 10.4018/978-1-60960-209-3.ch016

Rivis, A., and Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: a meta-analysis. *Curr. Psychol.* 22, 218–233. doi: 10.1007/s12144-003-1018-2

Rivis, A., Sheeran, P., and Armitage, C. J. (2006). Augmenting the theory of planned behaviour with the prototype/willingness model: predictive validity of actor versus abstainer prototypes for adolescents' health protective and health-risk intentions. *Br. J. Health Psychol.* 11, 483–500. doi: 10.1348/135910705x70327

Robson, C., and Witenberg, R. T. (2013). The influence of moral disengagement, morally based self-esteem, age, and gender on traditional bullying and cyberbullying. *J. Sch. Violence* 12, 211–231. doi: 10.1080/15388220.2012.762921

Runions, K. C., and Bak, M. (2015). Online moral disengagement, cyberbullying, and cyber-aggression. *Cyberpsychol. Behav. Soc. Netw.* 18, 400–405. doi: 10.1089/cyber.2014.0670

Schenk, A. M., and Fremouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *J. Sch. Violence* 11, 21–37. doi: 10.1080/15388220.2011.630310

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., and Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychol. Sci.* 18, 429–434. doi: 10.1111/j.1467-9280.2007.01917.x

Schultze-Krumbholz, A., and Scheithauer, H. (2009). Social-behavioural correlates of cyberbullying in a German student sample. *J. Psychol.* 217, 224–226. doi: 10.1027/0044-3409.217.4.224

Shapka, J. D., Onditi, H. Z., Collie, R. J., and Lapidot-Lefler, N. (2018). Cyberbullying and cybervictimization within a cross-cultural context: a study of Canadian and Tanzanian adolescents. *Child Dev.* 89, 89–99. doi: 10.1111/cdev.12829

Shariff, S. (2005). Cyber-dilemmas in the new millennium: balancing free expression and student safety in cyber-space. *McGill J. Educ.* 40, 147–154.

Slonje, R., and Smith, P. (2008). Cyberbullying: another main type of bulling? *Scand. J. Psychol.* 49, 147–154. doi: 10.1111/j.1467-9450.2007.00611.x

Slonje, R., Smith, P. K., and Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Comput. Hum. Behav.* 29, 26–32. doi: 10.1016/j.chb.2012.05.024

Smith, P. K. (2004). Bullying: recent developments. *Child Adolesc. Ment. Health* 9, 98–103. doi: 10.1111/j.1475-3588.2004.00089.x

Smith, P. K., Cowie, H., Olafsson, R., and Liefooghe, A. P. D. (2002). Definitions of bullying: a comparison of terms used, and age and sex differences, in a 14-country international comparison. *Child Dev.* 73, 1119–1133. doi: 10.1111/1467-8624.00461

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., and Tippett, N. (2008). Cyberbullying: its nature and impact in secondary education pupils. *J. Child Psychol. Psychiatr.* 49, 378–385. doi: 10.1111/j.1469-7610.2007.01846.x

Sorrentino, A., Baldry, A. C., Farrington, D. P., and Blaya, C. (2019). Epidemiology of cyberbullying across europe: differences between countries and genders. *Educ. Sci. Theory Pract.* 19, 74–91. doi: 10.12738/estp.2019.2.005

Steffgen, G., König, A., Pfetsch, J., and Melzer, A. (2011). Are cyberbullies less empathic? adolescents'. *Cyberpsychol. Behav. Soc. Netw.* 14, 643–648. doi: 10.1089/cyber.2010.0445

Stok, F. M., De Ridder, D. T., De Vet, E., and De Wit, J. B. (2014). Don't tell me what I should do, but what others do: the influence of descriptive and injunctive peer norms on fruit consumption in adolescents. *Br. J. Health Psychol.* 19, 52–64. doi: 10.1111/bjhp.12030

Strom, P. S., and Strom, R. D. (2006). "Cyberbullying by adolescents: a preliminary assessment," in *The Educational Forum*, ed. A. Lawrence Hall-Quest, (Milton Park: Taylor & Francis Group), 21–36. doi: 10.1080/00131720508984869

Thornton, B., Gibbons, F. X., and Gerrard, M. (2002). Risk perceptions and prototype perception: independent processes predicting risk behavior. *Pers. Soc. Psychol. Bull.* 38, 986–999. doi: 10.1177/01467202028007011

Todd, J., Kothe, E., Mullan, B., and Monds, L. (2016). Reasoned versus reactive prediction of behaviour: a meta-analysis of the prototype willingness model. *Health Psychol. Rev.* 10, 1–24. doi: 10.1080/17437199.2014.922895

Tokunaga, R. S. (2010). Following you home from school: a critical review and synthesis of research on cyberbullying victimization. *Comput. Hum. Behav.* 26, 277–287. doi: 10.1016/j.chb.2009.11.014

Travlos, A. K., Tsorbatzoudis, H., Barkoukis, V., and Douma, I. (2018). The effect of moral disengagement on bullying: testing the moderating role of personal and social factors. *J. Interpers. Violence* doi: 10.1177/0886260518760012 [Epub ahead of print].

Vazsonyi, A. T., Machackova, H., Sevcikova, A., Smahel, D., and Cerna, A. (2012). Cyberbullying in context: direct and indirect effects by low self-control across 25 European countries. *Eur. J. Dev. Psychol.* 9, 210–227. doi: 10.1080/17405629.2011.644919

Ybarra, M., and Mitchell, K. (2004). Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. *J. Child Psychol. Psychiatr.* 45, 1308–1316. doi: 10.1111/j.1469-7610.2004.00328.x

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 14 August 2019
doi: 10.3389/fpsyg.2019.01830

The Teacher's Role in Preventing Bullying

Lisa De Luca, Annalaura Nocentini and Ersilia Menesini*

Department of Education, Languages, Intercultures, Literatures and Psychology, University of Florence, Florence, Italy

The teacher plays an important role in the management of classroom bullying (Yoon and Bauman, 2014). Therefore, understanding and fostering teachers' characteristics able to predict successful responses to bullying and victimization is a priority for prevention programs. The aim of this study was to evaluate whether the association between the teacher's individual characteristics, such as her/his competence in regard to the phenomenon, job satisfaction, and self-efficacy, and the school level of bullying/victimization was mediated by the teacher's intervention when an episode of bullying occurred. The study included 120 teachers (17.5% boys; 79.2% girls), between the ages of 25 and 66 (mean age = 48.21; SD = 9.22), and 1,056 students (40.3% boys; 59.6% girls), between the ages of 11 and 17 (mean age = 13.09; SD = 1.46). A total of 57% of the students were attending secondary middle school and 42.2% were in secondary high school. Path analyses showed that for perpetrated behaviors, teachers' competence on bullying affects students report of bullying through a higher likelihood of teachers' intervention after a bullying episode occurred. The indirect effect resulted significant. Lower levels of bullying and victimization were associated with teacher job satisfaction, thus indicating how professional fulfillment can influence the classroom climate. The model for victimization was the same, except that the indirect path was not significant. Findings are discussed in terms of teachers' involvement in bullying intervention and prevention.

Keywords: bullying, victimization, teachers, teacher's competence, self-efficacy, job satisfaction, teacher's response

OPEN ACCESS

Edited by:
Eva M. Romera,
Universidad de Córdoba, Spain

Reviewed by:
Juan Calmaestra,
Universidad de Córdoba, Spain
Lourdes Rey,
University of Málaga, Spain

****Correspondence:***
Lisa De Luca
lisa.deluca@stud.unifi.it

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *15 April 2019*
Accepted: *24 July 2019*
Published: *14 August 2019*

Citation:
De Luca L, Nocentini A and Menesini E (2019) The Teacher's Role in Preventing Bullying. Front. Psychol. 10:1830. doi: 10.3389/fpsyg.2019.01830

INTRODUCTION

Teachers are in an influential position as educators and agents of socialization, helping to promote healthy relationships among students and to prevent negative interactions (Smith et al., 2004). Teachers are often present when an episode of bullying occurs, and they are often the first adults that students contact (Wachs et al., 2019). Teachers could react in a number of ways after a bullying episode, including intervening, observing the situation, not intervening, ignoring and trivializing the bullying (Rigby, 2014). They can monitor bullying incidents, they might intervene in support of the victim or the bully, and/or they can discuss the relevance of a positive class climate with the group. Students expect teachers to actively intervene when bullying occurs (Crothers et al., 2006; Crothers and Kolbert, 2008; Rigby, 2014), although in some cases teachers are unaware of children's victimization experiences and are viewed by children as providing limited support to the victims (Fekkes et al., 2005; Haataja et al., 2016). Very few studies examine how teachers intervene in bullying situations, and even

less analyze the impact of those interventions (James et al., 2008; Merrell et al., 2008; Espelage et al., 2012; Menesini and Salmivalli, 2017). The success of teacher intervention has important implications in terms of how students should be effectively supported, and how their confidence and sense of security might increase. Trying to deepen factors predicting a successful response of teachers to bullying is a priority to define the most important components for teachers' training (Yoon et al., 2011; Gregus et al., 2017).

The current study aims to consider all these associations in a complex model where teachers individual factors foster an effective responding to bullying situations, which in turn is associated with a lower students' perception of school bullying. Both the perspectives of teachers and students will be included in the study: the teachers' perception of their individual and professional characteristics and their likelihood to respond to a bullying episode, and the students' perception of school level of bullying and victimization.

Teachers Responding (or Not) to a Bullying Episode

Teacher's responses to bullying vary considerably, including different strategies focused on the victim, on the bullies, or on the group. Seidel and Oertel (2017) specifically distinguished three different strategies used by the teachers. First, they list authoritarian-punitive strategies (i.e., threats, discipline, expulsion) that are among the most used by teachers (Bauman et al., 2008; Sairanen and Pfeffer, 2011; Burger et al., 2015). However, they have only a minimal effect on successful interventions with students, because no positive model for social behavior modification is proposed. Another strategy used by teachers is individual assistance directed to the victims and the bullies, supporting them emotionally, and increasing empathy toward students who have been victimized (Bowes et al., 2010; Ledwell and King, 2015; Menesini and Salmivalli, 2017). The third strategy includes the supportive-cooperative intervention, which involves all the students in the class in order to promote cooperation among students and to define actions at class and/or school level with the support of parents and other professionals (Seidel and Oertel, 2017).

Sometimes teachers do not intervene (Yoon and Kerber, 2003; Bauman and Del Rio, 2006; Yoon et al., 2016; Divecha and Brackett, 2019) and the reasons for this may vary. They may simply be unware of the bullying phenomenon (Smith and Shu, 2000; Fekkes et al., 2005; Bauman and Del Rio, 2006). Individual differences in teachers' beliefs and attitudes will influence if and how they respond to instances of school bullying (Yoon and Kerber, 2003; Kochenderfer-Ladd and Pelletier, 2008; Veenstra et al., 2014). Some teachers consider bullying to be a normative behavior that may help children to acquire social norms (Kochenderfer-Ladd and Pelletier, 2008) and find it unnecessary to intervene. In other cases, they do not intervene because they do not feel sympathy for the victim (Yoon and Kerber, 2003). Besides, teachers are unlikely to intervene in bullying situations when they feel they could not obtain any results (Dedousis-Wallace et al., 2013), when they perceive the behavior is not bullying, or when more hidden forms such as relational or verbal bullying are occurring (Blain-Arcaro et al., 2012; Duy, 2013; Haig et al., 2013), because they are often not perceived as bullying by teachers (Bilz et al., 2016).

If teachers ignore or trivialize bullying, or if students interpret teachers' lack of intervention as an implicit acceptance of bullying, it is more likely that aggressive behavior will increase (Huesmann et al., 1984; Burger et al., 2015; Wachs et al., 2016). The students who have been victimized can be discouraged from reporting bullying incidents in the future, and the students who observed the bullying can feel less motivated to intervene or ask for help (Huesmann et al., 1984; Burger et al., 2015; Wachs et al., 2019). When teachers intervene and make an end to the situation of bullying, they communicate that bullying is not acceptable, and consequently students are less inclined to justify this type of behavior (Campaert et al., 2017). Also, by intervening personally, the teacher communicates that no justifications are acceptable in school (Veenstra et al., 2014; Oldenburg et al., 2015; Saarento et al., 2015). On the other hand, teachers' nonintervention tends to justify this behavior, resulting in the students classifying it as normal (Campaert et al., 2017).

Factors Predicting Teachers' Response to a Bullying Situation

The existing literature (Yoon and Bauman, 2014; Troop-Gordon and Ladd, 2015) underlined that teachers' individual and professional variables (i.e., the teacher's attitudes, perception of efficacy, beliefs and knowledge, the level of empathy); relational variables (i.e., the quality of the teacher-student relationship); and their interaction with more contextual and situational factors (i.e., class climate, school liking, bullying characteristics) are associated with the likelihood that bullying and victimization can occur. In the current study, we will focus our attention on teachers' individual factors.

Among those, teachers' self-efficacy assumes a central role. Literature showed that teachers with higher self-efficacy are more likely to intervene both for direct and indirect forms of bullying (Fischer and Bilz, 2019). Overall, higher levels of teachers' self-efficacy increase the likelihood to identify victims and to understand the victims' sufferance (Oldenburg et al., 2015; Nappa et al., 2018), increase the efforts teachers put in the intervention, and the success of those actions (Hawley and Williford, 2015). Several studies affirm that if teachers think that they are able to contribute to bullying decrease, they will intervene more often (Bradshaw et al., 2007; Duong and Bradshaw, 2013; Yoon and Bauman, 2014; Collier et al., 2015; Williford and Depaolis, 2016). Studies focused on the association between teachers' self-efficacy and teachers' response to bullying situation presented inconsistent findings. Some of them reported a significant and positive association between these two variables (Dedousis-Wallace et al., 2013; Collier et al., 2015), but others did not support the link (Yoon et al., 2016; Begotti et al., 2017). One explanation could be referred to the type of construct used, a general construct of teachers' self-efficacy or a task-specific construct of teachers' self-efficacy in bullying contexts (Bradshaw et al., 2007; Duong and Bradshaw, 2013; Yoon and Bauman, 2014). In some

studies, teachers' self-efficacy evaluates how confident they would feel when confronted with a particular hypothetical bullying situation (Dedousis-Wallace et al., 2013; Boulton et al., 2014; Collier et al., 2015), while other studies assessed teachers'confidence in handling general behavioral problems of their students (Yoon, 2004; Byers et al., 2011; Yoon et al., 2016; Begotti et al., 2017). Thus, the role of the perceived self-efficacy of teachers as predictor of teachers' intervention when an episode of bullying occurred is not clear. More attention should be paid to the domain-specific or general nature of self-efficacy construct.

Another variable to understand personal and professional predictors of teachers' behavior is job satisfaction. Teachers' job satisfaction is a multifaceted construct (Herzberg, 1959) that regards the positive or negative evaluative judgment that people make about their job. Past research indicated that teachers' job satisfaction is related to a range of positive outcomes, including job performance (Judge et al., 2001), enthusiasm (Weiqi, 2008), commitment (Reyes and Shin, 1995), and attitudes toward their daily work (Caprara et al., 2003a,b). Teachers can attain job satisfaction while performing daily teaching activities such as working with students, monitoring students' learning progress, working with colleagues, and contributing to an inclusive school climate (Cockburn and Haydn, 2004). Previous research revealed also significant positive relationships between teachers' self-efficacy and job satisfaction (Bogler, 2001). Job satisfaction is very likely to be associated with teachers' self-efficacy and helps to support efforts toward the achievement of optimal academic outcomes for students (Caprara et al., 2006). Teachers with a high level of self-efficacy are more likely to manage certain situations and to promote interpersonal networks that consolidate and support their job satisfaction (Caprara et al., 2006). The sense of perceived competence is a primary resource for intrinsic motivation and satisfaction. In the case of teachers, job satisfaction is related to self-efficacy both with respect to the profession itself and to the environment in which they work. The research carried out indicates that although teachers are generally satisfied with aspects of their professional life related to teaching, they tend to be dissatisfied with the aspects concerning the performance of their work. As a consequence, higher levels of satisfaction correspond to greater commitment and better performance. The level of satisfaction has also a growing influence on teachers' attitudes and efforts in the implementation of daily activities (Caprara et al., 2003a,b). To our knowledge, no studies have yet analyzed the impact of job satisfaction on teachers' interventions in case of bullying and victimization.

Besides, the specific competence in relation to the phenomenon that teachers might have can influence the likelihood of teachers' intervention and in turn the level of bullying in schools. Literature highlights how teachers who have specifically dealt with the issues of bullying and who actively participate in prevention projects are perceived to be more effective and confident in handling victimization problems have more supportive attitudes toward victims and feel safer in working with families on these problems. These aspects are positively correlated to a decrease in the phenomenon (Alsaker, 2004). According to this view, Veenstra et al. (2014) found that classrooms with teachers that were not perceived by their students as competent in reducing bullying displayed a higher level of peer victimization. We hypothesized that teachers who feel competent will be more able to actively deal with the bullying issue in their school, than those who feel incompetent or indifferent, who could be more passive observers of students dynamics.

Objective and Hypothesized Model

Starting from these considerations, the current study aims to evaluate the impact of teachers' individual factors on the students' perception of bullying and victimization through the teachers responding to a bullying episode. In particular, we hypothesize that the teachers' competence regarding the phenomenon, job satisfaction, and self-efficacy will be negatively linked to the level of school bullying and victimization and that teacher intervention or nonintervention will mediate the association between teachers' individual variables and school bullying and victimization. According to a social-cognitive model, we hypothesize that if teachers feel themselves as more competent in addressing bullying, more satisfied with their work, and more self-efficacious, they would intervene more frequently and with better results and therefore students would report lower levels of bullying and victimization at school. On the contrary, when teachers feel less competent, less satisfied with their work, and less self-effective, there is a higher probability of teachers not intervening, and this in turn can be related to higher levels of bullying and victimization (**Figure 1**).

MATERIALS AND METHODS

Participants and Procedure

Participants to this study included students and their teachers enrolled in the NoTrap! program, a prevention program of bullying and cyberbullying carried out in Italy (Palladino et al., 2016). In particular, the current study considered the first data collected in 2017 (pre-intervention). The sample consisted in teachers and their students enrolled in grades

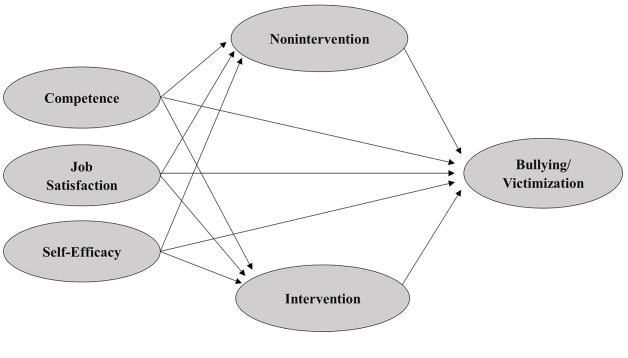

FIGURE 1 | Hypothesized model.

7 through 9 in Tuscany (Provinces of Lucca, Florence and Pistoia). The study was conducted with 120 teachers (17.5% boys; 79.2% girls), between ages 25 and 66 (mean age = 48.21; SD = 9.22), and 1,056 students (40.3% boys; 59.6% girls), between ages 11 and 17 (mean age = 13.09; SD = 1.46). Of these, 57% attended first level secondary school and 42.2% attended high school.

The project considered the involvement of referent teachers for each school. A total of 56 teachers in the province of Florence, 31 teachers in the province of Lucca, and 33 teachers in the province of Pistoia participated in the training. The number of teachers per school ranged from 3 to 30: this variability can be explained considering the number of classes involved in the project in each school, the number of students per school, and finally the number of teachers already trained in each school. All the teachers were invited to participate in two training sessions held by the staff of the University of Florence. During the first meeting, a questionnaire was administered to the teachers.

The research was carried out in accordance with the recommendations of the Italian Association of Psychology. The research project was approved by the school committees and the heads of the school based on school standards. Parents' active consent was obtained prior to questionnaire administration. Parents and students were informed about the confidentiality and anonymity of their responses, that their participation was entirely voluntary, and that they could withdraw at any time. The informed consent procedure consisted of the preliminary approval by the school principal and the class council. Once the school gave its permission, a letter was sent to all the students and their parents, informing them of the project and asking them to complete and turn in the permission slip to participate. Ninety-six percent of the target sample received active consent from parents to participate in the project and intervention.

Measures

Teacher's Competence

The *ad hoc* questionnaire measuring the level of competence and knowledge of bullying is composed by two items ("How competent do you feel about bullying issues?"; "How competent do you feel about cyberbullying issues?") rated on a 4-point Likert-type scale ranging from 0 ("not at all") to 3 ("very much"). The Cronbach's alpha was 0.83 and the inter-item correlation was 0.71.

Job Satisfaction

A short version of the Italian version (Borgogni et al., 2010) of the *Job Descriptive Index* (Smith et al., 1969) was used for the measurement of teacher satisfaction with their job. Five statements ("I feel good at work"; "I feel satisfied with what I reach at work"; "I am happy with the way my superiors treat me"; "I am satisfied with my work"; "I am happy with the way my colleagues treat me") rated the construct on a 7-point Likert-type scale (0 = absolutely disagree; 7 = absolutely in agreement). The Cronbach's alpha was 0.86.

Teachers' Self-Efficacy Beliefs

The scale consisted of five items rated on a 7-point Likert-type scale (0 = absolutely disagree; 7 = absolutely in agreement) (Caprara et al., 2006) evaluating teacher's perceived capability: (1) to cope with didactical tasks (e.g., "I am capable of overcoming all the challenges I encounter in meeting my teaching objectives"); (2) to handle discipline problems in the class (e.g., "I can make my students respect rules and codes of conduct"); (3) to earn appreciation from colleagues and families (e.g., "I am able to earn the trust and appreciation of all my colleagues"); and (4) to take advantage of innovations and technologies to better their work (e.g., "I am capable of taking full advantage of technological innovations in my teaching"). The Cronbach's alpha was 0.84.

Teachers' Intervention and Nonintervention After a Bullying Situation

In order to evaluate teachers' interventions in incidents of bullying and victimization, we used a revised version of the Teachers' responses to incidents of bullying and victimization (Yoon and Kerber, 2003; Bauman and Del Rio, 2006; Campaert et al., 2017). The questionnaire asked teachers to fill out a scale listing different types of teachers' behavioral reactions and asked them to rate how often they responded with the proposed strategies. The scale consisted of three items measuring nonintervention ("does not intervene," "leaves things up to the students," and "is not aware about it"), and five items measuring intervention ranging from mediation, group discussion, victim support, and disciplinary sanction for the bully ("Help the boys involved to resolve the conflict"; "I discuss the episode with the whole class"; "I try to help the victim"; "I take measures against the bully"), rated on a 5-point Likert-type scale from 0 (never) to 4 (daily). The Cronbach's alphas were 0.85 for intervention and 0.90 for nonintervention. We derived a measure of teacher intervention and nonintervention in bullying/victimization situation.

Bullying and Victimization

The Florence Bullying and Victimization scales (FBVSs; Menesini et al., 2011; Palladino et al., 2016) were used, consisting of two subscales: one for bullying and the other for victimization. The FBVSs consist of 20 items, investigating the frequency with which adolescents have perpetrated or have experienced bullying in the two previous months. The answers were assessed on a 5-point Likert scale from "never" to "several times a week." The two subscales were composed of 10 items each. The reliability coefficients showed good values: for bullying we had a Cronbach alpha of 0.79 at T1 and for victimization, a Cronbach alpha of 0.84.

Data Analyses

The data were analyzed starting from the teacher data. Individual teachers' variables were associated with the school level of bullying and victimization. The school level of bullying and victimization was defined calculating the school-level means reported by the students.

Preliminary analyses were conducted to examine the correlations between the teachers' self-efficacy, competence, job satisfaction, intervention and nonintervention, and bullying and victimization. Two path analysis models were used to test the proposed direct and indirect models, one for bullying and the other for victimization. The models tested whether teacher's competence regarding bullying, job satisfaction, and self-efficacy were linked to level of bullying and victimization through levels of teacher intervention and nonintervention after a bullying situation.

All the analyses were conducted *via* Mplus 4.0 (Muthén and Muthén, 1998–2012). All models estimated direct and indirect paths. The significance of the indirect paths was analyzed by the test of the indirect effect in Mplus (Muthén and Muthén, 1998–2012).

RESULTS

Table 1 reported bivariate correlations, means, and standard deviations for the variables considered. As we can see, the perception of competence on bullying, self-efficacy, and job satisfaction are all intercorrelated, in particular self-efficacy and job satisfaction. Besides, bullying and victimization behaviors are associated with satisfaction and with teachers' intervention.

For the model predicting bullying, findings showed a positive and significant effect of teacher's competence on his/her intervention, which in turn is negatively associated with bullying. This indirect effect through teachers' intervention resulted significant (β = −0.079, SE = 0.028, p = 0.004).

Higher levels of teachers' competence influence a higher likelihood that teachers intervene after a bullying situation (β = 0.332, SE = 0.086, $p < 0.001$), which in turn influences lower levels of bullying (β = −0.229, SE = 0.047, $p < 0.001$). A direct and negative effect of job satisfaction on bullying was also found (β = −0.196, SE = 0.113, p = 0.019). No significant path has been found for nonintervention (**Figure 2; Table 2**).

For the model predicting victimization, findings are quite similar, except for the indirect effect which is now not significant. A positive and significant effect was found for competence on teacher's intervention (β = 0.332, SE = 0.086, $p < 0.001$), which in turn is negatively associated with victimization (β = −0.095, SE = 0.048, $p < 0.05$). However, the indirect effect through teachers' intervention resulted not significant in this case (β = −0.037, SE = 0.020, p = 0.067). A direct and negative effect of job satisfaction on bullying was also found (β = −0.197, SE = 0.084, p = 0.020) (**Figure 3; Table 3**).

DISCUSSION

The current investigation examined the contribution of teachers' competence, job satisfaction, and self-efficacy to the level of bullying and victimization in schools. In the first model explaining bullying, teacher's competence regarding bullying was associated to the level of bullying through its effect on teacher's intervention. If the teachers feel themselves as competent about bullying, they intervene more frequently with positive strategies and this is consequently associated to decrease of class bullying. On the other side, higher teachers' job satisfaction directly influences lower levels of bullying. No specific effect has been identified regarding teachers' self-efficacy. The same model resulted for predicting the level of victimization, except for the non-significance of the indirect effect.

Teachers who perceived themselves as more competent in the bullying phenomenon are more prone to intervene in cases of bullying and victimization. Competence can be fostered through specific trainings aimed to define the phenomenon, to underline the dynamics of the problem, and to present the best intervention strategies. This finding supports previous literature (Alsaker, 2004), where teachers who have more extensive knowledge of the phenomenon are more effective in managing problems, they have more supportive attitudes toward the victims, and are perceived to be more effective and confident in handling episodes of bullying.

On the other side, the finding that teachers' self-efficacy was not associated with a more proactive and effective role of teachers in handling bullying is in contrast with some of the previous studies (Dedousis-Wallace et al., 2013; Collier et al., 2015). Two main explanations can be considered for this result. First, the teachers' competences and self-efficacy were highly correlated. When considered together, the contribution of specific knowledge and competences on bullying was more relevant as compared to the general teachers' self-efficacy. Secondly, the construct of teachers' competence was specific for the bullying content, whereas the construct of teachers' self-efficacy was not. In the literature we find that a task specific construct of self-efficacy is associated to bullying and not a general construct of professional self-efficacy as the one we tested in our study (Bradshaw et al., 2007; Duong and Bradshaw, 2013; Yoon and Bauman, 2014).

TABLE 1 | Correlations among study variables, means, and standard deviations.

	1	2	3	4	5	6	7	Mean (SD)
1. Competence	1							2.22 (1.14)
2. Satisfaction	0.250**	1						5.88 (0.90)
3. Self-efficacy	0.233*	0.544**	1					5.25 (0.09)
4. Intervention	0.327**	0.170	0.173	1				3.93 (0.26)
5. Nonintervention	−0.174	−0.219*	−0.181	0.033	1			1.74 (0.64)
6. Bullying	−0.063	−0.210*	−0.108	−0.230*	0.051	1		1.06 (0.13)
7. Victimization	−0.024	−0.194*	−0.082	−0.094	−0.077	0.985**	1	1.07 (0.13)

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

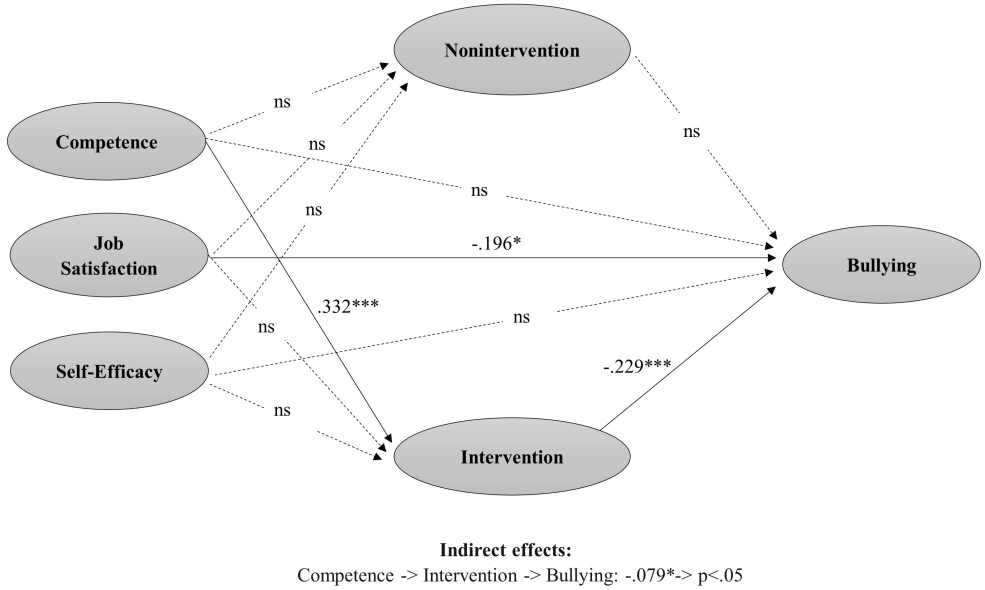

FIGURE 2 | Path analyses of obtained relations among teacher's competence regarding bullying management, job satisfaction, self-efficacy, teacher's intervention, teacher's nonintervention, and level of bullying.

TABLE 2 | Estimated regression coefficients in the model of bullying.

Criterion	Predictors	*B*	SE	*p*	R^2
Bullying	Competence	0.065	0.107	0.566	
	Self-efficacy	0.028	0.084	0.797	
	Job satisfaction	–0.196	0.113	0.019	
	Nonintervention	0.028	0.089	0.753	
	Intervention	–0.229	0.047	<0.001	0.089
Nonintervention	Competence	–0.105	0.090	0.243	
	Self-efficacy	–0.075	0.119	0.532	
	Job satisfaction	–0.161	0.124	0.196	0.067
Intervention	Competence	0.332	0.086	<0.001	
	Self-efficacy	0.070	0.106	0.510	
	Job satisfaction	0.049	0.113	0.668	0.140

The role of job satisfaction is important for class bullying reduction. Job satisfaction includes different aspects such as the class climate, satisfaction for the work done, and the quality of relations with the other teachers. The hypothesis explains the direct relationship between satisfaction and both bullying and victimization and expresses the concept that being satisfied with one's work can directly influence the attitude teacher has toward his/her students. This can enhance a more positive classroom climate, better interpersonal relationships, and greater collaboration between students and teachers, and finally, it can directly influence the level of both bullying and victimization within the class. Teachers' satisfaction can be perceived by the students in their everyday life in school because it constantly influences the quality of interactions and relationships in the classroom.

In disagreement with the literature (Campaert et al., 2017) and with our hypothesis, a relationship between nonintervention and bullying and victimization levels was not found. In particular, the nonintervention does not appear to be a mediator between teachers' predictors and the level of bullying and victimization. The result could probably be due to the different evaluation sources used in this study compared to the studies carried out by Campaert et al. (2017). We considered two different perceptions: the self-evaluation of the teacher for the individual factors and the level of intervention and nonintervention, and the students' evaluation of the level of school bullying. In addition, we used a model testing the intervention and not the nonintervention. In fact, teacher's variables used were assumed to be predictors of the intervention. Further studies could compare both perspectives, i.e., the perceptions of teachers and students, deepening the relation between the two and how they can explain teachers' interventions.

Implications for Intervention

Current findings have relevant implications in terms of designing interventions for bullying prevention involving teachers. In particular, the study suggested relevant guidelines for defining which components should be implemented in teachers' training.

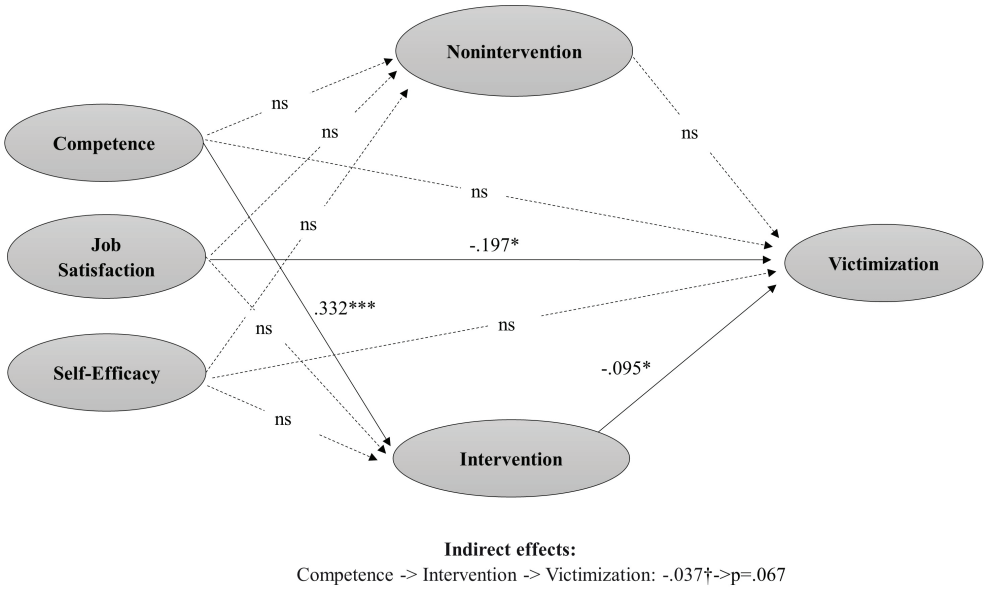

FIGURE 3 | Path analyses of obtained relations among teacher's competence regarding bullying management, job satisfaction, self-efficacy, teacher's intervention, teacher's nonintervention, and level of victimization.

TABLE 3 | Estimated regression coefficients in the model of victimization.

Criterion	Predictors	*B*	SE	*p*	R^2
Victimization	Competence	0.067	0.114	0.556	
	Self-efficacy	0.025	0.110	0.820	
	Job satisfaction	–0.197	0.084	0.020	
	Nonintervention	0.051	0.092	0.579	
	Intervention	–0.095	0.048	0.048	0.048
Nonintervention	Competence	–0.105	0.090	0.243	
	Self-efficacy	–0.075	0.119	0.532	
	Job satisfaction	–0.161	0.124	0.196	0.067
Intervention	Competence	0.332	0.086	<0.001	
	Self-efficacy	0.070	0.106	0.510	
	Job satisfaction	0.049	0.113	0.668	0.140

Raising awareness on this phenomenon is the first step, along with promoting knowledge about bullying and victimization. Second, increasing skills and competences on the effective way to intervene after a bullying episode seems to be crucial. Besides, supporting the teachers' experience and monitoring the process may be relevant in order to develop a true sense of self-efficacy in teachers who are dealing with bullying and victimization. According to Bandura, in order to foster self-efficacy, teachers need opportunities to practice bullying intervention skills, to implement specific strategies, to observe successful interventions by others, and to be exposed to positive prevention messages (Bandura, 1994). Confronting with direct and effective experiences, sharing best practices, implementing procedures for responding to bullying situation "in a safe condition" allows teachers to adapt their skills and strategies in a positive way. This opportunity to gain direct experience is a resource for the teacher to feel more aware and confident about what to do if bullying occurs in class.

Third, job satisfaction resulted a key variable for the daily work in class. Job satisfaction is associated with teachers' self-efficacy (Caprara et al., 2006) and the sense of perceived competence. Both are a primary resource for intrinsic motivation and satisfaction. To improve job satisfaction, interventions should maximize principal's support, affiliation among staff members, and goal consensus toward a common school policy.

Limitation and Future Studies

This study has several limitations. Among them, we can highlight the voluntary nature of the participation of teachers to the training and the consistent variability of the number of teachers involved per school. A second limitation is the fact that the analysis was done at school level and not at a class level. This is because the teachers' questionniares were anonymous. We collected information about the school but not about the class to respect their anonymity. The cross-sectional nature of the study did not allow to define causal paths. Teachers' job

satisfaction was investigated only as a predictor of bullying. In future research, a longitudinal design could be used to understand if job satisfaction could be a predictor or a result of students and school climate or could be explained by a circular relationship between job satisfaction and quality of school climate and level of bullying. Finally, the measure of competence on bullying was only composed by two items. Future studies should include a stronger and validated measure of teachers' competence on bullying.

DATA AVAILABILITY

The datasets for this manuscript are not publicly available because we did not request an explicit consent to school and to the parents for the public availability of the data.

ETHICS STATEMENT

The research was carried out in accordance with the Ethic Research Recommendations of the Italian Association of Psychology. It was not approved by a Ethical Research Committee because at that time (2016) the University of Florence did not have an Ethical Committee, neither the approval was specifically requested by the Italian Association of Psychology. Initially, the research project was approved by the school committee and the Head of the School who considered the study eligible for the school standards. Students or parents' written consent was obtained following the country law. Specifically, in Italy school', parents' and students' active consent were obtained prior to conduct the questionnaires administration. Participation was entirely voluntary, confidential and anonymous. Participants were all informed that they could withdraw from the study at any time. We confirm that 4% of participants who did not have parental consent were excluded from the study.

AUTHOR CONTRIBUTIONS

All the three authors listed have contributed sufficiently to the project to be included as authors, and all those who are qualified to be authors are listed in the author byline.

REFERENCES

Alsaker, F. D. (2004). "The Bernese program against victimization in kindergarten and elementary school (Be-Prox)" in *Bullying in schools: How successful can interventions be?* eds. P. K. Smith, D. Pepler and K. Rigby (Cambridge: University Press), 289–306.

Bandura, A. (1994). "Self-efficacy" in *Encyclopedia of human behavior*. ed. V. S. Ramachaudran (New York, NY: Academic Press), 71–81.

Bauman, S., and Del Rio, A. (2006). Preservice teachers' responses to bullying scenarios: comparing physical, verbal, and relational bullying. *J. Educ. Psychol.* 98, 219–231. doi: 10.1037/0022-0663.98.1.219

Bauman, S., Rigby, K., and Hoppa, K. (2008). US teachers' and school counsellors' strategies for handling school bullying incidents. *Educ. Psychol.* 28, 837–856. doi: 10.1080/01443410802379085

Begotti, T., Tirassa, M., and Acquadro, M. D. (2017). School bullying episodes: attitudes and intervention in pre-service and in-service Italian teachers. *Res. Pap. Educ.* 32, 170–182. doi: 10.1080/02671522.2016.1158857

Bilz, L., Steger, J., and Fischer, S. M. (2016). On the accuracy of teachers' identification of pupils involved in bullying. *Psychol. Erzieh. Unterr.* 63, 122–136. doi: 10.1002/ijop.12313

Blain-Arcaro, C., Smith, J. D., Cunningham, C. E., Vaillancourt, T., and Heather, R. (2012). Contextual attributes of indirect bullying situations that influence teachers' decisions to intervene. *J. Sch. Violence* 11, 226–245. doi: 10.1080/15388220.2012.682003

Bogler, R. (2001). The influence of leadership style on teacher job satisfaction. *Educ. Adm. Q.* 37, 662–683. doi: 10.1177/00131610121969460

Borgogni, L., Dello Russo, S., Petitta, L., and Vecchione, M. (2010). Predicting job satisfaction and job performance in a privatized organization. *Int. Public Manag. J.* 13, 275–296. doi: 10.1080/10967494.2010.504114

Boulton, M. J., Hardcastle, K., Down, J., Fowles, J., and Simmonds, J. A. (2014). A comparison of preservice teachers' responses to cyber versus traditional bullying senarios: similarities and differences and implication for practice. *J. Teach. Educ.* 65, 145–155. doi: 10.1177/0022487113511496

Bowes, L., Maughan, B., Caspi, A., Moffitt, T. E., and Arseneault, L. (2010). Families promote emotional and behavioural resilience to bullying: evidence of an environmental effect. *J. Child Psychol. Psychiatry* 51, 809–817. doi: 10.1111/j.1469-7610.2010.02216.x

Bradshaw, C. P., Sawyer, A. L., and O'Brennan, L. M. (2007). Bullying and peer victimization at school: perceptual differences between students and school staff. *Sch. Psychol. Rev.* 36, 361–382.

Burger, C., Strohmeier, D., Spröber, N., Bauman, S., and Rigby, K. (2015). How teachers respond to school bullying: an examination of self-reported intervention strategy use, moderator effects, and concurrent use of multiple strategies. *Teach. Teach. Educ.* 51, 191–202. doi: 10.1016/j.tate.2015.07.004

Byers, D. L., Caltabiano, N., and Caltabiano, M. (2011). Teachers' attitudes towards overt and covert bullying, and perceived efficacy to intervene. *Aust. J. Teach. Educ.* 36, 105–119. doi: 10.14221/ajte.2011v36n11.1

Campaert, K., Nocentini, A., and Menesini, E. (2017). The efficacy of teachers' responses to incidents of bullying and victimization: the mediational role of moral disengagement for bullying. *Aggress. Behav.* 43, 483–492. doi: 10.1002/ab.21706

Caprara, G. V., Barbaranelli, C., Borgogni, L., Petitta, L., and Rubinacci, A. (2003a). Teachers', school staffs and parents' efficacy beliefs as determinants of attitudes toward school. *Eur. J. Psychol. Educ.* 18, 15–31. doi: 10.1007/BF03173601

Caprara, G. V., Barbaranelli, C., Borgogni, L., and Steca, P. (2003b). Efficacy beliefs as determinants of teachers' job satisfaction. *J. Educ. Psychol.* 95, 821–832. doi: 10.1037/0022-0663.95.4.821

Caprara, G. V., Barbaranelli, C., Steca, P., and Malone, P. S. (2006). Teachers' self-efficacy beliefs as determinants of job satisfaction and students' academic achievement: a study at the school level. *J. Sch. Psychol.* 44, 473–490. doi: 10.1016/j.jsp.2006.09.001

Cockburn, A. D., and Haydn, T. (2004). *Recruiting and retaining teachers: Understanding why teachers teach*. London: Routledge Falmer.

Collier, K. L., Bos, H. M. V., and Sandfort, T. G. M. (2015). Understanding teachers' responses to enactments of sexual and gender stigma at school. *Teach. Teach. Educ.* 48, 34–43. doi: 10.1016/j.tate.2015.02.002

Crothers, L. M., and Kolbert, J. B. (2008). Comparing middle school teachers' and students' views on bullying and anti-bullying interventions. *J. Sch. Violence* 3, 17–32. doi: 10.1300/j202v03n01_03

Crothers, L. M., Kolbert, J. B., and Barker, W. F. (2006). Middle school students' preferences for anti-bullying interventions. *Sch. Psychol. Int.* 27, 475–487. doi: 10.1177/0143034306070435

Dedousis-Wallace, A., Shute, R., Varlow, M., Murrihy, R., and Kidman, T. (2013). Predictors of teacher intervention in indirect bullying at school and outcome of a professional development presentation for teachers. *Educ. Psychol.* 34, 862–875. doi: 10.1080/01443410.2013.785385

Divecha, D., and Brackett, M. (2019). Rethinking school-based bullying prevention through the lens of social and emotional learning: a bioecological perspective. *Int. J. Bullying Prev.* 1, 1–21. doi: 10.1007/s42380-019-00019-5

Duong, J., and Bradshaw, C. (2013). Using the extended parallel process model to examine teachers' likelihood of intervening in bullying. *J. Sch. Health* 83, 422–429. doi: 10.1111/josh.12046

Duy, B. (2013). Teachers' attitudes toward different types of bullying and victimization in Turkey. *Psychol. Sch.* 50, 987–1002. doi: 10.1002/pits.21729

Espelage, D., Green, H., and Polanin, J. (2012). Willingness to intervene in bullying episodes among middle school students: individual and peer-group influences. *J. Early Adolesc.* 32, 776–801. doi: 10.1177/0272431611423017

Fekkes, M., Pijpers, F. I., and Verloove-Vanhorick, S. P. (2005). Bullying: who does what, when and where? Involvement of children, teachers and parents in bullying behavior. *J. Health Educ. Res.* 20, 81–91. doi: 10.1093/her/cyg100

Fischer, S. M., and Bilz, L. (2019). Teachers' self-efficacy in bullying interventions and their probability of intervention. *Psychol. Sch.* 56, 751–764. doi: 10.1002/pits.22229

Gregus, S. J., Rodriguez, J. H., Pastrana, F. A., Craig, J. T., McQuillin, S. D., and Cavell, T. A. (2017). Teacher self-efficacy and intentions to use antibullying practices as predictors of children's peer victimization. *Sch. Psychol. Rev.* 46, 304–319. doi: 10.17105/SPR-2017-0060.V46-3

Haataja, A., Sainio, M., Turtonen, M., and Salmivalli, C. (2016). Implementing the kiva antibullying program: recognition of stable victims. *J. Educ. Psychol.* 36, 595–611. doi: 10.1080/01443410.2015.1066758

Haig, J., Costley, M., Sueng-Lock, H., Lee, V., and Sueng, H. (2013). Preservice teachers' response to bullying vignettes: the effect of bullying type and gender. *Int. J. Sec. Educ.* 1, 45–52. doi: 10.11648/j.ijsedu.20130106.11

Hawley, P. H., and Williford, A. (2015). Articulating the theory of bullying intervention programs: views from social psychology, social work, and organizational science. *J. Appl. Dev. Psychol.* 37, 3–15. doi: 10.1016/j.appdev.2014.11.006

Herzberg, F. (1959). *The motivation to work*. New York: John Wiley and Sons.

Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., and Walder, L. O. (1984). The stability of aggression over timeand generations. *Dev. Psychol.* 20, 1120–1134. doi: 10.1037/0012-1649.20.6.1120

James, D. J., Lawlor, M., Courtney, P., Flynn, A., Henry, B., and Murphy, N. (2008). Bullying behaviour in secondary schools: what roles do teachers play? *Child Abuse Rev.* 17, 160–173. doi: 10.1002/car.1025

Judge, T. A., Thoresen, C. J., Bono, J. E., and Patton, G. K. (2001). The job satisfaction-job performance relationship: a qualitative and quantitative review. *Psychol. Bull.* 127, 376–407. doi: 10.1037/0033-2909.127.3.376

Kochenderfer-Ladd, B., and Pelletier, M. E. (2008). Teachers' views and beliefs about bullying: influences on classroom management strategies and students' coping with peer victimization. *J. Sch. Psychol.* 46, 431–453. doi: 10.1016/j.jsp.2007.07.005

Ledwell, M., and King, V. (2015). Bullying and internalizing problems. *J. Fam. Issues* 36, 543–566. doi: 10.1177/0192513x13491410

Menesini, E., Nocentini, A., and Calussi, P. (2011). The measurement of cyberbullying: dimensional structure and relative item severity and discrimination. *Cyberpsych. Beh. Soc. N.* 14, 267–274. doi: 10.1089/cyber.2010.0002

Menesini, E., and Salmivalli, C. (2017). Bullying in schools: the state of knowledge and effective interventions. *Psychol. Health Med.* 22, 240–253. doi: 10.1080/13548506.2017.1279740

Merrell, K. W., Gueldner, B. A., Ross, S. W., and Isava, D. M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *Sch. Psychol. Q.* 23, 26–42. doi: 10.1037/1045-3830.23.1.26

Muthén, L. K., and Muthén, B. O. (1998–2012). *Mplus user's guide*. 7th Edn. Los Angeles, CA: Muthén and Muthén.

Nappa, M. R., Palladino, B. E., Menesini, E., and Baiocco, R. (2018). Teachers' reaction in homophobic bullying incidents: the role of self-efficacy and homophobic attitudes. *Sex. Res. Soc. Policy* 15, 208–218. doi: 10.1007/s13178-017-0306-9

Oldenburg, B., Van Duijn, M., Sentse, M., Huitsing, G., Van der Ploeg, R., Salmivalli, C., et al. (2015). Teacher characteristics and peer victimization in elementary schools: a classroom-level perspective. *J. Abnorm. Child Psychol.* 43, 33–44. doi: 10.1007/s10802-013-9847-4

Palladino, B. E., Nocentini, A., and Menesini, E. (2016). Evidence-based intervention against bullying and cyberbullying: evaluation of the NoTrap! program in two independent trials. *Aggress. Behav.* 42, 194–206. doi: 10.1002/ab.21636

Reyes, P., and Shin, H. S. (1995). Teacher commitment and job satisfaction: a causal analysis. *J. Sch. Leader.* 5, 22–39. doi: 10.1177/105268469500500102

Rigby, K. (2014). How teachers address cases of bullying in schools: a comparison of five reactive approaches. *Educ. Psychol. Pract.* 30, 409–419. doi: 10.1080/02667363.2014.949629

Saarento, S., Boulton, A. J., and Salmivalli, C. (2015). Reducing bullying and victimization: student-and classroom-level mechanisms of change. *J. Abnorm. Child Psychol.* 43, 61–76. doi: 10.1007/s10802-013-9841-x

Sairanen, L., and Pfeffer, K. (2011). Self-reported handling of bullying among junior high school teachers in Finland. *Sch. Psychol. Int.* 32, 330–344. doi: 10.1177/0143034311401795

Seidel, A., and Oertel, L. (2017). "A categoriztion intervention forms and goals" in *Gewalt und Mobbing an Schulen. Wie sich Gewalt und Mobbing entwickelt haben, wie Lehrer intervenieren und welche Kompetenzen sie brauchen*. eds. L. Bilz, W. Schubarth, I. Dudziak, S. Fischer, S. Niproschke and J. Ulbricht (Bad Heilbrunn, Germany: Klinkardt), 13–25.

Smith, P. C., Kendall, L. M., and Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago: Rand Mcnally.

Smith, P. K., Pepler, D., and Rigby, K. (2004). *Bullying in schools: How successful can interventions be?* Cambridge, UK: Cambridge University Press.

Smith, P. K., and Shu, S. (2000). What good schools can do about bullying: findings from a survey in English schools after a decade of research and action. *Childhood* 7, 193–212.

Troop-Gordon, W., and Ladd, G. V. (2015). Teachers' victimization-related beliefs and strategies: associations with students'aggressive behavior and peer victimization. *J. Abnorm. Child Psychol.* 43, 45–60. doi: 10.1007/s10802-013-9840-y

Veenstra, R., Lindenberg, S., Huitsing, G., Sainio, M., and Salmivalli, C. (2014). The role of teachers in bullying: the relation between antibullying attitudes, efficacy, and efforts to reduce bullying. *J. Educ. Psychol.* 106, 1135–1143. doi: 10.1037/a0036110

Wachs, S., Bilz, L., Niproschke, S., and Schubarth, W. (2019). Bullying intervention in schools: a multilevel analysis of teachers' success in handling bullying from the students' perspective. *J. Early Adolesc.* 39, 642–668. doi: 10.1177/0272431618780423

Wachs, S., Hess, M., Scheithauer, H., and Schubarth, W. (2016). "Bullying in schools" in *Recognizing, intervening, preventing* (Stuttgart, Germany: Kohlhammer).

Weiqi, C. (2008). The structure of secondary school teacher job satisfaction and its relationship with attrition and work enthusiasm. *Chin. Educ. Soc.* 40, 17–31. doi: 10.2753/ced1061-1932400503

Williford, A., and Depaolis, K. J. (2016). Predictors of cyberbullying intervention among elementary school staff: the moderating effect of staff status. *Psychol. Sch.* 53, 1032–1044. doi: 10.1002/pits.21973

Yoon, J. S. (2004). Predicting teacher interventions in bullying situations. *Educ. Treat. Child.* 21, 37–45.

Yoon, J., and Bauman, S. (2014). Teachers: a critical but overlooked component of bullying prevention and intervention. *Theory Pract.* 53, 308–314. doi: 10.1080/00405841.2014.947226

Yoon, J., Bauman, S., Choi, T., and Hutchinson, A. S. (2011). How South Korean teachers handle an incident of school bullying. *Sch. Psychol. Int.* 32, 312–329. doi: 10.1177/0143034311402311

Yoon, J. S., and Kerber, K. (2003). Bullying: elementary teachers' attitudes and intervention strategies. *Res. Educ.* 69, 27–35. doi: 10.7227/rie.69.3

Yoon, J., Sulkowski, M. L., and Bauman, S. (2016). Teachers' responses to bullying incidents: effects of teacher characteristics and contexts. *J. Sch. Violence* 15, 91–113. doi: 10.1080/15388220.2014.963592

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 23 August 2019
doi: 10.3389/fpsyg.2019.01621

Do Cross-National and Ethnic Group Bullying Comparisons Represent Reality? Testing Instruments for Structural Equivalence and Structural Isomorphism

Muthanna Samara[1], Mairéad Foody[2], Kristin Göbel[3], Mohamed Altawil[4,5] and Herbert Scheithauer[3]**

[1] Department of Psychology, Kingston University London, Kingston upon Thames, United Kingdom, [2] Anti-Bullying Research Centre, Dublin City University, Dublin, Ireland, [3] Department of Education and Psychology, Freie Universität Berlin, Berlin, Germany, [4] Department of Psychology, University of Hertfordshire, Hafield, United Kingdom, [5] Palestine Trauma Centre (PTC-UK), Hertfordshire, United Kingdom

OPEN ACCESS

Edited by:
Rita Zukauskiene, Mykolas Romeris University, Lithuania

Reviewed by:
Phillip Thomas Slee, Flinders University, Australia
Mykolas Simas Poškus, Mykolas Romeris University, Lithuania

***Correspondence:**
Muthanna Samara
M.Samara@Kingston.ac.uk
Herbert Scheithauer
herbert.scheithauer@fu-berlin.de

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *31 March 2019*
Accepted: *27 June 2019*
Published: *23 August 2019*

Citation:
Samara M, Foody M, Göbel K, Altawil M and Scheithauer H (2019) Do Cross-National and Ethnic Group Bullying Comparisons Represent Reality? Testing Instruments for Structural Equivalence and Structural Isomorphism. Front. Psychol. 10:1621. doi: 10.3389/fpsyg.2019.01621

Bullying in schools is a widespread phenomenon, witnessed worldwide, with negative consequences for victims and perpetrators. Although it is an international issue, there are several issues with cross-national and cross-cultural/ethnic research that can make comparisons between countries and cultures/ethnic groups difficult including language, cultural perception, and/or methodological issues. As statistical techniques rapidly develop, there may be more scope to be statistically creative in how we assess the utility of one tool across different groups such as cultures, nations, etc. At the very least, an attempt to do this should be paramount in studies investigating different groups (e.g., from different countries) at one time. This study investigated bullying and victimization rates in a large cross-ethnic and -country comparison between adolescents from four countries and five different ethnic groups including: Israel (Jewish Israelis and Arab Palestinian Israelis), Palestine (the Gaza Strip), Germany, and Greece. A total of 3,186 school children aged 12–15 years completed self-report questionnaires of peer bullying/victimization. A stepwise data analytic approach was used to test comparability of the psychometric properties: (1) Structural equivalence contributes to the valid use of the instrument in cultural contexts other than the one for which the instrument has been developed. Structural equivalence is a necessary condition for the justification of indirect or direct comparisons between cultural groups. (2) Additionally, structural isomorphism is necessary to demonstrate that the same internal structure of the instrument applies to the cultural and individual levels. Findings support the internal structural equivalence of the questionnaire with the exception of the Palestinian sample from the Gaza Strip. Subsequently, exploratory factor analysis on the cultural level structure revealed a one-factor structure with congruence measure below 0.85. Thus, no evidence was found

for internal structural isomorphism suggesting that no direct comparisons of cultural samples was justified. These results are discussed in detail and the implications for the international research community and cross-national/-ethnic comparison studies in bullying are addressed.

Keywords: bullying, victimization, cross-national comparison(s), ethnic differences, structural equivalence, structural isomorphism

INTRODUCTION

Bullying is a specific form of aggressive behavior that includes repeated and negative behavior patterns (e.g., intentional injury) by one or several individuals toward another. In addition, the definition of bullying includes a real or perceived imbalance in power where the victim cannot defend him/herself (Olweus, 1994). International research suggests that bullying is a widespread phenomenon with similar characteristics across various countries and cultures globally. For example, gender differences are evident with regard to direct or physical bullying and victimization (boys are more involved than girls) and victimization usually decreases when pupils grow older (e.g., Scheithauer et al., 2006; Smith et al., 2019). Being actively involved in bullying represents a major threat to healthy development and is associated with maladjustment later in life (e.g., Wolke et al., 2012; Zwierzynska et al., 2013; Slava et al., 2018). In particular, students who report bullying behavior as well as victimization (bully-victims), have a higher risk of developing emotional and behavioral problems (Wolke and Samara, 2004; Winsper et al., 2012; Kennedy, 2018; for a summary see Hess and Scheithauer, 2015).

Apart from similarities, cross-national and ethnic cultural research on bullying has produced numerous studies comparing prevalence rates and impact worldwide (e.g., Borntrager et al., 2009; Craig et al., 2009; Ortega et al., 2012; Chester et al., 2015; Smith et al., 2016a; Athanasiou et al., 2018). One study by Fleming and Jacobsen (2009) compared bullying rates in 19 countries worldwide using data from the Global School-based Student Health Survey. Results showed Zambia as the country with the highest percentage of victims (60.9%) and Tajikistan as the lowest (7.8%). Although the instruments used were the same for each country, the authors noted that interpretations were unique to each culture group and that social stigma could account for discrepancies across the countries. Another cross-national study by Mark et al. (2013) compared bullying rates in Lithuania, Luxemburg, and Estonia and showed that Lithuanian boys accounted for the biggest percentage of bullies, while girls in Luxemburg accounted for the smallest.

Indeed, several longitudinal studies have emerged which make comparisons of bullying involvement over time and across several countries such as the EU Kids Online study (e.g., Livingstone et al., 2015) or the Health Behavior in School Aged Children study (HBSC; e.g., Zaborskis et al., 2018; for a summary Smith and López-Castro, 2017). These studies are worthwhile in terms of drawing comparisons of bullying prevalence across many countries, yet they do not come without their difficulties. For example, individual countries often report varying rates for victimization across these studies and the studies themselves have shown limited comparability (Smith et al., 2016b; Smith and López-Castro, 2017).

There are several issues with cross-national and cross-ethnic cultural research that can make comparisons between countries and cultures or ethnic groups difficult. The first major issue of research is to ensure the psycholinguistic equivalence of the term "bullying." Notably, in some countries (e.g., Italy) no adequate translation of the English word "bullying" exists. In addition, there is no Arabic term equivalent to bullying (Samara et al., unpublished) and as such there is much debate about the most appropriate word to use and differences between one or more related concepts on bullying (Scheithauer et al., 2016). Moreover, even when the language is the same, there is the problem of varying terms to explain bullying-related behavior such as peer harassment or aggression. This is an issue both within a country as well as between countries (Smorti et al., 2003). On the same note, interpretation of what constitutes other types of bullying (e.g., cyberbullying) and the importance of definitional elements (e.g., anonymity) has been shown to vary across countries (Menesini et al., 2012). Other important factors when conducting this type of research refer to methodological issues that can also differ across studies and limit comparisons that can be drawn. These include research instruments used, the time frame questions refer to (e.g., the last 6 months vs. 12 months vs. the past term), and even if a definition is provided or not (Foody et al., 2017). Not only are there methodological differences in how questionnaires are delivered and what they enquire about (e.g., time frame), there are more general cultural differences that the instrument may not be sensitive to (e.g., what it means to be a bully and the social implications of such) that could be related to social desirability and cultural norms.

Several other non-methodological factors can also determine country differences, such as socioeconomic inequality (Chaux and Castellanos, 2015) or cultural values (e.g., individualism–collectivism; Smith and Robinson, 2019). For example, a cross cultural study amongst 75 countries revealed less overall victimization in individualist societies but greater proportion of relational victimization and a higher ratio of bullies to victims in collectivist societies (Smith and Robinson, 2019).

Comparability Across Ethnic Groups: Psychometric Properties of Tools Used in Cross-National/Cultural Studies on Bullying

For the most part, researchers use a mix of strategies in trying to ensure their tools transfer across cultures such as translation

and back translation of questions, factor analysis of items, and inclusion and exclusion of explanations in various languages. For example, several new scales have been developed to investigate cyberbullying across several countries. For the most part, strict statistical methods are used such as exploratory and confirmatory factor analysis. As statistical techniques rapidly develop, there may be more scope to be statistically creative in how we assess the utility of one tool across cultures and nations. At the very least, an attempt to do this should be paramount in studies investigating many countries at once.

When administering a psychometric instrument in a questionnaire-based survey in different cultural or ethnic groups with the aim to compare the groups on a particular scale, we need first to test the respective instrument for its comparability across different cultural or ethnic groups as these comparisons could be misleading. There are three main reasons why this is the case. Firstly, this could be due to the cultural specificity of the instrument. Cultural systems can determine the meaning and characteristics of a specific psychological construct and process (Miller, 1997), which can differ between different ethnic and national groups (e.g., individualist societies vs. collectivist societies can generate different meaning for the same bullying instrument and thus different quantitative results).

Secondly, there may be distorting effects relating to methodological biases affecting specific items (e.g., translation biases and errors) or possibly the whole instrument (e.g., due to culturally different perceptions in relation to response styles), lack of familiarity with the testing procedure, underrepresentation of the construct domain by the content of the test (e.g., other forms of victimization are missing) and so on. These methodological biases could violate the conditions for equivalent metric and/or structure across cultures and thus, quantitative cross-cultural comparisons could produce misrepresentative results.

Thirdly, there may be a lack of generalizability of individual-level constructs to the national/cultural level. It could be that a specific construct (e.g., victimization) is used to describe individuals within a specific culture or ethnic group but does not necessarily characterize the national group as a whole. Thus, for example, when a bullying/victimization questionnaire is used with a specific cultural group and generates total scores of bullying and victimization, these scores describe and represent the characteristics of the individuals in the cultural group. When we then compare between ethnic/national groups based on these total scores or constructs, these scores become representative of these ethnic/national groups and we then assume cross-cultural differences. However, referring and attributing these individual-level characteristics to ethnic and national groups as a whole is misleading as the meaning of that specific bullying and/or victimization construct can alter from the individual level to the cultural one (Matsumoto and Van de Vijver, 2010).

As a result, the relation between specific scale items and the underlying dimensions may change across different (cultural) groups. It is therefore necessary to investigate the equivalence of the internal structure in each new ethnic or cultural group where the instrument is applied. A stepwise data analytic approach is suggested by Fischer and Fontaine (2010) and Fontaine and Fischer (2010) to test the comparability of psychometric instruments:

(1) Structural equivalence contributes to the valid use of the instrument in cultural and ethnic contexts other than the one for which the instrument has been developed for. Structural equivalence is a necessary condition for the justification of indirect or direct comparisons between cultural or ethnic groups.
(2) Structural isomorphism is necessary to demonstrate that the same internal structure of the instrument or scales applies to each cultural and/or ethnic group and to the individual levels.

The Bully/Victim Questionnaire (BVQ) by Olweus (1991), was established in one nation many years ago and is widely implemented globally. For many researchers, it provides and assesses the most appropriate definition of bullying and allows actions to be categorized into specific types of bullying and victimization behaviors (e.g., physical, verbal, and relational). There is evidence that it correlates with peer nominations of bullying (Lee and Cornell, 2009) and has good reliability (Breivik and Olweus, 2015). The tool has some limitations where bullies usually do not admit their behavior in self report. Thus, teacher and parental reports may be a valid way to extract this information in addition to the self-report. In addition, although the self-report BVQ is often utilized in cross-national and cross-cultural bullying research, the comparability across different cultural, national or ethnic groups, also referred to as measurement invariance (Widaman and Reise, 1997), has not yet been investigated.

In summary, the literature implies universal, as well as ethnic-specific aspects of bullying behavior, especially when taking diverse types of such behaviors into account. At the moment most of the available evidence cannot be directly compared due to methodological inconsistencies (e.g., utilizing different methods to assess frequency) and divergences in definitions of bullying. These discrepancies led us to conduct a cross-national and cross-ethnic comparative survey amongst five ethnic/national groups in four countries: Germany, Israel (Israeli Jewish and Israeli Palestinians), The Palestinian Authority (the Gaza Strip), and Greece. These ethnic/national groups represent different cultural norms, languages, and different levels of bullying work (e.g., research and anti-bullying intervention) where the same bullying instrument was used. It is an exploratory study with a random sample of convenience. It was felt that selection of the countries in an almost *ad hoc* fashion with this type of research design mimicked the many large and existing cross-cultural studies available today. Very often, countries are chosen to be part of these projects due to a range of random variables such as funding, governmental agendas, available resources and appropriately skilled staff. The aim of the current study is to investigate the extent of comparability of bullying and victimization rates within and between different countries and different ethnic groups including German, Israeli

Palestinians, Israeli Jewish, Palestinians in the Gaza Strip, and Greek pupils.

MATERIALS AND METHODS

Design and Sample

The present study is a cross-sectional, cross-national/ethnic comparison between lower secondary school pupils in Germany, Greece, the Gaza Strip in the Palestinian Authority, and Israel (Israeli Jewish and Israeli Palestinians). All samples were stratified according to age. The age range for the whole sample was from 12 to 16 years.

The convenience German sample (see Scheithauer et al., 2006) included two schools consisting of students from two different German federal states: Wittmund, Lower Saxony and the city state of Bremen. The original sample included 2,088 pupils. The sample from Bremen contained a total of 735 students of grades 5–10 from one conventional state secondary school, while the sample from Wittmund, Lower Saxony, represented 1,353 students, attending grades 5–10 of a state secondary school, as it is called "Kooperative Gesamtschule" (cooperative comprehensive school). A final sample of 1,729 German adolescents aged 12–16 years were included in this study.

The Greek sample included a convenient sample from two schools from the greater area of Drama, Greece. From the total sample, 33 parents (10.15%) did not give their written consent, 11 students (3.39%) withdrew and 7 students (2.16%) were not present on the day when the data was collected. Therefore, the final sample consisted of 270 students.

The Palestinian sample from the Gaza Strip included children from four representative areas in the Gaza Strip (Khan-Younis, Mawasy, Beit-Hanon, and Rimal) and from different school levels (primary, junior high school and high school). This is due to the different age groups in each school system. Potential participants were identified in schools and classes in random clusters which represented the Gaza Strip. The study originally included 1,137 students between the ages of 10–18 years. The number of children that completed the bullying questionnaire was 332, from which 266 students between the ages 12–16 years were included in the final sample.

The Israeli sample was administered in one Palestinian and one Jewish lower secondary schools in Israel (see Wolke and Samara, 2004). The Israeli society is composed of a variety of Jewish groups representing approximately 80% of the whole population, while Palestinian Arabs comprise 20%. In general, there are two educational systems in Israel: Jewish (Hebrew as language of instruction) and Arab Palestinians (Arabic as language of instruction), both under the supervision of the Israeli Ministry of Education. A convenient sample from 30 classes in two lower secondary schools in the center district (one from the Arab region and the other from the Jewish region) were chosen to participate in the study. Of these 1,183 pupils, 95 pupils (8%) did not participate as their parents declined permission and a further 167 (14.1%) were not present for data collection. Thus, a final sample of 921 pupils participated.

Table 1 shows the frequency of participants in each ethnic/national group by gender and age. There were no significant differences regarding the distribution of boys and girls in different ages.

Procedure

The procedure was similar for all studies. Prior to the beginning of the research, letters which explained in detail the procedure and the purpose of the study and requested consent for the research were sent to the headteachers of each school. After receiving permission from the headteachers of the schools, letters explaining the aims and the procedure of the studies were sent to the teachers of each class and the children's parents. Written information about the study and a consent form for parents were passed on via the pupils. The overall aim of this study as well as the questionnaire was explained to the pupils and they were asked to give verbal consent. In addition, the definition of the term "bullying" and patterns of associated aggressive behavior were explained to pupils.

Teams of psychologists and/or social workers in each country carried out the research in each class. All pupils were free to discontinue their participation at any time.

Ethics Statement

The studies were approved by the ethical committees of the corresponding Universities. The study in Greece was approved by the Ethical Committee of Kingston University London,

TABLE 1 | Frequency of participants in each ethnic and national group by gender and age.

	Gender		Total	Age (mean; SD)	Age in years (*N*; %)				
Ethnic/national group	**Boys (*N*; %)**	**Girls (*N*; %)**	**(*N*; %)***		**12**	**13**	**14**	**15**	**16**
Gaza Strip	148 (55.6%)	118 (44.4%)	266 (8.35%)	14.00 (1.57)	70 (26.3%)	41 (15.4%)	51 (19.2%)	28 (10.5%)	76 (28.6%)
Germany	856 (49.5%)	873 (50.5%)	1729 (54.27%)	13.94 (1.39)	374 (21.6%)	316 (18.3%)	369 (21.3%)	383 (22.2%)	287 (16.6%)
Greece	138 (51.1%)	132 (48.9%)	270 (8.47%)	13.80 (1.18)	42 (15.6%)	80 (29.6%)	52 (19.3%)	82 (30.4%)	14 (5.2%)
Israel (Jewish)	217 (48.3%)	232 (51.7%)	449 (14.09%)	13.71 (0.93)	42 (9.4%)	150 (33.4%)	153 (34.1%)	104 (23.2%)	0 (0.0%)
Israel (Palestinians)	231 (48.9%)	241 (51.1%)	472 (14.81%)	13.68 (0.93)	51 (10.8%)	152 (32.2%)	169 (35.8%)	99 (21%)	1 (0.2)
			3186						

**Out of all samples.*

United Kingdom. The studies in Israel and the Gaza Strip were approved by the Ethical Committee of Hertfordshire University, United Kingdom and the corresponding Ministries of Education in both countries. In Germany, the study was approved by the Institutional Review Board of the University of Bremen. All parents gave written informed consent for their children to participate in the study.

Instrument

All participants completed the Bully/Victim-Questionnaire (BVQ; Olweus, 1991). The BVQ is an anonymous self-report instrument used to gather information about the extent of bullying. In Germany, an authorized German version ("Fragebogen für Schüler und Schülerinnen ab der 5. Klasse, Form D") was used. For the Israeli, Greek, and the Gaza Strip samples, the BVQ was translated into Hebrew (for Israeli Jewish), Arabic (for Israeli Palestinians and Palestinians from the Gaza Strip) and Greek (for the sample in Greece) and then back translated to English by qualified translators. Any discrepancies were discussed and rectified for the bullying questions, according to guidelines by van de Vijver and Hambleton (1996).

The questionnaire consists of two parts: things that have been done on purpose to participants and things that participants have done to others on purpose during the last 6 months at school. Each of these two parts contains ten short phrases or questions asking about direct and relational bullying and victimization.

The first five questions were related to victimization: (1) I was hit, kicked, pushed or threatened, (2) I had things taken from me or spoiled; including money, (3) I was made fun of, (4) Children I often play with said that they did not want to play with me (5) Other children told lies or nasty stories about me. The second five questions asked about bullying others: (1) I hit, kicked, pushed or threatened others, (2) I took or spoiled things from others; including money, (3) I made fun of others, (4) I said to children I often play with that I do not want to play with them, (5) I told lies or nasty stories about others.

For all questions, participants were asked how frequently they had experienced or shown these behaviors in the last 6 months. Response options were (0) never (1) only once or twice (2) two or three times a month (3) about once a week or (4) several times a week. The BVQ has been reported to have good validity and reliability (Olweus, 1994).

Statistical Analysis

Data analysis was conducted with the statistical package software Stata Version 14 and IBM SPSS Statistics 24.

Part 1: Differences Between Countries and Ethnic Groups

To assess the relationship of bullying and victimization status according to ethnic/national group two approaches were implemented. We added up the items of bullying to construct a continuous bullying variable and added up the victimization items to construct a continuous victimization variable. Then we performed ANOVA with Bonferroni *post hoc* comparisons between ethnic/national groups.

Secondly, a categorical approach was implemented. For statistical analyses, the first two answer choices for each question were scored as 0 (neutrals) and the others as 1 (frequent bullies or victims). Therefore, children were categorized into four groups: (a) Pure Victims (PV) (those children who have been bullied at least two or three times a month but they have never or only once or twice bullied others in the last 6 months), (b) Pure Bullies (PB) (those children who have bullied others on purpose at least two or three times a month, but they have never or once or twice been victimized in the last 6 months), (c) Bully/Victims (BV) (those children who have been victimized and have bullied others on purpose at least two or three times a month during the last 6 months) and (d) Neutrals (N) (those children who have never, or only once or twice, been victimized or bullied others in the last 6 months). This dichotomous categorization using a cut-off point such as this is based on the core definition of bullying as a repetitive behavior, excluding singular events involving aggressive or violent acts.

Thus, differences in bullying and victimization involvement of each specific item are reported with frequency or cross tables. Bivariate associations between countries were calculated with chi-square-(χ^2)-statistics ($\alpha < 0.05$). Additionally, Multinomial Logistic Regression analyses were used to determine the unique effects of ethnic/national group on bullying behavior. The dependent variable (DV) for each logistic regression analysis represents the bullying/victimization subgroups (pure victim, pure bullies, bully/victims) which were compared to neutrals. The odds ratios (OR) and their 95% confidence intervals were determined as an effect measure for data with binary outcomes. The OR displays the relative chance of an outcome's occurrence (pure victim, pure bullies, bully/victims) in comparison to a reference population (neutral) to investigate differences between each two ethnic/national groups (e.g., German vs. Greek pupils).

Part 2: Structural Equivalence and Isomorphism

Evidence of measurement invariance or equivalence was sought using exploratory factor analysis with a matrix of polychoric correlation due to the use of ordinal response variables (Jöreskog, 1994). The analytical approach to test structural equivalence and isomorphism requires several analytical steps, as recommended in Fischer and Fontaine (2010) and Fontaine and Fischer (2010). For these analyses we used the continuous bullying and victimization variables. The testing strategy is presented in two sections.

Section 1: Testing for structural equivalence

A hypothesized two-factor structure of the BVQ, "bullying" and "victimization" was tested by computing the individual-level structure (overall factor structure). In this step, any possible national/ethnic differences were ignored, and the validity of factorial structure was tested. In a second step, the applicability of the individual-level structure to each ethnic/national group was tested. Specifically, it was verified whether the hypothesized two-factor structure over all sub-samples (i.e., individual-level structure) is similar to the structure within each ethnic/national group separately using orthogonal Procrustes rotation and evaluating the congruence between factor loadings using Tucker's

coefficient of agreement (Tucker, 1951). To judge similarity, the value of the congruence measure should not be below 0.85 to be indicative of equivalence (Fischer and Fontaine, 2010).

Section 2: testing for structural isomorphism

The ethnic/national level association matrix was computed based on the average item scores per ethnic/national group after estimating the size of ethnic/national variation with intra-class correlations (ICCs). Thereby, testing for the hypothesized two-factor structure on the ethnic/national level. Additionally, the ethnic/national-level structure is compared to the individual-level structure by using orthogonal Procrustes rotation and calculations of the congruence measure. Specifically, we tested whether the structure over all samples (i.e., individual-level structure) would apply to the ethnic/national level structure.

RESULTS

Part 1: Bullying and Victimization for Each Ethnic/National Group

Tables 2 and **3** show the frequency and the occurrence (according to the answer scale in the last 6 months: never, once or twice, two or three times a month, once a week, several times a week) for each bullying and victimization item for each ethnic/national group. The results show that involvement in different bullying and victimization behaviors varies across ethnic/national groups and occurrences. A general significant difference was found between ethnic/national groups in relation to all bullying and victimization items across the answer scales ($p < 0.001$).

Looking at the sum of the victimization items and bullying items, results from ANOVA with Bonferroni *post hoc* revealed that there are significant differences between ethnic/national groups. Greek pupils were more likely to be involved in bullying behaviors compared to all other ethnic groups ($p < 0.001$). On the other hand, Greece and Gaza adolescents were significantly more likely to be involved in victimization compared to all other ethnic/national groups ($p < 0.001$) and Israeli Jewish and Israeli Palestinians were significantly more likely to be involved in victimization compared to German adolescents ($p < 0.001$) (see **Table 4**).

We also looked at differences between ethnic/national groups using the overall bullying variable including the four subgroups: neutrals, pure victims, pure bullies, and bully/victims. **Table 4** shows the prevalence of each subgroup for each ethnic/national group separately. When looking at

TABLE 2 | Frequency of each victimization item for each answer scale by ethnic/national groups.

		Victimization items*				
Ethnic/national group	**Answer Scale+**	**V (1)**	**V (2)**	**V (3)**	**V (4)**	**V (5)**
Gaza Strip	0	135(50.9%)	159(60%)	189(72.4%)	158(59.6%)	146(55.1%)
	1	78(29.4%)	68(25.7)	41(15.7%)	71(26.8%)	90(34%)
	2	22(8.3%)	22(8.3%)	17(6.5%)	17(6.4%)	15(5.7%)
	2	16(6%)	7(2.6%)	8(3.1%)	9(3.4%)	8(3%)
	4	14(5.3%)	9(3.4%)	6(2.3%)	10(3.8%)	6(2.3%)
Greece	0	139(51.5%)	141(52.2%)	149(55.6%)	157(58.4%)	141(52.6%)
	1	60(22.2%)	62(23%)	66(24.6%)	53(19.7%)	73(27.2%)
	2	52(19.3%)	52(19.3%)	33(12.3%)	44(16.4%)	34(12.7%)
	3	14(5.2%)	12(4.4%)	10(3.7%)	13(4.8%)	17(6.3%)
	4	5(1.9%)	3(1.1%)	10(3.7%)	2(0.7%)	3(1.1%)
Germany	0	1471(89.1%)	1481(90%)	1199(71.8%)	1445(87.4%)	1213(73.1%)
	1	127(7.7%)	136(8.3%)	320(19.2%)	146(8.8%)	332(20%)
	2	22(1.3%)	14(0.9%)	63(3.8%)	20(1.2%)	50(3%)
	3	11(0.7%)	7(0.4%)	26(1.6%)	19(1.1%)	34(2%)
	4	20(1.2%)	7(0.4%)	63(3.8%)	23(1.4%)	31(1.9%)
Israel (Jewish)	0	350(78%)	350(78%)	322(71.7%)	319(71%)	273(60.9%)
	1	76(16.9%)	77(17.1%)	77(17.1%)	80(17.8%)	120(26.8%)
	2	15(3.3%)	11(2.4%)	27(6%)	22(4.9%)	29(6.5%)
	3	7(1.6%)	8(1.8%)	13(2.9%)	12(2.7%)	12(2.7%)
	4	1(0.2%)	3(0.7)	10(2.2%)	16(3.6%)	14(3.1%)
Israel (Palestinians)	0	334(70.8%)	360(76.3%)	362(76.7%)	375(79.4%)	297(62.9%)
	1	91(19.3%)	76(16.1%)	52(11%)	62(13.1%)	120(25.4%)
	2	23(4.9%)	14(3%)	13(2.8%)	15(3.2%)	25(5.3%)
	3	13(2.8%)	13(2.8%)	34(7.2%)	12(2.5%)	9(1.9%)
	4	11(2.3%)	9(1.9%)	11(2.3%)	8(1.7%)	21(4.4%)

**Victimization items with overall significant comparisons between ethnic/national groups: (1) I was hit, kicked, pushed or threatened [$\chi^2 = 464.12$ (16, 3107), $p < 0.001$], (2) I had things taken from me or spoiled; including money [$\chi^2 = 442.22$ (16, 3101), $p < 0.001$], (3) I was made fun of [$\chi^2 = 120.34$ (16, 3121), $p < 0.001$], (4) Children I often play with said that they did not want to play with me [$\chi^2 = 305.39$ (16, 3108), $p < 0.001$], (5) Other children told lies or nasty stories about me [$\chi^2 = 130.45$ (16, 3113), $p < 0.001$]. +Answer scale: (0) never (1) only once or twice (2) two or three times a month (3) about once a week or (4) several times a week.*

TABLE 3 | Frequency of each bullying item for each answer scale by ethnic/national groups.

		Bullying items*				
Ethnic/national group	**Answer Scale+**	**B (1)**	**B (2)**	**B (3)**	**B (4)**	**B (5)**
Gaza Strip	0	190(72.2%)	228(86.4%)	207(79.9%)	189(71.3%)	237(78.4%)
	1	48(18.3%)	19(7.2%)	33(12.7%)	51(19.2%)	20(7.6%)
	2	10(3.8%)	9(3.4%)	13(5%)	14(5.3%)	4(1.5%)
	3	6(2.3%)	4(1.5%)	4(1.5%)	6(2.3%)	0(0%)
	4	9(3.4%)	4(1.5%)	2(0.8%)	5(1.9%)	2(0.8%)
Greece	0	144(53.3%)	171(63.6%)	172(63.9%)	169(62.6%)	168(62.5%)
	1	60(22.2%)	47(17.5%)	60(22.3%)	54(20%)	59(21.9%)
	2	57(21.1%	37(13.8%)	27(10%)	33(12.2%)	35(13%)
	3	5(1.9%)	12(4.5%)	7(2.6%)	13(4.8%)	5(1.9%)
	4	4(1.5%)	2(0.7%)	3(1.1%)	1(0.4%)	2(0.7%)
Germany	0	1418(86%)	1572(95.7%)	931(55.4%)	1212(73.1%)	1435(87.5%)
	1	153(9.3%)	32(1.9%)	485(28.8%)	292(17.6%)	137(8.4%)
	2	16(1%)	8(0.5%)	96(5.7%)	50(3%)	19(1.2%)
	3	16(1%)	6(0.4%)	74(4.4%)	37(2.2%)	20(1.2%)
	4	45(2.7%)	24(1.5%)	96(5.7%)	76(4%)	29(1.8%)
Israel (Jewish)	0	356(79.3%)	405(90.2%)	328(73.2%)	317(70.6%)	352(78.4%)
	1	66(14.7%)	26(5.8%)	68(15.2%)	94(20.9%)	65(14.5%)
	2	15(3.3%)	11(2.4%)	31(6.9%)	26(5.8%)	21(4.7%)
	3	8(1.8%)	4(0.9%)	9(2%)	6(1.3%)	4(0.9%)
	4	4(0.9%)	3(0.7%)	12(2.7%)	6(1.3%)	7(1.6%)
Israel (Palestinians)	0	361(76.6%)	433(91.7%)	376(80%)	379(80.3%)	406(86%)
	1	67(14.2%)	18(3.8%)	51(10.9%)	58(12.3%)	41(8.7%)
	2	22(4.7%)	13(2.8%)	17(3.6%)	20(4.2%)	16(3.4%)
	3	7(1.5%)	3(0.6%)	15(3.2%)	7(1.5%)	4(0.8%)
	4	14(3%)	5(1.1%)	11(2.3%)	8(1.7%)	5(1.1%)

**Bullying items with overall significant comparisons between ethnic/national groups: (1) I hit, kicked, pushed or threatened others [$\chi^2 = 333.84$ (16, 3101), $p < 0.001$], (2) I took or spoiled things from others; including money [$\chi^2 = 363.39$ (16, 3096), $p < 0.001$], (3) I made fun of others [$\chi^2 = 188.60$ (16, 3128), $p < 0.001$], (4) I said to children I often play with that I do not want to play with them [$\chi^2 = 96.68$ (16, 3114), $p < 0.001$], (5) I told lies or nasty stories about others [$\chi^2 = 192.37$ (16, 3093), $p < 0.001$]. +Answer scale: (0) never (1) only once or twice (2) two or three times a month (3) about once a week or (4) several times a week.*

TABLE 4 | Overall bullying subgroups within each ethnic/national group* and mean and standard deviation for the sum of the bullying and victimization items for each ethnic/national group†.

	Israel (Jewish) (*N*: 449)	**Israel (Palestinians) (*N*: 472)**	**Gaza Strip (*N*: 266)**	**Greece (*N*: 270)**	**Germany (*N*: 1,729)**
Neutrals	265(59%)	294(62.3%)	153(57.5%)	105(38.9%)	1177(68.1%)
Pure victims	90(20%)	85(18%)	61(22.9%)	59(21.9%)	173(10%)
Pure bullies	69(15.4%)	44(9.3%)	14(5.3%)	39(14.4%)	264(15.3%)
Bully/victims	25(5.6%)	49(10.4%)	38(14.3%)	67(24.8%)	115(6.7%)
Sum of bullying items (mean, SD)	1.67(2.43)	1.46(2.59)	1.58(2.47)	3.08(3.43)	1.76(3.02)
Sum of victimization items (mean, SD)	2.16(2.66)	2.25(3.05)	3.23(3.37)	3.83(3.71)	1.34(2.44)

**Specific comparisons between ethnic/national groups using the overall bullying variable including the four subgroups: neutrals, pure victims, pure bullies, and bully/victims: Israel (Jewish) vs. Israel (Palestinians): [$\chi^2 = 14.40$ (3, 921), $p < 0.01$]; Israel (Jewish) vs. Gaza Strip: [$\chi^2 = 29.82$ (3, 715), $p < 0.001$]; Israel (Jewish) vs. Greece: [$\chi^2 = 62.45$ (3, 719), $p < 0.001$]; Israel (Jewish) vs. Germany: [$\chi^2 = 34.81$ (3, 2178), $p < 0.001$]; Israel (Palestinians) vs. Gaza Strip: [$\chi^2 = 8.49$ (3, 738), $p < 0.05$]; Israel (Palestinians) vs. Greece: [$\chi^2 = 45.71$ (3, 742), $p < 0.001$]; Israel (Palestinians) vs. Germany: [$\chi^2 = 38.41$ (3, 2201), $p < 0.001$]; Gaza Strip vs. Greece: [$\chi^2 = 28.74$ (3, 536), $p < 0.001$]; Gaza Strip vs. Germany: [$\chi^2 = 70.78$ (3, 1995), $p < 0.001$]; Greece vs. Germany: [$\chi^2 = 143.98$ (3, 1999), $p < 0.001$].*
†Overall difference between ethnic/national groups in relation to sum of bullying items: $F = 15.73$ (4, 3150), $p < 0.001$, $\eta^2 = 0.020$; overall difference between ethnic/national groups in relation to sum of victimization items: $F = 67.39$ (4, 3150), $p < 0.001$, $\eta^2 = 0.079$.

bullying subgroups for each ethnic/national group, crosstabs analysis showed overall significant differences between each ethnic/national group with the other ethnic/national groups (10 comparisons in total) (Israeli Jewish vs. Israeli Palestinians: $p < 0.01$; Israeli Palestinians vs. Palestinians from the Gaza Strip: $p < 0.05$; the remaining comparisons: $p < 0.001$) (see **Table 4** and **Figures 1**, **2**).

Multinomial logistic regressions were performed to see the specific differences between each two ethnic/national groups in relation to each bullying subgroup where the reference point

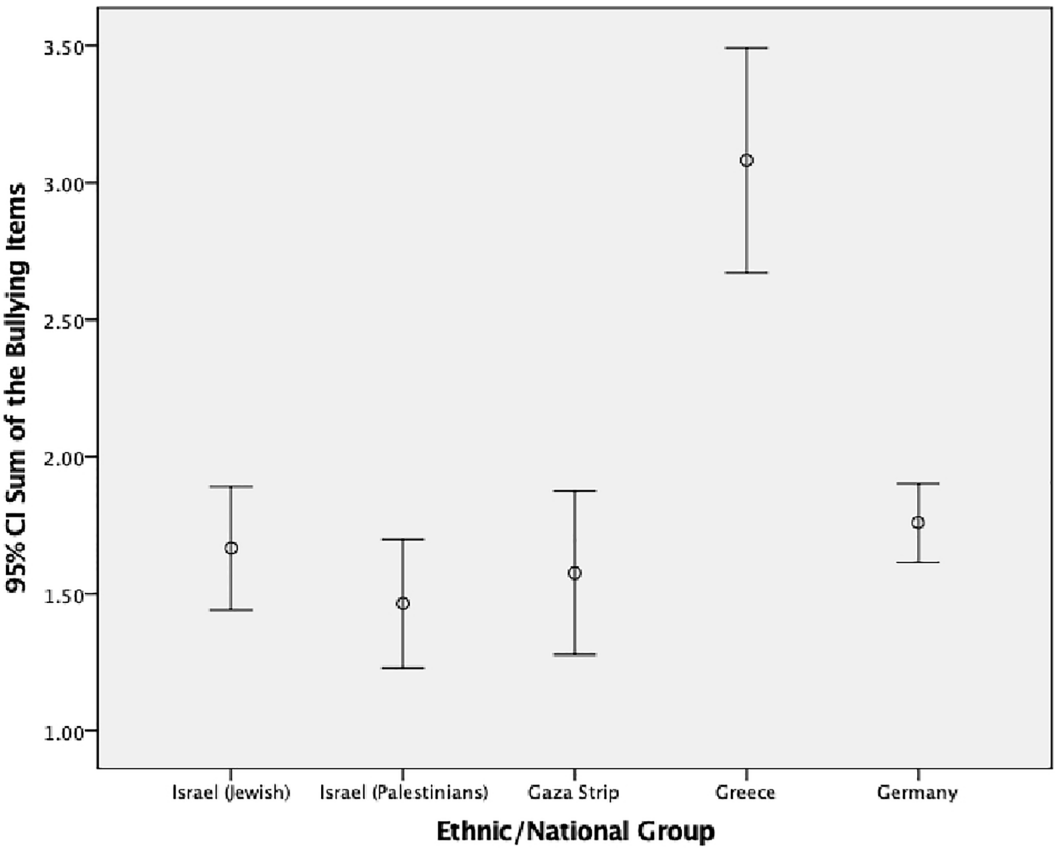

FIGURE 1 | Mean and 95% confidence interval for involvement in bullying others by ethnic/national group.

of comparison was the neutral subgroup (**Table 5** also shows the frequency of each bullying subgroup in comparison to the neutral group for each ethnic/national group). The results of the multinomial logistic regressions comparisons were as follows:

Israeli Jewish vs. Israeli Palestinians

The overall model was significant [$\chi^2 = 14.58$ (3, 921), $p < 0.01$]. Israeli Jewish were more likely to be involved in pure bullying others in comparison to Israeli Palestinians (OR: 1.74, 95% CI: 1.15–2.63, $p < 0.01$), while Israeli Palestinians were more likely to be involved as bully/victims in comparison to Israeli Jewish (OR: 1.77, 95% CI: 1.06–2.94, $p < 0.05$).

Israeli Jewish vs. Palestinians in the Gaza Strip

The overall model was significant [$\chi^2 = 31.06$ (3, 715), $p < 0.001$]. Israeli Jewish were more likely to be involved in pure bullying others in comparison to Palestinians from the Gaza Strip (OR: 2.85, 95% CI: 1.55–5.23, $p < 0.01$), while Palestinians from the Gaza Strip were more likely to be involved as bully/victims in comparison to Israeli Jewish (OR: 2.63, 95% CI: 1.53–4.52, $p < 0.001$).

Israeli Jewish vs. Greek Children

The overall model was significant [$\chi^2 = 61.33$ (3, 719), $p < 0.001$]. Greek children were more likely to be pure victims (OR: 1.65, 95% CI: 1.11–2.46, $p < 0.05$) and bully/victims (OR: 6.76, 95% CI: 4.05–11.24, $p < 0.001$) compared to Israeli Jewish children.

Israeli Jewish vs. German Children

The overall model was significant [$\chi^2 = 31.39$ (3, 2178), $p < 0.001$]. Israeli Jewish children were more likely to be pure victims (OR: 2.31, 95% CI: 1.73–3.08, $p < 0.001$) compared to German children.

Israeli Palestinians vs. Palestinians From the Gaza Strip Children

The overall model was significant [$\chi^2 = 8.63$ (3, 738), $p < 0.05$] but no specific differences between the two groups in relation to the bullying subgroups were found.

Israeli Palestinians vs. Greek Children

The overall model was significant [$\chi^2 = 45.35$ (3, 742), $p < 0.001$]. Greek children were more likely to be pure victims (OR: 1.94, 95% CI: 1.30–2.90, $p < 0.01$), bullies (OR: 2.48, 95% CI: 1.53–4.03, $p < 0.001$) and bully/victims (OR: 3.83, 95% CI: 2.49–5.88, $p < 0.001$) in comparison to Israeli Palestinian children.

Israeli Palestinians vs. German Children

The overall model was significant [$\chi^2 = 36.80$ (3, 2201), $p < 0.001$]. Israeli Palestinians were more likely to be pure victims

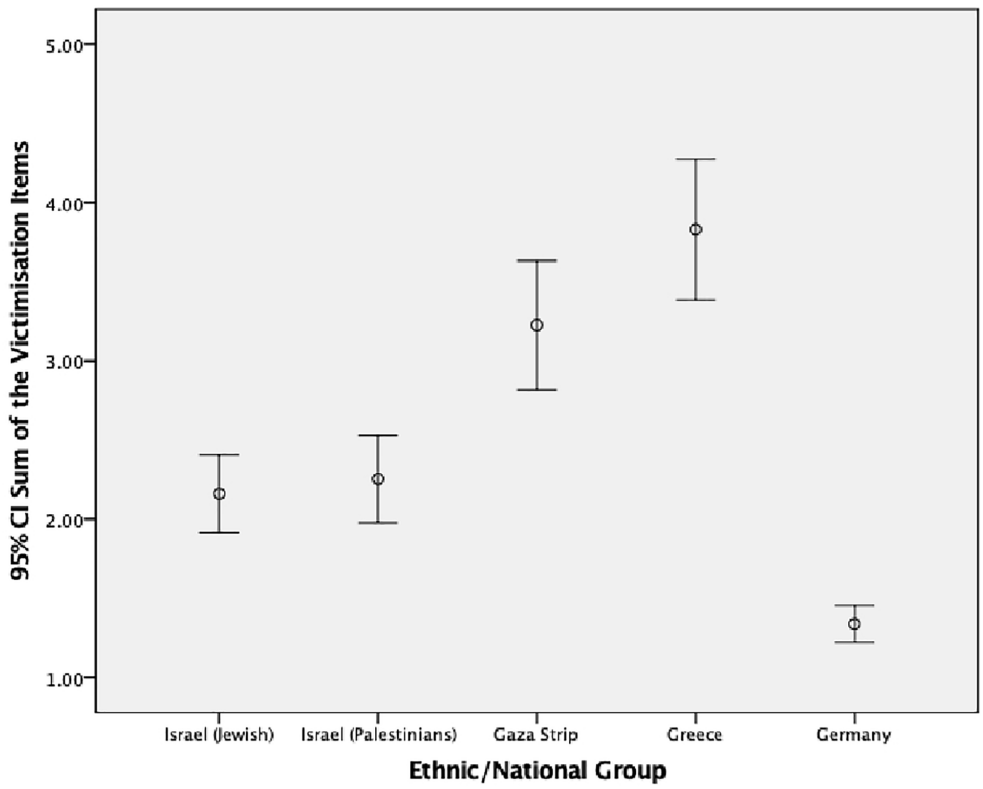

FIGURE 2 | Mean and 95% confidence interval for involvement in victimization by ethnic/national group.

(OR: 1.97, 95% CI: 1.47–2.63, $p < 0.001$) and bully/victims (OR: 1.71, 95% CI: 1.19–2.44, $p < 0.01$) in comparison to German children, while German children were more likely to be involved as bullies (OR: 1.50, 95% CI: 1.06–2.11, $p < 0.05$).

Palestinians From the Gaza Strip vs. Greek Children

The overall model was significant [$\chi^2 = 29.38$ (3, 536), $p < 0.001$]. Greek children were more likely to be involved in bullying as bullies (OR: 4.06, 95% CI: 2.10–7.87, $p < 0.001$) and bully/victims (OR: 2.57, 95% CI: 1.61–4.12, $p < 0.001$) in comparison to Palestinian children from the Gaza Strip.

Palestinians From the Gaza Strip vs. German Children

The overall model was significant [$\chi^2 = 66.35$ (3, 1995), $p < 0.001$]. Palestinian children from the Gaza Strip were more likely to be pure victims (OR: 2.71, 95% CI: 1.94–3.80, $p < 0.001$) and bully/victims (OR: 2.54, 95% CI: 1.70–3.81, $p < 0.001$) in comparison to German children, while German children were more likely to be involved as bullies (OR: 2.45, 95% CI: 1.39–4.31, $p < 0.01$) in comparison to Palestinian children from the Gaza Strip.

Greek vs. German Children

The overall model was significant [$\chi^2 = 120.96$ (3, 1999), $p < 0.001$]. Greek children were more likely to be pure victims (OR: 3.82, 95% CI: 2.68–5.46, $p < 0.001$), bullies (OR: 1.66, 95% CI: 1.12–2.45, $p < 0.05$) and bully/victims (OR: 6.53, 95% CI: 4.55–9.37, $p < 0.001$) in comparison to German children.

Part 2: Structural Equivalence and Isomorphism

The above results revealed significant differences between ethnic/national groups in relation to involvement in bullying behaviors as bullies, victims or bully/victims. In this section, we

TABLE 5 | The frequency of each bullying subgroup in comparison to the neutral group.

	Israel (Jewish)	Israel (Palestinians)	Gaza Strip	Greece	Germany
Neutrals (comparison group)	*n*: 265	*n*: 294	*n*: 153	*n*: 105	*n*: 1,177
Pure victims	90/355 (25.35%)	85/379 (22.43%)	61/214 (28.50%)	59/164 (35.98%)	173/1350 (12.81%)
Pure bullies	69/334 (20.66%)	44/338 (13.02%)	14/167 (8.38%)	39/144 (27.08%)	264/1441 (18.32%)
Bully/victims	25/290 (8.62%)	49/343 (14.29%)	38/191 (19.90%)	67/172 (38.95%)	115/1292 (8.90%)

will perform extra analysis to confirm whether the above results are valid and whether the comparisons between ethnic/national groups in relation to bullying and victimization is adequate and represent reality. In addition, we will test whether the use of these specific items represent two distinct behaviors (bullying and victimization) in each ethnic/national group. Thus, we performed structural equivalence and isomorphism analyses. As those two concepts are hierarchically ordered – the investigation of structural equivalence gives necessary but insufficient information and functions as analytical basis for isomorphism. Results for each section are explained in detail below and **Figure 3** for overview of the analytical steps.

Section 1: Testing for Structural Equivalence

At the individual level, the expected two-factorial structure of the BVQ, "bullying" and "victimization" clearly emerged (see **Table 6**). Subsequently, the factor structure of each cultural/national sample was orthogonally Procrustes rotated toward the individual level structure and the congruence measure calculated for each factor per ethnic/national group. For most ethnic/national groups, the Tucker's coefficient of agreement exceeded 0.85 or even 0.95, with the exception of the sample from the Gaza Strip, which showed congruence value of 0.74 (victimization) and 0.65 (bullying). This finding supports the structural equivalence with the exception of the Gaza Strip sample.

Section 2: Testing for Structural Isomorphism

The individual items of the BVQ varied sufficiently between cultural/national groups. The intra-class correlation coefficient ranged from 0.016 to 0.11. The Gaza Strip sample was excluded from further analysis, due to the lack of structural equivalence. Subsequently, exploratory factor analysis on the ethnic/national level structure revealed a one-factor structure with congruence measure below 0.85. Thus, no evidence was found for structural isomorphism. Therefore, no further direct comparisons of the cultural/national samples are justified.

DISCUSSION

Our study set out to examine the validity of cross-ethnic and cross-national comparisons in relation to bullying and victimization rates using the same instrument (i.e., the BVQ). First, we compared the different ethnic/national groups and the results revealed significant differences in relation to involvement in bullying and victimization behaviors. The results showed that Greek children were more likely to be involved in bullying as pure victims in comparison to Israeli Jewish, Israeli Palestinian and German children, and as bullies and bully/victims in comparison to Israeli Palestinians, Palestinians in the Gaza Strip, Israeli Jewish and German children. The Israeli Jewish sample, on the other hand, were more likely to be involved in bullying as pure bullies in comparison to Israeli Palestinians and Palestinians in the Gaza Strip, and as victims in comparison to German children. Both Israeli Palestinians and Palestinians in the Gaza Strip were more likely to be involved in bullying as victims and bully/victims in comparison to German children, while German children were more likely to be involved as bullies. Finally, Israeli Palestinians and Palestinians in the Gaza Strip were more likely to be involved as bully/victims in comparison to Israeli Jewish. No differences were found between Israeli Palestinians and Palestinians from the Gaza Strip in relation to the bullying subgroups. The odds ratios ranged from 1.65 to 6.53, which indicated that differences are not equal between ethnic groups.

Nonetheless, do the above results mean that each specific difference found represent reality? Or to put it another way, can we say that the specific ethnic groups are more or less likely to be a bully, victim or bully/victim in comparison to the other ethnic group using one standard questionnaire? In order to answer these questions, we deemed it necessary to perform structural equivalence and isomorphism analyses to examine the use of the bullying questionnaire within each ethnic group and to assess whether comparability is valid across the same groups. We initially verified whether the hypothesized two-factor structure of the BVQ, "bullying" and "victimization" over all sub-samples (i.e., individual-level structure) was similar to the structure within each ethnic group separately. We then tested whether the structure over all samples (i.e., individual-level structure) would apply to the ethnic level structure. This was necessary to investigate the usefulness of our instrument and indeed, to determine if the initial conclusions drawn regarding the prevalence of bullying and victimization were appropriate.

The results found that at the individual level, the expected two-factorial structure of the BVQ, "bullying" and "victimization" clearly emerged. This finding supports the internal structure equivalence for each ethnic/national group with the exception of the Gaza Strip sample. Secondly, the exploratory factor analysis on the ethnic level structure revealed a one-factor structure with congruence measure below 0.85. Thus, no evidence was found for structural isomorphism and no further direct comparisons of the ethnic/national samples are justified. Thus, the structural equivalence and isomorphism analyses disapprove and invalidate the first section of results where we report significant differences between different ethnic/national groups (even within the same country, i.e., Israel). Also, the results show that the bullying questionnaire did not generate distinct bullying and victimization factors for the Gaza Strip sample.

Bullying is a recognized form of problematic behavior that is investigated worldwide in most cultures, ethnic groups and countries with shared and similar characteristics, different types and forms, and nature (Smith et al., 2016a). Research on cross-national and cross-ethnic comparisons on bullying to date relied on specific methodological approaches. Comparisons on rates and prevalence of specific bullying items or forms are often established using standard questionnaires that have been translated into appropriate languages. Although these studies can give some indication of differences between cultures or ethnic groups, the results reported here confirm that we need to treat these findings with caution. Statistical data analysis is also considered as a tool to determine whether cross-national or cross-ethnic comparison is valid and represent true differences and variations between cultures or even between ethnic groups within the same country.

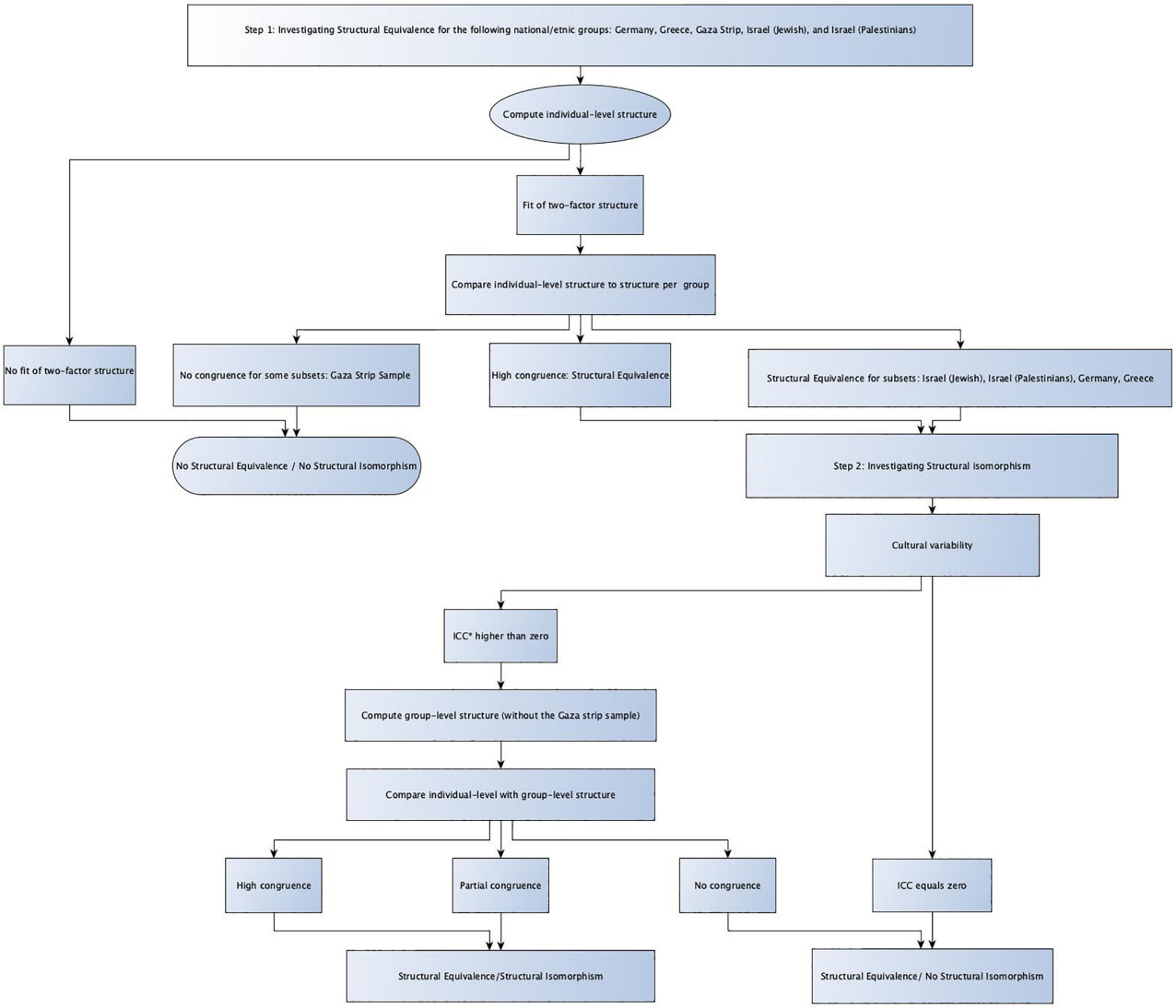

FIGURE 3 | Overview of steps for the analysis of structural equivalence and structural isomorphism (Fischer and Fontaine, 2010; Fontaine and Fischer, 2010). *ICC = Intra-class correlation.

Of note, the first statistical methodology, testing for structural equivalence, where we found that the bullying tool used in the five studies has two distinct behaviors of victimization and bullying (except for the Gaza sample), indicates that the bullying questionnaire can be used to measure bullying and/or victimization within each ethnic/national group separately. For the Gaza Strip sample, the testing revealed that there are no distinct groups of bullying versus victimization that can be extracted from the items used. This can be interpreted by different reasons. Firstly, the political situation and the war in the Gaza Strip, where the whole population has been exposed to traumatic events (e.g., house demolition, killing of a relative, injuries) and to a siege since 2007, may thus make bullying questions and items seem like small events in comparison to these war events (Altawil et al., 2008; Abdeen et al., 2018; El-Khodary and Samara, 2018, 2019). Secondly, there is a need for further analysis for this specific sample, where we should look at different types and forms of bullying (physical, verbal, relational) rather than general bullying and victimization. Thirdly, this could also be related to the difficult economic situation in the Gaza Strip compared to the other four samples.

In contrast, when applying the structural isomorphism testing, direct comparisons of the ethnic/national samples are not justified. The results raise awareness of how easily comparisons across groups can lead to spurious results. There is thus a need for preliminary analysis for each construct before evaluating group differences. Even within the same country (i.e., Israeli Palestinians and Jewish) comparisons cannot be conducted due to lack of evidence for structural isomorphism. Children and adolescents may perceive the meaning of the bullying items differently

TABLE 6 | The individual level structure with factor loading for the hypothesized two-factor structure of the BVQ (N = 3,186).

		Bullying	Victimization
	Victimization items		
1	I was hit, kicked, pushed or threatened	0.1175	**0.7308**
2	I had things taken from me or spoiled; including money	0.1486	**0.6256**
3	I was made fun of	0.0213	**0.6464**
4	Children I often play with said that they did not want to play with me	−0.0747	**0.7484**
5	Other children told lies or nasty stories about me	−0.0433	**0.7090**
	Bullying items		
1	I hit, kicked, pushed or threatened others	**0.7450**	0.0928
2	I took or spoiled things from others; including money	**0.7816**	0.1182
3	I made fun of others	**0.7231**	−0.1458
4	I said to children I often play with that I do not want to play with them	**0.6857**	−0.0959
5	I told lies or nasty stories about others	**0.6920**	0.0979

Bold: Factor loadings above 0.40.

and thus comparisons may not reflect true differences or similarities. Furthermore, translating a specific questionnaire to other languages necessitates different validity tests that need to be performed to make sure that the questionnaire is measuring what it is intended to measure. This could also be due to procedural issues such as how the studies were performed in different countries and amongst different ethnic/national groups, how much the researchers were involved, and the level of explanation that the participants received about the bullying items. Finally, country differences such as socioeconomic inequality (Chaux et al., 2009) or cultural values (e.g., individualism–collectivism; Smith and Robinson, 2019) may differ from one study to another.

Several limitations and issues warranting further research need to be considered when reviewing these results. First, these were convenience samples of different sizes and may not be nationally representative in some samples. A larger sample might provide more illuminating results (e.g., the Gaza Strip). Another limitation of this study is that it relies on self−reports and not on behavioral measures of bullying. As such, the risk of selection effects and biases have to be taken into account. Current limitations of the methods must also be acknowledged. For example, the conventional classification approach for bullying resulting in the common classes of "pure victim," "pure bully," "bully-victim," and "neutrals" might overestimate involvement (see Schultze-Krumbholz et al., 2015 for further information). As evident in the current manuscript, there are a range of methodological shortcomings with this approach (translation and perception of the word bullying, different designs, reference time frame, answer scales, cut-off points or data analysis approaches; Sabella et al., 2013; Smith, 2014; Foody et al., 2017). More advanced methods to investigate measurement invariance like Multigroup Confirmatory Factor Analysis (MGCFA, e.g. Jovanović et al., 2019) or Multigroup Latent Class Analysis (MGLCA, e.g. Eid et al., 2003) are advisable and should be prioritized in future research. Nevertheless, we found the exploratory factor analysis, as recommended by Fischer and Fontaine (2010), more suitable in respect to the instrument used (i.e., BVQ) despite the restricted sample size on an individual and cultural level.

CONCLUSION

The statistical methodologies used in this study showed the importance of the methodological approach that is adapted when comparing bullying and victimization across different cultures and ethnic groups. We need to consider different issues when comparing different countries, cultures, and ethnic groups (between and within countries). Furthermore, cultural differences in interrupting and perceiving peer bullying and/or victimization situations, and the internal and the external validity of any study need to be taken into account to be able to compare between different ethnic/national groups. Countries differ on many characteristics like educational policies, personal beliefs, attitudes, values, and so on. Other factors that need to be taken into account are linguistic issues related to the translation and definition of bullying in different cultures, and measurements invariance that could be related to age and gender differences. Future analysis should also look at the different forms of bullying and victimization, including physical, verbal, relational, and cyber bullying. In addition, a failure to demonstrate invariance can be helpful to make conclusions about how different groups interpret the same construct. Some constructs are simply experienced so differently across various groups.

The results of the current study raised a fundamental demand that different aspects need to be taken into account when comparing bullying and victimization between and within countries. This study is a contribution to the discussion of whether and how study results from different nations and/or cultures can be compared. Although standards have been defined for cross-cultural research for some time (e.g., Matsumoto and Van de Vijver, 2010), these standards have not yet been become part of cross-national bullying research.

Bullying is a concern for children, parents, schools, and practitioners (Samara et al., 2017). These groups, as well as policy makers, educational practitioners, and researchers should take into account the current results when attempting to compare between different ethnic/national groups or even across schools. The current results also call into question the common practice of adopting any given anti-bullying intervention or prevention

program from another cultural context to another. The results presented here suggest that their utility may also depend on potential cultural or ethnic values and perceptions (Samara and Smith, 2008; Smith et al., 2008, 2012).

DATA AVAILABILITY

The datasets for this manuscript are not publicly available because they are used in other ongoing studies for publication. Requests to access the datasets should be directed to the authors of the manuscript (MS: M.Samara@kingston.ac.uk and HS: herbert.scheithauer@fu-berlin.de).

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of British Psychological Society Guidelines with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The study in Greece was approved by the Ethical Committee of the University of Kingston London, United Kingdom. The studies in Israel and the Gaza Strip were approved by the Ethical Committee of Hertfordshire University, United Kingdom and the corresponding Ministries of Education in both countries. In Germany, the survey was conducted in accordance with the guidelines of the Institutional Review Board of the University of Bremen.

AUTHOR CONTRIBUTIONS

MS, HS, and KG contributed to the conception and design of the study. KG and MS organized the database and performed the statistical analysis. All authors contributed to the acquisition and interpretation of data for the work and all authors drafted the work and revised it critically for important intellectual content and approved the submitted version.

FUNDING

This work was supported by the Qatar National Research Fund (QNRF) a member of Qatar Foundation Doha, Qatar, National Priority Research Programs (NPRP) under grant (NPRP 7-154-3-034) funded to MS and Marie-Skłodowska-Curie Actions COFUND Collaborative Research Fellowship for a Responsive and Innovative Europe (CAROLINE) funded to MF.

ACKNOWLEDGMENTS

We acknowledge support by the Open Access Publication Initiative of Freie Universität Berlin. We would also like to thank all children and schools who took part in the study. We would like to thank QNRF the National Priority Research Programs (NPRP) under grant (NPRP 7-154-3-034) and Marie-Skłodowska-Curie Actions COFUND Collaborative Research Fellowship for a Responsive and Innovative Europe (CAROLINE) for their support.

REFERENCES

Abdeen, Z., Brunstein-Klomek, A., Nakash, O., Shibli, N., Nagar, M., Agha, H., et al. (2018). The association between political violence and the connection between bullying and suicidality among palestinian youth. *Suicide Life Threat. Behav.* 48, 95–104. doi: 10.1111/sltb.12338

Altawil, M., Harrold, D., and Samara, M. (2008). Children of war in Palestine. *Int. Evacuee War Child Stud.* 1, 5–11.

Athanasiou, K., Melegkovits, E., Andrie, E. K., Magoulas, C., Tzavara, C. K., Richardson, C., et al. (2018). Cross-national aspects of cyberbullying victimization among 14-17-year-old adolescents across seven European countries. *BMC Public Health* 18:800. doi: 10.1186/s12889-018-56824

Borntrager, C., Davis, J. L., Bernstein, A., and Gorman, H. (2009). A cross-national perspective on bullying. *Child Youth Care Forum* 38, 121–134.

Breivik, K., and Olweus, D. (2015). An item response theory analysis of the Olweus Bullying scale. *Aggress. Behav.* 41, 1–13. doi: 10.1002/ab.21571

Chaux, E., and Castellanos, M. (2015). Money and age in schools: bullying and power imbalances. *Aggress. Behav.* 41, 280–293. doi: 10.1002/ab.21558

Chaux, E., Malono, A., and Podlesky, P. (2009). Socio-economic, socio-political and socio-emotional variables explaining school bullying: a country-wide multilevel analysis. *Aggress. Behav.* 35, 520–529. doi: 10.1002/ab.20320

Chester, K. L., Callaghan, M., Cosma, A., Donnelly, P., Craig, W., Walsh, S., et al. (2015). Cross-national time trends in bullying victimization in 33 countries among children aged 11, 13 and 15 from 2002 to 2010. *Eur. J. Public Health* 25, 61–64. doi: 10.1093/eurpub/ckv029

Craig, W., Harel-Fisch, Y., Fogel-Grinvald, H., Dostler, S., Hetland, J., Simons-Morton, B., et al. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *Int. J. Public Health* 54, 216–224. doi: 10.1007/s00038-009-5413-9

Eid, M., Langeheine, R., and Diener, E. (2003). Comparing typological structures across cultures by multigroup latent class analysis: a primer. *J. Cross. Cult. Psychol.* 34, 195–210. doi: 10.1177/0022022102250427

El-khodary, B., and Samara, M. (2018). The effect of exposure to war-traumatic events, stressful life events, and other variables on mental health of Palestinian children and adolescents in the 2012 Gaza War. *Lancet* 391:S6. doi: 10.1016/S0140-6736(18)30331-3

El-Khodary, B., and Samara, M. (2019). The mediating role of trait emotional intelligence, prosocial behaviour, parental support and parental psychological control on the relationship between war trauma, and PTSD and depression. *J. Res. Pers.* 81, 246–256. doi: 10.1016/j.jrp.2019.06.004

Fischer, R., and Fontaine, J. R. (2010). "Methods for investigating structural equivalence," in *Cross-Cultural Research Methods in Psychology*, eds D. Matsumoto and F. J. Van de Vijver (Cambridge: Cambridge University Press), 179–215.

Fleming, L. C., and Jacobsen, K. H. (2009). Bullying among middle-school students in low and middle income countries. *Health Promot. Int.* 25, 73–84. doi: 10.1093/heapro/dap046

Fontaine, J., and Fischer, R. (2010). "Data analytic approaches for investigating isomorphism between the individual-level and the cultural-level internal structure," in *Cross-Cultural Research Methods in Psychology*, eds D. Matsumoto and F. J. Van de Vijver (Cambridge: Cambridge University Press), 273–298.

Foody, M., Samara, M., and O'Higgins Norman, J. (2017). A meta-analysis of bullying and cyberbullying studies on the island of Ireland. *Br. J. Educ. Psychol.* 87, 535–557. doi: 10.1111/bjep.12163

Hess, M., and Scheithauer, H. (2015). "Bullying," in *Handbook of Adolescent Behavioral Problems*, 2nd Edn. eds T. Gullotta, R. Plant, and M. Evans (Boston, MA: Springer), 429–443.

Jöreskog, K. G. (1994). On the estimation of polychoric correlations and their asymptotic covariance matrix. *Psychometrika* 59, 381–389. doi: 10.1007/bf02296131

Jovanović, V., Cummins, R. A., Weinberg, M., Kaliterna, L., and Prizmic-Larsen, Z. (2019). Personal wellbeing index: a cross-cultural measurement invariance study across four countries. *J. Happiness Stud.* 20, 759–775. doi: 10.1007/s10902-018-9966-2

Kennedy, R. S. (2018). Bully-victims: an analysis of subtypes and risk characteristics. *J. Interpers. Violence* doi: 10.1177/0886260517741213 [Epub ahead of print].

Lee, T., and Cornell, D. (2009). Concurrent validity of the olweus bully/victim questionnaire. *J. Sch. Violence* 9, 56–73. doi: 10.1080/15388220903185613

Livingstone, S., Cagiltay, K., and Ólafsson, K. (2015). EU kids online II dataset: a cross national study of children's use of the internet and its associated opportunities and risks. *Br. J. Educ. Technol.* 46, 988–992. doi: 10.1111/bjet.12317

Mark, L., Samm, A., Tooding, L.-M., Sisask, M., Aasvee, K., Zaborskis, A., et al. (2013). Suicidal ideation, risk factors and communication with parents:An HBSC study on school children in Estonia, Lithuania, and Luxemburg. *Crisis* 34, 3–12. doi: 10.1027/0227-5910/a000153

Matsumoto, D., and Van de Vijver, F. (eds). (2010). *Cross-Cultural Research Methods in Psychology (Culture and Psychology)*. Cambridge: Cambridge University Press.

Menesini, E., Nocentini, A., Palladino, B., and Smith, P. (2012). Cyberbullying definition among adolescents: a comparison across six European countries. *Cyberpsychol. Behav. Soc. Netw.* 15, 455–463. doi: 10.1089/cyber.2012.0040

Miller, G. G. (1997). "Theoretical issues in cultural psychology," in *Handbook of Cross-Cultural Psychology: Theory and Method*, 2nd Edn, Vol. I, eds J. W. Berry, Y. H. Poortinga, and J. Pandey (Thousand Oaks, CA: SAGE), 85–128.

Olweus, D. (1991). "Bully/victim problems among schoolchildren: basic facts and effects of aschool based intervention program," in *The Development and Treatment of Childhood Aggression*, eds D. J. Pepler and K. H. Rubin (Hillsdale: Erlbaum), 411–448.

Olweus, D. (1994). Annotation: bullying at school: basic facts and effects of a school based intervention program. *J. Child Psychol. Psychiatry* 35, 1171–1190. doi: 10.1111/j.1469-7610.1994.tb01229.x

Ortega, R., Elipe, P., Mora-Merchán, J. A., Genta, M. L., Brighi, A., Guarini, A., et al. (2012). The emotional impact of bullying and cyberbullying on victims: a European cross-national study. *Aggress. Behav.* 38, 342–356. doi: 10.1002/ab.21440

Sabella, R. A., Patchin, J. W., and Hinduja, S. (2013). Cyberbullying myths and realities. *Comput. Hum. Behav.* 29, 2703–2711. doi: 10.1016/j.chb.2013.06.040

Samara, M., Burbidge, V., El Asam, A., Foody, M., Smith, P. K., and Morsi, H. (2017). Bullying and cyberbullying: their legal status and use in psychological assessment. *Int. Environ. Res. Public Health* 14:1449. doi: 10.3390/ijerph14121449

Samara, M., and Smith, P. (2008). How schools tackle bullying, and the use of whole school policies: changes over the last decade. *Educ. Psychol.* 28, 663–676. doi: 10.1080/01443410802191910

Scheithauer, H., Hayer, T., Jugert, G., and Petermann, F. (2006). Physical, verbal, and relational forms of bullying among German students: age trends, gender differences, and correlates. *Aggress. Behav.* 32, 261–275. doi: 10.1002/ab.20128

Scheithauer, H., Smith, P., and Samara, M. (2016). Cultural issues in bullying and cyberbullying among children and adolescents: methodological approaches for comparative research. *Int. J. Dev. Sci.* 10, 3–8. doi: 10.3233/DEV-160000085

Schultze-Krumbholz, A., Göbel, K., Scheithauer, H., Brighi, A., Guarini, A., Tsorbatzoudis, H., et al. (2015). A comparison of classification approaches for cyberbullying and traditional bullying using data from six European countries. *J. Sch. Violence* 14, 47–65. doi: 10.1080/15388220.2014.961067

Slava, D., Zammit, S., and Wolke, D. (2018). Sibling bullying in middle childhood and psychotic disorder at 18 years: a prospective cohort study. *Psychol. Med.* 48, 2321–2328. doi: 10.1017/S0033291717003841

Smith, K. P., Smith, C., Osborn, R., and Samara, M. (2008). A content analysis of school anti-bullying policies: progress and limitations. *Educ. Psychol. Pract.* 24:12.

Smith, P., Kupferburg, A., Mora-Merchan, J. A., Samara, M., Bosley, S., and Osborn, R. (2012). A content analysis of school anti-bullying policies: a follow-up after six years. *Educ. Psychol. Pract.* 28, 47–70. doi: 10.1080/02667363.2011.639344

Smith, P. K. (2014). *Understanding School Bullying: Its Nature and Prevention Strategies*. London: Sage Publications.

Smith, P. K., Kwak, K., and Toda, Y. (2016a). *School Bullying in Different Cultures*. Cambridge: CambridgeUniversity Press.

Smith, P. K., and López-Castro, L. (2017). Cross-national data on victims of bullying: how does PISA measure up with other surveys? An update and extension of the study by Smith, Robinson, and Marchi (2016). *Int. J. Dev. Sci.* 11, 87–92. doi: 10.3233/DEV-170227

Smith, P. K., Robinson, S., and Marchi, B. (2016b). Cross-national data on victims of bullying: what is really being measured? *Int. J. Dev. Sci.* 10, 9–19. doi: 10.3233/DEV-150174

Smith, P. K., López-Castro, L., Robinson, S., and Görzig, A. (2019). Consistency of gender differences in bullying in cross-cultural surveys. *Aggress. Violent Behav.* 45, 33–40. doi: 10.1016/j.avb.2018.04.006

Smith, P. K., and Robinson, S. (2019). How does individualism-collectivism relate to bullying-victimization? *Int. J. Bull. Prev.* 1:3. doi: 10.1007/s42380-018-0005-y

Smorti, A., Menesini, E., and Smith, P. K. (2003). Parents' definitions of children's bullying in A five-country comparison. *J. Cross Cult. Psychol.* 34, 417–431.

Tucker, L. R. (1951). *A Method for Synthesis of Factor Analysis Studies*. Personnel Research Section Report No. 984. Washington, DC: Department of the Army.

van de Vijver, F., and Hambleton, K. R. (1996). Translation tests: some practical guidelines. *Eur. Psychol.* 1, 89–99.

Widaman, K. F., and Reise, S. P. (1997). "Exploring the measurement invariance of psychological instruments: applications in the substance use domain," in *The Science of Prevention: Methodological Advances from Alcohol and Substance Abuse Research*, eds K. J. Bryant, M. Windle, and S. G. West (Washington, DC: American Psychological Association), 281–324. doi: 10.1037/10222-009

Winsper, C., Lereya, T., Zanarini, M., and Wolke, D. (2012). Involvement in bullying andsuicide-related behavior at 11 years: a prospective birth cohort study. *J. Am. Acad. Child Adolesc. Psychiatry* 51, 271–282. doi: 10.1016/j.jaac.2012.01.001

Wolke, D., and Samara, M. (2004). Bullied by siblings: association with peer victimisation andbehaviour problems in Israeli lower secondary school children. *J. Child Psychol. Psychiatry* 45, 1015–1029. doi: 10.1111/j.1469-7610.2004.t01-1-00293.x

Wolke, D., Schreier, A., Zanarini, M. C., and Winsper, C. (2012). Bullied by peers in childhoodand borderline personality symptoms at 11 years of age: a prospective study. *J. Child Psychol. Psychiatry* 53, 846–855. doi: 10.1111/j.1469-7610.2012.02542.x

Zaborskis, A., Illionsky, G., Tesler, R., and Heinz, A. (2018). The association between cyber bullying, school bullying and suicidality among adolescents. *Crisis* 40, 100–114. doi: 10.1027/0227-5910/a000536

Zwierzynska, K., Wolke, D., and Lereya, T. S. (2013). Peer victimization in childhood andinternalizing problems in adolescence: a prospective longitudinal study. *J. Abnorm. Child Psychol.* 41, 309–323. doi: 10.1007/s10802-012-9678-8

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 28 August 2019
doi: 10.3389/fpsyg.2019.01984

Understanding Alternative Bullying Perspectives Through Research Engagement With Young People

*Niamh O'Brien**

School of Education and Social Care, Faculty of Health, Education, Medicine and Social Care, Anglia Ruskin University, Chelmsford, United Kingdom

Bullying research has traditionally been dominated by largescale cohort studies focusing on the personality traits of bullies and victims. These studies focus on bullying prevalence, risk and protective factors, and negative outcomes. A limitation of this approach is that it does not explain why bullying happens. Qualitative research can help shed light on these factors. This paper discusses the findings from four mainly qualitative research projects including a systematic review and three empirical studies involving young people to various degrees within the research process as respondents, co-researchers and commissioners of research. Much quantitative research suggests that young people are a homogenous group and through the use of surveys and other large scale methods, generalizations can be drawn about how bullying is understood and how it can be dealt with. Findings from the studies presented in this paper, add to our understanding that young people appear particularly concerned about the role of wider contextual and relational factors in deciding if bullying has happened. These studies underscore the relational aspects of definitions of bullying and, how the dynamics of young people's friendships can shift what is understood as bullying or not. Moreover, to appreciate the relational and social contexts underpinning bullying behaviors, adults and young people need to work together on bullying agendas and engage with multiple definitions, effects and forms of support. Qualitative methodologies, in particular participatory research opens up the complexities of young lives and enables these insights to come to the fore. Through this approach, effective supports can be designed based on what young people want and need rather than those interpreted as supportive through adult understanding.

Keywords: bullying, young people, participatory research, social constructionism, young people as researchers, collaboration, bullying supports

OPEN ACCESS

Edited by:
Rita Zukauskiene,
Mykolas Romeris University, Lithuania

Reviewed by:
Larisa Tatjiana McLoughlin,
University of the Sunshine Coast, Australia
Evangelia Karagiannopoulou,
University of Ioannina, Greece

***Correspondence:**
Niamh O'Brien
Niamh.obrien@anglia.ac.uk

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *28 February 2019*
Accepted: *13 August 2019*
Published: *28 August 2019*

Citation:
O'Brien N (2019) Understanding Alternative Bullying Perspectives Through Research Engagement With Young People. Front. Psychol. 10:1984. doi: 10.3389/fpsyg.2019.01984

INTRODUCTION

Research on school bullying has developed rapidly since the 1970s. Originating in social and psychological research in Norway, Sweden, and Finland, this body of research largely focusses on individualized personality traits of perpetrators and victims (Olweus, 1995). Global interest in this phenomenon subsequently spread and bullying research began in the United Kingdom, Australia, and the United States (Griffin and Gross, 2004). Usually quantitative in nature, many studies examine bullying prevalence, risk and protective factors, and negative outcomes (Patton et al., 2017). Whilst quantitative research collates key demographic information to show variations in bullying behaviors and tendencies, this dominant bullying literature fails to explain *why* bullying

happens. Nor does it attempt to understand the wider social contexts in which bullying occurs. Qualitative research on the other hand, in particular participatory research, can help shed light on these factors by highlighting the complexities of the contextual and relational aspects of bullying and the particular challenges associated with addressing it. Patton et al. (2017) in their systematic review of qualitative methods used in bullying research, found that the use of such methods can enhance academic and practitioner understanding of bullying.

In this paper, I draw on four bullying studies; one systematic review of both quantitative and qualitative research (O'Brien, 2009) and three empirical qualitative studies (O'Brien and Moules, 2010; O'Brien, 2016, 2017) (see **Table 1** below). I discuss how participatory research methodologies, to varying degrees, were used to facilitate bullying knowledge production among teams of young people and adults. Young people in these presented studies were consequently involved in the research process along a continuum of involvement (Bragg and Fielding, 2005). To the far left of the continuum, young people involved in research are referred to as "active respondents" and their data informs teacher practice. To the middle of the continuum sit "students as co-researchers" who work with teachers to explore an issue which has been identified by that teacher. Finally to the right, sit "students as researchers" who conduct their own research with support from teachers. Moving from left to right of the continuum shows a shift in power dynamics between young people and adults where a partnership develops. Young people are therefore recognized as equal to adults in terms of what they can bring to the project from their own unique perspective, that of being a young person now.

In this paper, I advocate for the active involvement of young people in the research process in order to enhance bullying knowledge. Traditional quantitative studies have a tendency to homogenize young people by suggesting similarity in thinking about what constitutes bullying. However, qualitative studies have demonstrated that regardless of variables, young people understand bullying in different ways so there is a need for further research that starts from these perspectives and focusses on issues that young people deem important. Consequently, participatory research allows for the stories of the collective to emerge without losing the stories of the individual, a task not enabled through quantitative approaches.

WHAT IS BULLYING?

Researching school bullying has been problematic and is partly related to the difficulty in defining it (Espelage, 2018). Broadly speaking, bullying is recognized as aggressive, repeated, intentional behavior involving an imbalance of power aimed toward an individual or group of individuals who cannot easily defend themselves (Vaillancourt et al., 2008). In more recent times, "traditional" bullying behaviors have been extended to include cyber-bullying, involving the use of the internet and mobile-phones (Espelage, 2018). Disagreements have been noted in the literature about how bullying is defined by researchers linked to subject discipline and culture. Some researchers for example, disagree about the inclusion or not of repetition in definitions (Griffin and Gross, 2004) and these disagreements have had an impact on interpreting findings and prevalence rates. However, evidence further suggests that young people also view bullying in different ways (Guerin and Hennessy, 2002; Cuadrado-Gordillo, 2012; Eriksen, 2018). Vaillancourt et al. (2008) explored differences between researchers and young people's definitions of bullying, and found that children's definitions were usually spontaneous, and did not always encompass the elements of repetition, power imbalance and intent. They concluded, that children need to be provided with a bullying definition so similarities and comparisons can be drawn. In contrast, Huang and Cornell (2015) found no evidence that the inclusion of a definition effected prevalence rates. Their findings, they suggest, indicate that young people use their own perceptions of bullying when answering self-report questionnaires and they are not influenced by an imposed definition.

Nevertheless, differences in children and young people's bullying definitions are evident in the research literature and have been explained by recourse to age and stage of development (Smith et al., 2002) and their assumed lack of understanding about what constitutes bullying (Boulton and Flemington, 1996). Naylor et al. (2001) for example, found that younger children think similarly in their definitions of bullying, while Smith et al. (2002) found that 8 year olds did not distinguish as clearly between different forms of behavioral aggression as 14 year olds. Methodological limitations associated with understanding bullying have been identified by Forsberg et al. (2018) and Maunder and Crafter (2018). These authors postulate that quantitative approaches, although providing crucial insights in understanding bullying, are reliant on pre-defined variables, which can shield some of the complexities that qualitative designs can unravel, as individual experiences of bullying are brought to the fore. Indeed, La Fontaine (1991) suggests that unlike standard self-report questionnaires and other quantitative methods used to collect bullying data, analyzing qualitative data such as those collected from a helpline, enables the voice of young people to be heard and consequently empowers adults to understand bullying on their terms rather than relying solely on interpretations and perceptions of adults. Moore and Maclean (2012) collected survey, as well as interview and focus group data, on victimization occurring on the journey to and from school. They found that what young people determined as victimization varied and was influenced by a multifaceted array of circumstances, some of which adults were unaware of. Context for example, played an important role where certain behaviors in one situation could be regarded as victimization while in another they were not. Specific behaviors including ignoring an individual was particularly hurtful and supporting a friend who was the subject of victimization could lead to their own victimization.

Lee (2006) suggests that some bullying research does not reflect individual experiences, and are thus difficult for participants to relate to. Canty et al. (2016) reiterates this and suggests that when researchers provide young people with bullying definitions in which to position their own experiences, this can mask some of the complexities that the research

TABLE 1 | The studies.

The study	Title	Author(s) and year	Design	Methods	Participants	Position of study on Bragg and Fielding, 2005 continuum	Analytical framework	Publication from study
Study 1	Secondary school teachers' and pupils' definitions of bullying in the United Kingdom: a systematic review	O'Brien, 2009	Systematic Review	Systematic literature review of five papers: • Two quantitative studies • One mixed methods study • One qualitative study • One quantitative study with a qualitative aspect	3,283 pupils, 225 teachers	Study sits to the far left of the continuum, as young people were not directly involved as "active respondents" but their views were heard through secondary data analysis.	Thematic Analysis, Braun and Clarke, 2006. In the case of the extracted quantitative data, Popay et al., 2006 claim that the variables incorporated in surveys can be extracted as "themes" similar to conceptual themes extracted from qualitative research.	O'Brien, 2009. Secondary school teachers' and pupils' definitions of bullying in the United Kingdom: a systematic review. *Evidence and Policy*, 5(4), pp. 399–426.
Study 2	The impact of cyber-bullying on young people's mental health	O'Brien and Moules, 2010	Participatory Research	Online questionnaire (open questions), focus groups	490 young people and responses from 11 schools	Study shifts between the middle of the continuum: "students as co-researchers" and right: "students as researchers"	Thematic Analysis, Braun and Clarke, 2006	O'Brien and Moules, 2013. Not sticks and stones but tweets and texts: findings from a national cyberbullying project. *Pastoral Care in Education*, 31(1), pp. 53-65.
Study 3	To "Snitch" or Not to "Snitch"? Using PAR to Explore Bullying in a Private Day and Boarding School.	O'Brien, 2016	Participatory Action Research (PAR)	Online questionnaire (open questions), focus groups, student led interviews, paper questionnaires	155 students, 135 parents, 12 school staff members	Study shifts between the middle of the continuum: "students as co-researchers" and right: "students as researchers"	Thematic Analysis, Braun and Clarke, 2006	O'Brien, 2014. "I didn't want to be known as a snitch": Using PAR to explore bullying in a private day and boarding school. *Childhood Remixed.* Conference Edition, February, 2014, University Campus Suffolk. pp. 86–96. O'Brien et al., 2018a. Negotiating the research space between young people and adults in a PAR study exploring school bullying. In M. Torronen., C. Munn-Giddings, C., and L. Tarkiainen (eds), Reciprocal Relationships and Well-Being: Implications for Social Work and Social Policy. Oxon: Routledge. Pp. 160-175. O'Brien et al., 2018b. The repercussions of reporting bullying: some experiences of students at an independent secondary school. *Pastoral Care in Education*, 36(1), pp. 29–43. O'Brien et al., 2018c. The ethics of involving young people directly in the research process. *Childhood Remixed.* Conference Edition, May 2018, pp. 115–128. ISSN 2515–4516 (online) Journal homepage www.uos.ac.uk/content/center-for-study-children-childhood
Study 4	An exploratory study of bullied young people's self-exclusion from school	O'Brien, 2017	Qualitative research	Interviews	4 young people, 2 parents	Study sits to the left of the continuum, as young people were involved as "active respondents" in informing adult understanding of the issue.	Thematic Analysis, Braun and Clarke, 2006	O'Brien, 2017. An exploratory study of bullied young people's self-exclusion from school *Evidence: presented at meetings of the All Party Parliamentary Group on Bullying 2011–2016.* Available from: http://arro.anglia.ac.uk/id/eprint/702024

intends to uncover. Such approaches result in an oversight into the socially constructed and individual experiences of bullying (Eriksen, 2018). Griffin and Gross (2004) further argue that when researchers use vague or ambiguous definitions an "overclassification of children as bullies or victims" (p. 381) ensues. Consequently, quantitative research does not consider children as reliable in interpreting their own lived experiences and therefore some of the interactions they consider as bullying, that do not fit within the conventional definitions, are concealed. This approach favors the adult definition of bullying regarding it as "more reliable" than the definitions of children and young people Canty et al. (2016). The perceived "seriousness" of bullying has also been explored. Overall, young people and adults are more likely to consider direct bullying (face-to-face actions including hitting, threatening and calling names) as "more serious" than indirect bullying (rumor spreading, social exclusion, forcing others to do something they do not want to do) (Maunder et al., 2010; Skrzypiec et al., 2011). This perception of "seriousness," alongside ambiguous definitions of bullying, has further implications for reporting it. Despite the advice given to young people to report incidents of school bullying (Moore and Maclean, 2012), the literature suggests that many are reluctant to do so (deLara, 2012; Moore and Maclean, 2012).

Several factors have been highlighted as to why young people are reluctant to report bullying (Black et al., 2010). deLara (2012), found apprehension in reporting bullying to teachers due to the fear that they will either not do enough or too much and inadvertently make the situation worse, or fear that teachers will not believe young people. Research also shows that young people are reluctant to tell their parents about bullying due to perceived over-reaction and fear that the bullying will be reported to their school (deLara, 2012; Moore and Maclean, 2012). Oliver and Candappa (2007) suggest that young people are more likely to confide in their friends than adults (see also Moore and Maclean, 2012; Allen, 2014). However, if young people believe they are being bullied, but are unable to recognize their experiences within a predefined definition of bullying, this is likely to impact on their ability to report it.

Research from psychology, sociology, education and other disciplines, utilizing both quantitative and qualitative approaches, have enabled the generation of bullying knowledge to date. However, in order to understand *why* bullying happens and how it is influenced by wider social constructs there is a need for further qualitative studies, which hear directly from children and young people themselves. The next section of this paper discusses the theoretical underpinnings of this paper, which recognizes that young people are active agents in generating new bullying knowledge alongside adults.

THEORETICAL UNDERPINNINGS – HEARING FROM CHILDREN AND YOUNG PEOPLE

The sociology of childhood (James, 2007; Tisdall and Punch, 2012) and children's rights agenda more broadly (United Nations Convention on the Rights of the Child, 1989) have offered new understandings and methods for research which recognize children and young people as active agents and experts on their own lives. From this perspective, research is conducted *with* rather than *on* children and young people (Kellett, 2010).

Participatory methodologies have proven particularly useful for involving young people in research as co-researchers (see for example O'Brien and Moules, 2007; Stoudt, 2009; Kellett, 2010; Spears et al., 2016). This process of enquiry actively involves those normally being studied in research activities. Previously, "traditional" researchers devalued the experiences of research participants arguing that due to their distance from them, they themselves are better equipped to interpret these experiences (Beresford, 2006). However, Beresford (2006) suggests that the shorter the distance between direct experience and interpretation, the less distorted and inaccurate the resulting knowledge is likely to be. Jones (2004) further advocates that when young people's voices are absent from research about them the research is incomplete. Certainly Spears et al. (2016), adopted this approach in their study with the Young and Well Cooperative Research Centre (CRC) in Australia. Young people played an active role within a multidisciplinary team alongside researchers, practitioners and policymakers to co-create and co-evaluate the learning from four marketing campaigns for youth wellbeing through participatory research. Through this methodological approach, findings show that young people were able to reconceptualize mental health and wellbeing from their own perspectives as well as share their lived experiences with others (Spears et al., 2016). Bland and Atweh (2007), Ozer and Wright (2012), highlight the benefits afforded to young people through this process, including participating in dialog with decision-makers and bringing aspects of teaching and learning to their attention.

Against this background, data presented for this paper represents findings from four studies underpinned by the ethos that bullying is socially constructed and is best understood by exploring the context to which it occurs (Schott and Sondergaard, 2014; Eriksen, 2018). This socially constructed view focusses on the evolving positions within young people's groups, and argues that within a bullying situation sometimes a young person is the bully, sometimes the victim and sometimes the bystander/witness, which contrasts the traditional view of bullying (Schott and Sondergaard, 2014). The focus therefore is on group relationships and dynamics. For that reason, Horton (2011) proposes that if bullying is an extensive problem including many young people, then focusing entirely on personality traits will not generate new bullying knowledge and will be problematic in terms of interventions. It is important to acknowledge that this change in focus and view of bullying and how it is manifested in groups, does not negate the individual experiences of bullying rather the focus shifts to the process of being accepted, or not, by the group (Schott and Sondergaard, 2014).

THE STUDIES

This section provides a broad overview of the four included studies underpinned by participatory methodologies. **Table 1**

presents the details of each study. Young people were involved in the research process as respondents, co-researchers and commissioners of research, along a continuum as identified by Bragg and Fielding (2005). This ranged from "active respondents" to the left of the continuum, "students as co-researchers" in the middle and "students as researchers" to the right of the continuum. Young people were therefore recognized as equal to adults in terms of what they can bring to the project from their own unique perspectives (Bradbury-Jones et al., 2018).

A key finding from study one (O'Brien, 2009) was the *lack* of voice afforded to young people through the research process and can be seen to reflect the far left of Bragg and Fielding (2005) continuum, as young people were not directly involved as "active respondents" but their views were included in secondary data analysis and informed the studies that followed. For example, the quantitative studies used an agreed academic definition of bullying which may or may not have influenced how young participants defined bullying within the studies. On the other hand, the qualitative study involved a group of students in deciding which questions to ask of the research participants and in interpreting the findings.

In contrast, study two (O'Brien and Moules, 2010) was commissioned and led by a group of young people called PEAR (Public health, Education, Awareness, Researchers), who were established to advise on public health research in England. PEAR members were based in two large English cities and comprised 20 young people aged between 13 and 20 years. The premise of the study was that PEAR members wanted to commission research into cyber bullying and the effects this has on mental health from the perspectives of young people rather than adult perspectives. This project was innovative as young people commissioned the research and participated as researchers (Davey, 2011) and can be seen to reflect the middle "students as co-researchers" as well as moving toward to right "students as researchers" of Bragg and Fielding (2005) continuum. Although the young people did not carry out the day-to-day work on the project, they were responsible for leading and shaping it. More importantly, the research topic and focus were decided with young people and adults together.

Study three (O'Brien, 2016) involved five self-selecting students from an independent day and boarding school who worked with me to answer this question: *What do young people in this independent day and boarding school view as the core issue of bullying in the school and how do they want to address this?* These students called themselves R4U (Research for You) with the slogan *researching for life without fear*. Three cycles of Participatory Action Research (PAR) ensued, where decision making about direction of the research, including methods, analysis and dissemination of findings were made by the research team. As current students of the school, R4U had a unique "insider knowledge" that complemented my position as the "academic researcher." By working together to generate understanding about bullying at the school, the findings thus reflected this diversity in knowledge. As the project evolved so too did the involvement of the young researchers and my knowledge as the "outsider" (see O'Brien et al., 2018a for further details). Similar to study two, this project is situated between the middle: "students as co-researchers" and the right: "students as researchers" of Bragg and Fielding (2005) continuum.

Study four (O'Brien, 2017) was small-scale and involved interviewing four young people who were receiving support from a charity providing therapeutic and educational support to young people who self-exclude from school due to anxiety, as a result of bullying. Self-exclusion, for the purposes of this study, means that a young person has made a decision not to go to school. It is different from "being excluded" or "truanting" because these young people do not feel safe at school and are therefore too anxious to attend. Little is known about the experiences of young people who self-exclude due to bullying and this study helped to unravel some of these issues. This study reflects the left of Bragg and Fielding (2005) continuum where the young people were involved as "active respondents" in informing adult understanding of the issue.

A variety of research methods were used across the four studies including questionnaires, interviews and focus groups (see **Table 1** for more details). In studies two and three, young researchers were fundamental in deciding the types of questions to be asked, where they were asked and who we asked. In study three the young researchers conducted their own peer-led interviews. The diversity of methods used across the studies are a strength for this paper. An over-reliance on one method is not portrayed and the methods used reflected the requirements of the individual studies.

INFORMED CONSENT

Voluntary positive agreement to participate in research is referred to as "consent" while "assent," refers to a person's compliance to participate (Coyne, 2010). The difference in these terms are normally used to distinguish the "legal competency of children over and under 16 years in relation to research." (Coyne, 2010, 228). In England, children have a legal right to consent so therefore assent is non-applicable (Coyne, 2010). However, there are still tensions surrounding the ability of children and young people under the age of 18 years to consent in research which are related to their vulnerability, age and stage of development (Lambert and Glacken, 2011). The research in the three empirical studies (two, three and four) started from the premise that all young participants were competent to consent to participate and took the approach of Coyne (2010) who argues that parental/carer consent is not always necessary in social research. University Research Ethics Committees (RECs) are nonetheless usually unfamiliar with the theoretical underpinnings that children are viewed as social actors and generally able to consent for themselves (Lambert and Glacken, 2011; Fox, 2013; Parsons et al., 2015).

In order to ensure the young people in these reported studies were fully informed of the intentions of each project and to adhere to ethical principles, age appropriate participant information sheets were provided to all participants detailing each study's requirements. Young people were then asked to provide their own consent by signing a consent form, any questions they had about the studies were discussed. Information

sheets were made available to parents in studies three and four. In study two, the parents of young people participating in the focus groups were informed of the study through the organizations used to recruit the young people. My full contact details were provided on these sheets so parents/carers could address any queries they had about the project if they wished. When young people participated in the online questionnaire (study two) we did not know who they were so could not provide separate information to parents. Consequently, all participants were given the opportunity to participate in the research without the consent of their parents/carers unless they were deemed incompetent to consent. In this case the onus was on the adult (parent or carer for example) to prove incompetency (Alderson, 2007). Favorable ethical approval, including approval for the above consent procedures, was granted by the Faculty Research Ethics Committee at Anglia Ruskin University.

In the next section I provide a synthesis of the findings across the four studies before discussing how participatory research with young people can offer new understandings of bullying and its impacts on young people.

FINDINGS

Although each study was designed to answer specific bullying research questions, the following key themes cut across all four studies[1]:

- Bullying definitions
  - Behaviors
- Impact of bullying on victim
- Reporting bullying

Bullying Definitions

Behaviors

Young people had various understandings about what they considered bullying to be. Overall, participants agreed that aggressive direct behaviors, mainly focusing on physical aggression, constituted bullying:

> "...if someone is physically hurt then that is bullying straight away." (Female, study 3).

> "I think [cyber-bullying is] not as bad because with verbal or physical, you are more likely to come in contact with your attacker regularly, and that can be disturbing. However, with cyber-bullying it is virtual so you can find ways to avoid the person." (Female, study 2).

Name-calling was an ambiguous concept, young people generally believed that in isolation name-calling might not be bullying behavior or it could be interpreted as "joking" or "banter":

> "I never really see any, a bit of name calling and taking the mick but nothing ever serious." (Male, study 3).

[1]These findings focus on perceptions and data from the young people in the four studies. For a full discussion on adult perceptions please refer to the individual studies.

The concept of "banter" or "joking" was explored in study three as a result of the participatory design. Young people suggested "banter" involves:

> "...a personal joke or group banter has no intention to harm another, it is merely playful jokes." (Female, study 3).

However, underpinning this understanding of "banter" was the importance of intentionality:

> "Banter saying things bad as a joke and everyone knows it is a joke." (Male, study 3).

"Banter" was thus contentious when perception and reception were ambiguous. In some cases, "banter" was considered "normal behavior":

> "...we've just been joking about, but it's never been anything harsh it's just been like having a joke..." (Male, study 3).

The same view was evident in relation to cyber-bullying. Some participants were rather dismissive of this approach suggesting that it did not exist:

> "I don't really think it exists. If you're being cyber-"bullied" then there is something wrong with you- it is insanely easy to avoid, by blocking people and so on. Perhaps it consists of people insulting you online?" (Male, study 2).

When young people considered additional factors added to name calling such as the type of name-calling, or aspects of repetition or intention, then a different view was apparent.

> "...but it has to be constant it can't be a single time because that always happens." (Male, study 3).

Likewise with words used on social media, young people considered intentionality in their consideration of whether particular behaviors were bullying, highlighting important nuances in how bullying is conceptualized:

> "Some people they don't want to sound cruel but because maybe if you don't put a smiley face on it, it might seem cruel when sometimes you don't mean it." (Female, study 2).

Study one also found that young people were more likely to discuss sexist or racist bullying in interviews or focus groups but this information was scarce in the questionnaire data. This is possibly as a result of how the questions were framed and the researchers' perspectives informing the questions.

Evident across the four studies was the understanding young people had about the effects of continuous name-calling on victims:

> "...you can take one comment, you can just like almost brush it off, but if you keep on being bullied and bullied and bullied then you might kind of think, hang on a minute, they've taken it a step too far, like it's actually become more personal, whereas just like a cheeky comment between friends it's become something that's more serious and more personal and more annoying or hurtful to someone." (Female, study 3).

> "Cyber-bullying is basically still verbal bullying and is definitely psychological bullying. Any bullying is psychological though, really. And any bullying is going to be harmful." (Female, study 2).

Aspects of indirect bullying (social exclusion) were features of studies one and three. For the most part, the research reviewed in study one found that as young people got older they were less likely to consider characteristics of social exclusion in their definitions of bullying. In study three, when discussing the school's anti-bullying policy, study participants raised questions about "*isolating a student from a friendship group*." Some contested this statement as a form of bullying:

> ". . .. there is avoiding, as in, not actively playing a role in trying to be friends which I don't really see as bullying I see this as just not getting someone to join your friendship group. Whereas if you were actually leaving him out and rejecting him if he tries to be friends then I think I would see that as malicious and bullying." (Male, study 3).

> "Isolating a student from a friendship group – I believe there are various reasons for which a student can be isolated from a group – including by choice." (Female, study 3).

Cyber-bullying was explored in detail in study two but less so in the other three studies. Most study two participants considered that cyber-bullying was just as harmful, or in some cases worse than, 'traditional' bullying due to the use of similar forms of "harassment," "antagonizing," "tormenting," and 'threatening' through online platforms. Some young people believed that the physical distance between the victim and the bully is an important aspect of cyber-bullying:

> "I think it's worse because people find it easier to abuse someone when not face to face." (Male, study 2).

> "I think it could be worse, because lots of other people can get involved, whereas when it's physical bullying it's normally just between one or two or a smaller group, things could escalate too because especially Facebook, they've got potential to escalate." (Female, study 2).

Other participants in study two spoke about bullying at school which transfers to an online platform highlighting no "escape" for some. In addition, it was made clearer that some young people considered distancing in relation to bullying and how this influences perceptions of severity:

> ". . .when there's an argument it can continue when you're not at school or whatever and they can continue it over Facebook and everyone can see it then other people get involved." (Female, study 2).

> "I was cyber-bullied on Facebook, because someone put several hurtful comments in response to my status updates and profile pictures. This actually was extended into school by the bully. . ." (Male, study 2).

Impact of Bullying on Victim

Although bullying behaviors were a primary consideration of young people's understanding of bullying, many considered the consequences associated with bullying and in particular, the impact on mental health. In these examples, the specifics of the bullying event were irrelevant to young people and the focus was on how the behavior was received by the recipient.

In study two, young people divulged how cyber-bullying had adversely affected their ability to go to school and to socialize outside school. Indeed some young people reported the affects it had on their confidence and self-esteem:

> "I developed anorexia nervosa. Although not the single cause of my illness, bullying greatly contributed to my low self-esteem which led to becoming ill." (Female, study 2).

> "It hurts people's feelings and can even lead to committing suicide. . .." (Female, study 2).

Across the studies, young people who had been bullied themselves shared their individual experiences:

> ". . ..you feel insecure and it just builds up and builds up and then in the end you have no self-confidence." (Female, study 2).

> ". . .it was an everyday thing I just couldn't take it and it was causing me a lot of anxiety." (Male, study 4).

> "I am different to everyone in my class . . .. I couldn't take it no more I was upset all the time and it made me feel anxious and I wasn't sleeping but spent all my time in bed being sad and unhappy." (Male, study 4).

Young people who had not experienced bullying themselves agreed that the impact it had on a person was a large determiner of whether bullying had happened:

> "When your self-confidence is severely affected and you become shy. Also when you start believing what the bullies are saying about you and start to doubt yourself." (Female, study 3).

> ". . .it makes the victim feel bad about themselves which mostly leads to depression and sadness." (Male, study 2).

Further evidence around the impact of bullying was apparent in the data in terms of how relational aspects can affect perceived severity. In the case of cyber-bullying, young people suggested a sense of detachment because the bullying takes place online. Consequently, as the relational element is removed bullying becomes easier to execute:

> ". . .because people don't have to face them over a computer so it's so much easier. It's so much quicker as well cos on something like Facebook it's not just you, you can get everyone on Facebook to help you bully that person." (Female, study 2).

> "Due to technology being cheaper, it is easier for young people to bully people in this way because they don't believe they can be tracked." (Male, study 2).

> "The effects are the same and often the bullying can be worse as the perpetrator is unknown or can disguise their identity. Away from the eyes of teachers etc., more can be done without anyone knowing." (Female, study 2).

Relational aspects of bullying were further highlighted with regards to how "banter" was understood, particularly with in-group bullying and how the same example can either be seen as "banter" or bullying depending on the nature of the relationship:

> ". . .we've just been joking about, but it's never been anything harsh it's just been like having a joke. well, I haven't done it but I've been

in a crowd where people do it, so I don't want to get involved just in case it started an argument." (Female, study 3).

"But it also depends. . .who your groups with, for example, if I spoke to my friends from [School]. . . I wouldn't like use taboo language with them because to them it may seem inappropriate and probably a bit shocked, but if I was with my friends outside of school we use taboo language, we'll be ourselves and we'll be comfortable with it, and if a stranger walked past and heard us obviously they'd be thinking that we're being bullied ourselves." (Female, study 3).

Furthermore, how individuals are perceived by others tended to influence whether they were believed or not. In study four for example, participants suggested that who the bullies were within the school might have impacted how complaints were acted upon by school officials:

"When I went to the school about it, the students said I had attacked them – all eight of them! I just realized that no one believes me. . .." (Female, study 4).

While in study three, a characteristic of bullying was the influence the aggressor has over the victim:

"When the victim starts to feel in danger or start to fear the other person. Consequently he or she tries to avoid the bad guy (or girl!)" (Male, study 3).

These relational and contextual issues also influenced a young person's ability to report bullying.

Reporting Bullying

Young people were more likely to report bullying when they considered it was 'serious' enough. Just under half of participants in study two sought emotional/practical support if they worried about, or were affected by cyber-bullying, with most talking to their parents. In study three, young people were less likely to seek support but when they did, most went to their teachers. In study four, all participants reported bullying in school where they did not feel supported.

Fear of making the bullying worse was captured across the studies as a reason for not reporting it:

"I'm scared that if I tell then the bullying will still go on and they will do more." (Female, study 3).

"The bully might bully you if he finds out." (Male, study 3).

Being able to deal with the incident themselves was also a reason for non-reporting:

". . .it's embarrassing and not necessary, my friends help me through it, adults never seem to understand." (Female, study 2).

"I don't tend to talk to anyone about it, I just keep it to myself and obviously that's the worst thing you should ever do, you should never keep it to yourself, because I regret keeping it to myself to be honest. . .." (Female, study 3).

". . .but I think I'd deal with it myself 'cos. I was quite insecure but now I'm quite secure with myself, so I'll sort it out myself. I think it's just over time I've just sort of hardened to it." (Male, study 3).

Most young people seeking support for bullying said they spoke to an adult but the helpfulness of this support varied. This finding is important for understanding relationships between young people and adults. Those who felt supported by their teachers for example, suggested that they took the time to listen and understood what they were telling them. They also reassured young people who in turn believed that the adult they confided in would know what to do:

"So I think the best teacher to talk to is [Miss A] and even though people are scared of her I would recommend it, because she's a good listener and she can sense when you don't want to talk about something, whereas the other teachers force it out of you." (Female, study 3).

"My school has had assemblies about cyber-bullying and ways you can stop it or you can report it anonymously. . .. you can write your name or you can't, it's all up to YOU." (Male, study 2).

Others however had a negative experience of reporting bullying and a number of reasons were provided as to why. Firstly, young people stated that adults did not believe them which made the bullying worse on some level:

"I went to the teachers a couple of times but, no, I don't think they could do anything. I did sort of go three times and it still kept on going, so I just had to sort of deal with it and I sort of took it on the cheek. . .." (Male, study 3).

Secondly, young people suggested that adults did not always listen to their concerns, or in some cases did not take their concerns seriously enough:

". . .I had had a really bad day with the girls so I came out and I explained all this to my head of year and how it was affecting me but instead of supporting me he put me straight into isolation." (Male, study 4).

"I could understand them thinking I maybe got the wrong end of the stick with one incident but this was 18 months of me constantly reporting different incidents." (Female, study 4).

"If cyber-bullying is brought to our school's attention, usually, they expect printed proof of the situation and will take it into their own hand depending on its seriousness. However this is usually a couple of detentions. And it's just not enough." (Female, study 2).

Finally, some young people suggested that teachers did not always know what to do when bullying concerns were raised and consequently punished those making the complaint:

"I think I would have offered support instead of punishment to someone who was suffering with anxiety. I wouldn't have seen anxiety as bad behavior I think that's quite ignorant but they saw it as bad behavior." (Male, study 4).

It is worth reiterating, that the majority of young people across the studies did not report bullying to *anybody*, which further underscores the contextual issues underpinning bullying and its role in enabling or disabling bullying behaviors. Some considered

it was "pointless" reporting the bullying and others feared the situation would be made worse if they did:

> "My school hide and say that bullying doesn't go on cos they don't wanna look bad for Ofsted." (Male, study 2).

> "My school is oblivious to anything that happens, many things against school rules happen beneath their eyes but they either refuse to acknowledge it or are just not paying attention so we must suffer." (Female, study 2).

> "That's why I find that when you get bullied you're scared of telling because either, in most cases the teacher will – oh yeah, yeah, don't worry, we'll sort it out and then they don't tend to, and then they get bullied more for it." (Female, study 3).

Young people were concerned that reporting bullying would have a negative impact on their friendship groups. Some were anxious about disrupting the *status quo* within:

> "I think everyone would talk about me behind my back and say I was mean and everyone would hate me." (Female, study 3).

Others expressed concern about the potential vulnerability they were likely to experience if they raised concerns of bullying:

> "I was worried it might affect my other friendships."(Boy, study 2).

> "I'm scared that if I tell, then the bullying will still go on and they will do more." (Female, study 3).

> ". . ..because they might tell off the bullies and then the bullies will like get back at you." (Female, study 3).

These findings underscore the importance of contextual and relational factors in understanding bullying from the perspectives of young people and how these factors influence a young person's ability or willingness to report bullying.

Finally one young person who had self-excluded from school due to severe bullying suggested that schools:

> ". . .need to be looking out for their students' mental wellbeing – not only be there to teach them but to support and mentor them. Keep them safe really. . . I missed out on about three years of socializing outside of school because I just couldn't do it. I think it's important that students are encouraged to stand up for each other." (Female, study 4).

DISCUSSION

The studies presented in this paper illustrate the multitude of perceptions underpinning young people's understandings of what constitutes bullying, both in terms of the behavior and also the impact that this behavior has on an individual. In turn, the ambiguity of what constitutes bullying had an impact on a young person's ability to seek support. Discrepancies in bullying perceptions *within* and *between* young people's groups are shown, highlighting the fluid and changing roles that occur within a bullying situation. Findings from quantitative studies have demonstrated the differing perceptions of bullying by adults and young people (see for example Smith et al., 2002; Vaillancourt et al., 2008; Maunder et al., 2010; Cuadrado-Gordillo, 2012). However, by combining findings from participatory research, new understandings of the relational and contextual factors important to young people come to the fore.

Young people participating in these four studies had unique knowledge and experiences of bullying and the social interactions of other young people in their schools and wider friendship groups. The underpinning participatory design enabled me to work alongside young people to analyze and understand their unique perspectives of bullying in more detail. The research teams were therefore able to construct meaning together, based not entirely on our own assumptions and ideologies, but including the viewpoint of the wider research participant group (Thomson and Gunter, 2008). Together, through the process of co-constructing bullying knowledge, we were able to build on what is already known in this field and contribute to the view that bullying is socially constructed through the experiences of young people and the groups they occupy (Schott and Sondergaard, 2014).

With regards to understanding what bullying is, the findings from these studies corroborate those of the wider literature from both paradigms of inquiry (for example Naylor et al., 2001; Canty et al., 2016); that being the discrepancies in definitions between adults and young people and also between young people themselves. Yet, findings here suggest that young people's bullying definitions are contextually and relationally contingent. With the exception of physical bullying, young people did not differentiate between direct or indirect behaviors, instead they tended to agree that other contextual and relational factors played a role in deciding if particular behaviors were bullying (or not). The participatory research design enabled reflection and further investigation of the ideas that were particularly important to young people such as repetition and intentionality. Repetition was generally seen as being indicative of bullying being "serious," and therefore more likely to be reported, and without repetition, a level of normality was perceived. This finding contradicts some work on bullying definitions, Cuadrado-Gordillo (2012) for example found that regardless of the role played by young people in a bullying episode (victim, aggressor or witness), the criteria of 'repetition' was not important in how they defined bullying.

Relational factors underpinning young people's perception of bullying and indeed it's "seriousness" were further reflected in their willingness or otherwise to report it. Fear of disrupting the *status quo* of the wider friendship group, potentially leading to their own exclusion from the group, was raised as a concern by young people. Some were concerned their friends would not support them if they reported bullying, while others feared further retaliation as a result. Friendship groups have been identified as a source of support for those who have experienced bullying and as a protective factor against further bullying (Allen, 2014). Although participants did not suggest their friendship groups are unsupportive it is possible that group dynamics underscore seeking (or not) support for bullying. Other literature has described such practices as evidence of a power imbalance (Olweus, 1995; Cuadrado-Gordillo, 2012) but young people in these studies did not describe these unequal relationships in this way and instead focused on the outcomes and impacts of bullying. Indeed Cuadrado-Gordillo (2012) also found that young people in their quantitative study did not

consider "power imbalance" in their understanding of bullying and were more likely to consider intention. This paper, however, underscores the relational aspects of definitions of bullying and, how the dynamics of young people's friendships can shift what is understood as bullying or not. Without such nuances, some behaviors may be overlooked as bullying, whereas other more obvious behaviors draw further attention. This paper also shows that contextual issues such as support structures can shift how young people see bullying. Contextual factors were evident across the four studies through the recognition of bullying being enabled or disabled by institutional factors, including a school's ability to respond appropriately to bullying concerns. Young people suggested that schools could be influenced by bullies, perceiving them as non-threatening and consequently not dealing appropriately with the situation. Indeed some young people reported that their schools placed the onus on them as victims to change, consequently placing the "blame" on victims instead. These findings raise questions about who young people feel able to confide in about bullying as well as issues around training and teacher preparedness to deal with bullying in schools. Evidenced in these four studies, is that young people feel somewhat disconnected from adults when they have bullying concerns. Those who did report bullying, identified particular individuals they trusted and knew would support them. Novick and Isaacs (2010) identified teachers who young people felt comfortable in approaching to report bullying and described them as "most active, engaged and responsive." (p. 291). The bullying literature suggests that as young people get older they are more likely to confide in friends than adults (Moore and Maclean, 2012; Allen, 2014). However, findings from this paper indicate that although fewer young people reported bullying, those who did confided in an adult. Young people have identified that a variety of supports are required to tackle bullying and that adults need to listen and work with them so nuanced bullying behaviors are not recognized as "normal" behaviors. Within the data presented in this paper, "banter" was portrayed as "normal" behavior. Young people did not specify what behaviors they regarded as "banter," but suggested that when banter is repeated and intentional the lines are blurred about what is bullying and what is banter.

Exploring bullying nuances in this paper, was enhanced by the involvement of young people in the research process who had a unique "insider" perspective about what it is like to be a young person now and how bullying is currently affecting young people. In studies one and four, young people were "active respondents" (Bragg and Fielding, 2005) and provided adults with their own unique perspectives on bullying. It could be argued that study one did not involve the participation of young people. However, this study informed the basis of the subsequent studies due to the discrepancies noted in the literature about how bullying is understood between adults and young people, as well as the lack of young people's voice and opportunity to participate in the reviewed research. Accordingly, young people's data as "active respondents" informed adult understanding and led to future work involving more active research engagement from other young people. Participation in study four provided an opportunity for young people to contribute to future participatory research based on lived experiences as well as informing policy makers of the effects bullying has on the lives of young people (O'Brien, 2017). In studies two and three, young people were involved further along Bragg and Fielding (2005) continuum as "co-researchers" and "students as researchers" with these roles shifting and moving dependent on the context of the project at the time (O'Brien et al., 2018a). These young researchers brought unique knowledge to the projects (Bradbury-Jones et al., 2018) that could not be accessed elsewhere. Perspectives offered by the young researchers supported adults in understanding more about traditional and cyber-bullying from their perspectives. Furthermore, this knowledge can be added to other, quantitative studies to further understand why bullying happens alongside bullying prevalence, risk and protective factors, and negative outcomes.

CONCLUSION

Findings from the four studies offer an alternative perspective to how bullying is understood by young people. Complexities in defining bullying have been further uncovered as understanding is informed by individual factors, as well as wider social and relational contexts (Horton, 2011; Schott and Sondergaard, 2014). This has implications for the type of support young people require. This paper highlights how definitions of bullying shift in response to relational and contextual aspects deemed important to young people. Because of this, further nuances were uncovered through the research process itself as the respective studies showed discrepancies in bullying perceptions *within* and *between* young people's groups.

These understandings can act as a starting point for young people and adults to collaborate in research which seeks to understand bullying and the context to which it occurs. Furthermore, such collaborations enable adults to theorize and understand the complexities associated with bullying from the perspective of those at the center. There is a need for additional participatory research projects involving such collaborations where adults and young people can learn from each other as well as combining findings from different methodologies to enable a more comprehensive picture of the issues for young people to emerge. Further research is needed to unravel the complexities of bullying among and between young people, specifically in relation to the contextual and relational factors underscoring perceptions of bullying.

DATA AVAILABILITY

The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

ETHICS STATEMENT

Ethical approval was granted for all four studies from the Faculty of Health, Education, Medicine and Social Care at the Anglia

Ruskin University. The research was conducted on the premise of Gillick competency meaning that young people (in these studies over the age of 12 years) could consent for themselves to participate. Parents/carers were aware the study was happening and received information sheets explaining the process.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

FUNDING

These four studies were conducted at the Anglia Ruskin University. Study one was part of a wider masters degree funded by the Anglia Ruskin University, Study two was funded by a group of young people convened by the National Children's Bureau with funding from the Wellcome Trust (United Kingdom). Study three was a wider Doctoral study funded by the Anglia Ruskin University and Study four was also funded by the Anglia Ruskin University.

ACKNOWLEDGMENTS

I would like to thank Dr. Grace Spencer, Ruskin Fellow at the Anglia Ruskin University for providing the critical read of this manuscript and offering constructive feedback. I would also like to thank the two independent reviewers for their feedback on the drafts of this manuscript.

REFERENCES

Alderson, P. (2007). Competent children? Minors' consent to health care treatment and research. *Soc. Sci. Med.* 65, 2272–2283. doi: 10.1016/j.socscimed.2007.08.005

Allen, M. (2014). *Local Action on Health Inequalities: Building Children and Young People's Resilience in Schools*, London: Public Health England.

Beresford, P. (2006). Making the connections with direct experience: from the western front to user-controlled research. *Educ. Action Res.* 14, 161–170.

Black, S., Weinles, D., and Washington, E. (2010). Victim strategies to stop bullying. *Youth Violence Juv. Justice* 8, 138–147. doi: 10.1177/1541204009349401

Bland, D., and Atweh, B. (2007). Students as researchers: engaging students' voices in PAR. *Educ. Action Res.* 15, 337–349. doi: 10.1080/09650790701514259

Boulton, M. J., and Flemington, I. (1996). The effects of a short video intervention on secondary school Pupils' involvement in definitions of and attitudes towards bullying. *Sch. Psychol. Int.* 17, 331–345. doi: 10.1177/0143034396174003

Bradbury-Jones, C., Isham, L., and Taylor, J. (2018). The complexities and contradictions in participatory research with vulnerable children and young people: a qualitative systematic review. *Soc. Sci. Med.* 215, 80–91. doi: 10.1016/j.socscimed.2018.08.038

Bragg, S., and Fielding, M. (2005). "It's an equal thing. It's about achieving together: student voices and the possibility of a radical collegiality," in *Improving Schools Through Collaborative Enquiry*, eds H. Street, and J. Temperley, (London: Continuum), 105–135.

Braun, V., and Clarke, V. (2006). Using thematic analysis in Psychology. *Qual. Res. Psychol.* 3, 77–101.

Canty, J., Stubbe, M., Steers, D., and Collings, S. (2016). The trouble with bullying–deconstructing the conventional definition of bullying for a child-centred investigation into Children's use of social media. *Child. Soc.* 30, 48–58. doi: 10.1111/chso.12103

Coyne, I. (2010). Research with children and young people: the issue of parental (proxy) consent. *Child. Soc.* 24, 227–237.

Cuadrado-Gordillo, I. (2012). Repetition, power imbalance, and intentionality: do these criteria conform to teenagers' perception of bullying? A role-based analysis. *J. Interpers. Violence* 27, 1889–1910. doi: 10.1177/0886260511431436

Davey, C. (2011). *Evaluation of the PEAR Project*. London: National Children's Bureau.

deLara, E. W. (2012). Why adolescents Don't disclose incidents of bullying and harassment. *J. Sch. Violence* 11, 288–305. doi: 10.1080/15388220.2012.705931

Eriksen, I. M. (2018). The power of the word: students' and school staff's use of the established bullying definition. *Educ. Res.* 60, 157–170. doi: 10.1080/00131881.2018.1454263

Espelage, D. L. (2018). Understanding the complexity of school bully involvement. *Chautauqua J.* 2:20.

Forsberg, C., Wood, L., Smith, J., Varjas, K., Meyers, J., Jungert, T., et al. (2018). Students' views of factors affecting their bystander behaviors in response to school bullying: a cross-collaborative conceptual qualitative analysis. *Res. Pap. Educ.* 33, 127–142. doi: 10.1080/02671522.2016.1271001

Fox, R. (2013). Resisting participation: critiquing participatory research methodologies with young people. *J. Youth Stud.* 16, 986–999. doi: 10.1080/13676261.2013.815698

Griffin, R. S., and Gross, A. M. (2004). Childhood bullying: current empirical findings and future directions for research. *Aggr. Violent Behav.* 9, 379–400. doi: 10.1016/s1359-1789(03)00033-8

Guerin, S., and Hennessy, E. (2002). Pupils' definitions of bullying. *Eur. J. Psychol. Educ.* 17, 249–261. doi: 10.1007/bf03173535

Horton, P. (2011). School bullying and social and moral orders. *Child. Soc.* 25, 268–277. doi: 10.1111/j.1099-0860.2011.00377.x

Huang, F. L., and Cornell, D. G. (2015). The impact of definition and question order on the prevalence of bullying victimization using student self-reports. *Psychol. Assess.* 27:1484. doi: 10.1037/pas0000149

James, A. (2007). Giving voice to children's voices: practices and problems, pitfalls and potentials. *Am. Anthropol.* 109, 261–272. doi: 10.1525/aa.2007.109.2.261

Jones, A. (2004). "Involving children and yong people as researchers," in *Doing Research with Children and Young People*, eds S. Fraser, V. Lewis, S. Ding, M. Kellett, and C. Robinson, (London: Sage Publications), 113–130.

Kellett, M. (2010). Small shoes, Big Steps! Empowering children as active researchers. *Am. J. Commun. Psychol.* 46, 195–203. doi: 10.1007/s10464-010-9324-y

La Fontaine, J. (1991). *Bullying: The Child's View – an Analysis of Telephone Calls to ChildLIne about Bullying*. London: Calouste Gulbenkian Foundation.

Lambert, V., and Glacken, M. (2011). Engaging with children in research: theoretical and practical implications of negotiating informed consent/assent. *Nurs. Ethics* 18, 781–801. doi: 10.1177/0969733011401122

Lee, C. (2006). Exploring teachers' definitions of bullying. *Emot. Behav. Diffic.* 11, 61–75. doi: 10.1080/13632750500393342

Maunder, R. E., and Crafter, S. (2018). School bullying from a sociocultural perspective. *Aggr. Violent Behav.* 38, 13–20. doi: 10.1016/j.avb.2017.10.010

Maunder, R. E., Harrop, A., and Tattersall, A. J. (2010). Pupil and staff perceptions of bullying in secondary schools: comparing behavioural definitions and their perceived seriousness. *Educ. Res.* 52, 263–282. doi: 10.1080/00131881.2010.504062

Moore, S., and Maclean, R. (2012). Victimization, friendship and resilience: crossing the land in-between. *Pastor. Care Educ.* 30, 147–163. doi: 10.1080/02643944.2012.679956

Naylor, P., Cowie, H., and del Rey, R. (2001). Coping strategies of secondary school children in response to being bullied. *Child Psychol. Psychiatry Rev.* 6, 114–120. doi: 10.1111/j.1469-7610.2009.02137.x

Novick, R. M., and Isaacs, J. (2010). Telling is compelling: the impact of students reports of bullying on teacher intervention. *Educ. Psychol.* 30, 283–296. doi: 10.1080/01443410903573123

O'Brien, N. (2009). Secondary school teachers' and pupils' definitions of bullying in the UK: a systematic review. *Evid. Policy* 5, 399–426.

O'Brien, N. (2014). *"I Didn't Want to be Known as a Snitch": Using PAR to Explore Bullying in a Private day and Boarding School. Childhood Remixed. Conference Edition*. Suffolk: University Campus Suffolk, 86–96.

O'Brien, N. (2016). To 'Snitch' or Not to 'Snitch'? Using PAR to Explore Bullying in a Private Day and Boarding School. Available at: http://arro.anglia.ac.uk/700970/ (accessed September 20, 2018).

O'Brien, N. (2017). *An Exploratory Study of Bullied Young People's Self-Exclusion from School. Evidence: Presented at Meetings of the All Party Parliamentary Group on Bullying 2011-2016. Project Report. All Party Parliamentary Group on Bullying*. Available at: http://arro.anglia.ac.uk/id/eprint/702024 (accessed September 20, 2018).

O'Brien, N., and Moules, T. (2007). So round the spiral again: a reflective participatory research project with children and young people. *Educ. Action Res. J.* 15, 385–402. doi: 10.1080/09650790701514382

O'Brien, N., and Moules, T. (2010). *The Impact of Cyber-Bullying on Young People's Mental Health. Project Report*. Chelmsford: Anglia Ruskin University.

O'Brien, N., and Moules, T. (2013). Not sticks and stones but tweets and texts: findings from a national cyberbullying project. *Pastor. Care Educ.* 31, 53–65. doi: 10.1080/02643944.2012.747553

O'Brien, N., Moules, T., and Munn-Giddings, C. (2018a). "Negotiating the research space between young people and adults in a PAR study exploring school bullying," in *Reciprocal Relationships and Well-Being: Implications for Social Work and Social Policy*, eds M. Torronen, C. Munn-Giddings, and L. Tarkiainen, (Oxon: Routledge), 160–175. doi: 10.4324/9781315628363-11

O'Brien, N., Munn-Giddings, C., and Moules, T. (2018b). The repercussions of reporting bullying: some experiences of students at an independent secondary school. *Pastor. Care Educ.* 36, 29–43. doi: 10.1080/02643944.2017.1422004

O'Brien, N., Munn-Giddings, C., and Moules, T. (2018c). *The Ethics of Involving Young People Directly in the Research Process. Childhood Remixed. Conference Edition*, 115–128. Available at: www.uos.ac.uk/content/centre-for-study-children-childhood (accessed May 2018).

Oliver, C., and Candappa, M. (2007). Bullying and the politics of 'telling'. *Oxford Rev. Educ.* 33, 71–86. doi: 10.1080/03054980601094594

Olweus, D. (1995). Bullying or peer abuse at school: facts and intervention. *Curr. Dir. Psychol. Sci.* 4, 196–200. doi: 10.1111/1467-8721.ep10772640

Ozer, E. J., and Wright, D. (2012). Beyond school spirit: the effects of youth-led participatory action research in two urban high schools. *J. Res. Adolesc.* 22, 267–283. doi: 10.1111/j.1532-7795.2012.00780.x

Parsons, S., Abbott, C., McKnight, L., and Davies, C. (2015). High risk yet invisible: conflicting narratives on social research involving children and young people, and the role of research ethics committees. *Br. Educ. Res. J.* 41, 709–729. doi: 10.1002/berj.3160

Patton, D. U., Hong, J. S., Patel, S., and Kral, M. J. (2017). A systematic review of research strategies used in qualitative studies on school bullying and victimization. *Trauma Violence Abuse* 18, 3–16. doi: 10.1177/1524838015588502

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., et al. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *Eur. Soc. Res. Council Methods Program.* doi: 10.13140/2.1.1018.4643

Schott, R. M., and Sondergaard, D. M. (2014). "Introduction: new approaches to school bullying," in *School Bullying: New Theories in Context*, eds R. M. Schott, and D. M. Sondergaard, (Massachusetts, MA: Cambridge University Press), 1–17.

Skrzypiec, G., Slee, P., Murray-Harvey, R., and Pereira, B. (2011). School bullying by one or more ways: does it matter and how do students cope? *Sch. Psychol. Int.* 32, 288–311. doi: 10.1177/0143034311402308

Smith, P. K., Cowie, H., Olafsson, R. F., and Liefooghe, A. P. D. (2002). Definitions of bullying: a comparison of terms used, and age and gender differences, in a fourteen-country international comparison. *Child Dev.* 73, 1119–1133. doi: 10.1111/1467-8624.00461

Spears, B., Taddeo, C., Collin, P., Swist, T., Razzell, M., Borbone, V., et al. (2016). *Safe and Well Online: Learnings from Four Social Marketing Campaigns for Youth Wellbeing*. Available at: https://researchdirect.westernsydney.edu.au/islandora/object/uws:36405/datastream/PDF/view (accessed July 1, 2019).

Stoudt, B. G. (2009). The role of language & discourse in the investigation of privilege: using participatory action research to discuss theory. *Dev. Methodol. Interrupt. Power Urban Rev.* 41, 7–28.

Thomson, P., and Gunter, H. (2008). Researching Bullying with students: a lens on everyday life in an 'innovative school'. *Int. J. Inclusive Educ.* 12, 185–200. doi: 10.1080/13603110600855713

Tisdall, E. K. M., and Punch, S. (2012). Not so 'new'? Looking critically at childhood studies. *Child. Geogr.* 10, 249–264. doi: 10.1080/14733285.2012.693376

United Nations Convention on the Rights of the Child (1989). Available at: http://www.unicef.org.uk/Documents/Publication-pdfs/UNCRC_PRESS200910web.pdf (accessed January 19, 2014).

Vaillancourt, T., McDougall, P., Hymel, S., Krygsman, A., Miller, J., Stiver, K., et al. (2008). Bullying: are researchers and children/youth talking about the same thing? *Int. J. Behav. Dev.* 32, 486–495. doi: 10.1177/0165025408095553

Conflict of Interest Statement: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

frontiers in Psychology

ORIGINAL RESEARCH
published: 20 September 2019
doi: 10.3389/fpsyg.2019.02125

Classroom Size and the Prevalence of Bullying and Victimization: Testing Three Explanations for the Negative Association

Claire F. Garandeau[1], Takuya Yanagida[2], Marjolijn M. Vermande[3], Dagmar Strohmeier[4] and Christina Salmivalli[1,5]*

[1] Department of Psychology, University of Turku, Turku, Finland, [2] Department of Applied Psychology, Work, Education and Economy, University of Vienna, Vienna, Austria, [3] Department of Child and Adolescent Studies, Utrecht University, Utrecht, Netherlands, [4] Department of Social Work, School of Medical Engineering and Applied Social Sciences, University of Applied Sciences Upper Austria, Linz, Austria, [5] Department of Psychology, Shandong Normal University, Jinan, China

Classroom size - i.e., the number of students in the class - is a feature of the classroom environment often found to be negatively related to bullying or victimization. This study examines three possible explanations for this negative association: (a) it is due to measurement effects and therefore only found for peer-reports (Hypothesis 1), (b) bullying perpetrators are more popular and have more friends in smaller classrooms (Hypothesis 2), (c) targets of bullying are more popular and have more friends in larger classrooms (Hypothesis 3). Multilevel regression analyses were conducted on a sample from Austria (1,451 students; *M*age = 12.31; 77 classes) and a sample from the Netherlands (1,460 students; *M*age = 11.06; 59 classes). Results showed that classroom size was negatively associated with peer-reported bullying and victimization in both samples, and with self-reported bullying and victimization in the Dutch sample only, suggesting partial support for Hypothesis 1. Students high in bullying were found to be more popular in smaller than in larger classrooms in the Austrian sample. The negative link between victimization and popularity was found to be stronger in smaller classrooms than in larger classrooms in the Dutch sample. However, classroom size was not found to moderate links between bullying or victimization and friendship in either sample. Hypotheses 2 and 3 were supported, but only for popularity and in a single sample. Further research is needed to better understand the higher prevalence of bullying found in smaller classrooms in many studies.

Keywords: bullying, victimization, class size, aggression, multilevel analyses

OPEN ACCESS

Edited by:
Eva M. Romera, Universidad de Córdoba, Spain

Reviewed by:
Gijs Huitsing, University of Groningen, Netherlands
Mairéad Foody, Dublin City University, Ireland

****Correspondence:***
Claire F. Garandeau
garandeauclaire@hotmail.com

Specialty section:
This article was submitted to Educational Psychology, a section of the journal Frontiers in Psychology

Received: *21 May 2019*
Accepted: *02 September 2019*
Published: *20 September 2019*

Citation:
Garandeau CF, Yanagida T, Vermande MM, Strohmeier D and Salmivalli C (2019) Classroom Size and the Prevalence of Bullying and Victimization: Testing Three Explanations for the Negative Association. Front. Psychol. 10:2125. doi: 10.3389/fpsyg.2019.02125

INTRODUCTION

The prevalence of bullying and victimization in classrooms is not merely the result of individual characteristics of the bullying perpetrators and their targets but is influenced by features of the classroom environment (Saarento et al., 2015). These contextual characteristics include the anti-bullying attitudes and behaviors of peer bystanders (Salmivalli et al., 2011) and of teachers (Veenstra et al., 2014; Oldenburg et al., 2015), as well as aspects of the peer social network, such as the degree of status hierarchy in the classroom (Garandeau et al., 2014). Classroom size - i.e., the number of students in the class - is a structural feature that has often been investigated in relation to

academic achievement (see Finn et al., 2003), with smaller classrooms often found to be beneficial for academic performance (Hoxby, 2000; Shin and Raudenbush, 2011) and even earnings later in life (Fredriksson et al., 2013). Intuitively, we would expect the same advantageous effects of small classrooms on bullying. Smaller classrooms should logically protect against bullying thanks to higher adult/child ratios, allowing a more effective monitoring of children's negative behaviors by school personnel.

Classroom size has been investigated in many studies on victimization and bullying, often as a control variable rather than a main predictor of interest. Surprisingly, very few studies found evidence of a protective effect of smaller classroom networks on bullying or victimization (Whitney and Smith, 1993; Khoury-Kassabri et al., 2004). The large majority of studies examining the link between classroom size and bullying or victimization found them to be either negatively associated (e.g., Vervoort et al., 2010) or unrelated (e.g., Thornberg et al., 2017). However, the reason why bullying and victimization would be more prevalent in smaller classrooms remains unclear.

The present study aims to test for three possible explanations for this negative association: First, the negative association may not reflect an actual social phenomenon but result from a measurement effect, related to the way peer-reported scores are computed. In this case, the prevalence-size link should be negative for peer-reported, but not for self-reported bullying and victimization (Hypothesis 1). Second, it is possible that bullying perpetrators enjoy higher status and are more socially connected in smaller classrooms, which in turn facilitates their bullying behavior. Engaging in bullying may be associated with higher perceived popularity and more friendships in smaller than in larger classrooms (Hypothesis 2). Third, victims may have less social support and fewer opportunities for friendships in smaller classrooms, which in turn could contribute to the maintenance of their victimization. Being victimized may be associated with lower perceived popularity and fewer friendships in smaller than in larger classrooms (Hypothesis 3). These hypotheses will be tested with large samples from two countries, using both self-reports and peer-reports of bullying and victimization.

Associations of Classroom Size With Bullying and Victimization: Does Informant Type Matter?

Contrary to expectations, research seldom found support for a positive link between classroom size and bullying and victimization (Whitney and Smith, 1993; Khoury-Kassabri et al., 2004). It is noteworthy that these studies used only self-reports and did not operationalize class size as the exact number of students in each classroom but as the average class size in the schools (by dividing the number of students in the school by the number of classrooms). In the review of the literature, the type of informant - self or peers – appears to be relevant for the strength and direction of the association between classroom size and bullying or victimization. All studies showing no significant association between these variables used self-reported measures of bullying (O' Moore et al., 1997; Boyesen and Bru, 1999; Wolke et al., 2001; Scheithauer et al., 2006; Salmivalli et al., 2011; Coehlo and Sousa, 2018) or victimization (Whitney and Smith, 1993; O' Moore et al., 1997; Wolke et al., 2001, German sample; Stefanek et al., 2011; Saarento et al., 2013; Thornberg et al., 2017; Coehlo and Sousa, 2018).

Negative associations between classroom size and bullying or victimization have been found with both self-reported and peer-reported measures. A higher classroom size was found to be associated with a lower prevalence of peer-reported bullying (Vervoort et al., 2010; Garandeau et al., 2014) peer-reported victimization (Vervoort et al., 2010; Saarento et al., 2013), self-reported bullying (Stefanek et al., 2011) and self-reported victimization (Wolke et al., 2001, British sample; Verkuyten and Thijs, 2002). Furthermore, a study using dyadic nominations of who bullies whom showed that there was less bullying in classrooms with a higher number of students (Tolsma et al., 2013). When measures of effect size were available for these studies, which were heterogeneous in various methodological aspects (e.g., sample, demographics, control variables etc.), they indicated that each additional student in the classroom was associated with a decrease of 0.06 to 0.1 (on a scale of 0 to 1) in peer-reported measures and of approximately 0.02 (on a scale of 0 to 4) in self-reported measures.

Taken together, these findings hint that the negative link between classroom size and bullying or victimization may be partly accounted for by the measurement of the variables. It would hold mainly for peer-reported bullying and victimization - which are obtained by computing proportions of nominations received by peers. It is possible indeed that, in small classrooms, the probability is higher than in large classrooms for students to score high in peer-reported measures, since they are computed by dividing the number of nominations received by classmates by the number of nominators. As smaller classrooms have fewer nominators, students receiving for example only one or two nominations should score higher in smaller than in larger classrooms. As self-reports rely on single informants, the number of participants in the classroom should not affect self-reported scores.

Moderating Effects of Classroom Size on the Social Power of Perpetrators and Targets?

Another explanation for findings of a lower prevalence of bullying in larger classrooms is that bullying perpetrators, who tend to be perceived as more popular than non-bullying students (e.g., Caravita et al., 2009), may have even more social power in smaller classrooms. As bullying often involves the manipulation of a peer group by one or two bullies (see Garandeau and Cillessen, 2006), it might be more difficult for children who initiate bullying to exert influence over the whole peer network when this network is large. Opposing the ring-leader bullies might be more challenging in more restricted social environments. Similarly, bystanders may be more likely to side with the bullies in smaller classes. This support for bullying perpetrators could be reflected in higher levels of popularity, an indicator of influence among peers, and a higher number

of friends for bullies in smaller classrooms. In turn, those who engage in bullying behavior should be more apt to maintain and even increase such behavior if they are socially rewarded for it. Therefore, the negative association between classroom size and bullying (or victimization) could be explained by the higher levels of perceived popularity and the higher number of friends for bullying perpetrators in smaller classrooms relative to larger classrooms.

A third explanation is the possibility that victims may have less social power or support in smaller classrooms. Victimized children generally have low levels of popularity (e.g., Pouwels et al., 2016) and are less likely than other children to have reciprocal friends (e.g., Scholte et al., 2009). For these victimized children, it may be more difficult to find at least one friend in smaller compared to larger classrooms, as the number of possible social connections is more limited. This restriction in friendship opportunities for victims could account for higher victimization levels in smaller classrooms, as having friends tends to protect against victimization (Boulton et al., 1999; Hodges et al., 1999; Serdiouk et al., 2016).

The Present Study

The relation of class size to bullying and victimization needs to be better understood. The two main objectives of the present study were a) to test for the direction (positive or negative) of the association of classroom size with bullying and victimization, using both peer-reports and self-reports, in two samples from two countries; b) to put to the test three possible explanations for these surprising findings.

First, we formulated the general hypothesis that the effect of classroom size on peer-reported bullying and peer-reported victimization would be negative, on the basis of previous findings from the literature. To further explore this effect, we tested for both linear and curvilinear associations. The first explanation that we put to the test was that this negative association was due to a measurement effect. Negative links would be found with peer-reports of bullying and victimization, but not with self-reported measures (Hypothesis 1). Our second hypothesis was that bullying perpetrators enjoyed higher social power in smaller classrooms. If this holds true, the associations between bullying and perceived popularity, and between bullying and having friends, would be stronger in smaller classrooms (Hypothesis 2). Our third hypothesis was that victimized children had less social power in smaller classrooms. If this holds true, children higher in victimization would have lower perceived popularity and fewer friends in smaller classrooms (Hypothesis 3).

We tested these hypotheses with participants in late childhood and early adolescence, as this is the age when school bullying problems tend to be the most prevalent. To provide a more valid test of our hypotheses, we chose to conduct our analyses on two datasets from two countries, Austria and the Netherlands. The objective of the present study was not to compare findings between the two samples or countries, but rather to increase the generalizability of the results. The Austrian sample was previously used in the study by Stefanek et al. (2011), which did examine classroom size in relation only to self-reported victimization and bullying.

MATERIALS AND METHODS

Samples and Procedures

Similar - though not identical - datasets were available for the two samples. The Austrian sample included 1,451 fifth- to eighth-graders (mean age: 12.31, *SD* = 1.20; 51.2% boys) from 77 classrooms in 11 schools. Classroom size ranged from 8 to 28 students (*M* = 18.84; *SD* = 4.39). The majority of participants were born in Austria (53.2%). Before a student could participate in the study, an active and written consent was required from parents, who had to sign and return an informed consent form. Only the students with an active, written and informed consent from their parents were invited to participate in the study. Moreover, participation in the study was voluntary and strictly confidential, resulting in a participation rate of 90%. Data was collected in 2008, in the middle of the school year. The questionnaires were completed during regular teaching hours in the schools' computer labs, under the supervision of two trained research assistants. It is the pre-test data of the ViSC Austrian program, which was designed to increase social competence in school children. In Austria, an ethics approval is mandatory and required. The procedure took place in three steps: First, the study was approved by the ethics committee located in the Austrian Ministry of Education; second, it was approved by the ethics committee located in the Federal School Directorate; third, it was approved by each individual school leader (rector). An ethics approval from the authors' Institutions' Ethics Committee was not required as per applicable institutional and national guidelines and regulations.

The Dutch sample consisted of 1,460 children and early adolescents (49,8% boys) from 59 classrooms in 40 schools. Classroom size ranged from 15 to 33 (*M* = 24.75, *SD* = 4.10). The students were in grades 4 to 6, which are the last 3 years of elementary school in the Dutch school system. Their mean age was 11.07 years (*SD* = 0.99). The large majority (96.2%) was Native Dutch. Data were cross-sectional but collected in the spring of three consecutive years from 2010 to 2012. Written informed consent from parents and assent from the child were required to participate in the study. Parents received a letter in which the purposes and procedures of the study were explained. They could refuse participation by returning a pre-printed objection against their child's participation in the study. This passive consent procedure was in line with the local ethical guidelines at the time of the data collection. When informing adolescents about the aims and procedures of the study, they could choose not to participate (active consent), but no one did so. The participation rate was 98.3%. Self-reports of bullying and victimization were completed during group testing sessions run by trained research assistants. A clinician was made available in case a child would be troubled by the data collection, but that was never the case. The peer nomination questionnaires were administered individually by a research assistant in an interview session in the school of the participating

children. The interviewers used laptop computers with a precise protocol to ensure that the questions were administered correctly and consistently.

The data was collected by researchers from the Faculty of Social and Behavioral Sciences at Utrecht University. The Faculty Ethics Review Board (FERB) assumes that all the research at the Faculty of Social and Behavioral Sciences is conducted in an ethically responsible manner in accordance with the prevailing conduct and professional codes and (European, national and international) legislation. No approval was sought from the FERB, as the researchers followed the ethical guidelines of that time and therefore deemed explicit approval not necessary. All schools participating in the study approved of the procedure beforehand. An ethics approval from the authors' Institutions' Ethics Committee was not required as per applicable institutional and national guidelines and regulations.

Measures

Self-Reported Bullying

In each sample, self-reported bullying was assessed with one global item. In the Austrian sample, this item was *How often have you insulted or hurt other students during the last 2 months?* In the Dutch sample, the item was from the Olweus questionnaire (Olweus, 1996): *How often have you bullied others at school during the last couple of months?* Responses were given on a five-point scale (ranging from 0 = never to 4 = several times a week).

Self-Reported Victimization

Self-reported victimization was also assessed with a single global item. In the Austrian sample, the question was *How often have other students insulted or hurt you during the last 2 months?* In the Dutch sample, the item was *How often have you been bullied at school during the last couple of months?* (Olweus, 1996). The response scales were the same as for self-reported bullying.

Peer-Reported Bullying

In both samples, within-classroom peer nominations were obtained by asking participants to provide the names (or check the name from a roster) of classmates enacting the behavior. For each participant, a proportion score was computed by dividing the number of nominations received by the number of nominators. In the Austrian sample, a single question (for global aggression) was used, and nominations originated from victims rather than all participating classmates, based on the approach of Veenstra et al. (2010). Only children who had self-identified as victims in the self-assessments (i.e., children who did not respond "never" to the question *How often have other students insulted or hurt you during the last 2 months?*) were provided with the additional question "*Who insulted or hurt you during the last 2 months*?" and could nominate who the perpetrators were. They could choose up to five classmates. They could also refuse to answer or state that the perpetrator was not a classmate. Therefore, peer-reported bullying in that sample corresponded to the proportion of nominations received as perpetrators of bullying by victims (see Gradinger et al., 2012). No definition of bullying was provided to the participants. In the Dutch sample, perpetration of bullying was assessed with the Bullying Role Nomination Procedure (BRNP; Olthof et al., 2011), which is an adaptation of the Participant Role Questionnaire (Salmivalli et al., 1996). Participants were first instructed that bullying involved (1) intent to harm, (2) repetition over time, (3) power differential, and (4) could take different forms. Five types of bullying were assessed using one peer nomination item for each type: physical, verbal, material (e.g., stealing or destroying things that belong to others), direct relational (e.g., ignoring), indirect relational (e.g., saying nasty things about someone to damage their reputation). The proportion scores were averaged across the five items ($\alpha = 0.89$).

Peer-Reported Victimization

The assessment of peer-reported victimization was analogous to peer-reported bullying, i.e., based on within-classroom peer nominations and the computation of proportion scores. In the Austrian sample, the single question for peer-reported victimization corresponded to the proportion of nominations received as victims of bullying by nominators who had self-identified as perpetrators of bullying in the self-assessments. Only those who had self-identified as perpetrators were asked "*Whom did you insult or hurt you during the last 2 months*?". In the Dutch sample, victimization was assessed with five items tapping into physical, verbal, material, direct relational, and indirect relational victimization ($\alpha = 0.89$; BRNP; Olthof et al., 2011). The proportion scores were averaged across the five items.

Perceived Popularity

A single peer-nominated item – Who are the most popular in your class? - was used to measure perceived popularity in the two samples. Nominations were limited to five classmates in the Austrian sample and unlimited in the Dutch sample. Proportion scores were computed by dividing the number of nominations received by the number of nominators.

Friendships

In both samples, a standard sociometric procedure was used to assess friendships. The number of friendships was operationalized as the proportion of nominations received as "best friend". In the Austrian sample, the adolescents were asked to choose up to three classmates who were their best friends. The item was: *Who are your best friends*? In the Dutch sample, participants were first presented with the following description: *Some children in your class are friends or girlfriends with each other. They like each other very much, they do a lot together, and have a lot of fun. They also help each other and they can work well together.* The description was followed by the question *Which children in your class are your best friends or girlfriends?* The number of nominations was unlimited.

Analysis Plan

All hypotheses were tested via multilevel modeling. Analyses were conducted in M*plus 7.4*. To test the first hypothesis, the main effects of classroom size on peer-reported bullying, self-reported bullying, peer-reported victimization and self-reported victimization, were examined in a series of four models for each sample. Individual-level predictors age, gender and popularity

were controlled for in these models. All predictor variables were grand mean-centered. In addition to the linear effect of classroom size, we examined curvilinear associations between classroom size and bullying and victimization by adding a quadratic term to the models. To avoid coefficients with 3 or more zero digits after the decimal point, the classroom size variable was divided by 10 in these models; thus, each unit increase represents 10 more students instead of one more student. Unstandardized coefficients are presented in **Table 2** for bullying and **Table 3** for victimization. The standardized effects of classroom size are provided in the text.

To test for the second and third hypotheses, we ran additional models with popularity and having friends as outcomes (see **Table 4**). In each model, we tested the cross-level interactions of classroom size with bullying and with victimization, to examine whether the levels of popularity and number of friends of students high in bullying and students high in victimization would depend on the size of their classroom. In these models, we could not use both peer-reports and self-reports of bullying and victimization due to multicollinearity issues; we chose to use the self-reports, as their measurement is independent of classroom size (i.e., the number of classmates is not utilized in the computation of the scores in any way, as is the case for peer-reported measures). All predictor variables were grand mean-centered, except for self-reported bullying and victimization. These variables were classroom mean-centered because they were included in cross-level interactions (see Enders and Tofighi, 2007).

In all analyses, we used robust maximum likelihood (MLR) estimators. The intraclass correlations indicated that differences between classrooms in the Austrian sample explained 12.8 and 6.3% of the variance in peer-reported and self-reported bullying, respectively, and 15.2 and 4.2% of the variance in peer-reported and self-reported victimization, respectively. In the Dutch sample, these percentages were 8.1 and 9.2% for peer-reported and self-reported bullying, respectively, and 3.8 and 4.5% for peer-reported and self-reported victimization, respectively.

RESULTS

Descriptive Statistics and Correlations

Table 1 shows the descriptive statistics and correlations for the main study variables, at the individual level and at the classroom level. At the individual level, correlations between peer-reports and self-reports were 0.23 and 0.39 for bullying and 0.20 and 0.41 for victimization, in the Austrian and the Dutch sample, respectively, ($ps = < 0.001$). Regarding classroom size, correlations at the classroom level were negative for peer-reported measures of bullying and victimization in both samples, ranging from −0.35 to −0.53 ($ps = < 0.001$). The correlation between class size and self-reported bullying was non-significant in the Austrian sample and negative in the Dutch sample, $r = -0.38$, $p < 0.01$. Correlations between class size and self-reported victimization were non-significant in both samples.

Main Effects of Classroom Size on Bullying

Results of the multilevel models testing the effects of age, gender, popularity and classroom size on peer-reported and self-reported bullying are shown in **Table 2**. Across both samples, boys and more popular students were found to be higher in both peer-reported and self-reported bullying. The effect of age varied across samples and types of bullying: In the Austrian sample, older students reported bullying more than their younger counterparts, but did not have higher levels of peer-reported bullying. In the Dutch sample, older students had lower levels of peer-reported bullying than younger students, but there was no significant effect of age on self-reported bullying.

The linear effects of classroom size on peer-reported bullying were negative in both the Austrian sample, $\gamma = -0.352$, $p = 0.003$, and the Dutch sample, $\gamma = -0.474$, $p < 0.001$, thus supporting our general hypothesis. Regarding the association between classroom size and self-reported bullying, there was no significant effect in the Austrian sample, $\gamma = -0.170$, $p = 0.304$, but a negative effect was found in the Dutch sample, $\gamma = -0.309$, $p = 0.006$. Only the results from the Austrian sample were consistent with Hypothesis 1, according to which a negative effect would be observed for peer-reported bullying, but not for self-reported bullying. The proportion of between-classroom variance in peer-reported bullying explained by classroom size (linear effects) was 12% in the Austrian sample and 33.5% in the Dutch sample. For self-reported bullying, classroom size explained 3 and 16.7% of the between-class variance in the Austrian sample and in the Dutch sample, respectively.

In the Austrian sample, there was no evidence of a curvilinear association of classroom size with any of the two outcomes. In the Dutch sample, however, there was a significant positive quadratic effect for peer-reported bullying, $p = 0.022$, suggesting that peer-reported bullying decreases until class size reaches approximately 29 students and starts increasing when the number of students in the classroom is 30 (the maximum being 33).

Main Effects of Classroom Size on Victimization

The results are presented in **Table 3**. There was no significant effect of age, except for younger Dutch students being more likely than older ones to report being victimized. Boys had higher levels of peer-reported victimization in the Austrian sample only. More popular students were less likely to be perceived as victimized by peers in both samples, in the Austrian sample.

Consistent with our general hypothesis, the linear effects of classroom size on peer-reported victimization were negative in both the Austrian sample, $\gamma = -0.341$, $p = 0.001$, and the Dutch sample, $\gamma = -0.596$, $p < 0.001$. In line with our findings for bullying, classroom size was not significantly associated with self-reported victimization in the Austrian sample, $\gamma = -0.052$, $p = 0.761$, but this association was significantly negative in the Dutch sample, $\gamma = -0.367$, $p = 0.032$. Thus, support was found for Hypothesis 1 in the Austrian sample, but not

TABLE 1 | Descriptive statistics and correlations for the main study variables.

	Austrian	Dutch							
	M (SD)	M (SD)	1	2	3	4	5	6	7
Individual-level variables									
1. Age	12.31 (1.20)	11.06 (0.95)	–	0.00	−0.07**	0.04	−0.16***	0.18***	−0.03
2. Bullying (PR)	0.06 (0.09)	0.05 (0.09)	−0.06*	–	0.05*	0.39***	0.07**	0.46***	0.02
3. Victimization (PR)	0.04 (0.07)	0.03 (0.07)	0.07**	0.27***	–	0.02	0.41***	−0.16***	−0.23***
4. Bullying (SR)	0.76 (1.01)	0.35 (0.69)	0.09***	0.23***	0.13***	–	0.16***	0.14***	0.04
5. Victimization (SR)	0.96 (1.17)	0.74 (1.14)	−0.04	0.05	0.20***	0.27***	–	−0.11***	−0.16***
6. Popularity	0.10 (0.13)	0.11 (0.19)	−0.01	0.14***	−0.10***	0.13***	−0.05	–	0.27***
7. Friendship	0.13 (0.09)	0.14 (0.09)	−0.06*	0.02	−0.13***	0.02	−0.08**	0.48***	–
Classroom-level variables									
1. Class size	18.84 (4.39)	24.75 (4.10)	–	−0.53***	−0.50***	−0.38**	−0.23		
2. Bullying (PR)	0.06 (0.04)	0.05 (0.03)	−0.35**	–	0.88***	0.70***	0.50***		
3. Victimization (PR)	0.04 (0.03)	0.04 (0.02)	−0.36**	0.60***	–	0.56***	0.57***		
4. Bullying (SR)	0.77 (0.36)	0.37 (0.26)	−0.15	0.26*	0.55***	–	0.38**		
5. Victimization (SR)	0.95 (0.36)	0.75 (0.34)	0.10	0.54***	0.28*	0.46***	–		

*Correlations for the Dutch sample are presented above the diagonal; correlations for the Austrian sample are presented below the diagonal. PR, peer-reported; SR, self-reported. The correlations between classroom size and all other classroom-level variables are based on classroom means of the individual-level variables. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.*

TABLE 2 | Main effects of age, gender, popularity and classroom size on peer-reported and self-reported bullying for the two samples.

	Peer-reported bullying				Self-reported bullying			
	Austrian sample		Dutch sample		Austrian sample		Dutch sample	
	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*
Intercept	0.059 (0.005)	<0.001	0.043 (0.004)	<0.001	0.776 (0.043)	<0.001	0.290 (0.044)	<0.001
Student-level								
Age	0.000 (0.003)	0.994	−0.006 (0.003)	0.040	0.065 (0.026)	0.013	0.018 (0.029)	0.531
Gender	0.046 (0.006)	<0.001	0.033 (0.006)	<0.001	0.187 (0.063)	0.003	0.145 (0.041)	<0.001
Popularity	0.070 (0.018)	<0.001	0.201 (0.025)	<0.001	0.967 (0.249)	<0.001	0.454 (0.128)	<0.001
Class-level								
Size (linear)	−0.024 (0.009)	0.007	−0.027 (0.007)	<0.001	−0.092 (0.086)	0.286	−0.160 (0.066)	0.016
$Size^2$ (quadratic)	−0.001 (0.020)	0.943	0.044 (0.019)	0.022	−0.092 (0.147)	0.531	0.388 (0.207)	0.062
Res. $var._{within}$	0.006 (0.001)	<0.001	0.005 (0.001)	<0.001	0.941 (0.066)	<0.001	0.418 (0.047)	<0.001
Res. $var._{between}$	0.001 (0.000)	<0.001	0.000 (0.000)	0.003	0.055 (0.019)	0.003	0.031 (0.009)	0.001
LL	1580.518		1724.977		−2016.450		−1437.667	

Unstandardized estimates (and standard errors) shown. All variables are grand-mean centered. Gender was coded as 0:girl, 1:boy. LL, log-likelihood. Res. var, Residual variance.

in the Dutch sample. The proportion of between-classroom variance in peer-reported victimization explained by classroom size (linear effects) was 19% in the Austrian sample and 46.3% in the Dutch sample. The proportion of between-classroom variance in self-reported victimization explained by classroom size was 0.3% in the Austrian sample and 16.7% in the Dutch sample.

Consistent with our findings for bullying, there was no evidence of a curvilinear association of classroom size with either self- or peer-reported victimization in the Austrian sample. In the Dutch sample, there was a significant positive quadratic effect for peer-reported victimization, $p = 0.001$, and self-reported victimization, $p = 0.047$. For both measures, victimization decreases until class size reaches 29 students and starts increasing again when classrooms include at least 30 students.

Interactive Effects of Classroom-Size on Popularity

The models testing whether the associations of bullying and victimization with popularity were moderated by classroom size are shown in **Table 4**. There was no significant effect of gender on popularity in either sample. Older students tended to be more popular in the Dutch sample only. In both samples, students higher in bullying were more popular and those higher in victimization were less popular.

TABLE 3 | Main effects of age, gender, popularity and classroom size on peer-reported and self-reported victimization for the two samples.

	Peer-reported victimization				Self-reported victimization			
	Austrian sample		Dutch sample		Austrian sample		Dutch sample	
	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*
Intercept	0.037 (0.004)	<0.001	0.030 (0.003)	<0.001	0.987 (0.049)	<0.001	0.688 (0.048)	<0.001
Student-level								
Age	0.001 (0.002)	0.653	−0.003 (0.002)	0.105	−0.045 (0.034)	0.193	−0.169 (0.039)	<0.001
Gender	0.011 (0.005)	0.018	0.003 (0.004)	0.451	−0.141 (0.073)	0.052	−0.081 (0.052)	0.122
Popularity	−0.069 (0.011)	<0.001	−0.061 (0.007)	<0.001	−0.400 (0.219)	0.068	−0.557 (0.137)	<0.001
Class-level								
Size (linear)	−0.022 (0.008)	0.008	−0.023 (0.001)	<0.001	0.029 (0.095)	0.761	−0.178 (0.080)	0.026
$Size^2$ (quadratic)	0.026 (0.022)	0.246	0.029 (0.009)	0.001	−0.147 (0.151)	0.329	0.329 (0.166)	0.047
Res. $var._{within}$	0.004 (0.000)	<0.001	0.004 (0.001)	<0.001	1.298 (0.066)	<0.001	1.211 (0.077)	<0.001
Res. $var._{between}$	0.001 (0.000)	0.007	0.000 (0.000)	0.214	0.055 (0.019)	0.003	0.026 (0.019)	0.162
LL	1949.283		1837.381		−2254.944		−2183.182	

Unstandardized estimates (and standard errors) shown. All variables are grand-mean centered. Gender was coded as 0:girl, 1:boy. LL, log-likelihood. Res. var, residual variance.

TABLE 4 | Main and interactive effects of age, gender, bullying, victimization, classroom size on popularity and friendship for the two samples.

	Popularity				Friendship			
	Austrian sample		Dutch sample		Austrian sample		Dutch sample	
	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*	Est. (SE)	*p*
Intercept	0.150 (0.005)	<0.001	0.117 (0.004)	<0.001	0.136 (0.002)	<0.001	0.149 (0.003)	<0.001
Student-level								
Age (years)	0.000 (0.004)	0.937	0.031 (0.016)	0.049	−0.003 (0.002)	0.221	−0.004 (0.002)	0.081
Gender	0.000 (0.006)	0.937	0.012 (0.008)	0.145	−0.005 (0.005)	0.314	−0.002 (0.004)	0.640
Bullying (SR)	0.026 (0.006)	<0.001	0.044 (0.012)	<0.001	0.004 (0.004)	0.308	0.000 (0.004)	0.923
Victimization (SR)	−0.011 (0.003)	0.001	−0.022 (0.004)	<0.001	−0.008 (0.002)	<0.001	−0.017 (0.002)	<0.001
Classroom-level								
Size	−0.004 (0.001)	0.009	−0.003 (0.001)	0.001	−0.005 (0.001)	<0.001	−0.007 (0.001)	<0.001
Cross-level interactions								
Size*bullying	−0.003 (0.001)	0.028	−0.001 (0.002)	0.576	−0.001 (0.001)	0.415	0.000 (0.001)	0.702
Size*victimization	0.001 (0.001)	0.372	0.002 (0.001)	0.035	0.001 (0.000)	0.273	0.001(0.001)	0.175
Res. $variance_{within}$	0.017 (0.001)	<0.001	0.032 (0.002)	<0.001	0.008 (0.001)	<0.001	0.007 (0.000)	<0.001
Res. $variance_{between}$	0.000 (0.002)	0.996	0.000 (0.002)	0.995	0.000 (0.000)	0.994	0.000 (0.000)	0.262
Res. $variance_{slope-bullying}$	0.000 (0.000)	0.861	0.003 (0.001)	0.076	0.000 (0.000)	0.962	0.000 (0.000)	0.803
Res. $variance_{slope-victimization}$	0.001 (0.000)	0.087	0.000 (0.000)	0.926	0.000 (0.000)	0.043	0.000 (0.000)	0.896
LL	884.617		418.908		1454.529		1483.043	

Unstandardized estimates (and standard errors) shown. Age, gender and classroom size are grand mean-centered; Self-reported bullying and victimization are classroom-mean centered. SR, self-reported; LL, log-likelihood; Res. variance, residual variance.

The cross-level interaction between classroom size and bullying was significant in the Austrian sample, suggesting that the association between bullying and popularity does differ depending on the number of students in the class. This significant interaction was probed by plotting the effects of bullying on popularity at high and low levels of classroom size (see **Figure 1**). The significance of these effects was determined in a simple slope analysis, using the tools provided by Preacher et al. (2006), and choosing +1SD and −1SD as indicators of low and high levels of bullying and classroom size. The slopes of the effects of bullying on popularity were significant and positive both for smaller and larger classrooms, but the slope was stronger for smaller, $b = 0.039$, SE = 0.011, $p = < 0.001$, than for larger classrooms, $b = 0.013$, SE = 0.006, $p = 0.020$. For students with higher levels of bullying, levels of popularity were lower in larger than in smaller classrooms, $b = -0.007$, SE = 0.003, $p = 0.006$, whereas the popularity levels of students with lower levels of bullying did not significantly vary depending on classroom size, $b = -0.001$, SE = 0.001, $p = 0.364$. This finding is consistent with Hypothesis 3. However, the interaction

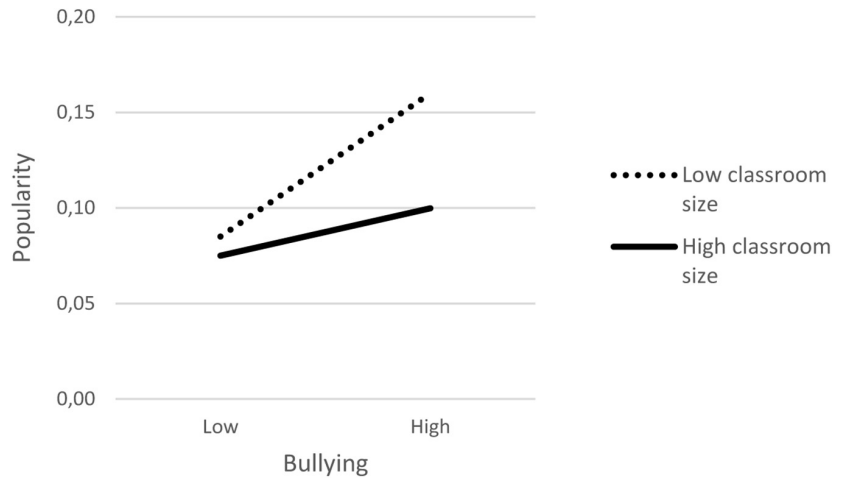

FIGURE 1 | Moderating effects of classroom size on the association between classroom mean-centered self-reported bullying and popularity in the Austrian sample. Cut-offs of 1SD above and below the mean were used to represent the level of popularity of adolescents low and high in self-reported bullying, in small classrooms (∼ 14 students) and in large classrooms (∼ 23 students).

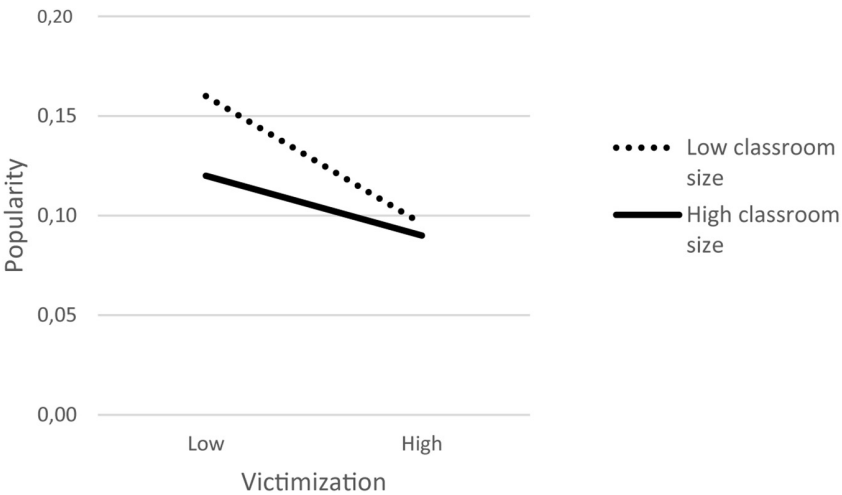

FIGURE 2 | Moderating effects of classroom size on the association between classroom mean-centered self-reported victimization and popularity in the Dutch sample. Cut-offs of 1SD above and below the mean were used to represent the level of popularity of adolescents high and low in victimization, in small classrooms (∼ 21 students) and in large classrooms (∼ 29 students).

between classroom size and bullying was not significant in the Dutch sample.

The association between victimization and popularity was found to differ depending on classroom size in the Dutch sample only. A graphical representation of the cross-level interaction is shown in **Figure 2**. The slopes of the effects of victimization on popularity were significant and negative in both smaller and larger classrooms, but the slope was stronger in smaller classrooms, $b = -0.030$, SE = 0.005, $p = < 0.001$, than in larger classrooms, $b = -0.014$, SE = 0.006, $p = 0.028$. Importantly, classroom size had an effect on the popularity levels of students with lower levels of victimization, $b = -0.005$, SE = 0.002, $p = < 0.001$, who were less popular in smaller compared to larger classrooms; however, the popularity levels of students higher in victimization did not significantly vary as a function of classroom size, $b = 0.001$, SE = 0.002, $p = 0.594$. This finding is consistent with Hypothesis 3 to the extent that the negative link between victimization and popularity was stronger in smaller classrooms. Nevertheless, our results suggest that classroom size made a difference only for the popularity of students low in victimization.

Interactive Effects of Classroom-Size on Having Friends

The models testing for the moderating effects of classroom size on the relations of bullying and victimization with friendship are also shown in **Table 4**. In both samples, there was no significant effect of age or gender on friendships. There was no indication

that classroom size moderated the effects of either bullying or victimization on having friends, in either sample. Therefore, our analyses with friendships did not support either Hypothesis 2 or Hypothesis 3.

DISCUSSION

The main goal of the present study was to investigate the link between the number of students in classrooms – or classroom size – and the prevalence of bullying and victimization. Although it is often assumed that bullying occurs more frequently in larger classes, evidence of a positive relationship between class size and bullying or victimization is scarce in the literature (e.g., Khoury-Kassabri et al., 2004). Instead, these variables were generally found to be either unrelated (e.g., Thornberg et al., 2017) or negatively associated (e.g., Vervoort et al., 2010). The reasons for this negative association have, to our knowledge, never been investigated. In addition to testing whether the links between classroom size and bullying and victimization - both self-reported and peer-reported - would be negative in two different samples (from Austria and the Netherlands), our objective was to account for the higher rates of bullying and victimization often found in smaller classrooms by putting three explanations to the test. Across the two samples, all three hypothesized mechanisms received some support from the data, but none of them emerged as a clear, unequivocal reason for the negative association.

First, it is important to note that across the two samples, no evidence was found that bullying or victimization would occur less in smaller classrooms. In other words, there was no indication that belonging to a small classroom would have a protective effect against bullying. Consistent with our expectations, rates of peer-reported bullying and victimization were lower in larger classrooms. Classroom size was negatively associated with both self-reported and peer-reported bullying and victimization in the Dutch sample, but negatively associated with peer-reported measures only in the Austrian sample. Although the findings differed between the two samples, classroom size explained a higher proportion of variance in peer-reported than in self-reported bullying and victimization in each sample. These findings suggest partial support for our first hypothesis, which was that the negative effects of classroom size would only be due to a measurement effect, and therefore would be observed for peer-reported bullying and victimization, but not for self-reports. Our findings suggest that, consistent with our review of the literature, the type of measurement used may play a role in accounting for this negative link. This is likely related to a higher probability for students to receive high peer-reported scores in smaller networks. In that regard, it is noteworthy that classroom size was negatively associated with the other peer-reported measures used in the present study, namely perceived popularity and friendships. Nonetheless, the negative links found between classroom size and self-reports of bullying and victimization in the Dutch sample indicate that factors other than measurement must also be at play.

Although no evidence was found that the friendships of either victimized children or bullying perpetrators would be dependent on classroom size, our results did show a moderating effect of classroom size on the association between popularity and bullying in the Austrian sample, and between popularity and victimization in the Dutch sample. Consistent with Hypothesis 2, bullying perpetrators appear to be perceived as more popular in smaller compared to larger classrooms. In their social relationships, young bullying perpetrators tend to aim for control and influence, as suggested by positive associations between bullying and agentic goals (Caravita and Cillessen, 2012). Also, the most popular students in a classroom tend to be the most visible and dominant ones. Smaller networks should facilitate bullying perpetrators' attempts at intimidating others and damaging their reputation, as well as maintaining their own position at the top of the social hierarchy. Larger classrooms should be more likely to be divided into multiple peer groups, making it easier for at least some students in the network to escape the influence of the ringleader bullies and their followers, thus decreasing their power relative to smaller networks. Being better rewarded with status in smaller classes should encourage bullying perpetrators to pursue their conduct, thus partly explaining why bullying may be more prevalent in smaller social environments. However, this finding should be interpreted with caution, as it was not found in the Dutch sample. Future research should examine whether the effects of classroom size on the popularity-bullying link depend on the type of aggression displayed by the bullying students. Some of them might use exclusively relational forms of aggression, such as rumor spreading and exclusion, that rely on the manipulation of the whole peer network more than physical aggression, which can occur in one-to-one bully-victim interactions.

Partial support was found for the proposition that the negative association between victimization and popularity would be stronger in smaller classrooms (Hypothesis 3). In smaller classes, differences in popularity between victimized children and non-victimized were larger than in larger classrooms. This finding is consistent with the idea that it may be more difficult for victims of bullying to have social power in smaller compared to larger classrooms, which in turn should promote higher victimization in smaller classrooms. Nevertheless, classroom size seemed to make a difference especially for the popularity of the students low on victimization. Therefore, this effect, which was observed in only one of the two samples, should also be interpreted cautiously.

Unfortunately, the lack of clear support across the two samples for any of the three hypotheses tested in the present study indicates that none of them stands out as a convincing explanation for the higher prevalence of bullying and victimization in smaller classrooms. This calls for further investigation of the factors accounting for this association. A factor that is likely to play a role is the tendency for certain schools to place children with disruptive behaviors in smaller classrooms to facilitate classroom management for teachers and make it easier for them to give attention to these children. However, no official record of these practices were available to the researchers, and for this reason they could not be controlled for in our analyses. There is also no evidence that these practices do occur or to what extent they occur. Moreover, children who display behaviors that are disruptive to teachers and school staff may not necessarily be the same children who are involved in bullying incidents with peers, either as perpetrator or target.

However, it would be an important possibility to explore in future investigations.

One should also consider the possibility that some schools may have policies which require to place additional adult supervisors in large classrooms. In this case, the adult-child ratio might actually be lower in larger classrooms than in smaller classrooms, which could partly explain the negative relationship between class size and bullying. Unfortunately, no data was collected on the implementation of such practices.

Limitations

This study focused on the effects of a classroom characteristic on the prevalence on individual behavior. However, the proportions of variance in bullying and victimization explained by differences between classrooms ranged from 4 to 15% across the two samples. These low numbers indicate that most of the variation in bullying and victimization is explained by individual characteristics. Therefore, even when the effect of classroom size on bullying is significant, this finding should not be interpreted as evidence that the number of students in the classroom plays a major role in bullying behavior. For self-reported measures in particular, classroom size explained less than 17% of the variation between classrooms in either bullying or victimization. Moreover, the significant quadratic effects found with the Dutch data indicate that there is a limit to the beneficial effects of larger classrooms for bullying problems, as these effects seem to disappear once classrooms reach a size of 29 students.

Further, we chose to examine the relationship between size of the peer network and bullying using the classroom as the unit of analysis. In the literature, however, school size was also investigated in relation to the prevalence of bullying and victimization, with mixed findings (see Luyten et al., 2014). The classroom seemed to be the most relevant unit for our analyses, as all children within a classroom generally know each other and are more likely to interact with each other than children of the same school. Moreover, peer nominations of social behavior and status are easier to collect within classrooms. Nevertheless, studies of adolescent cliques also found negative links between clique size and relational aggression (Pattiselanno et al., 2015). Therefore, future research may consider examining links between peer group size and bullying. Focusing on peer groups might even facilitate the investigation of the mechanisms through which the size of the peer network may promote or hinder bullying behavior.

Our cross-sectional analyses did not give any indication regarding decreases or increases in bullying and victimization across the school year in large versus small classrooms. They also did not allow us to determine whether the moderating effect of class size on the bullying-popularity relationship found in the Austrian sample was due to bullying perpetrators becoming more popular or to popular students increasing their bullying behavior in smaller classrooms. A better understanding of the role of classroom size in bullying behavior will require longitudinal investigations of these behaviors and of indicators of status or social adjustment that are relevant for explaining dynamics of bullying and victimization.

The effects of class size on bullying might be moderated by other factors, which were not considered in the present study. Research shows that teachers may play a role in preventing or maintaining bullying and victimization in their classrooms: Bullying rates are lower in classrooms where teachers report greater commitment to prevent bullying (Espelage et al., 2014), and victimization rates are higher in classrooms where teachers attribute bullying to factors outside of their control and feel less capable of handling bullying among students (Oldenburg et al., 2015). The possible adverse effects of smaller classrooms on bullying issues may therefore be mitigated by the conduct of teachers regarding these problems. It will be important for future studies examining if and why smaller class environments promote bullying, to test whether these effects are moderated by teachers' handling of bullying cases or more generally, by their classroom management style.

Finally, it is possible that the differences in the results observed between the two samples are due to differences in the operationalization of the variables. For example, peer nominations of popularity were limited to five in the Austrian sample and unlimited in the Dutch sample, which means that the measurement error may have been higher and estimates less accurate in the Austrian sample (Gommans and Cillessen, 2015). Also, in the assessment of bullying in the Austrian sample, participants were not instructed to take into account power differential and repetition, which implies that it captured aggression more than bullying specifically. However, since the goal of our study was not to compare two samples or two countries, these differences in assessment do not invalidate our analyses or findings.

CONCLUSION

In the field of education, the topic of class size has received considerable attention, primarily because class size reduction represents a convenient policy instrument (Hanushek, 1999). It is however, a controversial topic, as the extensive research conducted on the link between classroom size and academic achievement or social adjustment has not always yielded consistent findings (see Mishel and Rothstein, 2002). The present study aimed to clarify the relationship between bullying and classroom size by putting to the test explanations for the somewhat counter-intuitive finding of a higher prevalence of bullying problems in smaller classrooms. Our results provide further evidence that smaller classrooms have no protective effect against peer abuse. However, the reasons for the negative link between classroom size and bullying or victimization are not fully elucidated yet. Our study suggests that it is unlikely that a single mechanism is at play. Our findings should encourage researchers to consider the type of measurement used, as well as the possibility that bullying perpetrators might enjoy greater social power in smaller classes, when interpreting this negative association. Replications studies using longitudinal data and examining potential mediators and moderators of this association are needed.

DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

CG conceptualized the study, conducted the statistical analyses, and wrote the manuscript. TY assisted with the statistical analyses and provided feedback on the methodology. MV, DS, and CS provided feedback on the manuscript.

FUNDING

This research was supported by the INVEST Research Flagship Center (Academy of Finland Flagship Program, decision number: 320162).

REFERENCES

Boulton, M. J., Trueman, M., Chau, C., Whitehand, C., and Amatya, K. (1999). Concurrent and longitudinal links between friendship and peer victimization: implications for befriending interventions. *J. Adolesc.* 22, 461–466. doi: 10.1006/jado.1999.0240

Boyesen, M., and Bru, E. (1999). Small school classes, small problems? A study of peer harassment, emotional problems and student perception of social support at school in small and large classes. *Sch. Psychol. Int.* 20, 338–351. doi: 10.1177/0143034399204002

Caravita, S. C. S., and Cillessen, A. H. N. (2012). Agentic or communal? Associations between interpersonal goals, popularity, and bullying in middle childhood and early adolescence. *Soc. Dev.* 21, 376–395. doi: 10.1111/j.1467-9507.2011.00632.x

Caravita, S. C. S., Di Blasio, P., and Salmivalli, C. (2009). Unique and interactive effects of empathy and social status on involvement in bullying. *Soc. Dev.* 18, 140–163. doi: 10.1111/j.1467-9507.2008.00465.x

Coehlo, V. A., and Sousa, V. (2018). Class-level risk factors for bullying and victimization in Portuguese middle schools. *Sch. Psychol. Int.* 39, 121–137. doi: 10.1177/0143034317749992

Enders, C. K., and Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: a new look at an old issue. *Psychol. Methods* 12, 121–138. doi: 10.1037/1082-989x.12.2.121

Espelage, D. L., Polanin, J. R., and Low, S. K. (2014). Teacher and staff perceptions of school environment as predictors of student aggression, victimization, and willingness to intervene in bullying situations. *Sch. Psychol. Q.* 29, 287–305. doi: 10.1037/spq0000072

Finn, J. D., Pannozzo, G. M., and Achilles, C. M. (2003). The "Why's" of class size: student behavior in small classes. *Rev. Educ. Res.* 73, 321–368. doi: 10.3102/00346543073003321

Fredriksson, P., Öckert, B., and Oosterbeek, H. (2013). Long-term effects of class size. *Q. J. Econ.* 128, 249–285. doi: 10.1093/qje/qjs048

Garandeau, C. F., and Cillessen, A. H. N. (2006). From indirect aggression to invisible aggression: a conceptual view on bullying and peer group manipulation. *Aggress. Violent Behav.* 11, 612–625. doi: 10.1016/j.avb.2005.08.005

Garandeau, C. F., Lee, I. A., and Salmivalli, C. (2014). Inequality matters: classroom status hierarchy and adolescents' bullying. *J. Youth a Adolesc.* 43, 1123–1133. doi: 10.1007/s10964-013-0040-4

Gommans, R., and Cillessen, A. H. N. (2015). Nominating under constraints: a systematic comparison of unlimited and limited peer nomination methodologies in elementary school. *Int. J. Behav. Dev.* 39, 77–86. doi: 10.1177/0165025414551761

Gradinger, P., Strohmeier, D., Schiller, E. M., Stefanek, E., and Spiel, C. (2012). Cyber-victimization and popularity in early adolescence: stability and predictive associations. *Eur. J. Dev. Psychol.* 9, 228–243. doi: 10.1080/17405629.2011.643171

Hanushek, E. A. (1999). "The evidence on class size," in *Earning and Learning: How Schools Matter*, eds S. E. Mayer and P. E. Peterson (Washington, DC: Brookings Institution), 131–168.

Hodges, E. V. E., Boivin, M., Vitaro, F., and Bukowski, W. M. (1999). The power of friendship: protection against an escalating cycle of peer victimization. *Dev. Psychol.* 35, 94–101. doi: 10.1037/0012-1649.35.1.94

Hoxby, C. M. (2000). The effects of class size on student achievement: new evidence from population variation. *Q. J. Econ.* 115, 1239–1285. doi: 10.1162/003355300555060

Khoury-Kassabri, M., Benbenishty, R., Astor, R. A., and Zeira, A. (2004). The contributions of community, family, and school variables to student victimization. *Am. J. Commu. Psychol.* 34, 187–204. doi: 10.1007/s10464-004-7414-4

Luyten, J. W., Hendriks, M. A., and Scheerens, J. (2014). *School Size Effects Revisited: a Qualitative and Quantitative Review of the Research Evidence in Primary and Secondary Education. (SpringerBriefs in Education)*. Dordrecht: Springer, doi: 10.1007/978-3-319-06814-5

Mishel, L., and Rothstein, R. (2002). *The Class Size Debate*. Washington, DC: Economic Policy Institute.

O' Moore, A. M., Kirkham, C., and Smith, M. (1997). Bullying behaviour in Irish schools: a nationwide study. *Irish J. Psychol.* 18, 141–169. doi: 10.1080/03033910.1997.10558137

Oldenburg, B., Van Duijn, M. A. J., Sentse, M., Huitsing, G., Van der Ploeg, R., Salmivalli, C., et al. (2015). Teacher characteristics and peer victimization in elementary schools: a class-level perspective. *J. Abnorm. Child Psychol.* 43, 33–44. doi: 10.1007/s10802-013-9847-4

Olthof, T., Goossens, F. A., Vermande, M. M., Aleva, E. A., and Van der Meulen, M. (2011). Bullying as strategic behavior: relations with desired and acquired dominance in the peer group. *J. Sch. Psychol.* 49, 339–359. doi: 10.1016/j.jsp.2011.03.003

Olweus, D. (1996). *The Revised Olweus Bully/Victim Questionnaire*. Bergen: Mimeo, Research Centre for Health Promotion, University of Bergen.

Pattiselanno, K., Dijkstra, J. K., Steglich, C. E. G., Vollebergh, W. A. M., and Veenstra, R. (2015). Structure matters: the role of clique hierarchy in the relationship between adolescent social status and aggression and prosociality. *J. Youth Adolesc.* 44, 2257–2274. doi: 10.1007/s10964-015-0310-4

Pouwels, J. L., Lansu, T. A. M., and Cillessen, A. H. N. (2016). Participant roles of bullying in adolescence: status characteristics, social behavior, and assignment criteria. *Aggress. Behav.* 42, 239–253. doi: 10.1002/ab.21614

Preacher, K. J., Curran, P. J., and Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *J. Educ. Behav. Statist.* 31, 437–448. doi: 10.3102/10769986031004437

Saarento, S., Garandeau, C. F., and Salmivalli, C. (2015). Classroom- and school-level contributions to bullying and victimization: a review. *J. Commun. Appl. Soc. Psychol.* 25, 204–218. doi: 10.1002/casp.2207

Saarento, S., Kärnä, A., Hodges, E. V., and Salmivalli, C. (2013). Student-, classroom-, and school-level risk factors for victimization. *J. Sch. Psychol.* 51, 421–434. doi: 10.1016/j.jsp.2013.02.002

Salmivalli, C., Lagerspetz, K., Bjorkqvist, K., Osterman, K., and Kaukiainen, A. (1996). Bullying as a group process: participant roles and their relations to social status within the group. *Aggress. Behav.* 22, 1–15. doi: 10.1002/(sici)1098-2337(1996)22:1<1::aid-ab1>3.0.co;2-t

Salmivalli, C., Voeten, M., and Poskiparta, E. (2011). Bystanders matter: associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *J. Clin. Child Adolesc. Psychol.* 40, 668–676. doi: 10.1080/15374416.2011.597090

Scheithauer, H., Hayer, T., Petermann, F., and Jugert, G. (2006). Physical, verbal, and relational forms of bullying among german students: age trends, gender differences and correlates. *Aggress. Behav.* 32, 261–275. doi: 10.1002/ab.20128

Scholte, R. H., Overbeek, G., ten Brink, G., Rommes, E., de Kemp, R. A., Goossens, L., et al. (2009). The significance of reciprocal and unilateral friendships for peer victimization in adolescence. *J. Youth Adolesc.* 38, 89–100. doi: 10.1007/s10964-008-9287-6

Serdiouk, M., Berry, D., and Gest, S. D. (2016). Teacher-child relationships and friendships and peer victimization across the school year. *J. Appl. Deve. Psychol.* 46, 63–72. doi: 10.1016/j.appdev.2016.08.001

Shin, Y., and Raudenbush, S. W. (2011). The causal effect of class size on academic achievement: multivariate instrumental variable estimators with data missing at random. *J. Educ. Behav. Statist.* 36, 154–185. doi: 10.3102/1076998610388632

Stefanek, E., Strohmeier, D., Van de Schoot, R., and Spiel, C. (2011). Bullying and victimization in ethnically diverse schools: risk and protective factors on the individual and class level. *Int. J. Deve. Sci.* 5, 73–84.

Thornberg, R., Wänström, L., and Pozzoli, T. (2017). Peer victimisation and its relation to class relational climate and class moral disengagement among school children. *Educ. Psychol.* 37, 524–536. doi: 10.1080/01443410.2016.1150423

Tolsma, J., van Deurzen, I., Stark, T. H., and Veenstra, R. (2013). Who is bullying whom in ethnically diverse primary schools? Exploring links between bullying, ethnicity, and ethnic diversity in dutch primary schools. *Soc. Netw.* 35, 51–61. doi: 10.1016/j.socnet.2012.12.002

Veenstra, R., Lindenberg, S., Huitsing, G., Sainio, M., and Salmivalli, C. (2014). The role of teachers in bullying: the relation between antibullying attitudes, efficacy, and efforts to reduce bullying. *J. Educ. Psychol.* 106, 1135–1143. doi: 10.1037/a0036110

Veenstra, R., Lindenberg, S., Munniksma, A., and Dijkstra, J. (2010). The complex relation between bullying, victimization, acceptance, and rejection: giving special attention to status, affection, and sex differences. *Child Dev.* 81, 480–486. doi: 10.1111/j.1467-8624.2009.01411.x

Verkuyten, M., and Thijs, J. (2002). Racist victimization among children in The Netherlands: the effect of ethnic group and school. *Ethn. Racial Stud.* 25, 310–331. doi: 10.1080/01419870120109502

Vervoort, M. H. M., Scholte, R. H. J., and Overbeek, G. J. (2010). Bullying and victimization among adolescents: the role of ethnicity and ethnic composition of school class. *J. Youth Adolesc.* 39, 1–11. doi: 10.1007/s10964-008-9355-y

Whitney, I., and Smith, P. K. (1993). A survey of the nature and extent of bullying in junior /middle and secondary schools. *Educ. Res.* 35, 3–25. doi: 10.1080/0013188930350101

Wolke, D., Woods, S., Stanford, K., and Schulz, H. (2001). Bullying and victimization of primary school children in england and Germany: prevalence and school factors. *Br. J. Psychol.* 92, 673–696. doi: 10.1348/000712601162419

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Advantages of publishing in Frontiers

OPEN ACCESS
Articles are free to read for greatest visibility and readership

FAST PUBLICATION
Around 90 days from submission to decision

HIGH QUALITY PEER-REVIEW
Rigorous, collaborative, and constructive peer-review

TRANSPARENT PEER-REVIEW
Editors and reviewers acknowledged by name on published articles

Frontiers
Avenue du Tribunal-Fédéral 34
1005 Lausanne | Switzerland

Visit us: www.frontiersin.org
Contact us: info@frontiersin.org | +41 21 510 17 00

REPRODUCIBILITY OF RESEARCH
Support open data and methods to enhance research reproducibility

DIGITAL PUBLISHING
Articles designed for optimal readership across devices

FOLLOW US
@frontiersin

IMPACT METRICS
Advanced article metrics track visibility across digital media

EXTENSIVE PROMOTION
Marketing and promotion of impactful research

LOOP RESEARCH NETWORK
Our network increases your article's readership