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Meet the editor

Hülya Çakmur graduated from the medical school at Atatürk University, Turkey. She completed her residency training in family medicine at Trakya University, Turkey. She obtained a Ph.D. in Public Health from Dokuz Eylül University, Turkey. She has 26 years of practice experience as a specialist in family medicine, including 14 years of experience in public health as a Ph.D.-prepared professional. She also studied sleep medicine at the University of Pittsburgh Medical Center, USA, and narrative medicine at St. Thomas University, Canada. She studied geriatrics voluntarily and published several studies in the field. She is an active member of the Turkish Medical Association and the European Academy of Teachers in General Practice/Family Medicine. She has 12 years of experience as a professor at the University of Kafkas, Turkey, where she is the director of the Department of Family Medicine. She has published more than thirty papers in reputed journals.

Contents

Preface

Health services are increasingly becoming services that can only be used by those who can afford them. In the social state approach, education, health, and housing services are provided to everyone equally. However, due to rapid population growth and limited resources, it is becoming increasingly difficult for states to provide these services. For this reason, states want to transfer these services to the private sector. However, the private sector does not want to undertake work that will not bring profit. In this case, the people who suffer the most are those who need the services the most. It is known that maintaining health is always easier and cheaper than treating diseases. Despite this, developed and developing countries do not invest enough in basic health services. Because of this, it is becoming increasingly difficult for disadvantaged people to access health services, while those with better economic conditions can access better health services. Paradoxically, neither the state nor the private sector wants to spend money on people with risky behaviors and unhealthy lifestyles. Primary health care is the most fundamental part of the health system of all countries and is naturally an integral part of economic and social development. Its effectiveness depends on the country's overall development strategy and economic situation. The strength and functionality of other levels of health services depend on the proper functioning of primary health care. Therefore, health services should be structured taking this fact into consideration. In the chapters in this book, primary health care practices and theories are carefully prepared by competent authors and presented based on science. We hope that our book will be read with interest by all readers around the world.

With warm regards,

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Section 1

Primary Care Medicine – Theory

Chapter 1

Introductory Chapter: Why Primary Health Care Is Essential?

Hülya Çakmur

1. Introduction

1.1 Why primary health care is essential?

To benefit from health services is one of the fundamental human rights. Primary health care (PHC) is people's first point of contact with the national health system. In a society, primary health care is the most cost-effective and efficient approach to improving people's physical and mental health as well as their social well-being, regardless of age, gender, race, economic status, socio-cultural difference [1]. The primary duty of the primary health care (PHC) is to prevent health-related problems and also provide outpatient treatment and rehabilitation services. That is, PHC provides health-promoting, preventive, therapeutic and rehabilitative services by prioritizing key health problems in the community. Independently from the economic situation of the countries, the PHC is must be equal, free, accessible, continuous, and hospital-integrated health services for everyone [2, 3]. The aim of PHC is to protect and promote health. What needs to be done for this?

- Preventing and eliminating factors that negatively affect health;
- Diagnosis and treatment procedures required to regain health;
- When permanent negativities occur, it includes the reassuring and support procedures necessary to make them compatible with life [1–3].

2. What is expected from the PHC?

- Health education,
- Nutrition education,
- Provision of clean water and sanitation,
- Maternal and Child Health—Family Planning Services,
- Immunization,

- Control of endemic diseases,
- Appropriate treatment of common diseases,
- Providing essential medicines.

The main purpose of the health care is to protect and promote the health. For this purpose, it is necessary for all countries to have basic health services (BHS) that can equally provide preventive health services for everyone. BHS are essential health services delivered to a society in ways that are acceptable to the general public and with their full participation. Basic health services provide PHC and offer preventive, promotive and curative care. According to the principles of BHS, for the most appropriate provision of health care services:

- Community should participate in health services;
- Health services should be provided with a team approach;
- Units must be established for initial application;
- A gradual dispatch system should be operated;
- Preventive, therapeutic, rehabilitative and health-promoting services should be considered as a whole;
- Health care services must be continuous [4, 5].

3. The historical process of basic health services and primary health care

In Turkey, these services were carried out by hospitals (vertical organization) before 1961. With the Law (No. 224) adopted in 1961, health services were socialized with the horizontal organization model and health centers were established even in hard-to-reach places [6]. The slogan of Law No. 224 is "Broad-Based Health Service in a Small Area". According to this law, Health is an innate right, everyone has the right to benefit from health services equally and free of charge; people are obliged to protect their own health; there must be a referral chain between levels in the provision of health services; and health is a world and humanity problem [6, 7]. In the 1970s, the World Health Organization (WHO) revealed that the level of health in the world is far below expectations that there are great differences between developing and developed countries and that there are even inequalities between some countries' own regions [8, 9]. At that time, both developed and developing societies were dissatisfied with the health services in their countries. In many countries, developments in health services do not coincide with the development of society in terms of both quantity and quality. In order to solve these problems, WHO set the goal of "Health for All by 2000″ in 1977. The basis of the goal was to ensure that by the year 2000, everyone could achieve a level of health that would enable them to lead a socially and economically productive life. A year later, in 1978, in Kazakhstan, Primary Health Care Conference was held with the participation of almost all countries and relevant international organizations [8, 9]. This conference was a meeting where policies

were determined to develop health services and improve the level of health in the world and was held in 2000. The principles to be followed to achieve the "Health for All" target were determined and announced in a statement at the end of the meeting (known as the Declaration on Primary Health Care or the Declaration of Alma-Ata). Health services in our age were shaped in this meeting. After 17 years of the law 224, the Declaration of Alma-Ata (September 6–12, 1978) convened by WHO and UNICEF focused on primary health care and targeted an acceptable level of health for everyone in the world by the year 2000 [8, 9]. Alma-Ata Declaration advocated the same principle of the law 224 of Turkey after almost a quarter century (Social equality – Health is an inherent right, Self-responsibility – Every individual should appreciate and be responsible for their own health, Health services dimension – Coordination across sectors is required, International solidarity – Health is a world and humanity problem) [10]. The Alma-Ata Declaration was the first international declaration to emphasize the importance of primary health care. Since then, PHC services have been accepted by the member countries of WHO. We see that the declaration, which was announced 45 years ago in 2000 with the slogan of equal health for everyone, unfortunately did not achieve its goal. In today's medicine, where specialization disciplines are almost separated at the molecular level, physicians are not interested in primary health care. Despite all these negative situations, basic health services remain important and up-to-date. All over the world, investments in primary health care have been shown to improve health outcomes. BHS investments not only directly improve health outcomes, but also contribute to increased social welfare. This is why primary health care is necessary.

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Chapter 2

Bottom Upside Down: Professionals in Inter-Organizational Partnerships in Primary Care

Sanneke Schepman and Ronald Batenburg

Abstract

In primary health care, with a wide range of different disciplines, added value is seen in working together with other disciplines, especially in the management of chronic conditions. Therefore, a trend is observed toward collaboration between small mono-disciplinary practices, so-called inter-organizational partnerships. This chapter focuses on the role of primary care professionals in 69 inter-organizational partnerships in the Netherlands and the relationship with quality of care and project success. While collaboration in primary care is often initiated by managers and policymakers, our study shows that the advantages and disadvantages as perceived by the executing professionals are important. Their perceptions, in relation to the type of project, are important for the success of the inter-organizational partnerships and the improvement in the quality of care delivered.

Keywords: inter-organizational partnerships, healthcare professionals, quality of care, primary health care, project success

1. Introduction

For years, in many high-income countries, primary care was provided in small mono-disciplinary practices [1, 2]. Nowadays, in primary care, with a wide range of different disciplines, added value is seen in working together with other disciplines, especially in the management of chronic conditions that require help from different professionals [3–5]. Therefore, a trend has been observed toward increasing the scale of primary care organizations. Key examples are the establishment of larger mono-disciplinary group practices, multidisciplinary health centers, and care groups for disease management [6, 7]. A further and parallel development that has occurred next to the growth of these larger primary care organizations is the collaboration between small mono-disciplinary practices, the so-called inter-organizational partnerships. Since the 1990s, the development of inter-organizational partnerships is seen in primary care [8].

Inter-organizational partnerships are increasingly created to tackle complex problems [9, 10]. They are seen as a way to share resources, and perhaps more importantly to facilitate knowledge transfer [11, 12]. Also, in health care they are used to overcome the silos that emerge from highly specialized professions and organizations [13].

In the literature, three main drivers for the development of inter-organizational partnerships in primary care are seen [8, 14]. The first driver is the increasing demand on primary care, because of demographic trends such as living longer in combination with living on your own, and the increase of highly complex patients who have many different needs, e.g., because of a combination of mental and physical problems [13, 15]. Second, there is a shift in treatments from hospital care and nursing home care to primary care, promoted by governments as a response to problems with access, quality, and continuity of services [8, 16]. And third, collaboration is increasingly seen as efficient to control the growth of governmental budgets for health care in many countries [14]. Therefore, inter-organizational partnerships in primary care have been promoted and often subsidized by governments as a means to improve health care.

Despite the expected positive results, studies show that collaboration remains low and provide ambiguous results [17, 18]. In literature reviews, only few inter-organizational partnerships in care generate positive results [19, 20].

Looking at the expected results, such as higher quality of care for complex patients, effects seem to specifically depend on collaboration at the professional level. That is, professionals are the key players in delivering care as they actually see patients [21]. However, this role of the professional in inter-organizational partnerships is often forgotten or not well understood [5, 19, 22].

When it comes to inter-organizational partnerships, small qualitative case studies are most commonly published [19]. Larger and quantitative research on inter-organizational partnerships and the role of professionals is lacking [23], especially when it comes to the role of the professional over time and their influence on the outcomes of the partnership [19]. Therefore, broader research studying professionals in inter-organizational partnerships, and their influence on quality of care, is needed and will contribute to the literature.

In investigating the role of professionals, literature refers to different enablers:

Personal commitment to the collaboration is crucial. If professionals are more involved in the collaboration, outcomes for patients are better [13, 22]. Their involvement in the collaboration is therefore important.

A sense of urgency to collaborate among professionals reflects that they are more willing to invest time and effort and thus the project is more likely to succeed [24].

Professionals are motivated to participate and add value to a project if they see advantages in the project [25]. Vice versa, if professionals mainly see disadvantages in a project, they will be demotivated to contribute. This especially applies in primary care practices where work pressures are high; when professionals are not convinced of benefits for patients on the quality of care, a collaboration will not become a success [22, 26].

In short, the ambiguous and limited results of partnership projects in primary care can be due to a number of factors as mentioned before, i.e.: professionals not being involved, lack of sense of urgency, or not seeing advantages/only seeing disadvantages [19, 21, 22, 26]. Interesting in this respect is the change in the quality of care when partnerships are created, and the way this motivates or demotivates the professional in the partnership over time.

Literature on inter-organizational partnerships in primary care points out at management or leads and their role in creating the necessary conditions for the collaboration between professionals [27]. Little research is done on both the level of the project lead and professionals. Investigating both, therefore, contributes to the literature and a theoretical understanding on inter-organizational partnerships in primary care.

In this chapter, we present the results of a multi-project, multi-actor, and multi-level research, to investigate the role of the professional as key to the success of inter-organizational collaboration in primary care. The main aim of our research is to disentangle to what extent the experiences and perceptions of professionals determine the outcomes of collaboration projects. This is done by researching how professionals perceived and experienced the project, and if they perceived as to how the project has actually improved the quality of care.

The first questions we address are:

1. How do the sense of urgency, involvement, and (dis-)advantages—as perceived by professionals in the inter-organizational collaboration—relate to the change in the quality of care they perceived between the beginning and the end of the project? And is this relationship influenced by taking into account basic characteristics of the professionals and the type of project?

   Next, we investigate if the professionals' perceptions are also related to the final success of the project, but now measured from a project management perspective:

2. To what extent do the sense of urgency, involvement, and (dis-) advantages—as perceived by professionals in the inter-organizational collaboration—relate to the final success of the collaboration as perceived by the project leaders? And is this relationship influenced by taking into account basic characteristics of the professionals and the type of project?

   To, finally, elaborate on the third question:

3. To what extent is the final success of the project as perceived by the project leaders related to factors at the professional level on the one hand, and project factors on the other?

2. Methods

To study collaboration in depth, longitudinal data were collected by interviews with project leaders and survey among professionals in 69 inter-organizational partnership projects in Dutch primary care (see **Box 1**). These multi-level and multi-actor data provided the opportunity to analyze multiple projects, thus enabling us to study the determinants of project success from different perspectives and over time.

> An opportunity to investigate the role of healthcare professionals within a primary care collaboration was created by the Primary Focus program of the Netherlands Organization for Health Research and Development (ZonMw). The Primary Focus program (2010–2014) funded 69 projects in primary health care. The purpose of the program was: to strengthen the organization of collaboration in primary care in the Netherlands. The projects in the program varied in type, size, subject, and expected outcomes. They were accompanied by research to gain insights into the critical success factors that hamper or facilitate collaboration. The data of this research are used in this chapter.

Box 1. *The primary focus program and its projects.*

Two data types were combined in the analysis. At the project level (N = 69), data were collected by interviews with multiple project leaders and project employees per project—at the beginning of the project, roughly halfway, and at the end of the

funding of the project. This resulted in 621 interviews. The interview results were used to classify structure and type of the project at the beginning and measure the perceived success at the end of the project.

At the professional level, per project, survey data were collected from among the professionals who were involved and actually delivered care to the patients. The surveys were based on earlier research and validated questions [28, 29]. Questionnaires were sent to the professionals at the beginning and end of the project (T1 and T2). The questionnaire contained 20 questions and was kept short to encourage professionals to complete the questionnaire and taking the least possible time. Not for all 69 projects was the questionnaire for professionals conducted. Four projects that were prematurely terminated were excluded, as the T2 survey could not be sent out.

2.1 Measurements

Figure 1 shows an overview of the variables and levels included in the analyses to address the three research questions, as presented in the previous section.

The change in the quality of care—due to the inter-organizational collaboration project and as perceived by the professionals—–is the dependent variable in the first model. The perceptions of professionals at T1 and T2 are the independent variables, while the professionals' gender and contract, as well as two characteristics of the project, are included in model 1 as control variables.

In the second model, the project success according to project leaders at T2 is the dependent variable. Here (as in model 1), the perceptions of professionals at T1 and T2 are the independent variables, while their gender and contract, as well the type of project are included as control variables. In addition, the dependent variable of model 1 (change in the quality of care as perceived by the professionals) is included as an explanatory (independent) variable.

The two levels (i.e., 473 individual professionals (1) and 69 projects (2)) are also demonstrated in **Figure 1**. Because all 473 professionals were participating in the 69 projects, the third research question can be answered, analyzing the influence of predictors at the professional and project levels as dependent variables. More information about all variables can be found in Appendix A.

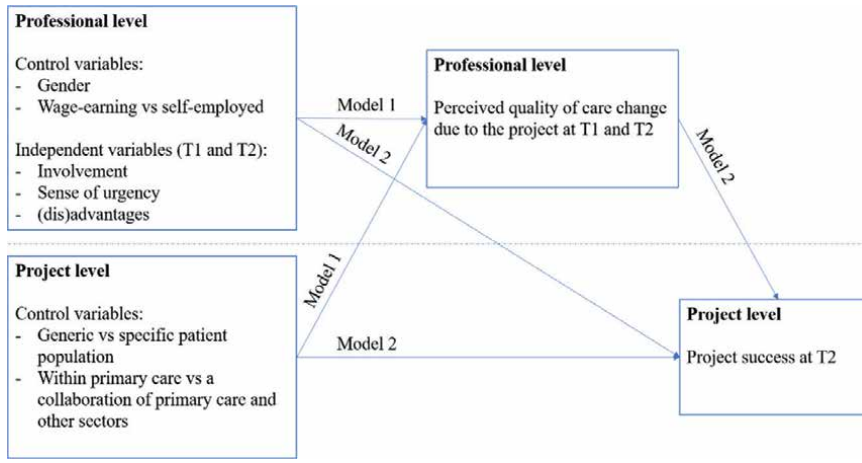

Figure 1.
The variables and levels used in the analyses.

2.2 The dependent variables

The two dependent variables in the analyses are measured on two different levels, namely "the change in quality of care due to the project according to professionals" (model 1) and "the success of the project according to project leaders" (model 2).

2.2.1 Change in the quality of care

The change in the quality of care was measured by asking professionals in the surveys: 'Do you think the quality of care was increased, decreased, or remained the same due to the collaboration project?'. This (perceived) change was measured just after the start (T1) and just before the end (T2) of the funding of the project. Because of a skewed, more positive distribution of the answers, the variables were changed into a dichotomy scale: professionals answering 'decreased or stable' and professionals answering 'increased'.

2.2.2 The success of the project

The success of the project according to project leaders was rated by interviewers who were commissioned to perform an independent monitoring and evaluation of the Primary Focus program. At T2, the interviewers addressed questions with the project leaders and multiple project members were: "Are the intended results of the project achieved?" and "Which parts of the project are successfully achieved?". The interviewers then assessed the final project success by scoring on a 5-point Likert scale, from: 'very successful, successful, neutral, unsuccessful, not successful at all'. Because none of the projects were rated as unsuccessful or not successful at all, the answers were converted into two categories 'neutral or unsuccessful' and 'successful'.

2.3 The independent variables

The sense of urgency, involvement, (dis)advantages, and quality of care change due to the inter-organizational collaboration project, as perceived by the professionals, could obviously only be measured if professionals were at least aware of their participation in a collaboration project. This implied that a proportion of the professionals were not directed to these questions in the survey, either at T1 or at T2.

2.3.1 The sense of urgency

The sense of urgency of inter-organizational collaboration project was measured at T1 and T2 among those professionals who were aware of the collaboration. It was measured by the question: "Are you convinced of the importance of the project?" It was measured by a 5-point Likert scale, ranging from 'totally unconvinced' to 'totally convinced'.

2.3.2 The involvement

The involvement of the professionals in the inter-organizational collaboration project was measured at T1 and T2 by the question: "In what way are you involved in project?" The three possible answers were: 'only involved in delivering care', 'also in the organization', and 'also as an initiator of the project'.

2.3.3 The (dis)advantages

The respondents answered 27 predefined advantages and disadvantages of the inter-organizational collaboration project at T1 and T2 (see Appendix B). Each item was presented on a 5-point Likert scale: 'totally disagree' to 'totally agree'. To aggregate these measurements of the perceived advantages and disadvantages, they were subjected to a principal component analysis. The principal component analysis revealed the presence of two components. All the 14 items formulated as experienced advantages fitted into one scale, and the 13 items that experienced disadvantages could also be joined together. The analysis can be found in Appendix B. The two components are thus included as two different (independent) variables in the analyses.

2.4 The control variables

2.4.1 The characteristics of professionals

The professionals' gender and type of contract were included in models 1 and 2 to control for characteristics of the professional. The two categories for type of contract were 'self-employed' or 'salaried'. Both gender and type of contract were derived from background questions that were included in the survey among professionals at T1.

2.4.2 The type of project

Two variables that classify the type of project were used as control variables in the analyses, i.e., the type of patient population involved and the type of collaboration. The type of patient population involved was coded by two categories, whether the population was 'disease/diagnose specific' or 'generic'. The second variable 'type of collaboration' was coded into two categories: 'collaboration within primary care' and 'collaboration between primary care and other sectors e.g. welfare, or mental health'. These variables were derived from the interviews with the project leaders at T1.

2.5 Analyses

Data were analyzed using Stata 13.1 and MLwiN version 2.30. The differences between T1 and T2 were valued by a Student's t-test. For the testing of the outcomes, a multilevel model was used to account for the hierarchical structure of the data. The data were structured at two levels, because the units of analysis were at the level of the professionals (n = 474 at T1 and n = 395 at T2), nested within the level of the project (n = 69). A binominal logistic model (second-order professional quality of care (PQL) for quality of care and first-order Monitoring Query Language (MQL) for project success) was used to account for dummy-dependent variables. A significance level of $p < 0.05$ was used for all statistical tests.

3. Results

3.1 Descriptive results

The number of responding professionals per project varied between 3 and 148. The mean response was 64% at T1 and 46% at T2, with a range from 16 to 100%

among the different projects. For 65 projects, a success score was constructed, in terms of the changes in the quality of care according to professionals (for model 1), and project success as perceived by the project leaders and classified by the project interviewers (for model 2).

3.1.1 The characteristics of professionals and projects

Most of the responding professionals were female (73%). Almost 40% of the respondents was self-employed. Eighty-one percent of the projects focused on a specific patient population. The goal of these projects was to improve care, e.g., for elderly, patients with chronic obstructive pulmonary disease (COPD), or pregnant women. Half of the projects were concerned with inter-organizational collaboration within primary care, whereas the other half of the projects were aimed to initiate or improve collaboration between primary care organizations and organizations in at least one other sector.

3.1.2 The role of professionals

At the beginning of the project, 21% of the professionals was unaware of the collaboration. At the end of the project, more than 15% of the respondents was still unaware that they were involved in a project. There were no projects where none of the respondents was aware; however, the percentage of professionals who were aware of the project at T2 ranged from 19 to 100%. The professionals who were unaware of the projects were excluded from further analysis. Descriptives of the variables can be found in Appendix, **Table 4**.

As shown in **Table 1**, the mean scores on involvement and urgency are both lower at T2 than T1, but the difference is not significant. The mean score on advantages

		T1	**T2**
Involvement	Mean	2.00	1.98
	sd	0.83	0.82
	N	514	414
Urgency	Mean	4.25	4.16
	sd	0.72	0.76
	N	514	457
Advantages	Mean	3.51	3.64
	sd	0.68	0.78
	N	490	469
Disadvantages	Mean	2.59	2.62
	sd	0.76	0.69
	N	467	411
Quality of care	Mean	0.63	0.63
	sd	0.48	0.48
	N	474	395

Table 1.
Differences between T1 and T2, a t-test of dependent and the perceived change of quality of care due to the project.

increased significantly over time ($p < .05$). The score on disadvantages also increased, but not significantly. A correlation matrix is presented in Appendix C, **Tables 8** and **9** and indicates that no factors are intercorrelated to cause multicollinearity problems in the multivariate models 1 and 2 (see the next section).

3.2 Explanatory results

3.2.1 The factors that determine the outcomes of the project

First, the outcome of the analysis with estimated quality of care change (due to the collaboration project and according to professionals) as the dependent variable (i.e., earlier presented as model 1) is presented in **Table 2**. A first result is that, as measured by surveying the professionals, the quality of care remained the same over time (T1–T2). **Table 2** also shows the relationship of this dependent variable with the sense of urgency, involvement, advantages, and disadvantages as perceived by the professionals. A higher perceived quality of care at T1 ($B = 0.78$, $p < .05$) and T2 ($B = 1.112$, $p < .05$) is related to professionals who felt a high urgency of the project. Also, advantages experienced by professionals are positively related to a higher score on perceived quality of care at T1 ($B = 1.402$, $p < .05$) and T2 ($B = 1.415$, $p < .05$). Disadvantages experienced by professionals are only related to a lower perceived quality of care at T1 ($B = -0.581$, $p < .05$).

The Intra Class Correlation (ICC) is 0.0685 at T1 and 0.1752 at T2, meaning that in both models most of the variance exists at the professional level. However, at T2 the influence of the project variables is substantial (ICC = 17.5%). This means that in explaining these outcomes, the differences between projects (i.e., project characteristics) should be taken into account.

In **Table 3**, the results of the multilevel analysis of the project leaders' perceived success of the project as the dependent variable (earlier presented as model 2) are shown. The analysis does not show significant effects of any of the explanatory variables. Most of the variance is explained at the project level (ICC = 0.576 in the first model, ICC = 0.592 in the second model), meaning that the differences between the projects determine the largest part of this dependent variable, being the 'project success' as perceived by the project leaders. While in the first model projects aiming at a generic patient population show a higher score on project success, this result is not significant in this second model.

4. Discussion

A key question in the many studies on collaborative processes between organizations in health care remains how collaboration actually occurs and why it works out or not [19, 20]. Moreover and especially in health care, it is necessary to pay attention to the role of the professional in this collaboration [17–19]. Just like other studies on inter-organizational partnerships [19], this chapter shows that the role of professionals is critical to take into account. This concerns the professionals' sense of urgency and the extent to which they perceive it to be beneficial to cooperate in collaboration projects. Next to this, the role of the project leader is of importance. This is addressed by many leadership theories [30] and where mainly formal leadership was researched, recently there was a shift toward more research into informal leadership. Informal leadership requires influence at different levels, which is important for

	Perceived quality of care by professionals at T1		Perceived quality of care by professionals at T2	
	B	**(S.E.)**	**B**	**(S.E.)**
Fixed part				
Cons	−6.114	(1.264)	−9.329	(1.626)
Project level				
Generic patient population[3]	0.341	(0.348)	−0.506	(0.451)
Within primary care[4]	0.066	(0.273)	−0.529	(0.331)
Professional level				
Female[1]	−0.473	(0.326)	−0.289	(0.337)
Wage earning[2]	−0.251	(0.283)	0.389	(0.313)
Involvement T1	0.242	(0.165)		
Urgency T1	0.780*	(0.224)		
Advantages T1	1.402*	(0.230)		
Disadvantages T1	−0.581*	(0.196)		
Involvement T2			0.119	(0.178)
Urgency T2			1.112*	(0.225)
Advantages T2			1.415*	(0.274)
Disadvantages T2			0.247	(0.232)
Random part				
Project level				
Cons/cons	0.242	(0.192)	0.699*	(0.327)
ICC[5]	0.069		0.175	
N project	52		45	
N professionals	427		364	

[1]*Ref cat: male.*
[2]*Ref cat: self-employed.*
[3]*Ref cat: specific population, e.g., diabetes type 2.*
[4]*Ref cat: a collaboration of primary care and other sectors.*
[5]*ICC = Intra Class Correlation.*
**Significant at p < .05.*

Table 2.
Multilevel logistic regression on the quality of care realized by the project according to professionals (second-order professional quality of care (PQL)).

inter-organizational collaborations. Particularly in (primary) health care, informal leadership is important to strengthen inter-organizational partnerships by setting the right preconditions, e.g., at the level of steering committees [30, 31]. While collaborations between primary healthcare organizations with multiple professions ask for leadership [30], still little attention is paid to both the role of professionals and leaders.

Looking at the results of our study, it appears that for the success of inter-organizational partnerships, the role of both project leaders and professionals is intertwined. Professionals have an independent effect which depends not only on the

	Professionals (T1), project success (T2)		Professionals (T2), project success (T2)	
	B	**(S.E.)**	**B**	**(S.E.)**
Fixed part				
cons	0.833	(1.286)	0.817	(1.578)
Project level				
Generic patient population[3]	2.131*	(0.851)	1.452	(0.913)
Within primary care[4]	0.004	(0.312)	−0.064	(0.326)
Professional level				
Female[1]	0.071	(0.307)	0.021	(0.330)
Wage earning[2]	0.087	(0.282)	0.048	(0.318)
Involvement T1	−0.030	(0.171)		
Urgency T1	−0.053	(0.222)		
Advantages T1	−0.017	(0.216)		
Disadvantages T1	−0.087	(0.186)		
Quality according to professionals T1	0.095	(0.303)		
Involvement T2			−0.006	(0.182)
Urgency T2			0.004	(0.226)
Advantages T2			0.024	(0.247)
Disadvantages T2			−0.074	(0.237)
Quality according to professionals T2			0.009	(0.329)
Random part				
Level: Project				
cons/cons	4.463*	(1.099)	4.769*	(1.275)
ICC[5]	0.576		0.592	
N project	48		42	
N professionals	400		320	

[1]*Ref. cat: male.*
[2]*Ref. cat: self-employed.*
[3]*Ref. cat: specific population, e.g., diabetes type 2.*
[4]*Ref. cat: a collaboration of primary care and other sectors.*
[5]*ICC = Intra Class Correlation.*
**Significant at p < .05.*

Table 3.
Multilevel logistic regression on the success of the project at T2 based on the interviews with project leaders (first-order monitoring query language (MQL)).

quality of care change of collaboration projects, but also on the type of project. The steering of inter-organizational partnerships might be a case of formal and informal leadership, as boards and professionals need to work together. To overcome boundaries between stakeholders, project steering needs to be done together as in 'shared

leadership'. In this way, our study complies with the study by Schot [19], in which professionals actually have a role for themselves in overcoming typical coordination problems in inter-organizational partnerships. While this seems to be obvious, often how to involve professionals and to actually collaborate at different levels is still a struggle in many inter-organizational partnerships. Given that professionals in the 69 projects of our study were not always aware of the project, it is necessary during projects to have in mind who should be involved where, when, and how. In our study, a high percentage of 16% of the professionals was unaware of participating in a project to improve collaboration, even after some years. Although this is a remarkable result, it could be due to changes in the professionals in those projects. Dow [32], for example, shows that most networks of collaborating professionals change rapidly over time.

In addition to shared leadership, characteristics of projects are also important to success. In our second model, projects oriented on generic patient population showed higher project success. It could be that primary care collaboration specifically contributes to the care for more complex patients with multiple diagnoses. To support this, it goes beyond the topic of this chapter, i.e., further research on patient populations is needed.

Strengths of this research include the longitudinal data and multilevel analysis. A large dataset with multiple projects and data on different levels was used, i.e., management level and the level of professionals delivering care in these projects. It provided the opportunity to do multilevel analysis, and thereby account for clustering in the data. In this way, the difference between projects and between professionals within projects was taken into account, including the differences over time. Moreover, professionals did not only judge their own success, but it was also judged by the interviewers of project leaders.

However, there might be a selection bias if more positive professionals and projects participated in the survey. Whereas the negative professionals and the less successful projects did not send out the questionnaire as the project was already terminated, or professionals were less committed to respond. On the contrary, the decrease in the sense of urgency, involvement, and a stable quality of care over time is an indication that not only positive professionals responded.

In the study, we use the data of the interviews with project leaders to measure the success of the project. This could be biased by biased responses, as project leaders were monitored by the funding organization. Still, the interview was done at the end of the project and the public reports based on these interviews did not show results of identified projects. Therefore, the possible bias might be limited. Another limitation is that the project leader and professional could be the same person, a case of so-called hybrid professionalism [31]. Although less than a third of the professionals also is an initiator, the outcomes are judged differently. Therefore, we conclude that the levels are indeed different levels.

5. Conclusions

Different studies show a key role for professionals in inter-organizational partnerships [19, 21]. However, the role of the professional is not yet well understood [19, 22]. This study adds to the understanding of this role and shows that quality of care as perceived by the professional is higher in collaborations where they feel a sense of urgency for the collaboration, and also see advantages in collaborating.

The professionals' perceived quality of care is, however, not related to the final success from a managerial and project perspective. And neither is the professionals' sense of urgency, involvement, and benefits. This confirms that professionals play a significant role in inter-organizational partnerships, but project success is also dependent on project characteristics. At the project level, the scope of collaboration and type of patient care also determine the quality of care according to professionals as well as the success of the project. To conclude, project level *and* professional level are *both* important for outcomes of inter-organizational collaboration projects in primary care and therefore need to be aligned with each other.

5.1 What this study adds

This study is the first in primary care that looks at the role of professionals in inter-organizational partnerships over time and its impact on outcomes. It provides evidence that a sense of urgency by the professional and their experienced advantages from a collaboration are necessary for positive results on the quality of care. This takes up the debate about bottom-up implementations, and shared leadership as a necessary condition. Often, when managers start a collaboration project, this is perceived 'bottom-up' by governments and policy advisors. However, this might be a 'top-down' implementation in practice from the perspective of professionals. In this chapter, it was shown that inter-organizational collaboration as a strategy to improve primary care should not only be driven by managers in a steering committee, but also by professionals who should be involved at all times.

A. Appendix

See **Table 4**.

	T1		T2	
	N	**%**	**N**	**%**
Sense of urgency				
Totally unconvinced of the importance	1	0.19	0	0
Unconvinced of the importance	6	1.17	10	2.19
Neutral	60	11.67	72	15.75
Convinced of the importance	245	47.67	212	46.39
Totally convinced of the importance	202	39.3	163	35.67
Involvement in the project				
Only delivering care	176	34.24	143	34.54
In the organization of the project	160	31.13	137	33.09
Initiator of the project	178	34.63	134	32.37
Advantages				
Totally disagree with the advantages	4	0.82	2	0.43
Disagree with the advantages	20	4.08	14	2.99
Neutral	211	43.06	203	43.28

	T1		T2	
	N	**%**	**N**	**%**
Agree with the advantages	234	47.76	183	39.02
Totally agree with the advantages	21	4.29	67	14.29
Disadvantages				
Totally disagree with the disadvantages	33	7.07	15	3.65
Disagree with the disadvantages	166	35.55	159	38.69
Neutral	232	49.68	204	49.64
Agree with the disadvantages	31	6.64	33	8.03
Totally agree with the disadvantages	5	1.07	0	0
Perceived quality of care				
Decreased or stable quality of care	174	36.71	145	36.71
Increased with the disadvantages	300	63.29	250	63.29
Success of the project				
Neutral or unsuccessful project			24	27.69
Successful project			41	72.31

Table 4.
Descriptives.

B. The principal component analyses

At both T1 and T2, the 27 advantages and disadvantages were subjected to a principal component analysis. Prior to performing this analysis, the suitability of data for the analysis was assessed:

- Inspection of the correlation matrix at both T1 and T2 revealed many coefficients of .3 and above.

- The Kaiser-Meyer-Oklin value was .91 for the items measured at the beginning of the project and .87 at the end, so they exceeded the recommended value of .6 (19).

- And statistical significance was reached for Bartlett's Test of Sphericity at both T1 and T2 (20).

The data were suitable for principal component analyses. Both the principal component analyses at T1 and T2 revealed the presence of six components with eigenvalues exceeding 1 (**Table 5**). However, an inspection of the scree plot revealed a clear break after the second component. So, the two components were taken for further analysis.

To aid in the interpretation of these two components, Oblimin rotation was performed. The principal component analysis revealed the presence of two components, showing that the 14 items formulated as experienced advantages did fit into one scale, and the 13 items that experienced disadvantages could also be joined together (**Table 6**). The rotated components are shown in **Table 7**. The results of this analysis support the use of the advantage items and the disadvantage items as separate scales.

	T1				T2			
Comp	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
1	8.57	4.52	0.32	0.32	7.99	4.47	0.30	0.30
2	4.05	2.40	0.15	0.47	3.52	1.64	0.13	0.43
3	1.65	0.39	0.06	0.53	1.88	0.54	0.07	0.50
4	1.26	0.20	0.05	0.57	1.34	0.08	0.05	0.55
5	1.06	0.00	0.04	0.61	1.26	0.24	0.05	0.59
6	1.05	0.19	0.04	0.65	1.02	0.13	0.04	0.63
7	0.86	0.07	0.03	0.68	0.89	0.10	0.03	0.66
8	0.79	0.05	0.03	0.71	0.79	0.01	0.03	0.69
9	0.74	0.10	0.03	0.74	0.78	0.06	0.03	0.72
10	0.64	0.07	0.02	0.77	0.72	0.01	0.03	0.75
11	0.57	0.37	0.02	0.79	0.71	0.11	0.03	0.77
12	0.54	0.05	0.02	0.81	0.60	0.03	0.02	0.80
13	0.49	0.02	0.02	0.82	0.57	0.01	0.02	0.82
14	0.47	0.01	0.02	0.84	0.56	0.05	0.02	0.84
15	0.46	0.01	0.02	0.86	0.50	0.01	0.02	0.86
16	0.45	0.03	0.02	0.88	0.49	0.01	0.02	0.88
17	0.42	0.03	0.02	0.89	0.47	0.10	0.02	0.89
18	0.39	0.02	0.01	0.91	0.38	0.00	0.01	0.91
19	0.37	0.03	0.01	0.92	0.38	0.03	0.01	0.92
20	0.34	0.02	0.01	0.93	0.35	0.02	0.01	0.93
21	0.32	0.02	0.01	0.94	0.34	0.02	0.01	0.95
22	0.31	0.03	0.01	0.96	0.31	0.03	0.01	0.96

	T1				T2			
Comp	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**	**Eigenvalue**	**Difference**	**Proportion**	**Cumulative**
23	0.28	0.01	0.01	0.97	0.29	0.04	0.01	0.97
24	0.27	0.04	0.01	0.98	0.25	0.02	0.01	0.98
25	0.24	0.03	0.01	0.99	0.23	0.03	0.01	0.99
26	0.21	0.02	0.01	0.99	0.20	0.02	0.01	0.99
27	0.19	.	0.01	1.00	0.18	.	0.01	1.00

Table 5.
Initial eigenvalues T1 and T2.

	T1			T2		
Due to the project…	**Comp1[1]**	**Comp2[1]**	**Unexplained**	**Comp1[1]**	**Comp2[1]**	**Unexplained**
My professional knowledge is extended	0.30	0.00	.43	0.27	0.02	.57
I get to know other organizations	0.23	0.01	.66	0.18	0.02	.82
I get to know other disciplines	0.22	0.03	.71	0.20	0.05	.78
Time is saved	0.19	−0.05	.72	0.22	−0.07	.62
The time with patients increases	0.25	−0.01	.58	0.28	0.01	.53
The quality of care is better	0.28	−0.02	.45	0.30	−0.04	.41
A better work environment is provided	0.27	−0.03	.47	0.30	0.00	.44
My work is more fun	0.31	−0.01	.38	0.33	0.01	.36
My work is more efficient	0.27	−0.06	.46	0.25	−0.06	.53
I experience more support and guidance	0.33	0.05	.34	0.31	0.02	.44
I get more appreciation from patients	0.28	0.02	.51	0.32	0.04	.44
I get more appreciation from colleagues	0.29	0.01	.48	0.29	0.03	.53
I'm earning more money	0.15	0.09	.87	0.10	0.01	.95
All in all the advantages are higher than the disadvantages	0.20	−0.04	.71	0.19	−0.06	.71
I spend too much of my time in meetings	0.10	0.22	.74	0.10	0.28	.64

	T1			T2		
Due to the project…	**Comp1[1]**	**Comp2[1]**	**Unexplained**	**Comp1[1]**	**Comp2[1]**	**Unexplained**
It takes a lot of coordination	0.12	0.24	.69	0.13	0.29	.60
I have annoyances	−0.04	0.29	.44	−0.02	0.26	.59
I have the feeling that my work is being checked	0.02	0.30	.45	−0.01	0.28	.56
My decisions are limited	0.02	0.33	.37	−0.03	0.29	.52
There is a lot bureaucracy	−0.03	0.27	.48	−0.01	0.30	.52
There is less time for patients	−0.03	0.29	.41	−0.01	0.31	.45
It requires time and effort till results are shown	−0.10	0.16	.70	−0.07	0.19	.72
Competition arises besides collaboration	0.01	0.25	.62	−0.00	0.23	.72
The workload increases without compensation for it	0.02	0.29	.51	0.02	0.26	.66
I am pushed into a different way of working	−0.02	0.32	.34	0.01	0.33	.41
I am losing some of my independence	0.03	0.32	.40	−0.04	0.29	.48
All in all the disadvantages are higher than the advantages	−0.10	0.24	.47	−0.13	0.22	.51

[1]*Rotation: orthogonal oblimin (Kaiser off).*

Table 6.
Rotated components per variable.

	T1				T2			
Component	**Variance**	**Difference**	**Proportion**	**Cumulative**	**Variance**	**Difference**	**Proportion**	**Cumulative**
1	6.41	0.21	0.24	0.24	6.10	0.67	0.23	0.23
2	6.20	0.0	0.23	0.47	5.42	.	0.20	0.43

Rotation: orthogonal oblimin (Kaiser off).

Table 7.
Rotate components T1 and T2.

C. Correlations

See **Tables 8** and **9**.

	Involvement T1	**Urgency T1**	**Advantages T1**	**Disadvantages T1**	**Perceived quality T1**
Involvement T1	1				
Urgency T1	−0.3121	1			
Advantages T1	0.1641	−0.4874	1		
Disadvantages T1	−0.0291	0.3241	−0.2254	1	
Perceived quality	−0.179	0.3954	−0.4242	0.2605	1

Table 8.
Correlations at T1.

	Involvement T2	**Urgency T2**	**Advantages T2**	**Disadvantages T2**	**Perceived quality T2**	**Success of the project T2**
Involvement T2	1					
Urgency T2	−0.2807	1				
Advantages T2	0.1313	−0.4379	1			
Dis-advantages T2	−0.0522	0.3872	−0.3574	1		
Perceived quality T2	−0.0531	0.3524	−0.3679	0.247	1	
Success of the project T2	0.0296	0.092	0.088	−0.01622	−0.0901	1

Table 9.
Correlations at T2.

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Conflict of interest

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Chapter 3

Learning Communication Skills in General Practice: From Self-Directed, Transformative Learning to Develop Personal Style

Kwong Ho Tam

Abstract

Communication skills play an important role and drive the clinical outcome in general practice. Unfortunately, biomedicine is growing, and communication skill is often overlooked as easy or self-explanatory. Learning these skills in general practice isn't like procedural skills training. Besides understanding the theory and clinical process of communication skills, we have to know why and how. This article briefly organizes the conceptual model and shows how to learn communication skills in general practice. Self-directed learning drives the learner who takes their own way to learn. A trained teacher also can provide constructive feedback and carry out a needs-assessment of the learner. Through transformative learning, the learner can understand the five key steps of communication skills in general practice and transfer the learned skills into clinical practice by their own process. The five key steps include medical humanities, principles of family medicine/general practice, clinical methods, counseling micro skills, and clinical applications. The aim is to find the personal learning method and clinical consultation style for each physician.

Keywords: communication skill, general practice, learning method, self-directed, transformative learning

1. Introduction

According to the development of general practice, communications skills are considered a key element in consultation, like operation in surgery. The imbalanced expectation between doctors and patients may lead to doctor-patient risk cases. Evidence supports that poor or invalid communication is the origin of medical error [1], while good communication can improve clinical outcomes, reduce medical errors, facilitate self-management, and build preventive behaviors [2–4]. One study that analyzed patient's values in communication styles showed that more patients preferred

patient-centered physicians over biomedical physicians [5]. However, communication skill deficits in senior medical students [6], doctors in training [7] and early-term general practitioners [8]. There are plenty of methods [9], including role play, group work and videotaping, and teacher use teaching technique aid to enhance these skills. But the frequency of teaching by teachers is not the major element [10]. In fact, motivation of the learner, including self and extrinsic, i as primary focus, which is supported by many adult learning theories [11, 12]. Communication skills in general practice are easy to overlook; each physician is an adult and has their own experience, which is very difficult to change. Except for the motivation, self-directed, immediate, problem-centered, and reflective practices are mentioned in the learning method of adults [13].

Good interpersonal relationship does not mean good communication skills in general practice. Physicians report knowing about the importance of communication skills in practice but have difficulty applying them in the actual workplace [14]. Communication skills in medicine, including theoretical basis or principle, should effectively address all of these issues to help patients become healthier. One article [15] highlights the process of learning communication skills in general practice; they have five steps including medical humanities, principles of family medicine/general practice, clinical methods, counseling micro skills, and clinical application. It mentions that communication skills have a unique position in general practice based on the developmental process, from the origin and framework of general practice into action.

In conclusion, learning consultation skills in general practice isn't like procedural skills training that may more closely align with informative learning and the goal of knowledge. The former combines with learner centered, that based on the need of learner, and ability of understanding the development of general practice. It has no defined end point. Through continuous learning and modification, the phenomenon of transformative learning is developed. This article briefly organizes this conceptual model and shows how to learn communication skills in general practice (**Figure 1**).

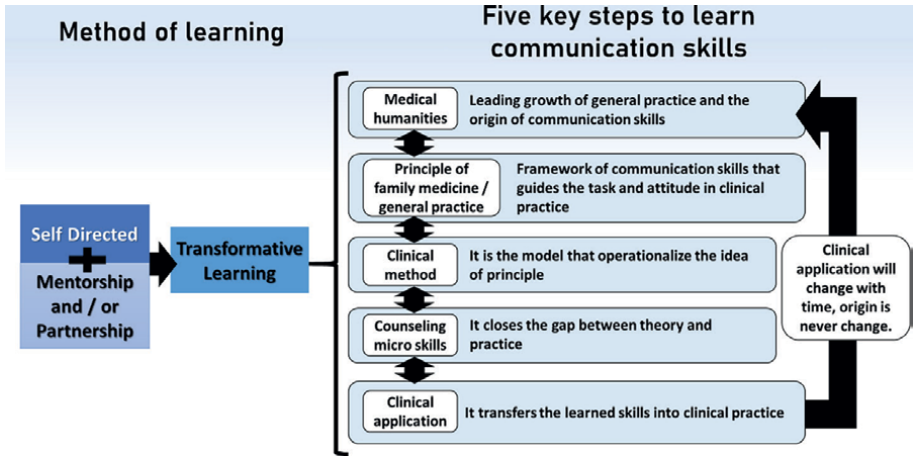

Figure 1.
The conceptual model of learning communication skills in general practice.

2. Concept of learning communication skills in general practice

2.1 Self-directed and mentorship/partnership

At the heart of self-directed learning is the concept that the learner takes control of their own process by taking responsibility of and deciding what and how something is learned [16]. This concept is supported by adult learning theories and has been shown to improve clinical performance [17], including the domains of clinical skills and attitudes [18]. However, indeed, reflection and extrinsic motivation are insufficiently addressed by this concept. A trained teacher in educational techniques, who can provide suitable reflection and carry out a needs-assessment of the learner, translates to better learning outcome [13]. Peer-feedback has an equally important role to play in enhancing learning [19].

Over the past several decades, there have been many conceptual models for helping us understand self-directed learning. The Person Process Context (PPC) model acknowledges [20] that the optimal situation for self-directed learning is when there is a dynamic interrelationship among the three elements, person, process, and context. Person or learner implies characteristics of the individual; process involves the teaching-learning transaction; context considers the environmental and socio-political situation. All of them are basically of equal importance. The most effective in self-directed learning is when the person, process, and context are in balance. The PPC model involves the psychological and personal characteristics conducive to self-directedness and also explores what teachers, learners, or facilitators can do to increase or decrease self-directedness in a given situation.

Based on the key factors of PPC model and principle of family medicine, a conceptual model of self-directed learning in learning communication skills in general practice (**Figure 2**) is proposed. The person or learner includes personality, life and medical experience, self-concept, and attitude in general practice. The process is set up in a way that encourages learners to take control of their own learning and involves learning skills, technological skills, and teachers in an educational technique. The key

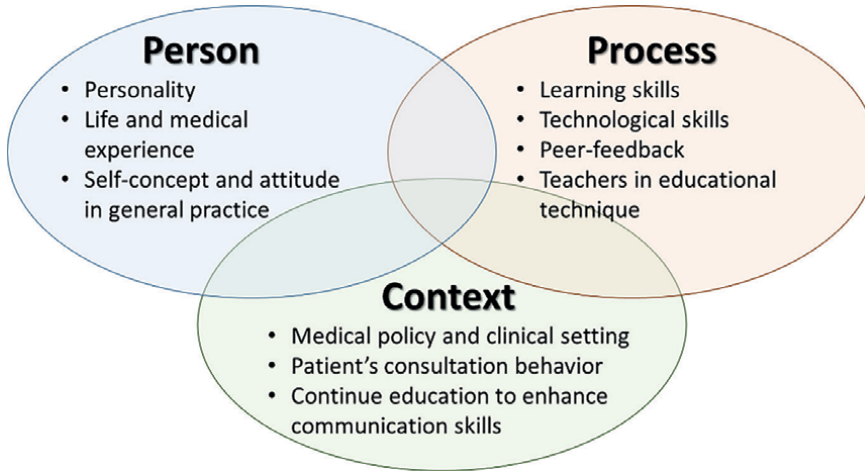

Figure 2.
PPC model of learning communication skills in general practice.

context to support the learning environment in general practice encompasses medical policy, patient's consultation behavior, and continued education or training to enhance communication skills.

In other words, motivation, including intrinsic and extrinsic, is the primary focus in learning communication skills in general practice. Self-motivation is original in learning, a suitable teaching-learning process encourages learners to take control of their own learning, and a supportive environment provides the suitable learning climate.

2.2 Transformative learning

Transformative learning is "a deep, structural shift in basic premises of thought, feelings, and actions" [21]. It supports the development of effective medical education [22], including development of non-technique skills [23].

One article [24] mentions three learning processes of transformative learning: learning within meaning schemes, learning new meaning schemes, and learning through meaning transformation. The learner and teacher are interdependent. The following tries to explain this learning processes based on learning communication skills in general practice (**Figure 3**). The first process involves learners working with what they already know and previous perspective. Learners should know the concept of communication skills by their own way; then they can ask why and how to learn though any methods, including discussing with others or using digital technology. Teachers can review the most efficient manner to show what the learner needs based on their thought. The second process combined the intrinsic and new knowledge

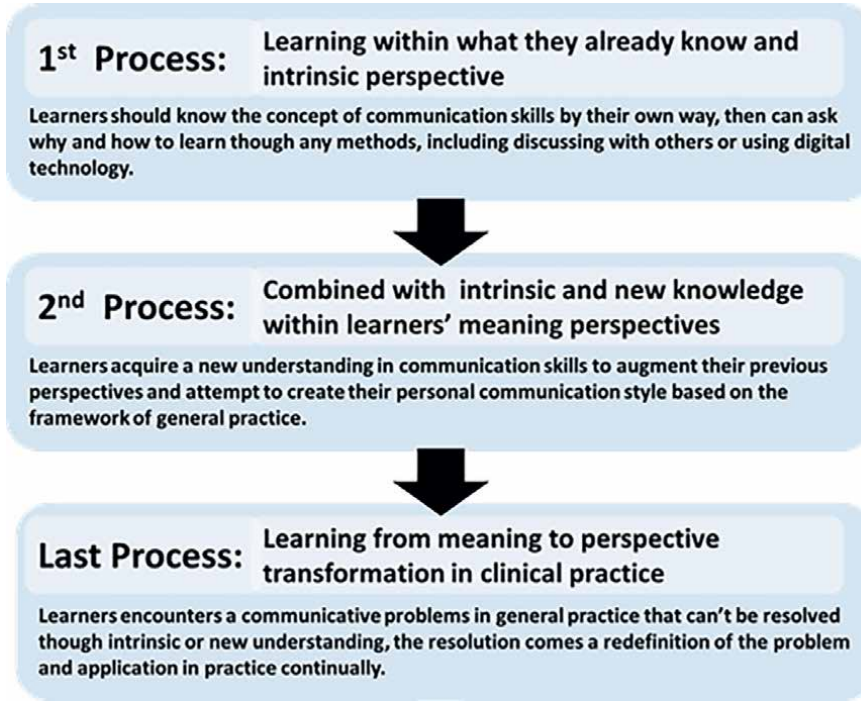

Figure 3.
Transformative learning of communication skills in general practice.

within learners' meaning perspectives. Learners can acquire a new understanding in communication skills to augment their previous perspectives and attempt to create their personal communication style based on the framework of general practice.

The lasting process is learning through meaning transformation that results in perspective transformation. It is no doubt that everyone is unique, including physicians. Understanding these differences and adopting a personal consultation style could enhance the outcome of communication skills [25]. Transformation of learning communication skills in general practice has started since self-reflection of the assumptions that supported the learners' perspective. Learners felt that rearranging the skill or presentation could result in increasing efficiency in clinical outcome. Through transformation, the learner, who felt anxiety because of past failure, becomes confident in communication skills. But the anxiety is only the previous process. Teachers can provide new constructive reflection in each process without relying on any notes. In short, learners encounter communicative problems in general practice that cannot be resolved through a present or new concept or understanding; the resolution becomes a redefinition of the problem and application in practice continually.

3. How to learn communication skills in practical action: from medical humanities to clinical application

Motivation is the origin of adult learning. Through transformative learning, this section tries to explore how to learn these skills in practical action. One review article [15] clearly organizes five key elements to understand the different levels of communication skills in real practice, which are medical humanities, principles of family medicine/general practice, clinical methods, counseling micro skills, and clinical application (**Figure 1**). Each learner has a different background and intrinsic perspective; there are no fixed steps to learn communication skills in general practice. An example of that is a medical student may learn the basic concept as an entry point and a senior physician starts from the clinical application.

3.1 Medical humanities

Medical humanities is concerned with "the science of the human" and brings perspectives of disciplines such as history, philosophy, literature, art, and music to understanding health, illness, and medicine [26]. According to the basic principle of family medicine [1], medicine changes are based on health-related events, from major infectious diseases decades ago to chronic diseases, developmental disorders, behavioral disorders, accidents, and a different range of infectious diseases nowadays. Medical humanities is leading the growth of general practice and the origin of communication skills.

Biomedicine can do harm when overlooked and has limits and dangers that are now more clearly understood [27]. Understanding medical humanities can reduce the gap between biomedicine and the human sciences [28], promote a patient-centered approach in practice [29], and reduce biomedical hubris [30]. In general practice, each patient has their own perspective and presents different illness behaviors. Communication skills in general practice can connect and balance "cure (biomedical)" and "care (communication)".

Terms of "reflective practice" and "narrative medicine" sound vague, but they are an important element in learning medical humanities. Reflective practice is the

basis for self-directed lifelong learning. Narrative medicine [31] promotes narrative competence, that is, the capacity for empathic understanding and being able to adopt multiple perspectives. It matches the concept of transformative learning. In short, medical humanities is the reason why we need to learn clinical communication skills. The more understanding we have of the origin or development of family medicine/general practice, the more flexible we are to apply the communication skills.

3.2 Principle of family medicine/general practice

Based on the historical evolution of medical humanities, principle of family medication/general practice, that is the framework of communication skills, was developed. This principle guides the task and attitude in clinical practice.

An article in 2016 presented the five principles of family medicine/general practice as follows: compassionate care, a generalist approach, continuity of a relationship, reflective mindfulness, and lifelong learning [32]. Compassionate care is an attitude expressing as patient-centered communication and empathy. It is difficult to measure. A family physician focuses on the person rather than on a particular body of knowledge, group of disease, or special technique. The continuity of relationship means that an interpersonal relationship has not a defined end point. These relationships enable them to develop deep knowledge of their patient through a sense of connection, trust, enhanced professional competence, and respect. Reflective mindfulness refers to the ability of awareness of personal thoughts and emotions, which leads to greater depth and contextual relevance. Lifelong learning is the process of personal and professional development. Through transformative learning, positive personal and professional skills are developed [33]. Each principle is an essential attribute of family medicine that governs our actions. The application and attitude of communication skills in general practice are based on these principles.

3.3 Clinical method

Clinical method is the model that operationalizes the idea of principle. In the principle of family medicine, family physicians are available for all types of problems, and there is no predetermined other in consultation [1]. This task is time consuming, broad, and cumbersome. Suitable clinical methods help us to make a reasonable decision.

The patient-centered clinical method is not only a search for disease but also an attempt understand sickness from the patient's perspective [34]. This method is appropriate for broad-based disciplines such as family medicine. By focusing on this method, spiritual history may help reveal the patient's value, be it a clinical resource for comprehensive care or to improve adherence to the treatment and personal resistance of the patient [35]. In fact, good communication skills in general practice can be powerful for exploring spiritual history. Because a diagnostic process is usually a statement of probability rather than certainty in family physicians, a hypothetico-deductive approach to problem solving is integral to the patient-centered method [1].

There is the revised patient-centered clinical method with integral hypothetico-deductive approach (**Figure 4**) based on one review article [15]. We use communication skills to connect each step. The key to a patient-centered approach is sensitivity to two kinds of cues: cues to differential diagnosis and patient's cues [35]. The former is based on medical knowledge. The latter is the patient's cue about what they consider important, then formulate patient's R.I.C.E. (Reason, Idea, Concern and

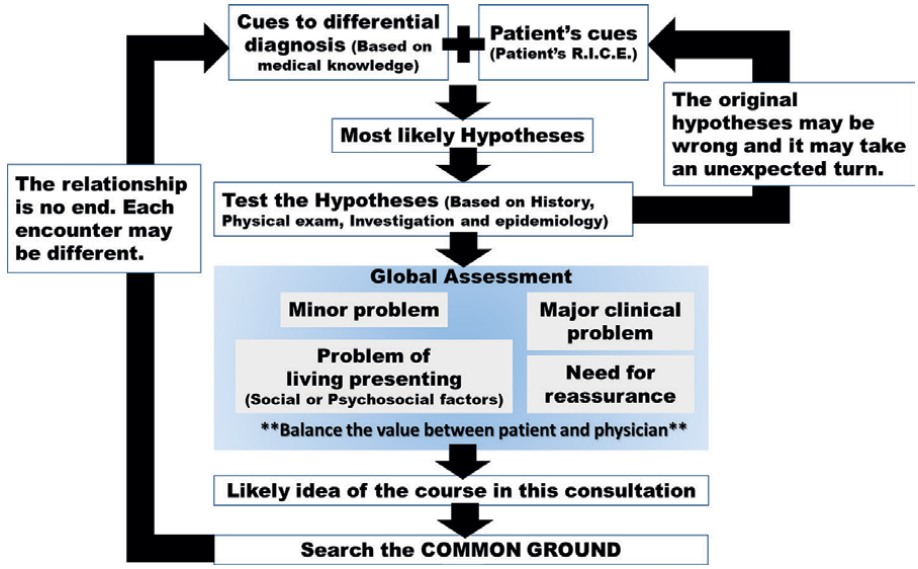

Figure 4.
Patient-centered clinical method with integral hypothetico-deductive approach in clinical decision making.

Expectation). However, cues can express themselves in verbal and nonverbal forms, including what we see, smell, hear, and feel about patients and their story. Hypotheses are generated and rank ordered on the basis of the cues acquired and knowledge. Then test the hypotheses that based on the science of probability. While the value between patient and physician reaches balance tending to patient's health, the nature of above hypotheses was established that including major clinical problem, minor problem, need for reassurance and problem of living presenting. Finally, we get the idea of what course the consultation is likely taking and search for common ground. This approach assists the physician to narrow the heart of the problem in consultation, whether it is biological, psychological, social, or all three.

3.4 Counseling micro skills

Physicians find the suitable clinical method for general practice appealing but difficult to implement. Counseling micro skills not only began the field's shift away from ineffective to innovative training methods, but they undertook the enormous challenge of closing the gap between theory and practice [36]. There are five basic counseling micro skills: attentive ehavior, questioning, confrontation, focusing, and reflection of meaning (**Table 1**). Each micro skill has an intrinsic meaning.

Cumulative micro-training has shown positive impacts on communication skills in previous studies [39]. This training method consists of six steps [38], and each training session focuses on one or two new skills and then gradually increases in complexity. First, learners receive a theoretical instruction and its function in counseling communication skills. Second, learners observe examples, such as video, showing an inadequate application of the skill, followed by showing the adequate application. Third, learners try to practice the skill separately, like dry swimming. Fourth, learners practice this skill among each other via role-plays. Fifth, learners receive feedback from fellow learners and tutors. Finally, learners note down the points based on the

Counseling micro skills	Explanation
Attending behavior	It is the aspect of building rapport. Physicians encourage patients to talk and open up their concern through non-verbal behavior [37], including matching non-verbal behavior, physical closeness, the use of movement, facial expression, eye contact, and sometimes silence. This skill can take a little time to learn effectively.
Questioning	Effective questioning helps patients put their own thoughts into words and to clarify their problems [38]. There are two main types of questioning: open and closed.
Confrontation	This skill assists to increase the patient's self-awareness that the patient may have overlooked or avoided. The physician can identify a discrepancy that highlights this to the patient.
Focusing	This skill brings the patient's conversation into certain areas.
Reflection of meaning	It reflects back to the person the important content of what the patient has said more clearly and by using the physician's own words [37].

Table 1.
The summary of five basic counseling micro skills.

feedback. In the same way, learners build their skills by progressing through these steps. Learners find the use of micro skills difficult initially, then use the skills effectively but feel a little unnatural or awkward. And learners apply the skills thoroughly without being immediately aware.

3.5 Clinical application

Each micro skill is dependent and has to be combined in clinical consultation. For example, swimming can be described in terms of rules for correcting imbalance, breathing, and adjustments made by the body floating on water. However, focusing on special components may actually cause sinking. Similarly, each consultation is different, and one cannot conduct a consultation while trying to keep in mind the subsidiary rules and components [1].

Different counseling approaches have been developed after the flexible application and combination of each micro skill; the examples are motivation interview, BATHE technique, supportive counseling, cognitive behavioral therapy, and stages of the change model. All of these counseling approaches are commonly used in general practice or family medicine and applied in different clinical encounters. For example, the BATHE technique has been developed for time-limited consultation, that is, an initial screening for mood condition and for the condition of psychosocial conflict (such as chronic pain) [40].

However, physicians do not transfer these learned skills to clinical practice as comprehensively as they should [41]. The actual situation is different from training methods. Practicing in real patients has been shown to be valuable for learning communication skills and understanding patient illnesses [42]. Observation of consultations, through video or live, combined with self-directed learning and constructive feedback seems like an effective method to learn communication skills [43]. Videotaping is an important learning tool. Through reviewing videotapes, learners can view their consultation process from patients' perspectives. Based on the concept of learning: self-directed and mentorship, videotaping can be used as a form of self-assessment to identify communication strengths and weakness [44]. Teachers also can

give their feedback after watching a recorded interview. In short, videotaping is very useful in recognizing actual learner interactions with patients, particularly awareness of nonverbal cues. It can be used for study alone, comparison with peers, and checking communication improvement over time [45]. Through recurrent practice, feedback, and self-awareness from clinical consultation, physicians can reach the personal style communication skill in practice finally.

4. Conclusion

Learning communication skills in general practice has no end point and no fixed format. Learners should know the theoretical basis, through actual needs, internal, and external drive, then understand the clinical communication skills step by step by their own process. Finally, the personal right and comfortable communication style is transformed.

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Chapter 4

Integrating Mental Health Services: Principles, Practices, and Possibilities

Nick Kates

Abstract

The majority of mental health and addiction problems initially present to a primary care provider, with many being treated only in primary care. Problems in the relationships with mental health services, however, often mean that individuals needing care often do not reach the services they require, while primary care providers do not always receive the support or assistance they are looking for. Increasingly, though, mental health services are recognizing the importance of working more collaboratively with primary care colleagues and an effective way of achieving this is by integrating mental health services within primary care settings. This can improve access and the patient's experience, and expand the kinds of mental health services that can be delivered within a primary care practice, with new opportunities for earlier detection, relapse prevention, support for self-management, and assistance with system navigation. It opens up novel opportunities for continuing education, improves communication, and leads to better coordinated, less fragmented, and safer care. This chapter summarizes the benefits of collaborative partnerships, the core principles on which collaborative partnerships need to be based, the components and activities of effective collaborative initiatives, and the ways in which these approaches can help to address wider problems facing Canada's health care systems.

Keywords: mental health, psychiatry, collaborative care, integrated care, partnerships

1. Introduction

A high-performing network of primary care services is the foundation of any well-functioning health system, and providing mental health care is integral to their work. A primary care provider is usually the first point of contact for someone struggling with a mental health or substance use problem, and while these problems are not always detected, the majority of those that are will be treated exclusively in primary care. Primary care is also uniquely positioned not only to treat mental health problems but to identify individuals at risk, intervene earlier, prevent relapses, and even prevent or delay the onset of a problem.

But this cannot be done in isolation. Partnerships with mental health and other social services are essential to support and enhance these activities, but family

physicians often encounter problems with their relationship with mental health services. These include difficulty in accessing services in a timely manner, poor communication, a lack of support or respect for their work, fragmented transitions, and poorly coordinated care planning [1].

Increasingly, if a little belatedly, mental health services have come to appreciate the key role that primary care plays within a city or region's mental health system, and have explored different ways in which they can work more collaboratively and better support and assist their primary care colleagues. This has led to a rapid expansion of collaborative initiatives, including the successful integration of mental health services within primary care settings [2].

In the US, this has been accelerated by the Affordable Care Act, which offered incentives for integrating or "bundling" services delivered by different specialties or sectors [3]. Globally, the WHO's MHGap initiative has promoted the idea that the most effective way of expanding access to mental health care in low- and middle-income countries is to integrate these resources within general medical settings, especially first-level (primary care) [4]. The work of Wayne Katon and colleagues in Seattle has led to the development of the "Collaborative Care Model," which has provided an evidence-informed underpinning to the introduction of collaborative projects [5], while clinicians and researchers in many other places have adopted this work to local contexts or developed similar models, such as the "Canadian Collaborative Care Model" [6].

Wagners (Chronic) Care model [7] has provided a framework for understanding the elements that need to be in place within a service to support successful collaborative practice while evolving models of collaborative care are increasingly informed by the experiences of individuals with lived experience and families. And programs are increasingly using quality improvement methods and implementation science to guide their implementation and outcome measures [8].

All of this has clearly demonstrated that embedding mental health services and providers within primary care settings has the potential to strengthen communication and co-ordination and continuity of care, improve access to needed services, especially for marginalized and underserved populations, integrate physical and mental health care, facilitate transitions in care, and permit interventions earlier in an episode of illness. These new service alignments can improve health and mental health outcomes and help with treatment adherence, while a wider range of problems can be treated, in a less stigmatizing and more culturally congruent environment. Such programs are also better positioned to respond to the needs of specific populations and provide additional support and education to family physicians and other primary healthcare providers [6].

Collaborative mental health care (CMHC) has also been shown to decrease wait times, and avoidable emergency room visits and hospitalizations, avoiding duplication of services and reducing the likelihood of medical errors while supporting population health. And from a systems perspective, CMHC increases the capacity of both the primary care system—with more people being seen and the skills of primary care providers being augmented—and of the mental health system, as primary care is now seen as being an integral part [6].

This chapter reviews the principles that guide collaborative practice, the key elements of a successful integrated mental health program and its component activities, and the support required to help it succeed. And while CMHC is not a panacea for all the challenges our health systems face, by strengthening the links and partnerships

between mental health and primary care services it can potentially assist—to a greater or lesser degree—in addressing many problems facing all of our health services.

2. Definitions

Collaborative mental health care (CMHC) describes situations where primary care and mental health care providers co-ordinate their resources, expertise, knowledge, and decision-making to ensure the patients whose care they are sharing receive the best possible care from the right provider in the most appropriate location when they need it. At the core of these new working relationships are (i) shared goals or purpose (ii) mutual recognition and respect (iii) equitable and effective decision-making making, and (iv) clear and regular communication [6].

Integrated care refers to situations where mental health and primary care providers are located in the same setting and are in regular contact, as part of the same care team. Clinical care can then be reorganized to develop a comprehensive continuum of services to improve access, communication, quality, and user satisfaction, using resources differently and efficiently [6].

3. Underlying assumptions guiding the integration of mental health services in primary care settings

There are six underlying assumptions on which the need for integrating services is based.

1. In most communities, the majority of mental health and addiction problems present and are treated, and will continue to present and be treated, in primary care. Traditional mental health services do not have the capacity to see even a relatively small percentage of these cases, but if the mental health care delivered in primary care (primary mental health care) can be enhanced and better support primary care providers, more individuals can be treated, and secondary and tertiary services can be used in a more targeted manner, for those problems which cannot be managed in primary care.

2. The integration of mental health services within primary care has the potential to reduce or eliminate many of the problems that can bedevil the relationships between the two sectors such as poor communication, a lack of coordinated or continuous care and limited support for primary care providers.

3. Patients prefer being seen in an environment that is likely to be more convenient, comfortable, and culturally congruent and which they perceive as being less stigmatizing.

4. The successful integration of mental health services within primary care settings opens up a myriad of opportunities for prevention, earlier detection and intervention, relapse prevention, health education, and managing populations as well as individuals, something that is beyond the current capability of mental health or primary care services when working in isolation.

5. Each community or practice needs to be able to adapt successful models to meet its own needs and resource base. This is best accomplished by focusing on the principles of collaboration, and adapting these to the local situation, rather than just trying to implement a model that has worked elsewhere.

6. Consistent with the principle of collaboration, if mental health services are to look at ways of improving their relationship with their primary care colleagues, this needs to be done together. A first step toward implementing any of the changes outlined below would be to establish a process whereby primary care providers and mental health staff and leaders can meet to identify the major problems and explore together potential solutions that take into account the local context and also the realities of what can and cannot be changed.

The integration of mental health services aims to build on and complement the care already being delivered in primary care but needs to be supported by other changes in the system. Traditional mental health and substance use services, including in-patient services, need to think differently about how they work with their primary care colleagues, forging stronger partnerships to improve access to care and support and a more timely exchange of information.

And at a wider system level, it needs to be supported by (a) a funding strategy that supports successful ongoing projects and innovations, (b) health care plans at the local, regional, or national level that outline clearly the role of primary care within redesigned mental health and addiction systems and how this can be supported, and (c) a training strategy to prepare all providers for new roles, especially future psychiatry and family physicians.

4. Goals of collaborative or integrated care program

There are a number of ways in which mental health professionals can be integrated within primary care. The mental health clinician could be permanently located within primary care, as their main or sole place of work. It may involve a visit by a single clinician, the frequency often depending on practice size (often the model for psychiatrists working with a practice), or by a team, with a variety of mental health clinicians on-site at the same time. Sometimes specialized hospital or clinic-based services like seniors or child services may utilize a "hub and spoke" model, whereby clinicians will visit a number of different primary care practices in their catchment area, usually less frequently, to provide more specialized consultations and advice.

And whatever the arrangement, programs will share one or more of five possible goals, consistent with IHI's quadruple aim. These are:

- To improve clinical outcomes.
- To improve access to services.
- To enhance the experience of those receiving care.
- To enhance the experience of providing care.
- To offer sustainable and cost-effective services.

5. Principles to guide collaborative partnerships

Collaborative care is most likely to be successfully implemented and sustained when based upon principles, rather than just trying to implement a program that had been established elsewhere. This allows for the components of the program to be adapted according to local needs and resources.

There are principles that apply to the relationship between services and others that apply to the relationship between frontline providers.

5.1 Between services or systems

- Collaboration is not a single event but a process that changes and evolves over time. Better collaboration is not an end in itself but a means to the goal of better outcomes for people being seen.
- Collaboration is always easier when providers are working in close proximity.
- New care models need to be tailored to meet the needs of each physician or practice—"one size fits one."
- The foundation of productive collaboration is effective communication, whether in person or electronically. It needs to be clear, avoiding jargon and two-way.
- Organizational support on both sides is important.
- Projects need to consider their sustainability from the outset, so they do not fall apart if the initial champions leave or change roles.
- Resource availability, local culture, geography, and the severity of the individual's problem can all affect the ability to successfully implement a new program or partnership and need to be taken into consideration.
- Collaborative projects should be planned together from the outset, with clear and mutually agreed upon goals and priorities.

5.2 Between providers

- There should be a single integrated plan, with the patient being a partner in developing these.
- Tasks and roles should be allocated according to respective skills, interests, and resources of each provider and not solely by discipline.
- The person and their family or caregiver should always be at the center of care, with services being adjusted to make sure this remains the focus.
- There should be a regular and unimpeded flow of information (written and verbal) between providers.

- Collaborative care should focus on prevention, wellness promotion, and adaptive functioning, as well as treatment and relapse prevention.

6. Integrating mental health services within primary care settings

Although the clinical care provided by mental health providers working within primary care is similar to those that are delivered in traditional settings, many other opportunities open up for indirect care and case discussions/reviews, screening and pro-active care, and provider education and capacity building. But mental health providers are likely to be asked to see a wider range of cases, or to employ a greater array of assessment and treatment modalities than they would if working in a traditional mental health service. There will, however, always be certain kinds of cases that because of their complexity, or the need for a wider range of resources that primary care can offer will probably be better served by a referral to a mental health program.

Care is usually short-term, and can include consultations and assessments of adults, children, and youth, initiation of treatment and short-term stabilization, brief psychotherapies—CBT, IPT, or solution-focused therapy, case management and system navigation, family and couple assessments or treatment and patient education and self-management support. But working together in primary care changes the way these services can be delivered.

Any referral can be discussed with the family physician to clarify what they are looking for from the consultation and to obtain relevant background information before an assessment is conducted. The EMR can also be reviewed at the same time. All of this leads to a more focused and often briefer consultation. Meanwhile, at the end of an assessment, the findings and plan can be discussed with the family physician before the person leaves, and respective responsibilities negotiated.

As care is shared, the partners can determine who is best positioned to provide which services in each situation, supporting and complementing each other's roles. In general, the involvement of the MHP is short-term, to avoid the development of waiting lists, and care is returned to the family physician who knows that the MHP will remain involved—the shared care model—and is able to get more actively engaged again at any time in the future, with no fuss or referral procedures. This also means that a person's progress can be discussed during any visit, and care plans—medications, for example, adjusted without the person necessarily needing to be seen.

Working together in the same setting also enhances communication, with multiple opportunities to discuss cases at any stage of assessment or treatment. A single integrated care plan can be developed, knowledge of local resources and programs exchanged, and assistance provided with system navigation or referrals into the mental health system. The family physician may also use these informal contacts to discuss whether someone they are seeing should be seen for a mental health assessment, or possible treatment options that could be initiated prior to any assessment, and may end up rendering it unnecessary. Occasionally the FP may request assistance with someone they are seeing at the same time as the MHP is in the practice, or can book someone in to be seen at very short notice after such a visit, reducing the need for a trip to an emergency room.

Every consultation or assessment offers opportunities for brief (2–3 min), case-based teaching such as why a specific anti-depressant was suggested, or the difference between a schizoaffective disorder and a bipolar disorder, or depression and dementia. MH Providers can also offer case-based teaching sessions and provide information

or links to screening tools, online resources, community programs, and care pathways, as well as updates on new medications or treatments. Ideally, this information can eventually be incorporated within the practice's electronic health record.

Mental health providers can also assist in developing and populating of patient registries, and proactive screening, especially when this is aimed at preventing relapses. This could be a list of all patients of the practice seen in a mental health facility in the last year, or who are taking an antidepressant can be compiled using an excel spreadsheet. This list can be reviewed by the team monthly, to see who may not be improving, or who has not been seen for a while, so that their care can be managed proactively.

7. What makes integrated care work

To take full advantage of the possibilities that collaborative care can offer, a number of elements need to be in place (as many of the following as possible). Care needs to be:

Team-based: The team composition may vary but will include a family physician, psychiatrist (if one is involved), and other mental health professionals working in that practice. Other primary care staff, including administrative and management staff, may also be involved, depending on their role and involvement.

Information is shared regularly— orally, in writing, or electronically—and all team members should be working within their full scope of practice. Tasks can then be divided up according to skills, rather than professional titles, as a number of aspects of care can be delivered by more than one member of the team (task sharing). Certain clinical and administrative tasks may also be able to be completed by less skilled or qualified members of the team—often supported by medical directives—(task shifting). This can free up time for the family physician or practice nurse to focus on tasks for which only they have the skills, training, or authority.

Shared with both mental health and primary care specialists remaining involved as long as needed. Even though it may just be one provider delivering the majority of care at any moment, other can be re-involved whenever needed.

Stepped: This has two dimensions. One is linking treatments, and their intensity, to the nature and severity of a problem or a person's needs. The second is sequencing the involvement of different health care professionals, according to their respective skills and the complexity of the problem(s).

Evidence informed: All clinical activities need to be informed by the best available evidence, including the use of proven treatment pathways.

Measured and evaluated: With the individual, it allows for progress to be measured and treatment adjusted according to response, the concept of treatment to target. At a program level, it helps to determine whether the new program is working and which elements may be contributing to its success. Evaluation criteria should be based on the project goals and required data should be easy to collect within the constraints of daily practice.

Proactive and population-focused: This allows individuals who might otherwise be "lost" to treatment to be followed proactively, with particular attention to groups who face barriers in accessing care, or who have an identified problem but are not being seen. Monitoring a population allows for earlier intervention and more continuous care, and can also facilitate relapse prevention, instead of having to wait until symptoms recur before reengaging services.

Person and family centered with the person—and their caregivers if appropriate—participating in the development of the treatment plan and goals. They will also be provided with information, suggestions, and support that can help them better manage their own care. It also provides a reminder that other family members may be struggling and require additional support when a relative is not well.

Equitable and inclusive, recognizing and eliminating the barriers, prejudices, and oppression faced by individuals from marginalized or racialized communities, who may also face other barriers when attempting to access mental health care, and advocating for the eradication of systemic attitudes and biases that contribute to these problems. Addressing external (social) determinants, such as adequate housing or income and cultural factors, should also be considered when developing a management plan.

Recovery focuses, recognizing and building upon an individual's strengths, supporting their personal goals, instilling realistic hope, and taking into consideration the roles an individual's physical and social environment can play in the development and management of mental health and addiction problems.

Trauma-informed: As we continue to understand the ways in which previous trauma—during childhood or in later years—can contribute to the development and presentation of many mental health and addiction problems, it becomes even more essential that these issues are identified and explored, and supports or treatment put in place—if the person wishes—to facilitate the resolution or amelioration of the current presenting problem.

8. Other changes to support an integrated program

Changes in the way care is organized within a practice are also required for successful and sustainable collaboration. These can include adequate preparation/training for mental health professionals starting to work in primary care; direct and timely handovers of care, ideally in person; the introduction of treatment protocols or care pathways; charting in a common clinical record; and protected time for collaborative activities. There needs to be an identified champion or lead within the primary care setting and incentives (academic, professional, or financial) to encourage collaborative practice, and these initiatives must be actively and visibly supported by organization leaders.

9. Roles of the mental health team members

When working together and sharing care in a collaborative partnership, the different providers from mental health and primary care will work out which of them is in the best position to provide the care that an individual may require. The family physician will usually continue to deliver care after consultation or brief treatment, with support from the mental health team, but the presence of a psychiatrist or other mental health professional can help them expand their role, knowing that support is readily available, or can offer them a break when seeing complex or demanding patients.

While the psychiatrist will usually give priority to providing consultation and short-term care or stabilization, they will also be available to discuss cases and for case-based education, with every person seen providing an opportunity for brief teaching that can be generalized to other cases the family physician is seeing. They

can also facilitate referrals to local mental health services The mental health professional, usually a psychologist, social worker, or nurse, can play many roles, including assessment, care planning and ongoing therapy, monitoring and support, system navigation, and providing information for the team. This usually encompasses a wider range of activities than if they were working in a traditional MH Service, where they may be seeing a narrower range of cases or offering a much more limited series of treatments.

Other primary healthcare providers, especially practice nurses, are well positioned to recognize mental health problems, provide support or advice, and increase a patient's understanding of the interconnected nature of their physical and mental health care problems, and the presence and support of mental health professionals can increase their skills and comfort in managing these problems (**Table 1**).

10. Competencies and training for health care professionals

To work effectively in these models, mental health professionals need to be flexible, respectful, open to new learning, able to communicate effectively, culturally humble, and aware that they do not always need to be the "expert," as the learning is multifaceted and interdisciplinary.

They also need to appreciate the central role primary care plays in any health care system, the pace and demands of primary care and how these can affect the way care is delivered. They need to be able to "translate" mental health concepts and terminology into language that primary care providers can understand and apply, and be willing to see a wide variety of cases and problems, which may take them outside of their comfort zone. In many ways they end up working like other primary care providers, seeing people during an acute episode of care, and then being able to get involved again at any point in the future should the need arise.

As collaborative practice becomes accepted more and more as an integral part of mental health care, and becomes an expected part of the practice of all practitioners, it is important that future primary care and mental health professionals learn how to work effectively in collaborative partnerships during their training.

11. Evaluating collaborative initiatives

All projects should build in evaluation from the beginning, based upon the mutually agreed upon goals for the initiative. The purpose of the evaluation and how the results will be used and by whom needs to be clearly spelled out. Evaluation materials should be easy to complete, using validated measurement frameworks and tools wherever possible, and balance quantitative and qualitative data, with people using the service (and their families) should be involved in the design. It should also be framed within a quality framework, with the areas being measured fitting within the domains of quality care.

12. Integration of physical health care into mental health settings

Many individuals living with mental health and addiction problems, particularly those with severe and persistent mental illnesses, are more likely to experience

Activity (competency)	Family physician	Psychiatrist	Mental health clinician	Other team member (e.g., nurse, pharmacist, dietitian)
Direct clinical care				
Screening & identification	√		√	√
Assessment & consultation individuals	√	√	√	
Assessment & consultation families	√	√	√	
Initiating medication treatment	√	√		
Telephone advice to team		√		
Integrating physical and mental health care	√	√		√
Specific psychological treatments (i.e., CBT, IPT, ACT, and MBCBT)	√		√	√
Medication management/ reconciliation	√	√		√
Health promotion, health behavior change	√			√
Care management and coordination				
Care coordination	√		√	√
Care management	√		√	√
Case discussions	√	√	√	
System navigation	√		√	√
Monitoring and relapse prevention	√		√	√
Family and couple interventions	√		√	√
Referral	√	√	√	√
Patient and family education and support for self-management	√	√	√	√
Building system capacity				
Staff education and training	√	√	√	
Building community partnerships	√	√	√	√
Introducing new tools to extend care	√	√	√	
Using care registries/data sets	√	√	√	√
Program evaluation, quality improvement	√	√	√	√
Improving population care				

Activity (competency)	Family physician	Psychiatrist	Mental health clinician	Other team member (e.g., nurse, pharmacist, dietitian)
Early detection	√			√
Relapse prevention	√	√	√	√
Eliminating barriers to care	√	√	√	√
Providing culturally sensitive care	√	√	√	√
Advocacy at the community level	√	√	√	√

Table 1.
Potential roles of the mental health team members [6].

significant health problems, one of the reasons why their life expectancy may be as much as 25 years less than those in the same community who are not living with a SPMI, they can face multiple challenges in accessing continuing medical care. One solution to this has been the integration of family doctors and/or other healthcare professionals (e.g., nurse practitioners) within a mental health program, sometimes referred to as reversed shared care. Working in a collaborative model, they will visit on a regular basis to assess both acute and chronic health problems, initiate treatment where possible, provide health teaching and education, and connect patients with other needed health services (**Table 2**).

13. Potential to address wider challenges facing our health care systems

Once they are located within primary care, mental health providers can assist in addressing mental health problems that face every health care system. These can include:

- Improving access to mental health care and reducing waiting times by increasing the capacity of primary care to see individuals with mental health problems, and using secondary and tertiary mental health services more selectively.

  This may be especially true for populations who have difficulty accessing mental health care but who may have an ongoing relationship with a primary care provider, including recent immigrants and individuals from different ethnic groups, who may find receiving care in their family physician's office to be more culturally congruent or safe. It can also enhance care for seniors, who may find it much easier, more comfortable, and less confusing to access services in their family physician's office.

- Reducing avoidable ED visits by providing care at an earlier stage in its evolution, before it requires an emergency visit or intervention.

- Providing additional support for primary care and primary care providers at a time when they are under increased stress. Team-based mental health care can help to deliver a wider range of services to individuals who need them, shifting some of the load carried by primary care providers without overburdening any

Goal	Activities
Improve communication	• Providing useful and timely assessment and discharge summaries, and updates about changes in care. • Informing family physicians of programs offered and changes in services. • Actively obtaining family physicians' ideas for improvements through 1:1 discussions, surveys, and focus groups.
Improve timely access to consultation or care	• Providing telephone advice or e-consultative services to family physicians. • Providing a rapid consultation service, with recommendations going back to the family physician to implement while the patient waits for other services to become available. • Assisting with system navigation. • Providing more resources and support to assist with self-management.
Improve the coordination of care	• Developing and updating patient care plans with the patient and team. • Clarifying the respective roles and responsibilities of team members. • Discussing possible referrals before they are made. • Easing transitions and ensuring face-to-face information exchange.
Increase the capacity of primary care to manage mental health problems	• Delivering educational sessions or continuing professional development events for family physicians. • Providing relevant screening tools, up-to-date treatment guidelines, and online resources. • Providing information on community resources and programs.

Table 2.
Activities any mental health service can consider [6].

one provider. It also offers a unique situation where consultant and consultee, specialist, and generalist can work together and learn from one another.

- Improving transitions between services and continuity of care and reducing system fragmentation by better communication between providers, ensuring that all are involved in the development and implementation of a care plan. At the very least, the primary care provider should be informed whenever a patient is transitioning from one service to another.

- Enhance earlier identification and intervention, by identifying and tracking individuals or sub-populations who may be at greater risk of developing a mental health or addiction problem.

- In particular, there are opportunities to support children in the earliest years by building a list of children born in a single year, and known risk factors to this list and then proactively following these children after the 18-month well-baby visit, to try to ensure that no child gets left behind. This may be one of the best chances we have to change the trajectory of children at risk.

- Promoting relapse prevention by identifying and monitoring (in person or by phone) individuals who have an identified mental health or addictions problem, that is, everyone in the practice discharged from a mental health service, or who has been started on an anti-depressant in the previous 12 months.

Effective	Timely	Efficient	Patient-Centered	Equitable	Safe	Provider experience
Care follows evidence-informed guidelines Clinical outcomes (symptom rating scales, functioning, quality of life, recovery) Percentage of patients who respond to, remit with treatment	Early identification of problems Waiting time from referral to initiation of treatment Triage process Waiting time from query to receipt of advice (indirect consultation)	Amount of service delivered Team members working to scope Utilization of outside services	Patients as involved in goal setting and care planning as they wish Patient has a copy of their plan Patient experience of care Patient & family involvement in program planning and evaluation	Elimination of barriers to access Collection & management of population data for planning & monitoring Equity in health service utilization Equity in health outcomes Patient experience care as culturally competent	Medication reconciliation at every visit Elimination of preventable adverse events	Provider satisfaction Provider retention Team functioning Providers/practices involved in local planning

Table 3.
Quality domains and potential targets for measurement in program evaluation [6].

- Reducing errors and increasing patient safety, as communication between providers/sectors is quicker, clearer, and can be explained in person and confusion about roles resolved.

14. Challenges

Despite the progress that has been made, challenges can arise, although these will vary from community to community. Insufficient resources may limit what a program can accomplish and expectations, services, and priorities need to be adapted accordingly. Space is often at a premium and this will require flexibility on the part of all concerned, with mental health professionals needing to adjust to working under different conditions from those they are used to.

Time constraints are often a factor and this requires compromises on the part of everyone. Mental health professionals need to respect the multiple demands on family physicians, while the family physician needs to be willing to try and find time for case discussions and other related activities. It is also a style of practice that may not suit everyone, so assessing aptitude for this work and adequate preparation before starting is important (**Table 3**).

15. Conclusions

One very effective way of strengthening the relationship between primary care and mental health providers, improving both access to care and the patient experience is to integrate mental health service within primary care settings.

Evidence has shown that in addition to improving access, especially for individuals from underserved or isolated communities, when the mental health professional and family physician are working side by side it creates many opportunities for "indirect" services, whether these be case discussions, system navigation, and assistance with referrals. Every case provides opportunities for a brief educational component, thereby building the capacity of primary care.

Collaborative approaches also have the potential to address wider problems facing our health care systems both in identifying and assisting particular populations who have difficulty reaching traditional services and also improving the coordination of mental health services and reducing fragmentation and duplication.

Above all, being seen for mental health care in their family physicians' office is very popular not only with people using these services but also with providers who appreciate the extra dimension it brings to their practice and the additional support. And this is an approach that has the potential to be expanded to many other medical specialties, especially those that are not reliant on high-tech equipment.

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Section 2

Primary Care Medicine – Practice

Chapter 5

Polypharmacy in Home Care

Xavier Bayona-Huguet and Marc Bayona-Pizarro

Abstract

Home care grows in conjunction with the phenomenon of polypharmacy (synonymous with polymedication) while emerging in parallel with aging and frailty as a real health issue added to comorbidities. It is a situation of drug use for which we do not have an agreed definition. Some authors define polypharmacy as the concomitant ingestion of four or more drugs in the last three months, while other authors raise the number to five different drugs. Polypharmacy is often the result of the sum of appropriate prescriptions of drugs of proven effectiveness in patients with various chronic conditions. In these cases, from the point of view of compliance with clinical practice guidelines, everything would be in order. However, the reality of this situation is far more complex due to the lack of knowledge of the interactions that more than two drugs can cause in patients, in terms of kinetics or dynamics of the active principles, as well as the potentiation of their adverse effects.

Keywords: home care, primary care, value-based care, polypharmacy, appropriate prescribing

1. Introduction

Longevity has been described as the main cause of increased chronicity and frailty. For this phenomenon, it is essential to enhance home healthcare. The increase in life expectancy increases the chances that, at some point, the diagnostic criteria established by the scientific community for the most prevalent chronic diseases will be met. Multimorbidity, referred to as multiple comorbidities or multiple chronic conditions, is a prevalent phenomenon that significantly amplifies the intricacies associated with patient disease management. Globally, individuals are experiencing prolonged lifespans accompanied by disabilities and the presence of multiple comorbidities, which has an important implication for global healthcare needs, and polypharmacy is a serious health issue for frail older adults.

Other factors such as lowering thresholds for diagnosis and therapeutic recommendations for some conditions involving the treatment of asymptomatic entities to prevent potentially serious complications are factors that increase the "epidemic" of chronicity that affects health systems around the world. Traditionally, what defined the disease was the presence of symptoms or signs; however, the active search for asymptomatic alterations, supported by a highly relevant technological development, increasingly broadens the field of diseases to the field of the simple alteration of parameters, today biochemical and soon genetic [1].

The sustainability of public welfare policies is threatened, especially in addressing the needs of individuals with higher levels of needs or who are at risk. It is estimated that 8% of the population is in a situation of complex health or social needs and consumes 30% of the budget. Many of these individuals are cared for in their homes (their own homes or their residential facility). Professionals should focus on identifying individuals with complex needs, adapting care to each moment and situation, and making their home an ideal place in many circumstances, often the preferred location for decompensations, but not the exclusive one [2].

Home care is growing alongside the phenomenon of polypharmacy. These are emerging in parallel with aging and frailty as a real health problem added to comorbidities. Polypharmacy describes the circumstance in which a patient utilizes multiple medications concurrently. The World Health Organization (WHO) defines polypharmacy as "the administration of many drugs at the same time or the administration of an excessive number of drugs". Polypharmacy is a situation of drug use for which we do not have a consensus definition [2, 3]. Some authors define it as the concomitant intake of four or more drugs in the last three months, while others raise the number to five different drugs. Nevertheless, polypharmacy is typically defined as using five or more regular medications. Recently, the term "hyperpolypharmacy" has also entered the literature, defined as the consumption of 10 or more drugs [3].

Polypharmacy is a common problem in elderly patients and can increase the risk of drug interactions and side effects. It is commonly associated with adverse health outcomes. Polypharmacy is frequently linked to various adverse health repercussions, particularly among older adults with multimorbidity. These consequences encompass a heightened risk of mortality, falls, drug interactions, non-adherence, and hospitalization. Since the population with multimorbidity tends to increase with aging, the number of drug consumption increases simultaneously. The initial and crucial step in mitigating the potential adverse events related to polypharmacy involves identifying individuals who are at risk of receiving inappropriate polypharmacy treatment [4].

Home care can be bear in mind for addressing frail patients with multiple chronic conditions who often experience polypharmacy. It allows them to receive specialized medical care and supervision to reduce the risk of complications and improve their quality of life. Optimizing polypharmacy care requires effective targeting and follow-up of interventions. Pharmaceutical interventions have demonstrated a beneficial impact on addressing medication-related issues within hospital and nursing home environments, providing valuable support to nurses and physicians.

The fragmented practice of clinical care, which is common across different levels of care in all the care systems around the world, can lead to various types of duplications. This is because patients, during each of their repeated admissions and consultations at different care levels, receive numerous prescriptions from the professionals with whom they come into contact. A considerable proportion of these healthcare encounters result in the prescription of at least one additional medication, adding to the therapeutic arsenal that the patient is already taking.

2. Polypharmacy and appropriate prescribing

According to the WHO, rational use of medicines occurs when "patients receive medications that are appropriate to their clinical needs, in doses that meet their individual requirements, for an adequate duration, and at the lowest cost possible to them and the community" [5].

As the global population continues to age, the urgent need for the development of effective and safer treatments for older individuals has emerged as a critical concern in numerous countries. Managing polypharmacy, implementing measures against frailty and disability, has consequently become a significant focal point. In recent times, there has been widespread adoption of cautionary practices in prescription review and the avoidance of potentially inappropriate medications (PIM). The recognition of the detrimental effects of polypharmacy has gained considerable traction, particularly in its close association with multimorbidity. With the escalation of chronic diseases and geriatric syndromes during the aging process, there is a tendency for polypharmacy and the prescribing of potentially inappropriate medications (PIM) to rise as the severity of disability intensifies. On the other hand, in patients with more severe conditions, healthcare professionals, including physicians, may exclude stroke prevention or cardiovascular drugs based on management reviews. Addressing the specific stage at which polypharmacy and potentially inappropriate medication (PIM) pose significant challenges in older individuals with disabilities appears to be a considerable issue requiring clarification [6].

Polypharmacy is often the result of combining appropriate prescriptions of proven effective drugs in patients with various chronic conditions. In these cases, from the perspective of compliance with clinical practice guidelines, everything would be in order. However, the reality of this fact is much more complex due to the lack of knowledge about the interactions that two or more drugs can impose in patients, in terms of the kinetics or dynamics of the active pharmaceutical ingredients, as well as the potentiation of their adverse effects. Having an optimal understanding of which medications function as inducers or inhibitors of other drugs becomes crucial when devising optimal prescribing strategies for older individuals. In 2010, the WHO developed initiatives to improve the rational use of medicines through policy structures and measures, information, and education (see **Table 1**) [8].

• Creation of national bodies to coordinate policies on the use of medicines and monitor their impact
• Formulation of evidence-based clinical guidelines aimed at training, supervision, and decision-making support related to medicines
• Development of essential medicines lists for use in procurement and reimbursement by social health insurance
• Establishment of drug and treatment committees to implement interventions to improve medicine use and monitor their effects
• Inclusion of problem-based pharmacotherapy courses in university studies
• Inclusion of continuing medical education as a requirement for professional practice
• Provision of independent and unbiased public information on medicines, both for healthcare professionals and consumers
• Promotion of public education on medicines
• Elimination of economic incentives that facilitate inappropriate prescribing, such as the profit-driven sale of medicines by prescribes, increases their income
• Formulation of regulations to ensure that promotional activities adhere to ethical criteria
• Sufficient funding to ensure the availability of medicines and healthcare personnel
Modified from World Health Organization (WHO) [7].

Table 1.
Political and structural measures to improve the use of medicines (WHO).

It is essential to understand and address non-pharmacological aspects relevant to prescription, such as placebo effects or non-specific adverse effects (nocebos), non-adherence, cost, psychological meanings (symbols, beliefs, or stigmas surrounding medications), ethical issues, and the fact that prescription can be a way for the doctor to deal with their frustration, among others. These factors can impact the doctor-patient encounter and consequently influence a change in attitude in daily prescription practices.

During the aging process, a series of physiological changes occur that modify the pharmacodynamics and pharmacokinetics of medications, leading to a diverse and heterogeneous response to illness and its treatments. Comorbidities, geriatric syndromes, decreased function of vital organs, and sensory, functional, and cognitive impairments contribute to a reduction in the effectiveness of commonly used medications and an increased predisposition to experience adverse effects. Furthermore, there are often unfavorable social conditions in frail elderly individuals, such as loneliness and institutionalization, as well as psychological circumstances affecting self-esteem and self-perception of health. All of these factors place these patients in the most vulnerable group to suffer iatrogenic effects and, therefore, make them a priority for quaternary prevention (which encompasses activities aimed at avoiding, reducing, and alleviating harm caused by medical interventions).

Reasoned drug selection requires time, knowledge, and analytical capacity (see **Figure 1**). The reasoned selection of drugs is complex due to the lack of a filter for published information, publication bias (positive results are more likely to be published than negative ones), and the wide array of available therapeutic options. The assessment of polypharmacy often relies on arbitrary numeric thresholds, which, despite their limitations, do not fully encompass the appropriateness of drug usage. Therefore, it is necessary to employ more sophisticated approaches that take into account the clinical context. Adverse events related to medications in primary care contribute significantly to hospital admissions and mortality rates. Such events can arise from individuals experiencing adverse drug reactions, which are typically not preventable, or from medication errors, which are often preventable [9, 10].

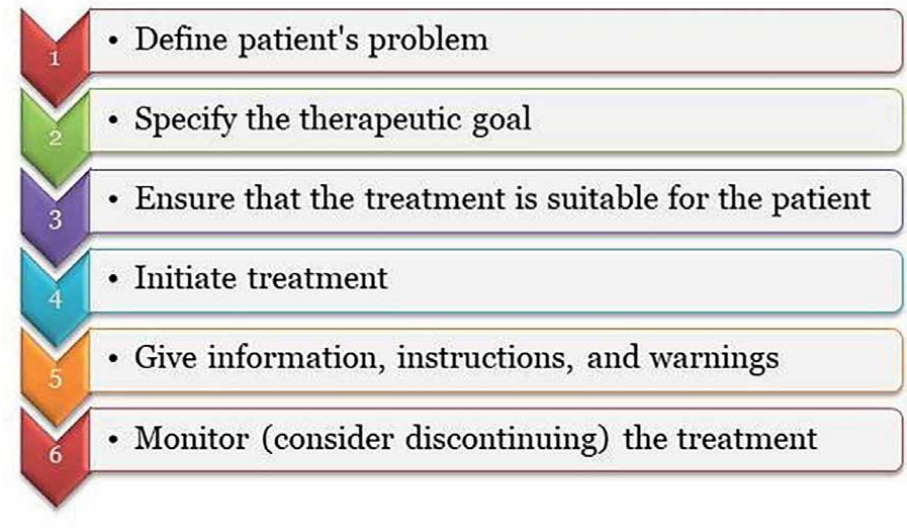

Figure 1.
Reasoned selection of medications.

For all these reasons there are needed conditions to consider for polypharmacy to make sense beyond clinical practice guidelines [9]. Implicit indicators of the adequacy of polypharmacy have been described [11]. The following criteria are considered when evaluating medication usage:

1. The indication for the drug is documented in the patient's medical record.
2. Non-pharmacological alternatives, if available, have been assessed and found ineffective.
3. The selected drug aligns with established clinical practice.
4. There are no clinically significant drug-drug interactions, including avoiding duplicate therapy.
5. If the drug is contraindicated, the prescriber provides a valid reason.
6. The drug is deemed effective for the patient's specific indication.
7. The prescribed drug, in its current form, is unlikely to be subtherapeutic or toxic, taking into account the patient's age, renal and hepatic status, as well as the dose, route, and dosing interval.
8. The drug regimen cannot be simplified further.
9. The patient or caregiver possesses a clear understanding of the prescribed drug regimen.
10. The patient adheres to the prescribed drug schedule.
11. An appropriate clinician reviews the drug treatment at least once a year or more frequently based on best clinical practice.
12. If an adverse drug reaction occurs, the details of the reaction are documented, and follow-up recommendations are provided in the patient's medical record.

The concept of *appropriate polypharmacy* recognizes that patients can benefit from multiple medications as long as the prescription is based on evidence, reflects patients' clinical conditions, and considers potential drug interactions. Rather than relying on arbitrary numerical thresholds to define polypharmacy, it is essential to promote the adoption of this concept, which encompasses a comprehensive evaluation of medication appropriateness and clinical context. Polypharmacy should be viewed as potentially problematic rather than inherently inappropriate. Therefore, assessments of prescription appropriateness should go beyond simply counting the number of drugs prescribed. Alternatively, they should take into account the presence of coexisting medical conditions to differentiate between a reasonable number of medications and an excessive amount [11].

The concept of *inappropriate prescription* should be supported by two essential considerations: respect for the common good (including implications and familial and social aspects) and respect for the patient's preferences and perspective [8].

By employing such a measure as an initial step, healthcare providers can identify patients who may be at risk of receiving inappropriate prescriptions. This measurement can then facilitate focused discussions with patients, allowing for an exploration of their perspectives on the suitability of their existing medication regimen. Prescription appropriateness assessments need to shift their focus away from solely considering the quantity of drugs prescribed. Ideally, they should prioritize evaluating the presence of multiple conditions when distinguishing between "appropriate polypharmacy" (indicative of managing multiple conditions effectively) and "inappropriate polypharmacy" (associated with an excessive number of medications).

"Appropriate polypharmacy" recognizes the necessity and potential benefits of multiple medications for patients, given that the prescribing process adheres to evidence-based practices, mitigates interactions and adverse events, and aligns with the patient's clinical conditions. Simultaneously, when aiming to achieve appropriate polypharmacy, the inclusion of additional medications should be approached cautiously, considering the need for adequate monitoring of disease control. Regular reviews by healthcare professionals are essential in ensuring optimal medication management. Population-level research has demonstrated that when employed appropriately, polypharmacy can yield beneficial outcomes for patients [12].

Among patients with extensive multimorbidity (defined as having six or more conditions), there was no increased likelihood of unplanned admissions for those taking four to six medications compared to those taking fewer medications (one to three). The available evidence indicates that polypharmacy, solely defined by a numerical threshold, should no longer be regarded as inherently harmful. The decision-making process regarding medication usage should include recognition of the clinical context and the extent of multimorbidity [12]. Emphasis should be placed on appropriate prescribing practices and effective disease management. Balancing the need for multiple medications while minimizing the risk of adverse events presents a significant challenge in everyday clinical practice. Acknowledging this need, guidance has been provided to healthcare professionals to navigate this complex task effectively.

The National Institute for Health and Care Excellence (NICE) has provided comprehensive guidance on the clinical assessment and management of multimorbidity [13]. The guidance prominently emphasizes the utilization of medicines, necessitating thorough medication reviews, the exploration of potential pharmacological or non-pharmacological treatment options to initiate or discontinue, and engaging in discussions with patients about disease management approaches and their treatment preferences.

A Cochrane review published in 2018 (and currently undergoing updates) revealed limited evidence regarding the strategies for achieving appropriate polypharmacy. The reviewed studies exhibited inadequate details regarding the development and content of the interventions employed [14]. To maximize the potential impact of assessed interventions, it is crucial to take into account their effect on outcomes that hold significance for patients, healthcare providers, and policymakers. This approach ensures that interventions are evaluated in a manner that allows for the synthesis of similar studies, thereby reinforcing the strength of the evidence and broadening the scope of their applicability. A review of systematic reviews investigating interventions targeting polypharmacy revealed that interventions emphasizing appropriate prescribing within the context of polypharmacy demonstrated some beneficial effects. However, consistent evidence regarding other outcomes such as healthcare application, morbidity, or mortality is lacking [15].

While clinical practice guidelines offer general principles to guide healthcare practice, the ultimate objective should be the individualization of treatment plans to suit

the unique needs and circumstances of each patient. This indicates that a "one-size-fits-all" approach is not aligned with this guidance, necessitating a different approach that requires both time and appropriate skills to tailor treatment plans effectively. There is a growing trend to view decision-making processes, such as prescribing, through a behavioral lens. By employing behavioral insights, strategies can be developed to enhance prescribing practices.

Polypharmacy has long been recognized as a complex issue in prescribing and is expected to persist as the population ages and multimorbidity becomes more prevalent. Medications will continue to play a central role in disease management despite these challenges. While advancements in drug formulations, such as the Polypill that combines multiple drugs into a single dosage unit, may arise, prescribers and patients will still face the responsibility of striking the delicate balance between an appropriate number of medications (polypharmacy) and an excessive amount (inappropriate or problematic polypharmacy).

3. Polypharmacy and home care

The number of homebound elders has risen dramatically in the last decade, an increase that was accelerated by the Sars-Cov-2 COVID-19 pandemic. Individuals in this category typically experience the presence of five or more chronic conditions, requiring the use of six or more medications. As a result, they face an increased risk of functional decline. Polypharmacy represents a significant burden for these individuals, elevating the likelihood of medication nonadherence, errors, and interactions, while also diminishing their overall quality of life [8]. Guidelines are progressively acknowledging the necessity of using multiple drugs for the management of chronic conditions like diabetes. However, it is noteworthy that many clinical trials often exclude older individuals with multimorbidity and polypharmacy, leading to a lack of evidence in this specific population. Consequently, there exists an evidence gap in understanding the optimal treatment approaches for individuals with multiple chronic conditions and polypharmacy.

Home care refers to a range of health and social services provided to patients in their own homes. It involves the provision of medical care, personal assistance, and support services to patients who may have health conditions, disabilities, or who are recovering from an illness or injury. Home care services can include medical treatments, medication management, assistance with daily activities, nursing care, physical therapy, occupational therapy, and emotional support. The goal of home care is to enable patients to remain in their homes while receiving the necessary care and support to maintain their health and well-being [16].

The organization and portfolio of services provided at home are key to value-added health and social care. Many patients prefer to be treated at home instead of in the hospital, as they are more satisfied and experience fewer complications. The lower mortality rate in conditions that can be managed at home compared to the hospital is also a significant aspect, as well as the lower cost of anything that can be done outside of the hospital.

A change is taking place in hospitals toward reducing conventional hospitalization through the development of short-stay units, day hospitals, or home hospitalization. These units are designed with the philosophy of reducing costs, preventing complications and, of course, ensuring that the patient feels comfortable in their own environment. However, adequate communication and coordination mechanisms with primary care are needed to make the system efficient and ensure patient safety during the transition between levels.

Not all iatrogenic pathology can be prevented, and yet efforts should be made to prevent a significant proportion from being due to inappropriate drug selection or dosing. For many adverse effects, patients at high risk of experiencing them can be identified. Often, these are the patients with whom extra caution should always be exercised: the elderly, children, pregnant women, and patients with kidney or liver disease. Most of them are included in home care programs.

The phrase "Better health for the dollar spent," coined by Michael Porter, encapsulates the essence of the present emphasis on clinical management. The veteran Harvard professor, an expert in business competitiveness, had an experience with the health system and from his own observations wrote a book that went so far as to say: "I see them obsessed by the effectiveness of their actions and not focused enough on the effectiveness derived from them." Synthetically, Porter's contribution to clinical management is summarized in his three pillars: (a) define health goals that are valuable for each patient, (b) know how to measure the health value that is provided with every clinical act and (c) reorder care services according to the process needs of each illness [17].

The care delivery value chain is a tool that can help design care strategies for patients receiving home care who are polypharmacy. It is a tool proposed by Porter [18] that focuses efforts on achieving outcomes. Within this framework, a homogeneous group of patients is defined as those who are cared for at home and chronically consume 5 or more drugs per day. Based on the latest available evidence, the following aspects should be defined:

1. Health outcomes to achieve.

2. Strategies for patient and family empowerment.

3. Implementation of multidisciplinary teamwork.

4. Additional aspects to consider in order to achieve objectives.

3.1 Health outcomes to achieve

When healthcare practice is fragmented, patients feel more overwhelmed by the burden of treatment than by the weight of the diseases they suffer from. Therefore, the burden of treatment should be acknowledged and recognized.

By basing value on outcomes that genuinely reflect patients' priorities, a conducive environment is established, aligning incentives among all healthcare stakeholders to generate value for patients.

The main outcomes that should be focused on are the following, according to the methodology proposed by Porter [18]:

1. Health status that is achieved or, retained:

   a. Survival. While maximizing survival duration is not necessarily the paramount outcome, particularly for older patients, who may prioritize other outcomes more significantly.

   b. Degree of health or recovery achieved or retained at the peak or steady state. Relevant aspects of functional status.

2. Recovery process:

    a. Time required to achieve recovery and return to normal or best attainable function. Cycle time is a critical outcome for patients.

    b. The negative impact of the care or treatment process, such as discomfort, the need for retreatment, short-term complications, and errors, along with their subsequent consequences.

3. Health sustainability:

    a. Recurrences of the initial disease or the emergence of long-term complications.

    b. New health issues arise as a result of the treatment.

The mission of the International Consortium for Health Outcomes Measurement (ICHOM) is to unlock the potential of value-based healthcare by defining what matters most to patients and encouraging the adoption and reporting of these measures worldwide to make life better for all. Through the establishment of a standardized list of outcomes that align with the patient's priorities, alongside the development of appropriate measurement instruments and time points, the healthcare system can effectively maintain patient-centered care [19].

Usually, we tend to measure intermediate results and we focus little on the outcomes that are more complex to measure. Through ICHOM it is possible to advance in the definition of outcomes.

International organizations have provided support to patients, clinicians, and experts from diverse regions in determining the key dimensions of health that should be taken into account when evaluating the added value of services for adults, particularly in the context of public and primary healthcare. These organizations have also assisted in defining the appropriate measurement approaches for assessing these aspects of health. Gangannagaripalli et al. have introduced a minimum standard outcome set for overall adult health with the aim of facilitating the implementation of value-based healthcare. This outcome set enables the tracking, comparison, and enhancement of overall healthcare outcomes in adult populations across various conditions, offering specific relevance to primary care and public health settings [20]. This could be a good first step toward the health objectives that must be gained in patients that use five or more medicines. **Table 2** shows the value-based patient-centered outcomes of overall health in adults by domain.

3.2 Strategies for patient and family empowerment

Training strategies for professionals in motivational interviewing should be considered, in order to improve adherence, and shared decision-making dynamics. In addition, support materials (decision aids) will be used or developed as facilitators of patient-centered care. The main objective is the empowerment of the patient so that he/she can manage the clinical situation with maximum autonomy.

3.3 Implementation of multidisciplinary teamwork

Elements of multidisciplinary teamwork must be implemented. These proposals can be relatively simple, such as face-to-face, telephone, or online consultations

Domain	Outcome
Physical health	General physical health Physical functioning Mobility Fatigue Pain Seeing Hearing
Mental health	General mental health Vitality Symptoms of depression Symptoms of anxiety Sleeping
Social health	General social health Interpersonal functioning Work

Adapted from Gangannagaripalli et al. [20].

Table 2.
Value-based patient-centered outcomes of overall health in adults.

between primary care professionals and the hospital, or the scheduling of extensive sessions with the participation of social workers, nurses, family doctors, and other specialists involved; or more complex, such as the constitution of cross-sectional clinical management units with full-time professionals assigned to them. Professionals who can add value to the process are primary care physicians, nurses, health technicians, pharmacists (primary care, hospitals, and pharmacies), social workers, and other social assets that can reduce the burden of treatment.

3.4 Additional aspects

The value chain must also contemplate circuit analysis to reduce the burdens that complex therapeutic plans inflict on people, many of them with low levels of understanding, so it is recommended to use participatory methodologies such as lean or design thinking that can make the contact of patients with the health system as less uncomfortable as possible and, if considered appropriate, e-health support elements should be tested.

In health systems around the world, care practice is often fragmented. The fragmentation of healthcare systems favors polypharmacy and its harmful effects on the health of patients. Therefore, patients feel more overwhelmed by the burden of treatment than by the weight of the diseases they suffer from. Accordingly, the burden of treatment must be known and recognized.

4. Deprescribing

Deprescribing refers to the systematic process of discontinuing or reducing unnecessary or potentially harmful medications in order to optimize a patient's medication regimen. It involves a comprehensive evaluation of the patient's medication, taking into account factors such as appropriateness, effectiveness, safety, and

patient preferences. The goal of deprescribing is to minimize medication-related harm, improve patient outcomes, and enhance the overall quality of medication use [21].

Limited randomized controlled trials (RCTs) exist that assess the advantages and drawbacks of deprescribing, although some therapeutic areas, such as hypertension, dementia, and osteoporosis, have seen some examples. Nonetheless, in situations where a comparator trial is unattainable, impractical, or ethically challenging, the quality of observational research can be enhanced through target trial emulation. This approach involves defining all elements of the target trial, including eligibility criteria, treatment allocation, follow-up duration, and outcome measures, and applying design principles from RCTs to the analysis of observational data.

The process of deprescribing is primarily structured around the following concepts:

- Evidence supporting each drug indication.
- Patient's life expectancy.
- Prioritization of health problems affecting the patient.
- Patient's opinion and adherence characteristics expressed.
- Individual assessment of benefits and risks of each drug.
- Non-pharmacological alternatives to address specific problems.
- Development of a gradual and monitorable deprescribing plan.

It is necessary to create spaces where the options, advantages, and disadvantages of deprescribing can be discussed with the patient or their caregivers, with a strategic and proactive vision (looking toward the future and anticipating events) and making it clear that no decision is irreversible.

There are several methods and approaches to deprescribing, which may vary depending on the individual patient's situation and medication regimen. Some common deprescribing methods include:

1. Medication review: conducting a comprehensive review of the patient's current medication, including assessing their appropriateness, potential risks, and benefits.
2. Patient-centered discussions (shared decision-making): engaging in open and honest conversations with the patient about their medication, including discussing the goals of treatment, potential risks, and the possibility of reducing or discontinuing certain medications. Collaborating with the patient in the decision-making process, considering their preferences, values, and goals, and involving them in the choices regarding medication changes.
3. Gradual tapering: when reducing or discontinuing medications, a gradual tapering approach may be used to minimize withdrawal symptoms or potential rebound effects.

4. Therapeutic substitution: considering alternative drugs or non-pharmacological approaches to address the patient's health condition, potentially replacing a drug with a safer or more appropriate option.

5. Monitoring and follow-up: regularly monitoring the patient's response to medication changes, evaluating their symptoms, and providing ongoing support and follow-up care.

It is important for deprescribing to be conducted in a systematic and individualized manner, involving healthcare professionals, patients, and caregivers working together to optimize the use of medicines and promote patient well-being.

There are several tools and resources available to support the process of deprescribing [22]. These tools are designed to assist healthcare professionals in making informed decisions about reducing or discontinuing medications. Some commonly used deprescribing tools include:

1. Beers criteria: the Beers criteria for potentially inappropriate medication use in older adults is a widely recognized tool that provides guidance on medications that may be potentially inappropriate or have a high risk of adverse effects in older adults.

2. STOPP/START Criteria: STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment) criteria are evidence-based tools used to identify potentially inappropriate and potential prescription omissions in older adults.

3. Medication appropriateness tools: various medication appropriateness tools, such as the Medication Appropriateness Index (MAI) and the Screening Tool to Alert to Right Treatment (START), can help assess the appropriateness of medication based on specific criteria.

4. Deprescribing guidelines: national or international guidelines, such as the Deprescribing Guidelines in the Elderly, provide recommendations and evidence-based strategies for reducing or stopping medications in older adults.

5. Electronic decision support systems: electronic tools and systems integrated into electronic health records (EHRs) can provide prompts, alerts, and recommendations to healthcare professionals regarding medication appropriateness and potential deprescribing opportunities.

It is important to note that these tools are meant to assist healthcare professionals in making informed decisions, but they should be used in conjunction with clinical judgment and individual patient considerations.

An illustration of this is the STOPP/START criteria (Screening Tool of Older Person's potentially inappropriate Prescriptions/Screening Tool to Alert doctors to the Right, i.e., appropriate, indicated Treatment), which in its third version, allows for the identification of potentially inappropriate prescribing (PIP) at an individual level. Through four rounds of Delphi validation, the panel achieved consensus on 133 STOPP criteria, and 57 START criteria, totaling 190 STOPP/START criteria [23]. This signifies a significant increase of 66.7% in the number of criteria compared to the second version of STOPP/START published in 2015.

5. Conclusions

Polypharmacy, also known as polymedication, is a situation of drug consumption for which we do not have a consensus definition, because of this, assessments of prescribing appropriateness need to extend beyond the number of drugs prescribed and consider coexisting medical conditions.

Polymedication is frequently produced by the combination of effective prescriptions in a context of multimorbidity, chronicity, and complexity in which there is insufficient evidence. For this reason, it is necessary to differentiate "many drugs" (appropriate polypharmacy) from "too many drugs" (inappropriate polypharmacy).

The reasoned selection of pharmacological treatments requires time, knowledge, analytical skills, and individualization based on available evidence and the values and preferences of the patient. Appropriate polypharmacy can benefit patients with multimorbidity, provided that adverse effects and interactions are taken into account.

The home environment, with healthcare provided primarily by primary care professionals, is a setting with a high prevalence of patients with polypharmacy. It is a conducive environment for reflection on appropriate prescribing in situations of multimorbidity and chronicity.

To practice value-based healthcare, the care delivery value chain, which focuses on the health outcomes relevant to the patient, can be a useful tool. Throughout the process of rationalizing pharmacological treatments, different profiles of healthcare professionals working in a multidisciplinary manner are key to improvement.

Finally, it is important to note that when there is medication overload, deprescribing tools and methodologies are very useful and help ease the burden of treatment on patients.

Conflict of interest

The authors declare no conflict of interest.

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Chapter 6

A Patient-Centered Management of Patients with Diabetes Type 2: Are All Diabetic Patients the Same?

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Abstract

Type 2 diabetes is a complicated condition that develops as a result of the interplay of several genetic variations with a person's lifestyle and environmental circumstances. Due to its strong ties to aging, it adds to the complexity of these patients and raises the risk that geriatric diseases like sarcopenia, malnutrition, and frailty might appear in them. In fact, chronic inflammation is thought to be the primary mechanism causing metabolic and vascular alterations as people age. There is still little knowledge about the phases of chronic inflammation that influence the development of damage to target organs, and there is also limited knowledge about the relationship between chronic inflammation and metabolic diseases. The interindividual variability in type 2 diabetes patients is further exacerbated by aging-related alterations in inflammatory and metabolic markers. Clustering, or the grouping of individuals, can help identify novel type 2 diabetes phenotypes and further clarify the pathophysiological causes of the condition. The aim of this work is to identify a potential model of treatment personalization that could be especially helpful for family medicine physicians who regularly treat complex heterogeneous patients in light of the rising demand for personalized care for patients with type 2 diabetes.

Keywords: type 2 diabetes, chronic diseases, frail older adults, inflammation, precision medicine

1. Introduction

The prevalence of type 2 diabetes (T2D) is at an epidemic level everywhere. According to figures from the International Diabetes Federation, there are currently about 537 million individuals worldwide, aged 20–79, diagnosed with diabetes, and by the year 2045, those numbers are expected to rise to a total of 780 million, respectively. The risk of macrovascular and microvascular complications is increased by T2D, which also lowers life expectancy and quality of life [1]. In T2D, both insulin secretion and action are compromised. Although there has been disagreement about

their relative significance, genetic research has led to the realization that β-cell dysfunction is the primary cause of the disorder. According to studies, T2D heritability can range from 30 to 70% [2]. Although genetic predisposition is an important component in determining the onset and severity of T2D, non-genetic variables including nutrition, physical exercise and body weight also have a significant impact on the disease's development [3].

2. T2D is a heterogeneous, complex disease, associated with aging and the development of multimorbidity, caused by the interaction of multiple changes at genetic loci with lifestyle and environmental factors

About 80% of all cases of diabetes are T2D, making it the most prevalent kind. About 10% of cases of diabetes are type 1, and about 5% of cases are latent autoimmune diabetes of the adult (LADA). The remaining cases of diabetes are maturity-onset diabetes of the young (MODY) and other monogenic types of diabetes, but also secondary diabetes [4].

Common polymorphisms that raise the risk of T2D have been successfully identified by genome-wide association studies (GWAS). The initial investigations, published in 2007, involved thousands of subjects and identified 10 genomic locations responsible for increasing the risk of T2D. The same variations were found in several of these investigations. But those studies demonstrated that the majority of the common polymorphisms discovered by GWAS only elevated the risk of T2D by about 15% - 40% [1, 5]. GWAS studies have had great success and have identified more than 700 new T2D risk loci so far, showing that a larger sample size significantly boosts the statistical ability to find additional association signals. Although novel risk variants for T2D might be statistically significant, their contribution to our understanding of the pathophysiology of T2D is still limited [6].

Some studies also proposed the "palette model of diabetes", according to which T2D is caused by flaws in a number of aetiological pathways. These pathways include differences in fat distribution, glucagon and incretin secretion and action, insulin action in muscle and liver, beta cell mass, and activity, suggesting a theory in which each person with T2D experiences the onset of diabetes as a result of a variety of flaws in these pathways. For many people, the flaw in each pathway may be slight, but diabetes develops when enough pathways are impacted. However, one or two of these routes may experience a more severe malfunction, also resulting in diabetes [7].

Besides genetic factors, non-genetic factors are considered to have a significant impact on the development of diabetes. There is strong evidence that T2D may be prevented by altering one's lifestyle: losing weight by dietary changes that follow the most recent guidelines for intake of whole grains, fiber, fruit, and vegetables, as well as an increase in physical activity [1]. The degree of long-term weight loss and commitment to lifestyle modifications are substantially correlated with the risk reduction of T2D, and this preventive impact has been shown to persist for many years after active intervention. However, to determine the ideal diet to prevent T2D, more carefully controlled intervention trials are required. Currently, a diet low in saturated fat and high in fiber, whole grains, fruit, and vegetables, as well as a Mediterranean-type diet, may be advised for the prevention of T2D in prediabetes. There is currently insufficient data to suggest that altering one's lifestyle can prevent microvascular or macrovascular complications in patients with T2D [8]. According to many studies, the fluctuation of additional risk variables, such as blood pressure, heart rate, plasma

lipids, body weight, and serum uric acid concentrations, may contribute to the development of diabetic complications together with the variability of blood sugar levels. Additionally, when present simultaneously, the heterogeneity of each risk factor may also have cumulative consequences [9].

The intricacy of T2D is particularly noticeable in senior people because the disease's frequency dramatically increases beyond the age of 50. As a result, in these individuals, the effects of aging, such as a rise in comorbidities, difficulty controlling blood sugar, a propensity to develop sarcopenia, malnutrition, and frailty, are much more prominent. The levels of laboratory markers ultimately represent the combined impact of all illnesses in a particular person, which complicates therapy [10]. Frailty and multimorbidity are prevalent among elderly diabetics and are linked to a variety of negative outcomes, such as disability and death. The likelihood of negative outcomes increases proportionately with the number of morbidities and the degree of frailty, but it still remains unclear how multimorbidity and frailty relate to glycemic control. The pattern and clustering of morbidities may have a substantial impact on the prediction of unfavorable outcomes. Therefore, comprehensive diabetes treatment recommendations that use a holistic approach are necessary, including screening for and management of conflicting illnesses, also including mental health problems like depression [11].

More current recommendations emphasize the customization of T2D care, which should take a number of medical and individualized aspects into account. The diabetic phenotype, accessible biomarkers (autoantibodies and genetic testing), and the existence of medical comorbidities are important medical considerations that should typically be taken into account. In addition to patient criteria including treatment preferences, age, and life expectancy, treatment options should take into account the existence of additional difficulties, multimorbidity, and, particularly in elderly patients, the presence of frailty [12]. In the future, therapy decisions may be guided by profiling scores in conjunction with clinical and genetic indicators, particularly in T2D patients [13].

3. Anthropometric characteristics and lifestyle factors associated with T2D

There is ample evidence from preclinical and clinical studies that suggests that adipose people are more prone to developing cardiovascular disease (CVD) and premature death from it [14, 15]. Obesity is also acknowledged as the most significant modifiable risk factor for prediabetes and T2D. Depending on the degree of obesity, the distribution of fat tissue, the age of beginning, and the length of obesity, metabolic syndrome (MS) can develop very quickly [16]. Long used in medical settings to evaluate the health concerns related to obesity are specific anthropometric measurements that are thought of as surrogate assessments for identifying obesity. The most fundamental anthropometric measures are those of height, weight, waist, hip, and limb circumferences [16, 17]. Body mass index (BMI) has been used for many years to evaluate physical nutrition, or the presence of overweight or obesity, both in research and in daily life. This measure's primary drawback is that it does not accurately represent the body's composition, making it difficult to judge the distribution of accumulated fat, which is crucial for determining risk for various morbidities [17].

The risk for T2D in adults definitely rises with BMI over 30 kg/m^2, although it appears to begin to increase even within the normal BMI range (from 22 and 24 kg/m^2) for both genders [18]. Numerous studies have confirmed a significant connection between the increase in BMI and the development of T2D [19, 20]. Furthermore, many studies have

confirmed the association between the existence of central/visceral obesity and the development of T2D, independent of BMI. White adipose tissue (WAT) is known to contribute to the regulation of total glucose levels and energy homeostasis [21, 22]. The strong association between the accumulation of visceral fat and the onset of insulin resistance and, consequently, hyperinsulinemia is primarily attributed to a more harmful secretory, lipolytic and proinflammatory profile of adipocytes in visceral fat depots. [23, 24]. Since increased visceral adiposity is recognized as an independent risk factor for T2D, anthropometric indicators of central obesity such as waist circumference, waist-to-hip ratio, and waist-to-height ratio are used in daily clinical practice and research. The prevalence of T2D increases with increasing waist circumference, and it is considered an independent predictor of T2D development even after adjustment for BMI [25, 26]. Therefore, central obesity is considered to be a better overall predictor of the onset of T2D than BMI alone [19, 27]. Even though many anthropometrics have been investigated, including BMI, waist circumference, waist-to-hip ratio, and waist-to-height ratio, studies remain inconsistent, and conclusive results have not been reached [28, 29].

The fact that T2D is mostly an age-related disease contributes to the complexity of these patients by increasing their potential for the development of multiple comorbidities and geriatric conditions, such as sarcopenia, malnutrition, and frailty. The metabolic, inflammatory, and hormonal parameters of the affected individuals vary as a result of these situations, which increases interindividual variation. In elderly people with T2D, we recognize at least two metabolic types of frailty: one characterized by obesity and high insulin resistance (sarcopenic obesity phenotype) and another characterized by muscle and body mass loss and low insulin resistance (anorexic malnourished phenotype). So far, it has not been clarified whether a lower BMI (<25 kg/m^2) reflects the presence of frailty or only reduced body mass without the presence of frailty (**Figures 1** and **2**) [30, 31]. Also, it is still not clear how many phenotypic forms women with MS can have, considering possible differences in BMI, renal function, and the existence of CVD and frailty [30].

We can say that the anthropometric parameters used so far and the known genetic and environmental risk factors, including lifestyle, do not provide a complete

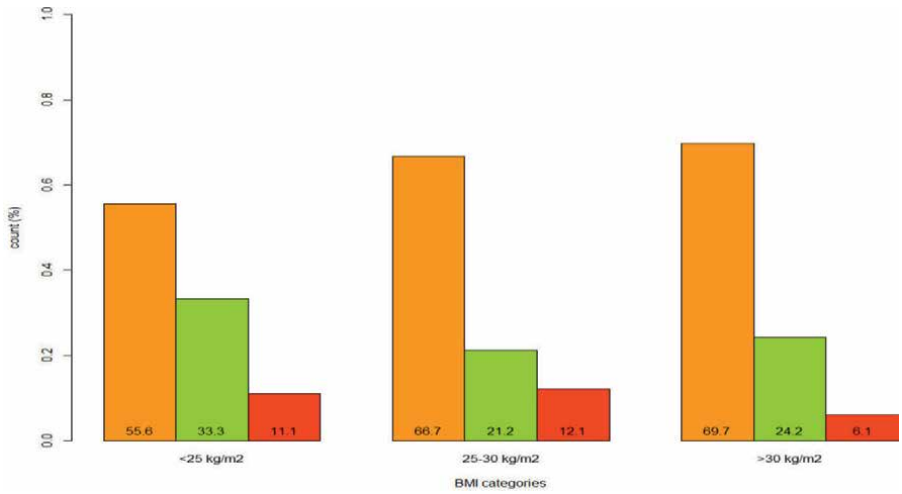

Figure 1.
Gender (men)-dependent distribution of older diabetic patients according to the frailty status (orange – Nonfrail, green – Pre-frail, red – Frail) and BMI categories (<25 kg/m^2, 25–30 kg/m^2, >30 kg/m^2).

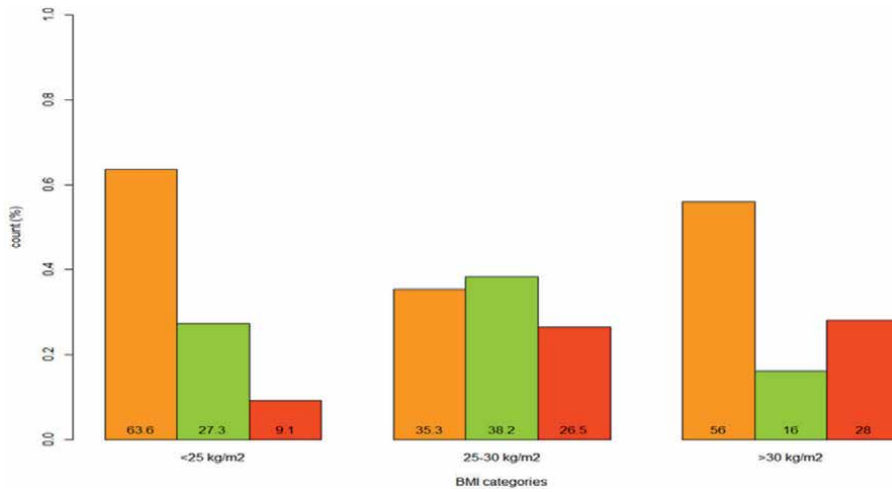

Figure 2.
Gender (women)-dependent distribution of older diabetic patients according to the frailty status (orange – Nonfrail, green – Pre-frail, red – Frail) and BMI categories (<25 kg/m², 25–30 kg/m², >30 kg/m²).

understanding of the pathophysiology of T2D. Considering the important role of chronic inflammation in this and many other chronic diseases, grouping based on the values of inflammatory markers in combination with existing parameters could contribute to the discovery of hidden phenotypes of patients with T2D [30, 31].

4. T2D as a systemic inflammatory disease – Immune-metabolic disturbances in age-related metabolic and vascular conditions

There are number of key studies published over the past two decades that have provided foundational insights into the immunometabolism field. Low grade inflammation has been implicated in the development of T2D, CVD and other common aging diseases. Inflammation is associated with increased recruitment of inflammatory and immune cells from the circulation to the tissue via dysfunctional vascular endothelial cell [32]. Distinctly from acute inflammation, for which the time course is well-known, the phases of chronic inflammation associated with aging and the development of chronic age-related diseases, are yet poorly identified. That being the case, just a few discrete mechanisms have been identified thus far. [33, 34]. It is believed that the mechanisms of chronic inflammation show a dynamic of change that runs parallel to the progression of damage to the end organs and a decrease in the entropy of the whole body [35, 36].

There are numerous sources of inflammation in older individuals, and the main considerable are senescent cells and chronically activated innate immune system [35]. Various stimuli, like molecules that are released from damaged tissues and disturbed gut microbiota, can trigger receptors of the innate immune system, leading to increased production of proinflammatory cytokines, such as tumor necrosis factor-α (TNF-α), interleukin-1β (IL-1β), IL-18, IL-6 which can trigger a persistent inflammatory state in the body and alter the etiology of disorders linked with inflammation when nucleotide-binding domain, leucine-rich–containing family, pyrin domain–containing-3 (NLRP3) is abnormally activated (**Figure 3**) [37, 38].

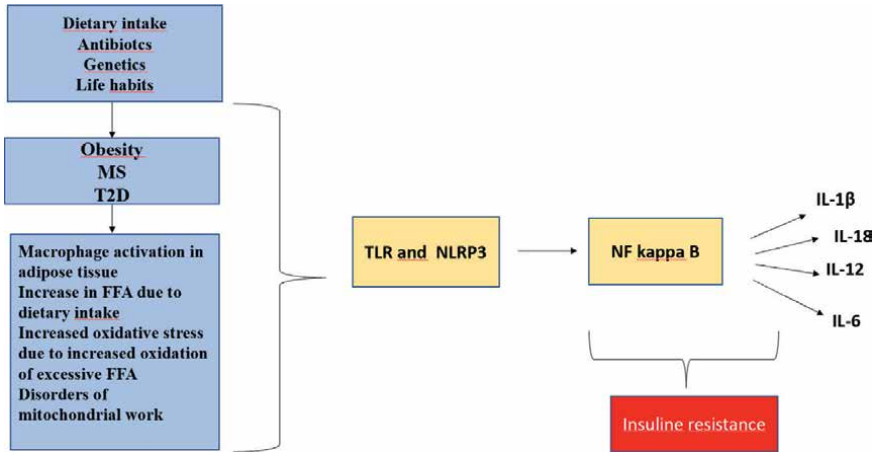

Figure 3.
Immune-metabolic disturbances in age-related disease (T2D).

Changes in the body's shape and structure that occur with aging, including muscle loss and an increase in visceral fat, significantly contribute to inflammation process and the development of insulin resistance, which combined together raise the risk for metabolic and vascular complications in older individuals [36]. Obesity augments age-related inflammation, which is mainly the effect of proinflammatory cytokines and other proinflammatory mediators produced by dysfunctional adipocytes and monocyte/macrophages that abundantly infiltrate adipose tissue of obese individuals [39, 40]. Additionally, metabolic intermediates such as free fatty acids, advanced glycation end products, and oxidized lipoproteins that are overproduced in obesity and obesity-related diseases, such as MS and T2D, have been identified as potent proinflammatory signals (**Figure 3**) [37]. The proinflammatory cytokines induce insulin resistance, which further exacerbates metabolic disorders and inflammation, leading to the accelerated atherosclerosis and target organ damage (**Figures 1** and **2**) [36, 41].

Since many patients newly diagnosed with T2D already have associated complications, pre-existing tissue damage due to end-organ disease in cardiometabolic states, which occurs between the ages of 55 and 60, can further enhance all of these mechanisms [42].

Knowledge about T2D and patients suffering from it is still not complete, but it is known that T2D develops more often in obese people, since fat tissue is the source of inflammation, and inflammatory mechanisms are involved in the development of comorbidities that eventually exhaust the reserves of homeostatic mechanisms and cause the onset of weakness and illness. The aforementioned findings call for better integration in a practical sense with the goal of a patient-oriented approach, especially at the level of primary health care.

5. Metabolic reprogramming in chronic inflammation and the balance between the tolerogenic and inflammatory immune axis in cardiometabolic diseases, especially T2D

We have known for a long time that target organ disease is closely related to the development of macrovascular and microvascular complications, including entities

such as ischemic (atherosclerotic) heart disease, congestive heart failure (CHF), stroke, chronic kidney disease (CKD), peripheral arterial disease, neuropathy and retinopathy in patients with T2D [43]. Distinctly from acute inflammation, for which the time course is well-known, the phases of chronic inflammation associated with aging and the development of chronic age-related diseases, are poorly identified yet [33, 34, 44]. When the tissue stress level reaches a certain threshold, inflammation is likely to develop. How this occurs in a real-life setting is not completely understood. The evidence suggests that the immune and inflammatory cell population that migrates to the tissues of the target organs may differ from the population of cells known to contribute to atherosclerosis in large arteries, which primarily consists of macrophages, dendritic cells (DCs), NK cells, CD8+ (cytotoxic) T lymphocytes, and Th1 lymphocytes. [44, 45]. In target organ damage, a pivotal role is attributed to the subset of CD4+ T lymphocytes, termed T helper 17 (Th17) lymphocytes, which produces cytokines of the IL-17 family (IL-21, IL-22, IL-26, and IL-17A and F), which act to create an inflammatory environment. The role of Th17 lymphocytes in sustaining chronic inflammation has already been recognized in autoimmune and other inflammation-mediated diseases, such as inflammatory bowel disease, osteoarthritis, and periodontitis [46, 47].

Namely, in inflamed tissue microenvironment, the bias is turning from the predomination of anti-inflammatory T regulatory (Treg) lymphocytes toward a predomination of the proinflammatory Th1/Th17 pathway, which is associated with increased production of cytokines of the IL-17 family – known as a trigger for maintaining inflammation and tissue damage [48, 49]. Besides changes in the cytokine profile, changes in metabolic conditions can also shift the balance between Treg and Th17 cell lines. In particular, these two cell lines are distinguished by a high degree of flexibility to circumstances in the microenvironment, allowing the immune system to be functionally adjusted to changes in physiological parameters [50, 51]. Inflammation and tissue remodeling/fibrosis must coexist with incomplete Th17/Treg polarization, with the balance fluctuating between either of these processes' predominance. For example, besides increased production of anti-inflammatory cytokines, an expansion of Treg is also associated with increased production of Transforming Growth Factor Beta (TGF-β) - a major fibrotic factor [52]. The cytokine IL-17A is the best-investigated member of the IL-17 cytokine family, and its role in the development of CVD and target organ damage has been demonstrated in both experimental and clinical conditions [53, 54]. Some of the proposed mechanisms include increased mobilization of inflammatory and immune cells (monocytes, neutrophils, and T lymphocytes) from circulation to tissues, increased production of proinflammatory molecules, such as cytokines, chemokines, and adhesion molecules, and induction of extra-cellular matrix degradation and tissue fibrosis [55, 56].

Until recently, immune memory was considered an exclusive feature of the T cell-mediated adaptive immune system [57]. However, in recent years this paradigm has changed, and there is a growing body of evidence that long-term adaptive changes may also affect monocytes/macrophages, resulting in their enhanced responses to repeated stimulation with infectious and noninfectious challenges [58].

Genes engaged in immunological activities and in maintaining glycolytic metabolic pathways are those whose activity is impacted by trained immunity, as shown by the findings of transcriptional and epigenetic research [59]. Induction of post-translational histone modifications (also known as epigenetic alterations) and rewiring of cellular metabolism are two of the main processes behind trained immunity, which have been supported by studies. These pathways cause chromatin to be more accessible to

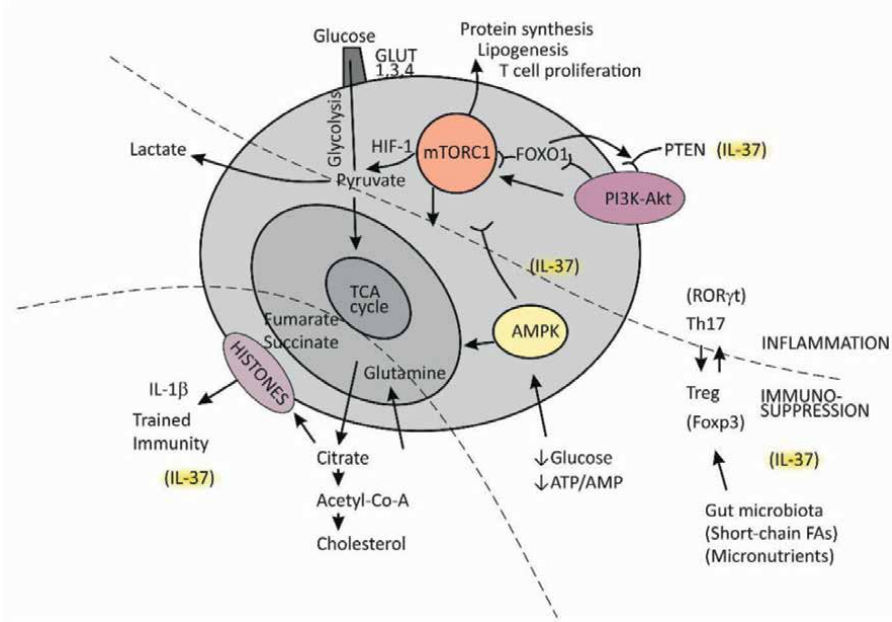

Figure 4.
Metabolic reprogramming in chronic inflammation. Taken and adapted from Majnarić LT [61].

inflammatory stimuli and for proinflammatory cytokine production to rise with time. The change from oxidative phosphorylation to glycolysis in cell energy metabolism is a crucial stage in the process of epigenetic reprogramming [48, 60]. This process is regulated by activating the Akt/mTOR/Hif pathway, resulting in increased production of lactate and disruption of the tricarboxylic acid cycle (TCA), also known as the Krebs cycle (**Figure 4**). These metabolic adjustments are necessary to fulfill the demands of activated immune cells, which must quickly produce adenosine triphosphate (ATP), the energy-storing molecule required to carry out immune cell operations and produce new components [62, 63]. The intracellular quantities of several metabolites, including as citrate, succinate, and fumarate, rise as Krebs cycle activity drops and some other metabolic pathways are engaged. The development of epigenetic alterations and histone modifications were shown to be accelerated by these compounds' increased cellular availability (**Figure 4**) [50, 60, 64].

6. Application of the data clustering method and advanced molecular biological and computer technologies (systems-biological approach) in examining the heterogeneity of people with T2D

The fact that T2D is primarily an age-related illness highlights the variability of T2D-related phenotypes by raising the risk of various comorbidities, malnutrition, sarcopenia, and frailty in these patients [61]. In addition to the well-known relationship between glycemia regulation and the risk of vascular complications and death, new research has also highlighted the significance of patient age and the age at which T2D first manifested [65]. T2D implies heterogeneity in the clinical presentation of the disease, the course of the disease, and also in the responses to certain forms of known pharmacotherapeutic treatments [7]. The common comorbidities of T2D

are enhancing interindividual variability; therefore, personalized approach and therapy are needed. Considering the multifactorial nature of T2D, poor knowledge of the molecular connections of the pathophysiological pathways responsible for organ damage and the development of the disease, as well as the great influence of environmental, highly variable factors, today the heterogeneities of T2D are often investigated using a systemic-biological approach [66, 67].

It is a holistic approach to research, which, in contrast to the traditional reductionist approach, seeks, through computer modeling, to integrate a large number of data used to describe clinical individuals suffering from T2D with existing biochemical and molecular-biological data, primarily obtained through genome and transcriptome analysis. Some of the newer technologies, such as single-cell DNA or RNA sequencing, combined with advanced IT (computer) data processing techniques, show hitherto unknown and unimaginable possibilities of providing insight into the connection of pathology and pathophysiology at the tissue and organ level with the clinical expression of the disease itself in patients [68]. One of the key techniques used in data-mining investigations is cluster analysis. Clustering is a classification of a large number of items into classes, grouping of data that is scattered from data in other clusters and has similarities or is located near to one another. Pattern recognition, data analysis, image processing, and biological research are just a few areas where cluster analysis is often implemented. With further development, they could be easily applied at the level of primary health care to easily predict the development of chronic diseases, as well as their complications [69].

In previous research that used clustering methods on patients with T2D, several subtypes of patients were discovered, the most common of which are severe autoimmune diabetes, severe insulin-deficient diabetes, severe insulin-resistant diabetes, mild obesity-related diabetes, and mild age-related diabetes. In addition to a personalized approach in therapy and patient monitoring, based on regularly gathered data, it may be possible to identify homogenous groupings of individuals with probable disease development at the beginning, which may be used to target such patients for therapeutic and preventive interventions. There are several efficient treatment options for treating T2D, including insulin and oral pharmaceuticals, the latter of which have various ways of action. To move toward more specialized treatments, it will be required to determine which subgroups of T2D patients benefit most from the currently available medicines. Key methodological details as well as the potential metabolic pathways that may be impacted in each patient subgroup, still need to be better addressed [70].

The growing number of elderly people with T2D in primary health care requires the implementation of newer ways of approaching the patient in everyday work. Grouping older patients with T2D into discrete phenotypic subgroups (clusters) could be a way to reduce the complexity of these patients and, most importantly, risk stratification for negative outcomes, but it could also be used as a model for a personalized treatment approach. In prospective monitoring, defined clusters can indicate the speed and probability of the occurrence of certain health outcomes, which is ultimately essential in primary health care for earlier and better prevention of possible complications. The distribution of persons with a unique diagnosis of T2D into spontaneously gathered subgroups (clusters) using clinical, sociodemographic, and inflammatory characteristics may also enable the association of genetic polymorphisms of cytokine genes with the existence of certain phenotypes, which would contribute to the discovery and understanding of specific pathogenic pathways [31, 69]. Replace the entirety of this text with the main body of your chapter. The body is where the author explains

experiments presents, and interprets data of one's research. Authors are free to decide how the main body will be structured. However, you are required to have at least one heading. Please ensure that either British or American English is used consistently in your chapter.

7. Early intervention and intensive management of patients with diabetes, cardiorenal, and metabolic diseases

The global burden of obesity and T2D has driven an accelerated increase in the incidence of cardiorenal and other metabolic diseases. Many studies have shown that the etiological mechanisms of T2D, CKD, atherosclerotic cardiovascular disease (ASCVD), fatty liver disease associated with metabolic dysfunction (MAFLD) and heart failure (HF) overlap, and that patients with CKD and T2D are especially exposed to an additional high risk from progression of CKD and CVD [70]. Some comorbidities are conventionally considered to be factors of increased cardiovascular risk, and some are concomitant complications of T2D [71].

The need for developing an integrated approach to the classification of the aforementioned diseases/disorders is highlighted in light of recent knowledge regarding the common pathophysiological basis of the mentioned comorbidities, with a special emphasis on the importance of chronic inflammation, which is at the center of the common pathophysiological mechanism (**Figure 3**) [72–74]. Based on this fact, a multi-consortium program was created with experts from cardiology, nephrology, endocrinology, and primary health care, which aims to emphasize the extremely important role of early intervention and intensive care for patients with complex chronic diseases such as T2D [75]. One of the most crucial health care techniques for facilitating early diagnosis and treatment, which can enhance quality of life and avoid premature mortality, is preventive health screening [76]. In addition to the perceived benefits of preventive screening, there is growing awareness of the importance of improving individual health behavior, which can lead to multiple health benefits [77]. Finally, the goals of early and intensive intervention are primary prevention of disease and comorbidity or secondary prevention, which aims to reduce further deterioration of the disease and reduce dysfunction and mortality. These efforts seek to reduce clinical inertia with the goal of improving patient adherence and for the long-term benefit of their health condition (**Figure 5**).

As previously mentioned, obesity has a very important role in the pathogenesis of many metabolic diseases, including metabolic syndrome, T2D, CKD, and CVD (**Figure 5**). Therefore, while treating these individuals, it is crucial to take anthropometric measurements, notably the BMI. If it is greater than 30 kg/m^2, we may diagnose obesity and take the appropriate action. European Society of Endocrinology guidelines also recommend thyroid function testing in all obese patients, given the high prevalence of hypothyroidism in obesity. For hypercortisolism, male hypogonadism and female gonad dysfunction, hormone testing is recommended only in case of clinical suspicion of an underlying endocrine disorder. Reducing body weight and changing one's lifestyle are the major objectives of treating obesity, and it has been demonstrated that doing so will enhance metabolic processes generally, improve the management of chronic disorders like T2D, and lower mortality and complication rates [78].

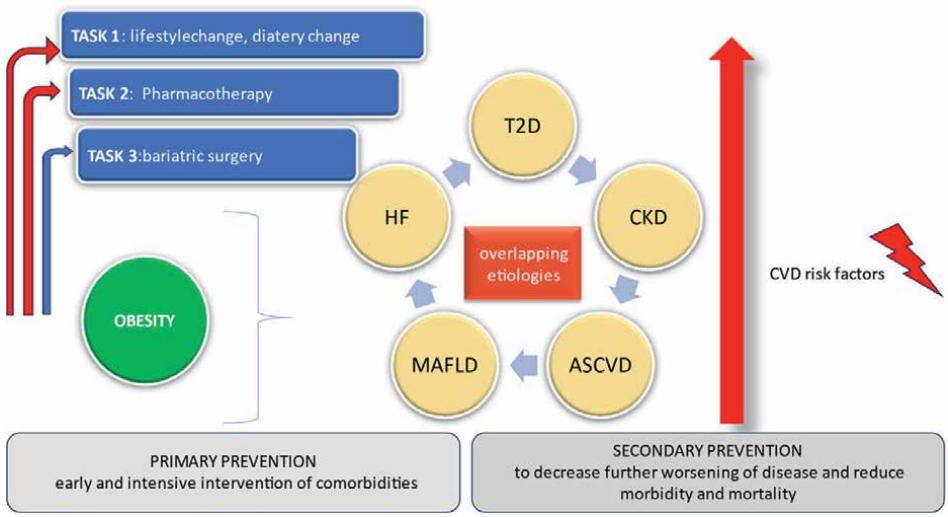

Figure 5.
Proposal of intensive management of patients suffering from complex diseases.

Weight loss should be accomplished by dietary changes, increased and modified physical activity, and cognitive-behavioral treatment. The approach to the obese patient is based on five key determinants: identification, evaluation, advice, setting objectives, and monitoring. Pharmacotherapy, especially GLP-1 receptor agonists (semaglutide and liraglutide), also finds its place in the treatment of obesity [79]. A BMI of 40 kg/m^2 or higher is required for bariatric surgery, or a BMI of 35 kg/m^2 if a patient has obesity-related diseases like diabetes, arterial hypertension, dyslipidemia, etc. and has failed to achieve and maintain a desirable body mass using other methods [80, 81]. Alternative weight management services and therapies will need to be investigated for patients for whom surgery is inappropriate or for those who choose not to have surgery, which may lead to an increase in referrals to other multidisciplinary services.

Recommendations for the approach to patients with metabolic syndrome emphasize the importance of treating each individual component of the metabolic syndrome, and the focus is on the treatment of MAFLD, which is defined as liver steatosis with the presence of any of the three criteria: excess body weight/obesity, metabolic dysregulation, T2D [75, 81]. Since CVD is the leading cause of death in patients with MAFLD, non-pharmacological treatments such as weight management, diet and exercise modifications, and bariatric surgery are also recommended for the treatment of MAFLD [82].

As ASCVD is the leading cause of morbidity and mortality in patients with T2D, it is important to recognize patients with existing risk factors for the development of ASCVD and those with pre-existing disease in time. These patients require an aggressive approach to the treatment of risk factors to prevent ASCVD and possible complications including the occurrence of cardiovascular events [83]. It is not uncommon for patients with T2D to develop CKD with or without ASCVD, which is associated with a high risk of worsening ASCVD and the development of CHF [75]. The treatment of CKD in these patients implies a lifestyle change with special emphasis on a diet with reduced salt and protein intake, and the pharmacotherapeutic approach includes RAAS inhibitors (ACEi or ARB), SGLT2 inhibitors and non-steroidal MRAs [84, 85].

8. Precision medicine: the potential to improve the health of individuals with T2D

Patients with T2D, as we mentioned previously, usually have more comorbidities, which increases variability among patients and requires patient-directed (personalized) treatment [86]. A more thorough comprehension of the unique phenotypes and genotypes of T2D patients might lead to better care for them using a tailored strategy, which is notably evident in the method used to treat older T2D patients [43].

Current guidelines for the treatment of T2D recommend determining the target values of glucose, HbA1c and pharmacotherapy based on the clinical characteristics of the patient and parameters such as blood glucose, general health status, life expectancy, arterial pressure values, fasting glucose and evening glycemia [87]. The guidelines recommend the use of GLP-1 receptor agonists or SGLT2i in patients with ASCVD or at high risk for ASCVD and in patients with CKD. SGLT2i are also recommended in patients with heart failure. GLP-1 is recommended for use in patients with stroke or TIA [88]. If the planned treatment goals are not achieved with metformin, the specified pharmacotherapy, and lifestyle changes, it is recommended to include a second line of pharmacotherapy with further monitoring. BMI, the risk of hypoglycemia, the possibility of adequate application of the therapy, and its availability, including the price, are also taken into account when choosing therapy [89].

These recommendations are based on clinical trials that provide evidence of efficacy, tolerability, and side effects, but research does not provide information about how an individual will respond to a particular treatment [90]. Therefore, it is expected that a personalized approach to the patient could be a useful tool for the treatment of a complicated disease such as T2D. This approach would enable individualization of therapy, but also prognosis and prevention, which will affect the reduction of treatment costs and avoid the failure associated with the algorithmic approach "one size fits all" [12, 91].

Phenotypic subgroups can be formed based on six factors including age at diagnosis, BMI, presence of glutamate decarboxylase antibodies (GADA), and insulin resistance as measured by homeostatic model assessment 2 of beta cell function (HOMA2-B) and insulin resistance (HOMA2-IR) measured by C-peptide concentration [68, 91]. It was discovered that some of them are exposed to a higher risk of developing diabetic nephropathy or retinopathy by dividing them into subgroups based on the aforementioned features. The ability to treat individuals with a higher risk of acquiring specific problems early and specifically thanks to this grouping [68].

It is also crucial to note that T2D is frequently a polygenic condition that is impacted by environmental variables. Due to the enormous effect of environmental variables, it is challenging to assess the significance of each of the hundreds of genetic variations linked to the development of T2D. To help with the diagnosis and treatment of T2D, clustering of genetic variations to assess the total genetic risk for acquiring the illness from the condition is a promising strategy [90, 92].

In the case of elderly patients with a complex disease like T2D, the separation into discrete phenotypic subgroups, as was done in Bosnić's doctoral dissertation, can be a way of deconstructing the complexity of these patients and can be used as a model to guide personalized treatment, which can ultimately contribute recognition of hidden pathophysiological mechanisms in these patients [13]. This research approach could be especially beneficial for family physicians, who are in the position of dealing with the complexity of these patients on a daily basis [13, 14]. Additionally, pharmacogenomics, which enables the creation of a genetically customized therapy strategy to

obtain the optimum individual response, offers new treatment choices for people with T2D. In order to obtain the intended therapeutic effectiveness and drug response, pharmacokinetics and pharmacodynamics are optimized taking into consideration a person's genetic profile [6].

9. Conclusion

In this chapter, we considered the need for a more integrative approach in the treatment of patients with T2D. The need for this approach arose from the knowledge of changes in anthropometric characteristics and lifestyle that are associated with T2D, the recommendations of current guidelines for the treatment of T2D that support the treatment of target organs, and the discovery of pathophysiological mechanisms responsible for damage to the target organ, based on the existence of chronic inflammation. The aforementioned findings encourage future investigation into the use of various approaches for locating elderly individuals who are afflicted with chronic illnesses like T2D. The personalized approach described in this chapter, which draws on previously known information as well as new techniques for grouping patients with T2D, may present new opportunities for personalized risk stratification, treatment, and monitoring of patients with T2D and other chronic diseases, particularly in older people. This would significantly benefit primary care physicians' day-to-day work as well as that of other healthcare professionals.

Conflict of interest

The authors declare no conflict of interest.

Ethics approval and consent to participate

The Expert and Ethics Council of the Health Centre Slavonski Brod approved the study (ID: 1433-1/020]).

Abbreviations

T2D	type 2 diabetes
LADA	latent autoimmune diabetes of the adult
MODY	maturity onset diabetes of the young
GWAS	genome-wide association studies
MS	metabolic syndrome
BMI	body mass index
WAT	white adipose tissue
TNF-α	tumor necrosis factor-α
IL-1β	interleukin-1beta
NLRP3	nucleotide-binding domain, leucine-rich–containing family, pyrin domain–containing-3
CHF	congestive heart failure
CKD	chronic kidney disease

DCs	dendritic cells
Treg	T regulatory
TGF-β	transforming growth factor beta
TCA	tricarboxylic acid cycle
ASCVD	atherosclerotic cardiovascular disease
MAFLD	fatty liver disease associated with metabolic dysfunction
HF	heart failure
GADA	glutamate decarboxylase antibodies
HOMA2-B	homeostatic model assessment 2 of beta cell function
HOMA2-IR	homeostatic model assessment 2 of insulin resistance.

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Chapter 7

An Innovative Five-Step Patient Interview Approach for Integrating Mental Healthcare into Primary Care Centre Services (*AlKhathami Approach*)

Abdullah Dukhail AlKhathami

Abstract

Mental health problems are often inadequately diagnosed and managed in routine primary healthcare (PHC) services. The new Five-Step Patient Interview approach (the AlKhathami approach) is comparable to psychiatric interviews and is more accurate than current screening tools for identifying patients' degrees of psychological stress. This will assist in integrating the screening and management of psychological stress and common mental health problems among patients seeking PHC services. It is a valid and reliable tool for integrating mental healthcare into PHC and family practice services. The Five-Step approach offers an opportunity to provide mental health services in busy clinics (5–8 min duration). It improves physician-patient communication by encouraging the exploration of patients' perspectives. It plays a role in controlling chronic organ diseases and physical complaints. It also reduces the frequency of patient health services, enhances the satisfaction of patient healthcare providers, and reduces unnecessary investigations and medications, thereby safeguarding healthcare resources.

Keywords: patient interview, mental healthcare, primary healthcare, patient health Questionnaire-9, generalised anxiety Disorder-7, psychiatric interview

1. Introduction

Patient interview is a core skill for providing healthcare management in clinics. The problems underlying a patient's complaint can be organic, mental, or comorbid. Patients usually present with physical complaints and mental health (MH) problems [1]. However, mental health (MH) problems are highly prevalent in approximately 60% of primary healthcare (PHC) patients, which is usually missed, particularly among patients with chronic illnesses who receive inappropriate management [1, 2]. Depression and anxiety disorders are widespread and considered disabling,

leading to enormous human misery and loss of health and economic productivity [3]. Management of common mental disorders in health centres improves health outcomes and economic production [3]. Depression alone, which is mostly missed, negatively impacts the economic losses of governments, employers, and households and can cause a lack of energy, disturbances in sleeping and eating patterns, and substance abuse. It has led to a drop in worldwide productivity, costing the global economy more than $1 trillion and an annual rate of 800,000 deaths worldwide [4]. According to WHO (2016), the returns on investment in treatment far outweigh the costs based on the study, which covered 36 countries for 15 years from 2016 to 2030. The estimated cost of treating mental disorders is US$147 billion. Furthermore, the returns far outweigh the costs [5]. A 5% improvement in workforce participation and productivity is valued at $399 billion and improved health adds $310 billion in revenue. However, the current investment in mental health services falls far short of what is needed.

Clinical evidence showed similar results when comparing care delivery for patients with depression or anxiety disorders in hospital and primary care. However, patients who received services in primary care were serviced faster, had continuity of care, and were more satisfied with the service, which cost less [6]. Therefore, avoiding patients' suffering and 'doctors shopping', a holistic approach is necessary for empowering the PHC physicians to serve the patients with integrated care in busy clinics [6].

Traditional patient interviews to identify mental health problems are not effective in busy clinics such as PHC centres [7, 8]. In traditional patient interviews, doctors control the consultation with less concern about dealing with patients' perceptions because this prolongs the consultation [9]. Thus, physicians' skills should be enhanced to empower them to detect and deal with such disorders to achieve desired outcomes [10]. Therefore, an efficient structural patient interview framework is mandatory to avoid missing mental health problems and provide high-quality care [11]. Improving the patient interview process is essential for discovering real problems or issues underlying patient complaints [12].

2. The five-step patient interview approach (AlKhathami approach)

The five-step approach can fill the healthcare gap by complementing the bio-psycho-social approach, as it covers psychosocial aspects more effectively and efficiently to discover the real cause of the patient's suffering. This approach enables health centres and family physicians to detect mental disorders. Similarly, the ability to efficiently classify them as either mental illnesses referred directly to the specialist or anxiety and depression can be dealt with a high-quality at primary healthcare centres. Thus, these five steps bridge the gap in providing mental healthcare services at the primary health centre level. It also integrates mental healthcare with the daily work of doctors without requiring a specialist or specialised clinic in primary health centres. The five-step approach is a practical approach suitable for busy clinics due to its high predictability of mental health problems and takes only 4.1 minutes in average. It is an effective approach with high reliability in integrating mental healthcare into primary healthcare services and enhancing collaboration between primary care doctors and mental health specialists [13], as shown in **Figure 1**. The Five-step approach covers the psychological and social aspects of the biopsychosocial approach, as illustrated in **Figure 2**.

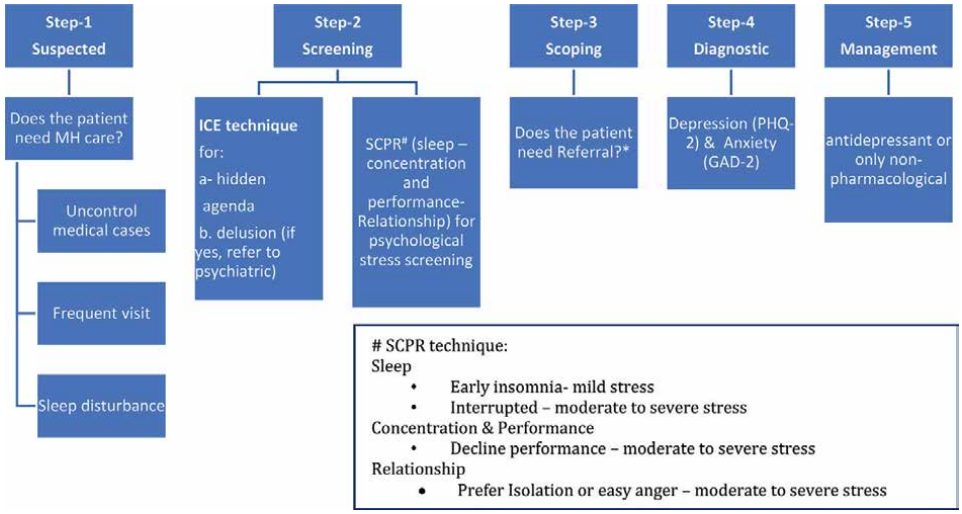

Figure 1.
The five-steps patient interview for mental health care in PHC & Family Practices (AlKhathami approach).

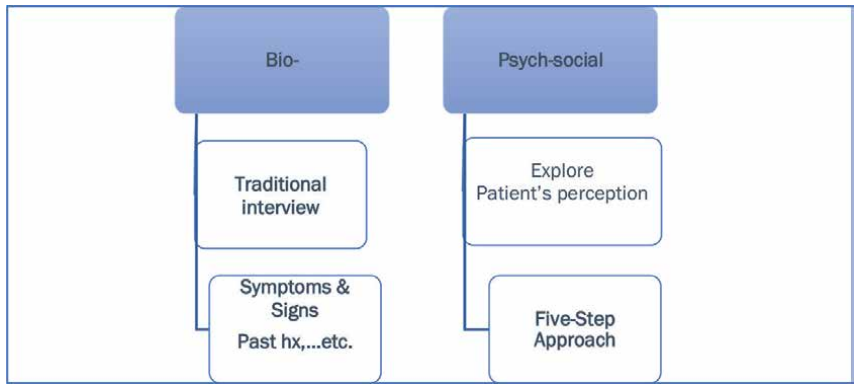

Figure 2.
Modified bio-psycho-social approach.

2.1 Step 1: suspicion

Predicting a patient's pathological condition is based on the physician's knowledge and practical experience. For example, if a patient is presented with dysuria, the doctor expects inflammation in the urine; thus, each of the following is based on proving that the patient has a urinary tract infection. Organic diseases have symptoms and signs that the patient exhibits and may have pathognomonic symptoms or signs that make them easier to diagnose and manage quickly. While mental disorders do not have pathognomonic signs or symptoms, patients may exhibit symptoms indicative of organic diseases [14]. This allows doctors to anticipate and deal with a disease that is not the actual cause of a patient's problem. This creates a gap in providing mental healthcare promptly, leading to doctors' inability to make correct diagnoses and increasing patient suffering. Additionally, there is an increase in the consumption of

health resources, such as unnecessary investigations and medications, which have nothing to do with the real problem behind patients' suffering.

This is the reason behind 'doctors shopping'. Patients with mental disorders, especially depression or anxiety, often complain of physical symptoms or lack of control of organic diseases; most cases are accompanied by sleep disturbances, including difficulty in initiating or interrupting sleep [2, 15, 16]. Therefore, patients with depression and anxiety do not meet their expectations of low satisfaction with their interviews with doctors who follow the usual interview approach in primary health centres [17].

The most crucial suspicion step lacks a link to patient-interview approaches. Due to this loss, many doctors cannot identify or consider mental disorders in their patients. Doctors usually focus on the symptoms mentioned by the patient and interpret them according to the symptoms of the disease that they have learned, without considering mental health disturbances.

Thus, three groups of patients were considered as suspected patients [13]: (i). patients with uncontrolled organic diseases or physical symptoms such as diabetes mellitus, hypertension, bronchial asthma, irritable bowel syndrome, low back pain, headache, fatigue, among others; (ii). the second group included patients with frequent healthcare visits; and (iii). the third group included patients with sleep difficulties, such as insomnia or sleep disturbance. AlKhathami (2022) proved that 87% of suspected groups had mental health problems compared to 8% of non-suspected groups. Before starting case management for suspected groups presenting with organic disease or physical symptoms, doctors should conduct the second step: screening [13].

2.2 Step 2: screening

2.2.1 Screening of hidden agenda and delusion among suspected patient

The Five-Step Patient Interview approach has higher credibility than the Patient Health Questionnaire-9 (PHQ-9) and Generalised Anxiety Disorder-7(GAD-7) as tools for screening and classifying psychological stress levels, with high sensitivity (66.1%) and specificity [99.1%] [13].

Many patients complain of symptoms and fear of the disease without exploring their perceptions. They usually expect doctors to identify or discuss this issue. Thus, when these ideas are not discussed, the patient is often not convinced of the diagnosis and treatment and frequently visits health clinics. This comes through the 'Idea-Concern-Expectation (ICE) technique' to explore the patient's perception [18]. The formula of the questions is very important to reach the required results: What does the patient think is the cause of the symptoms he is complaining about, what is his fear of them, and what does he expect the doctor to address that complaint? For example, 'What do you think is the cause of your headaches' and 'What do you think is the reason for not controlling your hypertension?' It is very important not to ask the patient about the cause of the problem or the patient's fear of the problem in general because the patient will often react with a defensive reaction, 'You are the doctor, not me', as if a patient was asked about a scientific subject.

Here, the doctor does not need to spend time discussing these ideas; only when the patient explores them do they know that the doctor is aware, and they will be included in the remainder of the interview. Typically, thoughts or fears of a

serious illness indicate a 'hidden agenda'. Thus, we ensure the patient does minimise 'doctors' shopping'. Furthermore, it strengthens the doctor-patient relationship, enhances patient confidence, and reduces drug prescriptions, leading to safe health resources [19, 20].

Simultaneously, the doctor determined whether the patient had delusional ideas. In such cases, the patient should be referred directly to a psychiatrist for interviews and treatment. Family doctors and general practitioners can identify psychotic symptoms and promptly refer patients. Perhaps, Moses's story clarifies this situation.

Example-1: 'Moses is suffering from uncontrolled hypertension.'

Moses, aged 53 years, is known to have frequent visits due to a lack of blood pressure control. Each visit raised the dose until it reached the maximum, after which another drug was added, and the usual investigations were repeated without achieving blood pressure control. While telling the patient, he did not commit to following the doctor's advice or recommendations. Moses was administered three medications for hypertension with variable uncontrolled blood pressure readings.

The patient was re-dispensed with the medication. He met his family physician, who was trained using the Five-Step approach, and the following discussion took place:

Doctor-Patient Interview Session.

Step-1: The doctor asks, 'Does the patient need mental health care?'

Answer: yes, because she has uncontrolled hypertension and frequent visits.

Step-2: The doctor asks, 'Does he have a hidden agenda, delusion, or stress?'

ICE technique: (screening for hidden agenda or delusion).

Doctor: What do you think is the reason for not controlling your blood pressure?

Moses said, 'I am the Minister of Platinum, a member of international organisations; they want to take the platinum from me, and they never will'.

The answer is illogical, indicating a possible delusional thought process.

The duration of the interview was only 1 minute and 20 seconds.

Plan: The decision was to refer Moses to a psychiatrist as an urgent case with a 'psychotic disorder'. There was no requirement to complete the interviews.

In the psychiatrist's clinic: the diagnosis was schizophrenia and a mania case.

After that, he was followed up under the cooperative care of a psychiatrist and a family doctor. The patient's condition was controlled, and better results were obtained.

The lesson learned from Moses's story:

- Throughout this period, schizophrenia was not detected until he was 53 years old.
- Every time Moses arrived at the health centre, the BP was measured and was often uncontrolled. More tests were requested, and the dose of the drug was increased, or another drug was added.
- When a doctor was trained using a modern approach (the Alkhathami approach), the case was discovered easily and quickly.
- Previously, doctors focused on measuring the blood pressure to reach a normal reading without noticing that it could be a mental or psychological illness; thus, the condition was not controlled.
- This increased the suffering of the patient and his family

- Frequent visits and consumption of healthcare resources such as investigations and medicines.

- All these could have been avoided if a doctor had a modern and effective patient interview approach.

2.2.2 Screening of psychological stress among suspected patient

Stress screening through sleep, concentration, performance, and relationships (the SCPR technique). The Five-Step Patient Interview approach has a higher credibility than the PHQ-9 and GAD-7 as a tool for screening and classifying psychological stress levels with a high sensitivity (85.3%) and specificity (99.1%) [13].

All tools for detecting psychological stress are completed questionnaires analysed later, which are usually impractical or time-consuming [21]. Appling the Five-step approach it is possible through the three questions asked by the doctor during the interviews. The first indicator of stress is sleeping difficulty. Early insomnia: Insomnia is the most common symptom of mental disorders [22]. People with insomnia are twice as likely to develop depression than others; therefore, early detection of stress in a person reduces their risk of depression [23]. When a person does not have a sleep disorder, mental disorders can be ruled out in 98.9%, while 97% of patients with depression and anxiety experience sleep difficulties [2]. Therefore, sleep difficulty indicates mild stress, while interrupted sleep indicates moderate to severe stress, with high sensitivity (85·3%) and specificity (74·2%) for defining stress [13].

The second stress indicator is a decline in concentration or performance. There is an inverse relationship between stress, concentration, and performance [23]. AlKhathami (2022) proved a decline in the level of a person's concentration or performance is an indicator of the presence of moderate to severe psychological stress, with high sensitivity (84·8%) and specificity (86·4%) [13].

The third stress indicator was a decline in social relationships, either a tendency to spend more time with oneself or easy anger and intolerance of discussions. Patients with depression tend to be socially isolated, and irritability (which makes one easily angry) is a major predictor of psychological distress [24]. Thus, when there is a decline in social relations, such as tendencies towards isolation or quick anger, this is an indication of the presence of psychological stress [24] to a moderate to severe degree, with high sensitivity of 90% and specificity of 80% [13].

2.3 Step 3: service scoping

This step is important for setting a framework for the work of healthcare centre and family doctors with a clear scope. The Five-Step approach works with high sensitivity (96%) and specificity of 100.0% compared to expert psychiatrists' assessments [13]. Thus, this approach enables identifying the scope of the mental healthcare services, whether in the primary healthcare centres or referred to a specialist, knowing that only 3.4% of mentally ill patients require to be referred to a specialist [13], as illustrated in **Figure 3**.

Primary healthcare doctors are not required to diagnose a specific psychotic disease; however, when a psychotic disease is suspected, they should refer the patient directly to a mental health specialist for collaborative work.

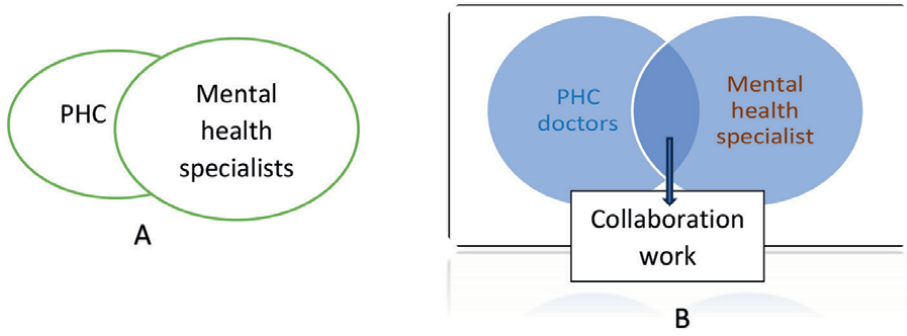

Figure 3.
Doctors' responsibilities before (A) and after (B) the five-step approach.

Primary healthcare doctors and family medical doctors should manage patients with depression and anxiety. Other mental health disorders should be referred to by mental health specialists as part of collaborative work.

2.4 Step 4: diagnosis of depression and anxiety

The Five-Step approach has a high efficiency in diagnosing depression and anxiety disorders, with a high sensitivity of up to 96.3% and specificity (92%) compared with expert psychiatrists' assessments and has a high predictive value (96·4%) [13].

According to the WHO mhGAP Guide (WHO, 2016, pp19), 'individuals with depression experience a range of symptoms, including persistent depressed mood or loss of interest and pleasure, for at least two weeks' [25]. This step applies the PHQ-2 to diagnose depression, the GAD-2 to diagnose anxiety, and the entire presentation from Steps 1 to 3 of the five-step approach. Thus, this step is not only based on the main criteria of anxiety and depression (PHQ-2) and anxiety (GAD-2) [26, 27]. Diagnosis is also based on the symptoms of psychological stress included in Step-2 (screening for psychological stress). These criteria are highly compatible with the diagnostic and statistical manual of mental disorders, fifth edition (DSM-V) criteria.

Accordingly, doctors should be aware of the cultural dimensions of society when presenting with depression and anxiety, i.e., in Arabic countries, these metaphors could be used: 'Sadri dayeq alayya' (my chest feels tight), 'Tabana' (I am tired, fatigued), 'Jesmi metkasser' (broken body), 'The heart is poisoning me', 'As if there is hot water over my back', and 'Something blocking my throat" [28]. In India, 'sinking heart', 'feeling hot', and 'gas' [29]. In Nigeria, 'heat in the head', 'biting sensation all over body', and 'heaviness sensation in the head' [30]. For Mexican Americans, 'nervous', 'brain ache', 'brain exploding', or 'uncontrollable' [31]. In addition, most patients with depression have coexisting anxiety and medically unexplained somatic symptoms [16, 25]. However, 70% of mental disorders begin before the age of 18 years and often continue into adulthood [32], with anxiety and depression being the most prevalent [33].

Primary healthcare providers should deal with various anxiety types (Barton et al., 2014, pp3): General anxiety disorder: 'constant worries and fears';

- Generalised anxiety disorder: 'Do you experience persistent stress, anxiety, or fear?';
- Obsessive-compulsive disorder: Do you experience persistent or repetitive thoughts or behaviours you cannot stop or control?;
- Social phobia: 'When meeting people, do you feel fear that others will look at you negatively and humiliate you? Specific phobia: 'Do you have an irrational fear of a certain thing?';
- Post-traumatic stress disorder: 'Do you experience attacks of anxiety that could be associated with physical symptoms, such as increased heartbeat, that occur after a traumatic event and persist after?';
- Panic disorder: 'Do you experience frequent and unexpected attacks of fear of shortness of breath as if you are dying, and are you afraid of them recurring?'

Table 1.
Doctor's question scenarios exploring types of anxiety.

obsessive-compulsive disorder: unwanted persistent or repetitive thoughts or behaviours that seem impossible to stop or control; social phobia: 'a debilitating fear of being seen negatively by others and humiliated in public'; specific phobia: 'excessive or irrational fear of a specific object or situation'; posttraumatic stress disorder: 'extreme anxiety disorder that can occur in the aftermath of a traumatic or life-threatening event'; and panic disorder: 'repeated, unexpected panic attacks as well as fear of experiencing another episode' [34]. The formula of the suggested questions about the types of anxiety that doctors can use is demonstrated in **Table 1**.

It is important that bipolar disorder, which was included in Step 3, be excluded. Doctors ask about the period of hypomania or mania; if yes, you need to refer the case to a psychiatrist.

2.5 Step 5: management

The Five-Step approach is consistent with the decision of a psychiatric expert in terms of whether the patient requires to be started on non-pharmacological therapy, reaching 99.9% with a high sensitivity of 92% and specificity of 95% to determine the requirement for antidepressant therapy [13]. The Management plan for depression and anxiety depends on the level of psychological stress (Step 2), summarised in **Table 2**.

Depression – Anxiety	Stress level (classification)	Non-pharmacological	Narrative therapy	Antidepressant
Mild cases	Early insomnia	Yes	No	No
Moderate–severe cases Occurs with a post-recent social event	Interrupted sleep or decline in concentration, performance, or affect the social relationship	Yes	Yes	No (if does not respond, then Yes)
Moderate–severe cases Occurs due to medications, e.g., B-blocker, contraceptives and steroid		No	No	Modify medication first, then re-assess
Moderate–severe cases Occurs with no recent social event or medication side effect		yes	No	Yes

Table 2.
An outline of the management plan for anxiety and depression.

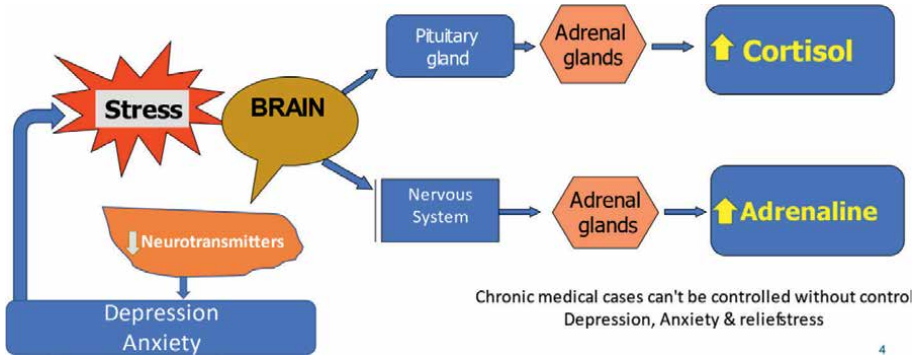

Figure 4.
Relationship between stress & mental health & body function.

Narrative therapy is a method used to solve problems and help make decisions impartially without emotional influence. Often, a person takes the initiative to solve others' problems while limiting psychological stress when it comes to himself (Appendix 2).

Antidepressants, selective serotonin reuptake inhibitors (SSRIs) as the first line, should be considered for moderate-to-severe cases of depression and anxiety. However, in two situations: first, when symptoms initially occur after social events such as divorce, separation, failure, conflict, or crisis, narrative therapy should be attempted to help patients cope with the situation and be re-assessed before considering antidepressant therapy. Second, medications that affect mood, such as β-blockers, chemical contraceptives, or steroids, should be modified and re-assessed before initiating antidepressant therapy. Several studies demonstrated the safety of SSRIs during pregnancy and lactation [35].

When treating depression and anxiety with chronic organic diseases, such as diabetes and high blood pressure, a therapist must also follow up on the organic diseases. In most cases, medications can be dispensed, or drug doses can be reduced—specifically, controlling depression and anxiety results in decreased adrenaline and cortisone levels, which ultimately support the control of chronic diseases [36, 37] as demonstrated in **Figure 4**. Understanding management procedures should include understanding psychological capacity.

3. Psychological capacity

Gruber et al. (2023 pp-1) asked an important question: 'Why might some people fail to regulate their emotions despite having the ability to do so?' [38] Gross et al. explained that psychological discomfort is a disorder involving the inability to regulate emotions, which results in a decrease in a person's moral and functional performance and quality of life [39]. Patients often experience psychological disabilities, work performance problems, illnesses and physical symptoms [40, 41]. These physical and psychological diseases sometimes negatively affect psychological capacity and ability [42]. Muschalla and Jöbges stated that 50–70% of patients with comorbid mental disorders have psychological capacity impairments [43]. Therefore, psychological capacity is becoming increasingly important for maintaining productivity in daily life [44] and should be considered in mental health management.

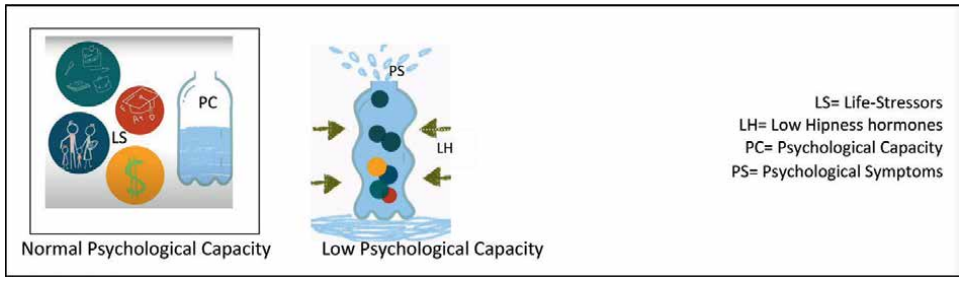

Figure 5.
A proposed image of the effects of psychological stress and happiness hormones on the psychological capacity.

Thus, the psychological capacity of the container can be considered. A person who suffers from stress, anxiety or depression has a lower psychological capacity than expected. Exposure to life stressors, such as negative social or financial factors, is likened to something that occupies space within the psychological capacity. Genetic factors or a lack of happiness hormones, such as serotonin which are usually associated with high levels of stress hormones, adrenaline, and cortisol, lead to a lack of psychological capacity. Proposed image of the effects.

The effects of psychological stress and happiness hormones on psychological capacity are shown in **Figure 5**.

In managing moderate-to-severe anxiety and depression, it is necessary to focus on raising happiness hormones and decreasing stress hormones, adrenaline, and cortisol using antidepressants, regular exercise, especially walking, for psychological recreation, and not only sports. Additionally, psychological stress hormones can be reduced by not engaging in discussions and arguments, self-motivation, and not self-blaming, relaxation therapy, particularly deep breathing, which reduces stress hormones, and narrative therapy to manage personal problems or decision-making. Moreover, regular follow-up with a signed doctor helps support management outcomes.

4. The proposct interview approach

Integration of mental healthcare into the services of primary healthcare centres using the five-step approach to interview patients could have a higher rate of control of chronic diseases and physical symptoms, relieve patients' suffering, raise the satisfaction rate of recipients and providers of healthcare services, reduce unnecessary frequency of visits to health centres, and reduce unnecessary medications, laboratory or radiological investigations, and referrals. Accordingly, the health resources were preserved, as demonstrated in **Figure 6**.

Example-2: 'Sami's battle with uncontrolled diabetes mellitus.'

Sami is a 60-year-old man with uncontrolled diabetes mellitus. He received the highest dose of two types of medications (Sulfonylurea and Glucophage), yet the Hb1Ac reached 13% despite the patient's commitment to health and drug instructions. Therefore, the family doctor decided to switch to insulin as the approved treatment guide stipulated. The patient refused to receive insulin due to his old age. The same decision was made when the patient was referred to the hospital. However, despite the patient's persistent decision, the specialist decided to refer the patient to a family doctor. When the patient returned, he met with a family physician trained in the Five-Step approach to interview the patient, and the following discussion was held:

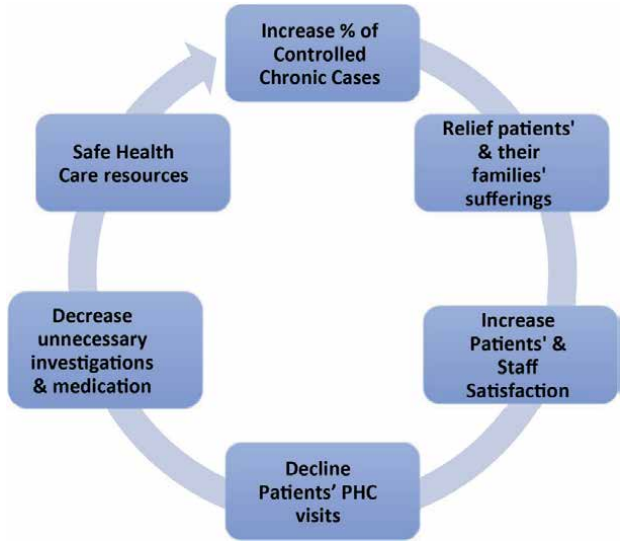

Figure 6.
Proposed outcomes of the five-step patient interview approach application.

Doctor-Patient Interview:
Step-1: The doctor thinks, 'Does Sami need mental health care?'
Answer: yes, because he has an uncontrolled organic disease.
Step-2: Screening.

a. 'Does he have hidden agenda, delusion' ICE technique, doctors' questions:

- 'What do you think is the reason for not controlling your diabetes?'
- 'What makes you afraid of not controlling your diabetes?'
- 'What do you expect me to do regarding your uncontrolled diabetes.'

All answers were within a logical thought process and no delusion.

b. Stress Screening:

(ii) Sleep indicator
Doctor: Do you have difficulty sleeping when you place your head on a pillow?
Sami: Yes, I have difficulty sleeping > > (mild stress).
Doctor: Do you experience sleep interruptions without apparent reasons?
Answer: Yes > > (moderate to severe stress)

(iii) Concentration and performance indicator
Doctor: Have you noticed a decrease in your concentration and performance?
Sami: Yes, clearly > > (moderate–severe stress)

(iv) Relationship indicator
Doctor: Have you become more inclined to sit alone than before?

Sami: Yes, although I was social and loved hanging out with others.
Doctor: Have you become more provoked? I mean, you quickly become angry.
Sami: Yes > > (moderate–severe stress).
In conclusion, from Step-1 and Step-2, Sami has moderate–severe stress.
Step-3: 'Does the patient need to be referral to a Psychiatric clinic or stay under the Family doctor's care?' (Scoping Step).
Sami has no suicidal or psychotic or dementia symptoms, or drug abuse.
Then, the decision was patient should stay under his Family doctor's care.
Step-4: 'Does he has depression and or anxiety.'
Doctor: Inside you, do you feel happy, relaxed, or do you feel uncomfortable or unhappy? Sami: I feel not as happy as I used to be.
Doctor: The things used to make you happy; do they still make you happy, as before, or no longer?
Doctor: Do you feel relaxed or tense most of the time? Sami: Most of the time, I feel anxious.
Doctor: Do you fear the future, your health, or fear for your family members? Sami: Yes.
Conclusion Sami has Anxious-Depression. What is its classification?
As the patient has moderate stress, the final diagnosis was 'Moderate–Severe Anxious-Depression'.
Step-5: Doctor, 'What is the Management Strategy?'

- As the case is moderate-to-severe, no drug use affects mood and no precipitated social event.

Decision: To start on an antidepressant (escitalopram 5 mg once daily for six nights and then continue on 10 mg), Plus Non-pharmacological Strategies:

a. Sleep hygiene

b. Exercise, particularly regular walking

c. Relaxation therapy such as deep breathing

d. Support self-steam

e. Avoid arguments or stressful discussions

f. Regular follow-up

After 10 days patient had a hypoglycemic symptom.

Plan a decreased dose of sulfonylureas with regular follow-ups and monitoring of blood sugar levels. Sami continued to have hypoglycaemic attacks by reducing the number of hypoglycaemic medications until all medications for diabetes mellitus were discontinued.

Sami was happy that he started depression management, and all depression symptoms disappeared after 2 months—blood sugar readings were normal, and HB1Ac retention to 7%.

Sami said:

'The last time I laughed heartily like now was when I was 15 years old. Unfortunately, throughout my suffering from diabetes and before that, it never occurred to me that I had a psychological disorder. I used to think that life was like this and that the obligations of this world were the reasons for my psychological discomfort. The great mistake doctors blamed was that the length of my diabetes treatment did not occur to a doctor if he asked me about my sleep, performance, and psychological comfort. I start all doctors focusing on diabetes and its symptoms and blame me for not adhering to their advice despite my full commitment'.

In the present time:

Sami lives kindly and spends most of his time comfortably with his family. He went out to shop with them, visited his friends and received visitors. Further, he did not experience sleep disturbance or psychological distress. Additionally, he had not received any diabetes treatment and showed normal levels. Sami continued on the management plan for anxious depression, consisting of non-pharmacological advice and escitalopram 10 mg, with regular visits to his doctor every 8 weeks after his condition stabilised and he reached remission status.]

Example 3: 'Sara is suffering from uncontrol Hypertension and Irritable bowel syndrome.'

Sara was 45 years old and had suffered from irritable bowel syndrome (IBS) and high blood pressure for several years. The disease was uncontrolled. Sara was taking lisinopril (10 mg daily) and other medications for bowel disturbance.

She met her family physician, who was trained in a Five-Step approach to interviewing patients, and the following discussion was held:

Step-1: 'Does the patient need mental health care?'

Answer: yes, because she has an uncontrolled organic disease.

Step-2: 'Does she have (hidden agenda or delusion) or (Stress)?'

a. ICE technique: The answers were normal (no hidden agenda or delusion)
   Doctors' questions were:

   - What do you think is the reason for not controlling your blood pressure?
   - What makes you afraid of not controlling your blood pressure?
   - What do you expect me to do regarding your uncontrolled blood pressure?

   All answers were within logical thought.

a. Stress Screening: There was moderate to severe stress in the forms:

   (i) Sleep indicator:
   Doctor: When you put your head on a pillow, do you sleep or have difficulty sleeping? (mild stress).
   Sara: Yes, in difficulty.
   Doctor: If you sleep, does sleep break for no apparent reason?

   (ii) Concentration and performance (moderate–severe stress)
   Doctor: Have you noticed a decrease in your concentration or performance?
   Sara: Yes, clearly

(iii) Relationship indicator (moderate–severe stress)
Doctor: Have you become inclined to sit alone? Sara: Yes.
Doctor: Have you become easy to annoy as compared with previously?
Sara even causes more family conflict with my husband and children. Later, I started to blame myself for why I got so eagerly like that.

N/B: anyone was yes mean there is a positive for stress screening

- In conclusion from Step-1 and Step-2

Sara needs mental healthcare and has moderate–severe stress.
Step-3: 'Does the patient need to be referral to a psychiatric clinic or stay under the family doctor's care?' (Scoping Step).
Sara had no suicidal, psychotic, or dementia symptoms or drug abuse. The decision was that the patient should remain under the care of their family doctor.
Step-4: 'Does he has depression and or anxiety'.
Doctor: Inside you, do you feel happy and relaxed or uncomfortable or unhappy?
Sara: I feel not as happy as I used to be.
Doctor: The things used to make you happy; do they still make you happy, as before, or no longer? Sara: no more.
Doctor: Do you feel relaxed or tense most of the time? Sara: Most of the time, I feel tense.
Doctor: Do you fear the future, your health, or your family members? Sara: Yes.
Conclusion Sara has Anxious-Depression; What is its classification?
As the patient has moderate stress, the final diagnosis was 'Moderate–Severe Anxious-Depression'.

Step-5: Doctor, 'What is the Management Strategy'

- As the case is moderate to severe, no drug use affects mood and no precipitated events.

Decision: To start on antidepressants (escitalopram 5 mg, then raised to 10 mg once daily).
Plus, Non-pharmacological Strategy.
After 2 weeks of instruction to keep looking at blood sugar levels:

In follow-up visits 2 weeks later:

- Sara had improved mood and sleep as compared with previous weeks
- BP had improved in lower readings 110/70 mmHg.
- No more attacks of irritable bowel symptoms
- She said, 'When I stand up like I am losing consciousness.'

Plan: Continue on Escitalopram 10 mg/day. The Lisinopril dose was reduced to 5 mg daily. No medication for IBS.

Visit 3 (3 weeks later):
Sara was satisfied, felt comfortable and happy, much better than before.
Sleep, performance and focus are improved.
BP 125/75 mmHg.

They were continued on a management plan for 9 months, with regular visits every 6–8 weeks. After 9 months, the dose of escitalopram was reduced to 5 mg for 2 months and then to 5 mg every other day for 1 month. The medications were gradually discontinued. They continued to adhere to non-pharmacological advice, especially regular walking and deep breathing relaxation, and not stopping escitalopram suddenly. Follow-up BP readings were performed to ensure the need to continue on the same dose or stop if needed, according to regular evaluation and follow-up.

5. Conclusion

The Five-Step Patient Interview is a modern and effective approach for integrating mental healthcare into primary healthcare services. Therefore, doctors can identify patients who may require mental healthcare before starting the interview, determine if the person suffers from psychological stress in a brief time commensurate with the nature of work in crowded clinics and define the scope of mental healthcare services. It also illustrates the framework for collaboration between primary care doctors and mental health specialists.

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Conflict of interest

The authors declare no conflict of interest.

Appendix-1

An innovative Five-Step Patient Interview approach for providing mental healthcare in primary healthcare centres (AlKhathami AD approach) [published by AlKhathami AD. General Psychiatry 2022; 35:e100693. doi: 10.1136/gpsych-2021-100,693.]

Step 1: Suspect mental health problems.

Primary care physicians should suspect mental health problems in patients who present with any of the following:

Frequent clinic consultations; uncontrolled chronic diseases or physical symptoms; or sleep disturbances.

If the above indicators are absent, the patient will likely not have a hidden mental health problem, and the physician can proceed with the traditional patient interview.

Step 2: Screen for suspected stress-related mental health problems.

Two screening measures are included in the patient interview:

a. Screening for hidden agendas, concerns, or impaired thinking/judg**e**ment * using ICE interview questions.

I (idea): What do you think is the cause of your present symptoms, uncontrolled sugar levels, or blood pressure?? C (concern): Why do you worry about your present symptoms, uncontrolled sugar levels, or blood pressure?? E (expectation): What do you expect me to do for your symptoms, uncontrolled blood sugar levels and blood pressure?

These actions augment the doctor-patient relationship by discovering the patient's feelings and worries.

*Thinking or judgement: If delusions or hallucinations occur, the patient must be immediately referred to a psychiatrist.

b. Screen for psychological stress:

Psychological stress and its severity must have existed for at least 2 weeks or longer to qualify as a mental health problem.

Sleep: enquire about three different situations:

'When you put your head on the pillow, do you sleep easily or have difficulty sleeping?' Early insomnia occurs in patients experiencing mild stress.

'When you sleep, do you often wake up?' Interrupted sleep occurs in moderate to severe cases of stress.

Performance and concentration: the present performance and concentration were compared with those before the occurrence of symptoms. A marked decline indicated moderate-to-severe stress.

Relationship: 'How are your relationships with people close to you? Do you like to be alone? Easy anger?' A positive response indicated moderate-to-severe stress.

Note: If there are no hidden agendas or stress, the patient usually does not require mental healthcare; traditional care should be appropriate to help the patient.

Step 3: Scope best service options to address more severe mental health problems.

> Primary healthcare professionals and family medical doctors should manage patients with depression and anxiety. Other mental health disorders should be referred to by mental health specialists as part of collaborative work.

Step 4: Diagnose depression and anxiety.

The diagnosis was based on the WHO mhGAP Guide (version 2.0; 2016) [25]. After excluding cases that needed a specialist referral (**S**tep 3), two disorders were diagnosed and managed at the primary healthcare level (depression and anxiety disorders with >2-week duration).

Depression. One of the following criteria of PHQ-2 is needed to diagnose depression:

Sad mood: 'Do you feel happy or sad?'

Loss of interest: 'Are you still interested in things that made you happy in the past, or have you lost interest?'

Anxiety. One of the following criteria of GAD-2 is needed to diagnose anxiety:

Anxious and tense mood: 'Do you feel anxious or tense most of the time?'

Excessive fear or worry (fear of the future, avoiding meeting people, increased heart rate and sweating); asking about panic attacks and post-traumatic symptoms.

Define the severity of depression and anxiety based on Step 2 findings and stress screening (mild or moderate to severe cases).

NB diagnosis was based on The PHQ-2 and GAD-2 plus the symptom findings in Steps 1 and 2 throughout>2 weeks.

Step 5: Manage mild mental health problems.

There are two rules:

Rule 1: For mild cases (only the presence of early insomnia), start with sleep hygiene, relaxation and regular exercise before taking antidepressants.

Rule 2: Moderate-to-severe cases (interrupted sleep, declined performance and concentration, and isolation or easy anger): consider antidepressant medication, except in the following two situations:

(i) Patients experience mood changes due to the side effects of medications such as beta-blockers, steroids or hormonal contraceptives. The physician should modify the medication and re-assess the patient at the 1-week follow-up.

(ii) The patient reported an inability to cope with life events such as loss, responsibilities or conflict with others. Management actions involve applying narrative therapy as the first step before starting medication. Subsequently, the patient was re-assessed. If a patient does not respond well to narrative therapy, full mental health management should be initiated with regular follow-ups.

The entire management plan includes the following:

a. Non-pharmacological management comprises all of the next:

- Regular walking or exercise
- Avoid arguments and self-blaming, particularly in the first 2 weeks
- Relaxation technique using deep breathing
- Regular follow-up with attention on the improved symptoms, then discuss the none.

a. SSRIs, such as escitalopram 10 mg and fluoxetine 20 mg, are the first choice. Treatment was started with a half-dose for 6 days, then a full dose. Fully recovered, continue for 9 months on remission status, then taper the dose and stop it 1 year from the start.

Follow-up management visits.

Assess areas of improvement, that is, stress indicators (Step 2) and depressive and anxiety symptoms, focusing on positive progress. The second visit should be scheduled 1 week after the first for support and reassurance; the third visit could be scheduled 2–3 weeks later, depending on the patient's needs.

Appendix-2

Narrative therapy used in the Five-Step Patient Interview approach (AlKhathami approach) [published by AlKhathami AD. General Psychiatry 2022; 35:e100693. doi: 10.1136/gpsych-2021-100,693.]

Narrative therapy:

Principles to be considered:

- Persistent stress overwhelms a patient until they can no longer tolerate it.
- Subsequently, they felt tense or depressed because they could not cope with their problems.
- Each person has a psychological capacity.
- Narrative therapy supports and helps patients to cope with their problems.

Narrative therapy steps:

- Let the patient identify their friend's name. Let the patient imagine that their friends have the same problems. (The physician should re-tell the story to the patient as if the friend is suffering).
- Ask the patient to help their friend solve the problem.
- Logically, what would the patient advise that friend?
- Ask the patient to apply what they say personally. Sometimes, patients suggest an escape approach; let the patient think about the disadvantages of such a solution, hoping that the patient will change the approach to a more logical one.

On the follow-up visits:

- Encourage any progress, even if it is minimal.
- Do not assume the problem will be solved in one session; weekly follow-up must be performed until the situation improves.
- When it is difficult for the patient to progress, the narrative therapy should be stopped and he moves to SSRI therapy.

Videos available from (can be viewed at https://www.youtube.com/@user-ne2cn9yx4z):

- https://www.youtube.com/watch?v=yKK7a7sMBjI
- English Language: https://www.youtube.com/watch?v=IAg9tV4uGKI
- Arabic Language: https://www.youtube.com/watch?v=3FXDvLrzEsI&t=31s

- Role-play sessions:
- https://www.youtube.com/watch?v=SaNV0km8Fbg
- https://www.youtube.com/watch?v=S6sJFBRrn84

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