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Development of the Headings of Psychological Interventions for Type 2 Diabetes Management in Iran's Primary Healthcare System (PHC): A Qualitative Study and Content Analysis of Experts' Opinions

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Abstract

Background and Objectives: As a health emergency of the 21st century, Diabetes is associated with an increased risk of cardiovascular diseases, stroke, diabetic nephropathy, neuropathy, retinopathy, pregnancy complications, psychological problems, lower quality of life experience, as well as a high economic burden and high risk of premature death. This study aimed to develop psychological interventions headings for patients referring to healthcare service centers based on local needs assessment through content analysis method of experts' opinion to provide services in the primary healthcare system.

Material and Methods: This study was conducted on 19 mental health specialists, professors, and the health team providing services in healthcare service centers (family doctor and mental health expert) in 2018-19. The data obtained from the semi-structured interviews were analyzed using the directed content analysis technique.

Results: The essential finding themes related to the closed headings of psychological interventions in diabetes for improving disease management included "collaborative care," "psychological assessment," the importance of "diabetes coexistence with psychiatric disorders," "creating health behaviors," "self-management training," and "intervention" In crisis" for the management of type 2 diabetes.

Conclusion: This qualitative study was conducted with the participation of mental health experts. Therefore, the mentioned themes and categories can be used in developing the headings of psychological intervention programs for type 2 diabetic patients, focusing on the needs of Iranian patients and the structure of the health system.

Keywords: Primary Health Care [MeSH], Psychosocial Intervention [MeSH], Disease Management [MeSH], Diabetes Mellitus Type 2 [MeSH]

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Highlights

- Reflecting the opinions of mental health professionals in the management of diabetes: qualitative study.
- Suggesting headings of psychological interventions for type 2 diabetes management.

Introduction

Impaired fasting blood glucose or impaired glucose tolerance are the first symptoms of type 2 diabetes (1). Managing the complications caused by the prevalence and significant incidence of non-communicable diseases has historically been considered a necessity in most countries. This consensus has recently approved written documents and programs by the United Nations and the World Health Organization, the most important of which is the Global Action Plan 2013-2020, consisting of nine goals and 25 indicators to control four non-communicable diseases, including diabetes (2). According to the World Health Organization report in 2016, the prevalence of type 2 diabetes in Iran is equal to 10.3% in the adult population (9.3% of men - 11.1% of women) (3). Diabetes contributes to an increased risk of cardiovascular disease, stroke, diabetic nephropathy, neuropathy, retinopathy, pregnancy complications, and early death, along with imposing a high economic burden on the health system (4, 5). In addition, patients with diabetes often experience comorbid psychosomatic disorders, depression, anxiety, and panic (6).

Behavioral science research has shown that integrating psychosocial aspects in care will play an important role in diabetes management, adherence to treatment, and blood sugar control (7). Diabetes disease management is still one of the most challenging health services. Considering the physical and psychological complications caused by diabetes and the impact on different dimensions of daily life, specialized services require the empowerment of the culture-based interdisciplinary workforce to be efficient in different healthcare system models for patients with diabetes with different backgrounds (8, 9). Health systems should provide health interventions to interact health service providers to prevent complication manage their disease when they undergo long-term treatment - even up to the end of their lives - and change their lifestyle for their wellbeing (10, 11).

The international standards for diabetes management emphasize the necessity of psychological interventions and specialized services. The World Diabetes Federation (2014) emphasized the need to evaluate the psychological status of diabetic patients and evidence-based psychological services at the three levels of "recommended care," "specific care," and "comprehensive care" according to the local culture of each society as one of the principles of providing health services (12). American Diabetes Association guidelines recommend providing psychosocial support to all people with diabetes as part of a collaborative, patient-centered care approach that optimizes health outcomes. In addition, service providers should consider assessing for symptoms of diabetes distress, depression, anxiety, and eating disorders during treatment. Special emphasis has been placed on evaluating cognitive capacities using standard tools in the initial visit and periodic intervals in changing the condition of patients (13).

Most diabetes care guidelines focus on the medical aspects of primary disease management without addressing the psychological needs of patients (14, 15). Psychosocial supports and interventions are generally insufficient in healthcare systems due to the challenging nature of patients' needs and demands (16). Iranian health policymakers have confirmed the need for psychological interventions in treating, recovering, and managing type 2 diabetes (17).

Studies in health psychology have emphasized that the patient's understanding of the seriousness of diabetes affects the way to deal with this disease and the emotional and psychological well-being of the person. The level of acceptance and

belief of a person in having a disease, adaptation to daily instructions for self-care and coping with the progress of the disease in the face of complications are among the psychological factors related to diabetes (18). Individual behaviors play an important role in disease management, and these patients should perform most diabetes control activities. Regarding long-term changes, adherence to self-control behaviors is very low in people with diabetes (19). The main challenge in treatment is non-acceptance and active participation in diabetes self-management educational programs by patients (20).

Healthcare professionals should continuously facilitate and support diabetes self-management education programs to achieve their key goals (21). Therefore, needs assessment based on patients' conditions and culture-dependent intervention possibilities seems essential (22).

Although people with diabetes report active participation in their health care, most acknowledge that educational and psychological services are not readily available. In addition, there are gaps in educational care, psychosocial support, and self-management due to the lack of effective communication with service providers (23). Understanding the disease and facilitating diabetes self-management behaviors is a protective factor for the patients' physical health. Correct personal beliefs and having performance standards can strengthen self-regulation and self-efficacy and lead to more positive experiences and healthy behaviors. In addition, improving internal skills such as resilience leads to better cognitive performance, stronger will, better quality of life, and ultimately disease control by people with diabetes (16).

Diabetes Self-Management Education (DSME) studies emphasize that examining views on the unmet needs of patients with a focus on self-management can make the disease management process more effective (24, 25). More research is needed to understand factors affecting individual differences in vulnerability, treatment response, and resilience to depression and metabolic disorders across the life course. Moreover, the best care should be provided for people with diabetes in different healthcare settings because of the different effects of these treatments on blood sugar (23).

Many studies have developed the use of various behavior change techniques as an effective set in treating diabetes (26). So far, there is no written package for psychological intervention for diabetic patients at the primary healthcare level. On the other hand, the guidelines for psychological intervention in diabetes emphasize describing the intervention content, which is still limited due to the lack of clarity about the intervention content (27). This study aimed to develop the headings of psychological interventions for patients referring to healthcare service centers to manage the disease process based on a local needs assessment from the path of qualitative research.

Materials and Methods

Study participants

This qualitative content analysis was conducted for data reduction, organization, and facilitation in theory development (28), and the purposive sampling method was used to obtain the most specialized information. A semi-structured guide was used to conduct the interview, and permission was sought from the participants to record the oral interviews after ensuring the confidentiality of the information. The right to withdraw from the research or to remove a part of the interview was observed as a principle for everyone by compliance with the anonymity condition (29). The participants included three groups of mental health experts from faculty members, mental health experts, and family doctors working in healthcare service centers. The interview with the target group started in winter 2018, and the data analysis lasted until fall 2019. The sampling method was based on the purpose of typical and critical cases. The interviews were continued until information saturation until the lack of a new point on the topic of psychosocial intervention priorities in diabetes after 19 interviews. The results were based on Directed Content Analysis,

based on the empirical method based on the theories of health behavior change to create themes by understanding relationships, identifying similar experiences, and determining psychological intervention topics for diabetic patients.

Inclusion and exclusion criteria

Participating professors have been selected as a sample of important people with an average experience of 20 years of teaching, research, and clinical services in the mental health field. The most important indicator of these professors is the experience of treating chronic patients, especially diabetes, in addition to the relevant field of expertise. The members of the health team, as an example, include participating doctors in the service delivery field with an average experience of 23 years and psychologist colleagues with an average experience of three years in health service centers from three universities of medical sciences who have collaborated in this project. The experience of working with diabetic patients referring to health centers is one of the main criteria for entering the study. Lack of consent to use the interview and a ***history*** of fewer than 12 months of attendance in the primary healthcare system in both groups of participants were considered as exclusion criteria (30).

Data collection

The data were collected by in-depth individual interview method using question guide in the form of a research questionnaire. The discussed axes were formulated based on the theoretical axes of the research to validate the tool during the questionnaire development process and developed in a Focus Group Discussion (FGD) with six selected people in the policy field from the mental health office, the on-communicable disease management center, the management center of the network of the health deputy, and clinical service providers in the field of mental health. This tool was designed by using structural questions, the views and opinions of experts on the issue of need assessment of priority cases of psychological intervention in disease management and contrast questions focused on the experience of people from the experience of treating diabetic patients (29).

The interview process started with proper communication and a brief explanation of the objectives of the research to manage diabetes for PHC patients, each interview lasted from 30 to 60 minutes. The interviews were conducted at a place and time convenient for the participants. The following questions are listed according to the data resources: "How do you evaluate the necessity of psychological interventions in the case of diabetes?", "Has there been the clinical experience of the effectiveness of psychological interventions in your work?", "Do you know any protocol for psychological intervention in managing diabetes in the country?", "What do you suggest for the implementation of this package and the cooperation of the health team in treating diabetes?", "What topics do you recommend addressing for effective interventions?", "In your opinion, what should be considered in developing psychological interventions for diabetic patients?", "In your opinion, what components should this package include?", "In your opinion, psychological interventions for managing diabetes should focus on what aspects of this disease and why?" The specific questions of the two groups of health providers include the following: "How do you evaluate the importance of psychological interventions in the clinical experience of treating a diabetic patient?", "In your opinion, what psychological interventions do diabetic patients need to manage their disease?", "In your opinion, what should the protocol of psychological interventions for diabetic patients focus on, and what components should it include?", "Do you recommend specific psychological interventions for newly diagnosed patients (less than six months)?" and "In your opinion, what educational topics for psychologists should be included in the package of psychological interventions for diabetic patients?" The central questions were modified as necessary in conducting interviews according to the expertise and field of different activities. In addition, questions such as "What do you mean?" or "If you can please explain more" was used based on the need. At the end of the

interview, the participants were asked to state if there were any topics other than the questions in mind. Then permission was sought from them regarding the possibility of conducting subsequent interviews and re-reviewing the researcher's impressions of the interviewee. The text was transcription at the end of each interview, and the next interview was conducted after coding. The audio file of the interviews was typed, and semantic units and main messages were determined after repeated re-reading (31).

In this study, the raw data were coded based on the precise interpretation and inference of the researcher with the directed content analysis approach, based on the theoretical method based on meaning units. Then these coding concepts were summarized and categories, and themes were extracted (32). In this direction, the constant comparison method was used. The codes obtained from the interview were arranged in the tables of behavioral determinants affecting disease management (as classes). The data was provided to the participants with measures such as Quotations presented and extracted themes to ensure the reliability of the data from clarity and consistency to investigate the similar understanding or contrast of the researcher's analysis (reliability) (33-36). Open codes were adapted based on behavior change theory and self-management training guidelines in diabetic patients for generalizability with the technique of triangulation in sources (involvement of 3 groups of interviewees) and "theoretical triangulation" (37).

Ethical considerations

All ethical considerations, including voluntary participation, obtaining informed verbal consent, preserving the personal privacy of the participants, and keeping the information of the participants confidential, are observed. Also, the present study has been approved by the Ethics Committee of Islamic Azad University, Karaj branch (IR.IAU.K.REC.1398.014).

Results

The number of participants was 19, including professors with an average of 20 years of teaching and research experience in the field of mental health, doctors with an average of 23 years of experience in treating diabetic patients, and psychologist colleagues with an average of 3 years of experience working in health service centers. The distribution of age and gender of the participants was in the age range of 26 to 65 years, with the presence of 52% women and 47% men. Table 1 shows the demographic characteristics of the participants in the study.

Table 1. Background variables and characteristics of study participants

Variable	***Average/percentage***	***standard deviation****
Age	44.74	10.86
work experience **	14.5	9.32
Clinical work experience in the field of mental health	18.2	11.66
	Classification	***Qty***
Gender	Female	10
	Male	9
Education / Specialization	Psychiatrist	2
	PhD in health psychology	2
	PhD in clinical psychology	2
	Master of Clinical Psychology	6
	family doctor	7
Academic rank of professors	Associate Professor	3
	Professor	3

* Confidence interval (CI) 95%

** University work experience (university faculty) or working in the primary healthcare system

In the following, these topics mentioned in Table 2 have been explained by mentioning some passages from the participants.

Table 2. Areas of providing psychological interventions

Main classes	Sub-classes
Collaborative care	Trust in the health team
	Effective doctor-patient communication
	Improving cognitive-behavioral intervention skills for psychologists
	The importance of communicating with the patient and the principle of empathy
Psychological assessment	Complete assessment of various aspects of physical, psychological, and social health
	Diabetic patient-specific needs assessment (set list of problems)
	The importance of spiritual health in chronic diseases
	Pathology of disorder in spiritual health based on beliefs in society
	Pathology of common misconceptions
	Evaluating the educational needs of patients (the specific needs of each person in obtaining the necessary skills)
comorbid diabetes with psychiatric disorders	The challenge of prevalence and simultaneous occurrence of depression and anxiety disorders in diabetic patients
	The importance of treating psychiatric disorders before intervention for disease management (prioritization in service delivery)
Creating healthy behaviors	Promoting knowledge about the disease
	Description of complications and recovery process
	Change in attitude
	Lifestyle change (sustainable behavior change)
	The importance of personality differences in following the treatment plan
	Improving mental health literacy
Self-management training	The importance of teaching coping skills with negative emotions
	Focusing on thoughts, recognizing feelings "self-awareness" (helping to resolve the patient's conflict)
	Self-management training
	Improving patients' self-esteem
	Patient support
Crisis intervention	Experience of negative mood and shock in newly diagnosed patients
	Performing the skill of "giving bad news"
	Controlling the patient's stress and anxiety in the face of the fear of disability (limb amputation, and blindness) and death

Description: The main and secondary themes of the mental experiences of health experts in Iran, including the opinion of mental health experts and the health team providing the service regarding the list of essential items for compiling a package of psychological interventions in the treatment, recovery and management of diabetes disease, have been given

1. Collaborative care

According to the participants, empowering the health team to provide collaborative care is one of the most effective ways to improve disease management. The codes of this section included "effective communication between doctor and patient," "improvement of psychologist's skills," "the importance of communicating with the patient," and "principle of empathy and trust in the health team".

A. Effective doctor-patient communication

Given that trust in the health team is a serious category in the treatment process, "effective doctor-patient communication" was also repeated as one of the essential codes in the interview participants' expressions. For example, one of the participants, who is a psychiatric specialist with a psycho-physical orientation and has a history of working with chronic diabetic patients with co-occurring psychiatric disorders, explains in this regard:

"In one of the needs assessment studies regarding the needs of diabetic patients … the patients said doctors scare us a lot and say that your leg will be amputated! Or you will lose your kidney! This is a wrong start and the doctor needs to establish effective communication with the patient at first to draw his attention to the treatment process rather than threatening. (Psychiatrist specializing in psychosomatics)

B. The importance of communicating with the patient and the empathy principle

The participants' opinions revealed that creating effective communication in the context of empathy leads to trust in the health team. One of the participants, as the executor of psychological interventions with master's degree in clinical psychology and three years of experience in healthcare service centers, explains:

"Well, the first thing is communicating with a psychologist, which is very important. I should be able to establish a relationship and empathize with this person. I should understand what this person is saying, then I should normalize this issue for him a little bit, that this is a chronic disease, give him more insight. I should give him information about his disease to know more about the disease, explain the recovery process to him, and even explain the process that if he doesn't recover. I should warn him, if you don't care, these things might happen to you too." Mental health expert (working in the health-treatment centers of the University No. 2)

C. Improving psychologist skills

This study was conducted to determine the topics of psychological interventions in diabetes according to the local needs assessment and in the context of the possibility of providing psychologist services in the primary healthcare system. Most participants have talked about the need to improve the mental health expert's knowledge about applying psychoanalytic skills with a cognitive-behavioral approach to change management behavior regarding diabetes.

For example, the opinion of one of the interviewed health team doctors is as follows: "Being informed of having diabetes in the first place may affect patient's mood. It is difficult to tell them that he must take medicine for the rest of his life and it is not acceptable. I think that it is necessary for the psychologist to work on them so that the patient's acceptance the is formed and he should know about the process of treatment and diagnosis of this disease." Family doctor (working in the health-treatment centers of the University No. 3)

2. Psychological assessment

Many participants mentioned the specialized role of the mental health expert in disease management. The codes of this section include "complete assessment of various aspects of physical, psychological and social health", "diabetic patient specific needs assessment", "educational needs assessment of patients", "importance of spiritual health in chronic diseases", "pathology of spiritual health disorders based on beliefs in society", and "pathology of common false beliefs" to design specific interventions for each person to improve disease management.

A. Complete assessment of various aspects of physical, psychological and social health

The first step in providing services in line with psychological interventions is the missing link in the healthcare system, which mental health experts have pointed out in their speeches.

PhD in health psychology: "My energy is limited; I don't need to work on everything. So, I can either do a short interview with a few questions such as what do you know about diabetes, and what kind of disease do you think it is? I ask a few questions to find out the problem such as what conditions you feel that your blood sugar is going up, what are you doing to bring your blood sugar down. With an evaluation like this, we will understand that this problem is negative emotions, and the patients do not know what diabetes means at all? They have no knowledge and wrong beliefs, which is called knowledge attitude practice and the patients do not know their attitude towards the disease and their reaction. "

Family doctor (working in university health-treatment centers number 2), "Since diabetes is a metabolic disease, its physical complications, such as heart disease, neuropathy, nephropathy, and the prevention of these complications, especially the prevention of these complications, as well as the psychological, social, and individual aspects of this disease should be considered to enable people to take care of themselves and correct their lives."

PhD in clinical psychology, "It means that a comprehensive assessment must be done, including various physical, psychological, even social and even spiritual aspects."

B. Specific needs assessment of diabetic patients and investigating of educational needs of patients

The participants, especially clinicians specializing in health psychology and clinical psychology, pointed out the importance of accurate assessment in identifying the "specific needs of each person in obtaining the necessary skills" and "setting the list of problems" of patients in developing a package for setting up effective interventions.

PhD of health psychology, "... I say that not everyone reacts in the same way. Someone who doesn't have problem solving skills, or someone who doesn't have conflict resolution skills, or those whose self-confidence drops. So, you need a program to identify where a person has problems in interpersonal relationships. For example, this gentleman stopped going out with his friend because of his diabetes. He said that because they want to go to a coffee shop to eat, but I can't and I don't want to."

PhD of clinical psychology, "Well, we should be able to evaluate how people deal with stressful situations in general, regardless of their illness?" Does that mean there is denial? Is there mourning?"

C. The importance of spiritual health in chronic diseases and the pathology of spiritual health disorders based on beliefs in society

Many participants have pointed out the great importance of spiritual health in treating chronic diseases, and dealing with spirituality, prayer, believing in the origin, trust, the meaning/feeling of satisfaction from a purpose-based life, and explaining religious concepts are important in creating a philosophy of life. The mentioned cases are especially critical in managing diabetes, which affects various aspects of people's lives, such as rituals such as fasting.

PhD of clinical psychology, "Another important issue is spirituality. You should have spirituality in education and interventions. Spirituality and spiritual health are important as an intervention and you help people to have their spiritual beliefs with which they can have a meaning for their life, for what is and what they are facing..."

Referring to the importance of pathology in all aspects of health for following the treatment plan, the psychiatrist specializing in psychosomatics stated, "Diabetic patients are affected by complex aspects of their lives. One of the patients who was not willing to inject insulin said that he would bleed [during the injection] and I would become impure and I would no longer be able to pray."

PhD in health psychology, "The problem is the [the patient's] messed up beliefs. When these beliefs are destroyed, you are deprived of a very strong resource that can help you cope with it [diabetes disease]. Then, when you talk about spirituality that can help in this field, they also connect it to a belief that is messed up, so this is also confusing me. For example, someone who loses hope and even someone who thinks that now I can't do my job anymore or what will happen to my life?"

D. Pathology of common misconceptions

PhD of clinical psychology, "There are false beliefs, there are also true beliefs. We don't differentiate between right and wrong beliefs, or people don't differentiate." Psychiatrist specializing in psychosomatics, "sometimes non-compliance with treatment is related to wrong beliefs. In our culture, we say we fainted, which is not only about diabetic patients! My blood sugar is low, so I have to eat something, this is a

problem, now half of our population, especially those with low education, have this problem."

PhD in health psychology: "Somethings are spread in the society and among people, or it is said, sometimes even radio and television reinforce it. Then the person will finally find himself in a situation where if he doesn't believe it himself, others will say so much that he will believe it too."

3. Comorbid of diabetes with psychiatric disorders

Many participants believed that the challenge of the prevalence and incidence of psychiatric/psychological comorbid disorders in diabetic patients can affect the course of psychological interventions. Suffering from depression and anxiety disorders at the same time due to interference in the self-care process of patients' needs to be diagnosed and screened, and this issue will affect the prioritization of services in the care system.

Psychiatrist, "For example, regarding the mood effect of depression and diabetes, I saw so much similarity and so much overlap between the two. If he wants to be an ideal model, he must see these two together and cannot see them separately."

PhD in health psychology, "But what they actually refer to is comorbidity (same time illness) is very high and now one out of every three to four people has depression."

PhD in clinical psychologist, "When a person is told this [he has diabetes], he experiences anxiety, worry and depression like everyone else! You should also know that some patients are already suffering from psychiatric diseases... this is also important."

4. Creating healthy behaviors

Another topic that the participants expressed as a principle in the package compilation is the expectation of the content used in creating health behaviors for diabetic patients. The codes of this section include the necessity of "increasing knowledge about the disease", "explaining complications and recovery process" and "change in attitude" by creating insight into the disease. Finally, "lifestyle change" occurs with stable behavior change in patients and "improvement of mental health literacy."

A. Improving knowledge about the disease and description of complications and recovery process

A family doctor working in the health-treatment centers of University No. 1, "It is important to provide them with very good information about their disease and its control, about the treatment process, about what their referrals will be like. We have to share these with them step by step because he doesn't know what to do, we are the ones who have to show them the solution. First of all, we have to tell them what kind of disease it is, it is not a disease that you can take medicine and get better."

A mental health expert working in the health-treatment centers of University No. 1, "I think it is very good for a psychologist to give an insight to his clients [to create] because the doctor says that you have high sugar, for example, you should not eat these and gives a series of precautions. However, patients' acceptance and coping is better achieved by a psychologist."

A mental health expert working in the health-treatment centers of University 2, "I will help them gain more insight and understanding of the disease and give them information about his disease, let them know more about the disease, explain the recovery process to them, even explain the process if he does not recover. If you don't care, these things can happen to you too."

B. Change of attitude

PhD in health psychology, "A part of the story is knowledge and attitude to the problem, as well as the knowledge towards disease. The debate is that one knows what the disease is and what is effective, but we have evidence that diabetic patients do not take interventions seriously even though they know. So, as a result, another intervention besides knowledge is controversial with a motivational interview or anything... "

C. Change in lifestyle

Psychiatrist specializing in psychosomatics, "We don't see much resistance to diabetes treatment, but changing his lifestyle is a difficult task and it is necessary."

PhD in clinical psychologist, "The basis of type 2 diabetes is simply focused on behavior. Changing weight behavior is a change in eating behavior. Even the nature of behavioral adherence is the only area that can be addressed, and the main one is interventions in the psychological area. This is perhaps one of the few medical problems that is strongly related to behavior."

D. The importance of personality differences in following the treatment plan

PhD in Health Psychology "A person is very anxious and worried about what has happened to him. You have to explain to him and make it clear that changing his lifestyle can help him to recover and actually know what the consequences are and how he can manage it."

PhD in clinical psychology "Sometimes chronic diseases are considered in empty fields and separate from everything, while people have some characteristics before they get sick that these characteristics can also cause them, which can affect them."

E. Promotion of mental health literacy

PhD in health psychology, "Diabetes, in my opinion, is very much influenced by mental and psychological issues, and social aspects and social support are very important for its treatment. In fact, social aspects and social support are also very important, and individual training is very important so that people actually have knowledge and awareness in this field."

5. Self-management training

Self-management training was mentioned as the most central topic developing headings by experts in the field of mental health in the 4 main codes about the importance of "teaching coping skills" with negative emotions, "focusing on thoughts, recognizing emotions and body awareness" to solve the patient's conflict, "increasing the patients' self-esteem" and "supporting the patient" with positive feedback from the health team.

A. Self-care training

Psychiatrist specializing in psychosomatics, "is another matter. If your goal is to control their sugar, the principles of Behavioral Medicine that you study in this field should be studied a lot. For example, Health Psychology is a branch of Behavioral Medicine. Mainly, a package should be designed for the self-care system and how to monitor them. If you want to improve your diabetes management, you should write down the principles of Behavioral Medicine as a basis for moving forward."

Mental health expert working in the health-treatment centers of University No. 3, "I tell them to try to find friends, exercise and take care of themselves. If you think you can't remember your pills and insulin on time, ask someone for help, put some numbers on your hand that will help you, we will try to remind you of self-care from different aspects."

B. Training coping skills

PhD in health psychology, "To increase the ability to cope, a person must have the skills to cope with stress and control negative emotions, because we have a lot of evidence that when a person is diabetic, he cannot control negative emotions as soon as he has diabetes. Even the insulin has reached and added and the blood sugar is not regulated. The collection of these can be effective in interventions and we have articles for each of them. We have the knowledge, motivation, and on the other hand, we have the so-called beliefs and general information about the disease and each one of these. On the other hand, we have the skills to deal with stress and negative emotions. These are the things that I think should be included in a package. What needs more comprehensive attention and investigation, but in any case, there is no doubt that it should be."

Family doctor working in the health-treatment centers of the University No. 1, "The mechanism of denial may be ***more*** in our patients. Sometimes denial means omnipotence that nothing will

happen to me! Denial that this diabetes is not serious! Sometimes it can be caused by disappointment. That form of despair exists in other societies as well. It also depends on the family, and the patient must know how to cope."

C. Improving patients' self-esteem

Mental health expert working in the health-treatment centers of the University No. 2, "What he feels in terms of feeling and empathy is that he is much better and he is coming and going in the crowd, he is talking to new people, he is talking, he is talking about himself, he is expressing himself and so is his anxiety comes down, I think it's more like a person's self-esteem changes."

D. Focusing on thoughts, recognizing feelings, and the body of consciousness

Mental health expert working in the health-treatment centers of University No. 3, "The more his relationship with himself improves, the anxiety decreases, and when the anxiety decreases, all the symptoms decrease."

Mental health expert working in the health-treatment centers of University No. 1, "Using the skill of mindfulness with a focus on recognizing emotions and body awareness? [Let the patient know] Am I passive, bold, aggressive? Let's first recognize this and then go to the fact that, if I am passive, how can I be bold? How can I be brave if I am aggressive? This will affect their communication styles. We can also teach relaxation techniques."

Psychiatrist specializing in psychosomatics, "It was about patients who were taking insulin. Another problem they had was that they considered it very similar to injection addiction! They felt a bit ashamed that they are not sitting here and saying that I should go and inject insulin, they felt bad. This should be considered…"

PhD health psychology, "If he eats boiled pumpkin and his family eat sweet or fried rice, this person is constantly in conflict as to what to do with this. People can adapt, people can deal with a problem if their environmental conditions require it. It means that the family should cooperate. Sometimes the family does not cooperate. Instead of cooperating, the family says not to eat too much, eat less, we can't cook for two, which of course shows that there are already some problems. These require effective communication skills and gaining support."

E. Patient support

The last code related to the theme of self-management of patient support was classified with positive feedback by the health team.

Psychiatrist, "Everyone who deals with diabetes should be aware of sometimes a simple advice and following this advice in every meeting, for example, did you exercise?" Did you stop smoking or did you reduce smoking? Were you able to adjust your food and diet? Following these principles for a healthy life is important."

7. Intervention in crisis

The "crisis intervention" was raised by examining the complex dimensions of diagnosis and management of diabetes with the approach of improving the process through psychological interventions, which includes three codes related to intervention headings for "experience of negative mood and shock in newly diagnosed patients", "skill of presenting bad news" and control of patient's stress and anxiety in the face of fear of disability (amputation and blindness).

A. The experience of negative mood and shock in newly diagnosed patients

PhD in health psychology, "It's like the stages of mourning. I mean, these are the steps and should be. After that, there will be a stage of anger where the person will have a fear that this fear will turn into anger, which will turn into saying now that it's like this, let it go, I don't want to do anything at all! For a while, they don't observe it at all, or for a while now, the ones we saw are ignored as if nothing happened. That's why they live their normal lives until something happens to them or a complication or they go for a test again and the doctor says your sugar is 400, what are you doing. He should come to accept that I have diabetes, but the future is not so dark."

Mental health expert working in the health-treatment centers of University No. 2, "How much does he understand the danger and how much does he believe in the danger. It seems that there should be an intervention in a crisis in the corner of the package for that person who may be in shock and does not use the denial mechanism at all. Now he is showing signs of severe anxiety, and in fact, this has become a trigger for a mental crisis."

Mental health expert working in the health-treatment centers of University No. 1, "Most of the people who have diabetes have a lot of problems. Even I had the experience that a person who has just been diagnosed with diabetes has also experienced low mood and depression, felt that the world has come to an end and now I am in a very bad situation. These will be referred to the doctor, and the doctor will refer me."

B. Controlling the patient's stress and anxiety in the face of the fear of disability (limb amputation and blindness) and death

Uncontrolled anxiety is another critical factor in lack of observing the treatment plan, which is generally hidden from the health team. Therefore, this anxiety in diabetes is discussed in a separate code. The importance of this code is twofold from the point of view of people working in healthcare service centers because these professionals work with the final target group. The dimensions of this anxiety from the participants in this section are as follows:

Mental health expert working in the health-treatment centers of the university number 3, "... Some of them are very afraid. They are afraid of cutting their legs. That's why I think that we should give them a proper insight [of the disease]. Not to make them careless and not to scare them too much."

Mental health expert working in the health-treatment centers of University No. 1, "... a very simple and common thing that they themselves say is even when they take a blood sugar test they got stressed. Their blood sugar rises unconsciously. I teach in my stress management class."

Mental health expert working in the health-treatment centers of University No. 2, "... I think that this feeling of fear that is getting worse increases his anxiety so much that he can't focus at all on his nutrition and taking that medicine."

PhD in health psychology: "... here you should have two discussions and issues should be examined and worked on in two directions; one is medicine based on tests, experts' opinion, and drugs. The One problem is that sometimes the first problem is that they want to admit that they have diabetes, it leads to anxiety."

C. The skill of presenting bad news

Family doctor working in university health centers number 2, "In the first place, it is important to deal with the patient when announcing the initial diagnosis of diabetes. Well, it is very important how to deal with him, to give him enough information about the disease, to tell him slowly so that the patient is not too shocked."

PhD in health psychology, "How can we gently influence the person's knowledge and thinking, and it is a good perspective that can have a normal life instead of looking at the perspective of horror."

Discussion

The main themes related to the closed headings of psychological interventions in diabetes have pointed to the principle of collaborative care to enter the process of improving the management of the disease, followed by the improvement of the mental health expert's knowledge as an effective member of the health team. These results are essential in implementing the chronic disease care model by redefining the roles of health service provider team members (11). Good disease management depends on judging behaviors based on the patient's physiological conditions and quality of life. The interviewees' emphasis on the direct and effective effect of the health team is consistent with other studies on the use of psychological interventions for the treatment of

diabetes in Iran (38, 39) and other countries (40-42).

Another main theme for developing closed chapters of psychosocial interventions is psychological assessment, which is in line with the standards of medical care in diabetes and review studies on the topic of self-management of diabetes (43, 44). The participants have pointed to topics such as effective doctor-patient communication as one of the most important topics in the package of psychological interventions in expressing the importance of some topics related to collaborative care and psychological assessment. This finding is also in line with our qualitative research study by Blixen et al. (2016) and focusing on effective communication between patients and service providers in the path of improving patients' self-care (45). According to the systematic review of Nizamand Sohal et al. (2015), it is recommended to address the prevailing misconceptions and focus on setting culture-based strategies to improve communication between the health team and patients in South Asia (46). The findings of the research show that paying attention to culture in the implementation of behavior change theories and psycho-social criteria in the evaluation and effectiveness of training to patients is very necessary. The two subcategories "pathology of common misconceptions" and "assessment of educational needs of patients" confirm this point.

The effectiveness of psychological interventions with "creating health behaviors", "self-management training" and the importance of "managing the crisis caused by diagnosis and stress and anxiety in the face of the fear of disease complications" are mentioned as one the main themes. This result is in line with the results of a systematic review and meta-analysis on the effectiveness of psychological interventions in improving blood sugar control in patients with type 2 diabetes by Ismail et al. (47), which has been proposed as an effective way to improve diabetes management and to recognize the diabetes self-management education program (48, 49). The qualitative results on the psychological aspects of diabetes management, such as dealing with the psychological problems of diabetes and overcoming the exhaustion caused by the disease and the importance of comorbid psychiatric disorders in diabetes in the study of Snook and Skinner (2006), are in line with the results (50).

The importance of self-management training as one of the main classes in developing psychological interventions by mental health experts and interviewees working in the service delivery environment is consistent with other review studies on implementing these trainings (51-53). Helping to resolve the patient's conflict by improving self-esteem, the other two mentioned categories, along with the importance of teaching coping skills with negative emotions, are self-management training subclasses, which are in line with the results of Noordali et al. (2015) in learning coping techniques and self-care in management of diabetes (54).

Moatari et al. (2011), Porvardi et al. (2015), and Razm Arai have pointed out the effectiveness of self-management components in disease control (55-57). The content taken to create health behaviors is in line with the results of the extensive study of Skinner, Joensen, and Parkin (2019) (19, 58). The importance of spiritual health in chronic diseases and the pathology of disorders from the point of view of experts in the field of mental health, spiritual health based on the beliefs in the society are two important categories in providing self-management services for Iranian patients, which indicates the necessity of addressing this area in the current research.

It is very important for health professionals to be aware of the role that religion plays in the lives of diabetic patients and to comply with religious needs in regulating the healthcare of patients (59). The results of Jafari, Farajzadegan, and Loqmani (2014) show the relationship between poor quality of life and spiritual well-being and high prevalence of depression in Iranian patients with type 2 diabetes compared to the findings of other studies, especially western studies, and indicate the need for psychological and spiritual support in care among Iranian diabetic patients (60). These results are in line with other domestic studies on

the importance of promoting spiritual health in improving the quality of life of people with type 2 diabetes (61-64).

Review studies have indicated that a variety of psychological interventions lead to better management of the disease in people with diabetes (65). All the mentioned cases are stated for specific topics in presenting psychological interventions for disease management with more emphasis on the unique aspects of Iran in the talks of experts in the mental health field.

Conclusion

The present study was conducted among mental health professionals and health service providers in the primary healthcare system. The results can be used to develop a package of psychological interventions among type 2 diabetic patients referring to health service centers. One of the limitations of the present study is the access to the health team at three Universities of Medical Sciences. Since the cultural range in the country affects the type of health service provision, it has been tried to overcome this limitation by considering the strict criteria of entering the study and matching in the selection of participants. The proposed areas are suggested to be investigated for psychological intervention topics for diabetic patients using the Delphi technique and the selection of participants from other universities of medical sciences as a complementary method to generalize the results. Future studies are recommended to prioritize psychological interventions and implementation solutions using quantitative methods.

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Ethics approvals and consent to participate

All related ethical considerations including voluntary participants, oral consent, participant's privacy and confidentiality of information were respected in this study. The present study was approved by the Ethics Committee of Islamic Azad University, Karaj Branch (IR.IAU.K.REC.1398.014).

Conflict of interest

The authors declare no relevant conflict of interest related to the topic or content discussed in the article.

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