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Original Article

Clarification of the Perceived Priorities of Reproductive Health Concerns in Diabetic Women

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Abstract

Background and Objective: Women with diabetes often have concerns regarding their reproductive health and sexual well-being. These concerns represent all the important issues that affect the health of the reproductive system and its function, which can also affect the general and social health of the person. Therefore, the present study aimed to explain the reproductive health concerns of women with type 1 diabetes under treatment at Hami and Khazarian Clinic in Hamadan, Iran.

Materials and Methods: The present research was conducted using the exploratory qualitative method. An in-depth unstructured interview was carried out with 17 married women aged 20-45 years with type 1 diabetes, and the data collected was analyzed using the constant comparison method.

Results: The main themes obtained were sexual performance and satisfaction with six subcategories, including physical, psychological, social, reproductive, supportive, and informational.

Conclusions: Since diabetes at younger ages is spreading rapidly and this problem affects the quality of marital and sexual life, the need to identify the perceived priorities of reproductive health concerns and design necessary interventions is felt.

Keywords: Health concerns, Diabetes, Sexual performance, Marital satisfaction

Background

According to the estimate of the World Health Organization, chronic diseases were the leading cause of death and public disability in 2020 [1]. Among the largest groups of chronic patients are those with diabetes, with 36% of all women with diabetes in the type 1 group [2].
Diabetes with fatal complications has extensive effects on individual and social functioning [3] and is known as the main cause of limb amputation, chronic kidney failure, blindness, and cardiovascular diseases [4]. Strict drug and nutritional regimens increase the risk of these patients suffering from psychiatric diseases, such as low self-esteem, depression, anxiety, and eating disorders [5]. Diabetes poses many challenges, such as the necessity of repetitive insulin injections and the associated expenses, adherence to a strict diet, vulnerability to frequent infections, the possibility of regular hospitalizations due to complications, as well as limitations regarding matters, such as reproduction, establishing a family, and employment, all of which result in a decrease in the mental well-being of individuals affected by the condition [6].
The results of past studies have shown that almost all aspects of patients' lives can be affected by diabetes and cause a decrease in the level of satisfaction and quality of life (QOL) [7]. Diabetes's chronic consequences, which result in shorter lifespans and higher death rates, impose a substantial financial burden on people, families, and society as a whole. Furthermore, these problems have a significant influence on both the individual's and their family's QOL [8].
The consequences associated with diabetes, such as coronary and peripheral vascular disease, stroke, diabetic nephropathy, amputation, kidney failure, and blindness [6], cause numerous psychological and behavioral complications that significantly affect the quality of life and mental health. It affects the patients and imposes significant health costs on the individual and society [8]. The most important

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side effects of this disease in women are organ defects, reduced self-esteem, and concerns about sexual health, marital relations, and reproductive health [9].
Despite this, in many countries, especially developing countries, the specific needs and concerns of reproductive health of women with chronic diseases have not been considered, and the way they are treated is similar to other women [10]. Although these women have distinct health and reproductive health needs, they still encounter these challenges [11]. Failure to address these individuals' unique needs and concerns hinders their ability to fulfill their roles as nurturing mothers, supportive spouses, and valuable contributors to society. In addition, as a principle of human rights, sick women have the right to achieve their maximum level of health, just like other sections of society [12]. On the other hand, studies indicated that many of these women do not seek help when they have serious reproductive health concerns and problems, especially regarding sexual issues [11]. Around a quarter of these women actively seek information and help; however, they encounter obstacles when trying to get the required healthcare services or are unaware of the available treatment alternatives to address their reproductive health concerns [13].
Therefore, addressing the health and fertility concerns and needs of women suffering from chronic diseases, including diabetes, is one of the health priorities of every society and healthcare system. It seems necessary to conduct extensive research in order to identify these concerns and provide solutions and programs appropriate to the cultural conditions of each country.

Objectives

Women living with diabetes experience significant stress due to worries related to reproductive health and sexual well-being. These issues include several factors that affect the health and functioning of the reproductive system, eventually impacting an individual's entire physical and social well-being. Therefore, the objective of this investigation carried out in Hamadan, Iran, was to clarify the specific reproductive health issues encountered by women diagnosed with type 1 diabetes.

Materials and Methods

This study was carried out in Hamedan, Iran, a region with an extremely high rate of type 1 diabetes. The study aimed to explore and gain insights into the topic using qualitative research methods. The investigation used purposeful sampling to specifically select individuals who were married women between the ages of 20 and 45, diagnosed with type 1 diabetes, and getting treatment at the Hami and Khazarian Clinic in Hamedan City, Iran. In order to guarantee a wide variety of experiences, we analyzed several factors, including age, educational attainment, employment status, length of marriage, type of marriage (permanent or temporary), age and educational level of the spouse, spouse's employment status, sufficiency of family income for monthly expenses, contraceptive methods used, number of pregnancies, number of living children, age at onset of disease, duration of disease, disease type (recurrent, subsiding, primary progression, secondary progression, progressive-relapsing), consistent use of medication, duration of medication use, and disability score.
Face-to-face, unstructured, in-depth interviews were used to gather data. The interview started with the general question, "How do you feel about your reproductive health?" after demographic data and qualitative approval were obtained for informed participation in the study. The study's objectives were followed in the question-and-answer procedure based on the participant's responses. Additional questions were then posed, such as "What are your most pressing concerns?" and "When you think about your reproductive health, what are your most important mental concerns?"
The researchers used a variety of strategies to uphold ethical standards and improve the interview's quality. These included not starting the interview spontaneously, giving participants feedback, avoiding inducing opinions, using checking procedures, developing an atmosphere of trust, and avoiding physical, psychological, or social assault. Additionally, the researchers were ready to end the interview at any time. These methodological and ethical considerations were of interest to the researchers conducting the study.
The participants were selected from the samples based on their available experience. Then, they were invited to conduct interviews according to the availability of the list of people with type 1 diabetes, the possibility of accessing them, and based on the objective of maximum diversity of the participants. Participants were invited into the research based on their written and verbal willingness to participate in an interview that was recorded to document their experiences. Participants were permitted to answer the first question in an unstructured interview flow. Depending on the participants' endurance and readiness to share their opinions, each session lasted 40–65 minutes. The research had 17 subjects in total, and 26 interviews were conducted until the point of information saturation.
The qualitative content analysis method was used to

analyze the collected data using the basic principles of grounded theory, including the simultaneous production and analysis of data, continuous comparison of data, and recognition of real codes. The interview was transcribed word for word, and then the open codes were classified through constant comparison and based on similarities and differences. The data analysis continued until the information saturation of the classes was reached.

To increase the reliability of the study, after the initial coding, the authors participated in the data analysis, and an agreement was reached to select the meaning of units, the coding process, and classes in group meetings. In addition, a technique known as individual member confirmation was used to make sure that the participants' experiences and the authors' interpretations agreed; this required confirming with the participants that the data was accurate. Two more interviews were conducted as a consequence of participants being called again when required to clear up any misunderstandings or gather more information.

In order to comply with ethics, the present research was approved by the ethics committee of Islamic Azad University, Najaf Abad branch, Iran. Data were collected after explaining the research objectives to the participants and signing the informed consent form to participate in the research and audio recording. The interviews were conducted in a safe environment and at the time and place desired by the participants, such as the place of residence and the diabetes association. It was intended to prevent psychological, physical, and social harm caused by the interview, as well as to stop the interview in case of possible harm. Each respondent was granted the liberty to respond to questions in any way they deemed appropriate and to withdraw from the research at any point prior to or during the interview. As compensation, participants received a gift and transportation costs. The interviews were carried out with the help of other interviewers and under the original author's supervision and presence to ensure consistency.

Results

In the qualitative part of the study, 17 women with diabetes aged 20 to 45 years were interviewed. The duration of the disease in participating women varied from the ages of 4 to 14, and only 1 case was diagnosed at the age of 18 and had a history of other diagnoses in childhood and adolescence; these women had zero (without children) up to 3 children, with a marriage duration of 1 to 18 years.

They were among the patients with diabetes in the four regions of Hamadan, Iran, and the severity of disability (based on the Expanded Disability Status Scale [EDSS] scale score) ranged from 1.5 to 5. The endocrinology resident determined and recorded this score for each patient in their medical records. The sample consisted of 17 participants, of whom 6 were employees, and 11 were housewives. The participants came from a variety of educational backgrounds; the majority had academic or university-level education. However, the sample also included women with sub-diploma, secondary, and specialized doctoral degrees. The spouses of the participants also had a wide range of educational backgrounds, from general practitioners to doctorates in specialized fields.

The final review and coding, which resulted in the final codes of the qualitative study of this research and were arranged into five classes and 24 sub-classes, were completed after the first review. It should be mentioned that compiling the data for this stage of the research was challenging since it was hard to distinguish one issue from another because they were closely connected, often overlapped and sometimes concealed additional problems within themselves. The authors noticed that a single concern about the disease might trigger more concerns.

These women had a strong desire to hide their problems and concerns from their husbands, and even though they were afraid of breaking up their families, they expressed dissatisfaction with their married lives and existing conditions. They also have social phobia and prefer staying at home and being isolated. The reproductive health of the participating women was impacted by all of these issues, anxieties, and concerns. It is important to note that the researcher asked the women at the conclusion of the interviews which of their concerns was most important for them to take action on.

Two participants were not married, and two participants had premature menopause. First, infertility and then sexual problems were raised as important concerns of their reproductive health.

Physical Dimension

Diabetes is one of the chronic diseases and one of the important causes of death and disability all over the world [14]. According to the latest available statistics, about 135 million people worldwide suffer from this disease, which is estimated to reach 300 million people in 2025 [15]. Statistics from 2001 indicate that of the 800,000 people with diabetes, 200,000 of them passed away in the year after their diagnosis. According to the opinion of the American Diabetes Association in the United States, the government spends more than 100 billion dollars a year on diabetic patients, most of which is

spent on treating the complications of diabetes [16]. The results of Lustman et al. [17] have indicated that diabetes can negatively affect general health and well-being, in other words, patients' QOL.
According to recent research, patients with diabetes have a low QOL. This issue may arise from physical conditions related to the disease, which can occasionally worsen than the disease itself, from complications brought on by the disease, or from complications resulting from the use of medications for the disease, all of which lower QOL.
Quality of life is a multidimensional, mental, and dynamic concept. Diabetes can have negative effects on physical performance, development of complications, mental and emotional state, and personal, family, and social relationships [18]. For instance, severe dietary restrictions and oral or injectable anti-diabetic drugs have incompatible effects on the QOL of diabetic patients. In addition, long-term microvascular and macrovascular complications of diabetes, such as neuropathy, heart disease, and stroke, also have a negative effect on the QOL factors, including chronic fatigue in diabetic patients [19].
Fatigue and lack of energy are also described as one of the most common complaints in 90% of patients [20]. Numerous symptoms, such as low energy, weariness, resistance, decreased motivation, intense desire to sleep or relax, or a combination of these, have been reported by patients as signs of fatigue [14]. Fatigue is essentially defined as extreme exhaustion brought on by a lack of energy or severe tiredness combined with a strong desire to rest or sleep. Fatigue is characterized by weakness and a decreased ability to complete mental and physical tasks, according to the American Nursing Diagnosis Association [19].
A great deal of research has been conducted on disorders linked to diabetes, and one of the most important comorbidities is chronic fatigue, which raises stress levels and impairs both physical and mental functioning.

Psychological Dimension (Psychological Vulnerability)

In this research, psychological vulnerability was identified as one of the dimensions of reproductive health concerns of women with type 1 diabetes. This theme points to the importance of the role of mental health on the reproductive health of these women. One of the beliefs expressed by the participants of the present research was that mental involvement and psychological vulnerability were influential in causing menstrual disorders and premature menopause.
Bartnik et al. [21] stated that mental and emotional health is an important factor in maintaining the reproductive health of women with type 1 diabetes.
Remorse and regrets were a category of psychological vulnerability in this study; they were expressed as a result of reflecting on the past, evaluating life on a regular basis, and focusing on unfulfilled desires. The individuals participated in a continual evaluation, comparing their life before and after the diagnosis, and felt regret and guilt after receiving the type 1 diabetes diagnosis and realizing the possibility of their health worsening. In the qualitative research of Jones et al. [22], some women with type 1 diabetes stated that they think about the past. They considered these thoughts to be the culprit in intensifying their feelings of sadness and depression; the results of Lynch et al. [23], Thöne et al. [24], and Feinstein et al. [25] demonstrated that nearly 25-50% of patients with type 1 diabetes suffer from some degree of depression. Butler et al. [26] believe that it is significantly worrying for a person to consider his past life and goals as lost. Feinstein et al. [25], in a review study, reported that depression and emotional damage are more common in the late stages of type 1 diabetes than in its early stages. This issue may be due to the possible role of inflammatory processes in the pathogenesis of depression.
Another category of psychological vulnerability was threatened independence, which included economic threat, forced dropout, and dependency and burden. Due to their illness, these women had constant medical expenses, and on the other hand, they had lost their jobs and source of income. This problem caused them to be financially dependent on their spouses and sometimes even their parents. Some others felt dependent even in doing their personal work and taking care of their children to the extent that they stopped studying because of these dependencies. Therefore, they were desperate to get a job and a suitable social position.
It has been noted in research studies by Rumrill et al. [27], Gedizlioglu et al. [28], and Lunde et al. [29] that illness is a significant barrier to continuing education and landing a decent career in the future. Women who are sick have less personal income, poorer health, and fewer job opportunities. Women who have diabetes are more vulnerable as a result of this issue.
In support of the findings of the present study, the results of Mohammadi et al. [30] demonstrated that a high percentage of women with diabetes (83.6%) were housewives. Of the rest, 6.7% were engaged in non-governmental services. This is despite most of these women needing to earn income and work outside the home due to economic pressures and medical expenses, and they inevitably turn to low-

level jobs in society and lower wages.

Worrying about the future was one of the other classes of psychological vulnerability in the present study, which originated from the progressive course of the disease and the unclear future of the child. Finlayson [31] stated that patients with diabetes often think about their future and worry about reducing their ability to move and becoming a burden to their family members in the future. He also declared that the nature of the disease and its progressive course are essential in causing the concerns of these patients. Nevertheless, he stated that due to institutions called Nursing homes in the USA, which provide free assistance to patients with disabilities, the concern of the spread of movement problems is controllable for many patients.

This is in spite of the fact that our study's participants criticized the absence of facilities and organizational assistance, and the fear over the future development of disability was acknowledged as a significant and detrimental worry.

Most of the participants in the current research expressed concern about the uncertain future of their children and the possibility of them contracting diabetes. The results of qualitative research on 15 pregnant women with diabetes in one of the cities of the USA demonstrated that the majority of these women are worried that their children inherit the disease from them [32].

Kosmala-Anderson and Wallace [32] mentioned the progressive course of diabetes as an influential factor that causes concern for patients. These researchers stated that their research patients are worried about the spread of diabetes and uncertainty regarding their future and their children.

Self-conflict was another class of psychological vulnerability, which was called due to confusion between positive and negative thoughts, tide of hope, turbulent mood, emotional conflict in the face of support from others, and searching for the culprit. Most of our research participants had positive and negative thoughts about their disease. This issue had caused them to look hopeful and sometimes disappointed.

Soundy et al. [33] indicated that people experience different types of hope after being diagnosed with diabetes. Patients with different degrees of disability and at different stages of the disease expressed different levels of hope and called this state the contradiction between hope and chronic disease. Moreover, Barnard [34] believed that it is related to the severity of the disease and the level of disability of the patients.

Quantitative research in Kansas, USA, on 188 patients with diabetes concluded that hope in these patients has a negative relationship with the severity of their disability and depression. In addition, uncertainty about the disease and the future had a negative relationship with patients' hope and a direct relationship with depression [23]. Therefore, as previous research has shown, patients' psychological susceptibility after a diabetes diagnosis is influenced by their oscillation between positive and negative thoughts as well as their feelings of hope and despair. This dynamic movement between hope and despair is a significant aspect of their psychological experience.

Social Dimension

The results of this research indicate that among women with diabetes, social anxiety was an additional factor contributing to worries about reproductive health, which caused the participants to hide their condition. A predisposition toward isolation, a lack of appropriate social and personal interactions, and keeping one's sickness a secret from others are all components of disease concealment. Diabetes has been demonstrated to have a detrimental effect on social and interpersonal relationships, which is important in lowering self-confidence and interpersonal competence [35, 36]. Moreover, a mismatch between the patient and their medical condition may result from a lack of social connections, which may exacerbate patients' psychological anguish and sadness.

Grytten and Måseide [37] have observed that diabetic patients' reactions to social pressures include illness hiding and isolation. Additionally, Cook et al.'s research [38] of 53 diabetes patients revealed a strong correlation between social stigma and keeping the condition a secret from others. Although there may be some stigma in any community, these patients report worries about societal stigmas related to diabetes and disabilities, which might hinder their access to employment and status in society.

In their qualitative study, Abolhassani et al. [39] noted that stigmas associated with diabetes are prevalent in Iranian culture. They presented these stigmas as a significant contributing factor to patients' inability to get employment and disruption of their daily lives. The subjects of Boland's study [40] declared that it certainly lowers their social standing when others see them undergoing medical treatment and assume that their illness is communicable.

Moreover, the women with diabetes participating in our study were worried about changing their body image, which caused them to become more isolated. Body image change is not defined and interpreted in a single way in all cultures. Body image is partly the result of personal experiences, personality, and

various social and cultural factors, including the definition of beauty. A person's feelings towards his physical appearance, how he looks in the eyes of others with the ideals of his culture, shapes his body image [36].

Pfanberger et al. [41] stated that in Australia, patients with diabetes feel fear and worry about their physical defects and external appearance. They introduced the change of physical appearance as effective in reducing their attractiveness and negative interpretation of them by others. In Kindrat's study [42], as in the present research, women with diabetes described concerns about face and appearance changes, laxity, and weight gain.

Another class of social fear in the current study was insufficient social support; social support can prevent the occurrence of undesirable physiological side effects of the disease, leave a positive impact on the physical/mental/social condition of the person, and ultimately lead to an increase in performance [35]. Patients who have less social support are more exposed to physical and mental diseases, especially stress, and the severity of the disease is greater in them, which can affect the adaptation and QOL of patients.

Alizadeh et al. [43], in a study on 250 women with diabetes in Tabriz, demonstrated that social support is directly related to a health-promoting lifestyle. They introduced social support as a significant and positive variable to improve the QOL of women with diabetes.

Several study participants expressed worries over the unsuitable actions and viewpoints shown by society towards people with diabetes, which were caused by a lack of understanding and awareness of the illness. One of the main problems that people with diabetes confront, according to them, is the lack of knowledge and awareness among people in general. The phenomenological experiences of familial and social relationships of patients with diabetes were investigated in a qualitative study by Saadatnia et al. [36], which aligns with this conclusion. In addition, the research participants regretted the improper attitudes and actions of individuals in society, which they blamed on inadequate knowledge. The majority of study participants in both surveys suggested that the general population still lacks awareness or understanding of diabetes.

The participants of our study did not have consistent support in obtaining information about diabetes and reproductive health through social networks. Koopman et al. [44] mentioned informational needs as one of the ten most important needs of patients with diabetes and introduced the acquisition of correct information from the contributing factors in adapting to diabetes.

Previous studies by Abolhassani et al. [39] and Blackmore et al. [45] have demonstrated that using professional groups for information exchange through a variety of media platforms, including the internet, can offer beneficial emotional support, make it easier for women to share their experiences, assist others, improve understanding of diabetes, raise diabetes-related health literacy, foster social relationships, improve decision-making abilities, and help patients feel more independent. However, since the accessible information networks were fragmented and lacked adequate coherence, the study participants could not use this information effectively. In light of these results, healthcare team members must make sure that patients with diabetes receive correct and consistent information, and they must focus on addressing this vital requirement.

Additionally, a study of organizational assistance across various nations and healthcare systems revealed that few professional groups in Iran provide diabetes patients services. Iran lacks specific insurance coverage arrangements compared to other nations, especially regarding pharmaceutical costs, where all services have equal deductibles, and the government only partially subsidizes medication for specific patient groups, leaving the patients to cover the remaining costs [46]. Therefore, in light of the issues raised, more focus must be placed on social support services, such as making it easier for people to access free educational resources, running public awareness campaigns, getting full insurance coverage, having access to specialized resources for managing diseases, and offering free medical care and prescription drugs to diabetic patients.

Fertility Dimension (Threat to Fertility)

The threat of reproductive power was another reproductive health concern of women with diabetes, which was mentioned in the qualitative part of the study. On the other hand, they were afraid of experiencing infertility. Few studies have examined the importance of the role of fertility threats in the occurrence of anxiety in these women. Various studies have paid more attention to the importance of the role of pregnancy and childbearing and did not raise the threat of reproductive power as a dominant theme [29, 41, 42, 44]. Therefore, it is recommended that more studies be conducted in this field.

One of the classes of threats to fertility in the current study was fear and worry about pregnancy, which was related to their own and their child's health, and the feeling of inability to take care of the child, which caused some participants to avoid pregnancy.

A work based on qualitative research in 2017 in Australia investigated the mentality and perceptions of 20 women with diabetes about motherhood. In this survey, mothers with diabetes stated that when they think about their child, they feel selfish and sometimes even harmful because when they decide to get pregnant, they prioritize their desire to become a mother over the future and the fate of their child. They were also afraid of harming their child and thought that their child might suffer due to physical limitations or mental pressure caused by diabetes, and they considered themselves to be harmful to their child [43].

In this regard, in the present study, one of the reasons for the participants' fear of pregnancy was the fear of not being able to take care of the child. Some of the women participating in our research were worried that they would not be able to handle the responsibilities of motherhood, and some of them thought that their children might inherit diabetes from them, and they considered themselves harmful to them.

Women with diabetes put their children's safety and well-being ahead of their health and well-being in Parton et al. [47]. They indicated that they do not believe their health and well-being are important enough to worry about. This is true even though the study participants acknowledged that one of their main concerns about pregnancy was the risk to the mother's stability. This discrepancy in the study results might be caused by variations in the number and quality of healthcare services provided in the various nations and cultural variances in how individuals think, feel, and experience life. In addition, Payne and McPherson [48] argue that women with diabetes do not make these decisions in private between themselves and their spouses but rather present pregnancy as a public experience in which a woman's concerns and decision to become pregnant are influenced by the opinions of others, particularly her family and the public's perception of mothers with disabilities.

Another category of fertility threats in the present study was the fear of experiencing infertility. Magyari et al. [49] have emphasized that diabetes does not have a negative effect on the fertility of affected women. Nevertheless, Nabavi et al. [50] observed a higher prevalence of irregular menstruation, oligomenorrhea, and amenorrhea in 58 Iranian women with diabetes compared to healthy control women. In 2015, Thöne et al. investigated the ovarian reserves of 76 women with diabetes who were of reproductive age by measuring serum levels of Anti-Müllerian hormone (AMH). They found that serum levels of this hormone in women with diabetes are significantly lower compared to 58 healthy women in the control group.

Therefore, it seems that the decrease in fertility can be one of the consequences of diabetes and its drugs, but this hypothesis needs further research. In addition, the present research indicated that some women with diabetes considered infertility treatments dangerous in the presence of diabetes. They mentioned assisted reproductive methods (ART) as an effective factor in the onset of attacks and aggravation of diabetes symptoms. In 2006, a study in France on ten patients who underwent IVF revealed a significant increase in the recurrence of diabetes. Although the mechanism of the increase in diabetes attacks after ART is not known precisely, there are hypotheses in this field, including the discontinuation of diabetes medications before ART, the sudden increase in hormonal levels in the body, and the effect of hormones on the activity of different immune cells [51]. Therefore, the present study, along with other investigations, emphasizes the importance of the role of fertility (pregnancy and infertility in the concerns of women with diabetes).

Restrictions on Contraception

The current study revealed that among women with diabetes, feeling constrained in selecting an appropriate form of contraception is another issue related to reproductive health. The perceived drawbacks and adverse effects of hormonal contraceptive techniques and the use of intrauterine devices (IUDs) were the source of this feeling of constraint. The study participants discovered that their options for safe and effective contraceptive techniques were restricted due to their unique diabetes-related health issues.

Becker et al. (1997), who investigated the experiences of women with physical disabilities regarding the use of reproductive health services, found that these women have limited options for choosing contraceptive methods, considering their disability. Due to physical movement problems, they did not consider it possible to use condoms and take contraceptive pills (OCP) every day [52]. In the present research, the participants were worried about the negative impact of hormonal methods of contraception (either pills or ampoules) on the aggravation of diabetes symptoms.

In an investigation of 973 diabetic women in Belgium, D'hooghe et al. [53] discovered a correlation between the use of oral contraceptive pills and a higher chance of developing diabetes and a high disability (EDSS=6). This is true even though, in our study, participants' concerns about hormonal methods of contraception were unrelated to the advancement of their conditions or

recurrence of diabetes. Concerns over the hormone treatments' impact on mood and how it interacts with diabetes's fluctuations in mood have been raised by them. However, based on findings like greater attacks after delivery when estrogen levels drop quickly and increased symptoms of diabetes during menstruation, it seems that the estrogen in OCP can have a soothing effect on the symptoms of diabetes.

In addition, Holmqvist et al. (2010) indicated that OCP consumption had no significant effect on the development of diabetes and recurrences of this disease. Therefore, one of the challenges of healthcare workers and specialists in facing women with diabetes is the selection of the proper contraceptive method [54].

In the present study, a number of women with diabetes expressed concern about the worsening of menstrual problems. Fritz and Speroff [55] stated that IUD causes an increase in genital and pelvic infections, and there is an assumption that one of the reasons for the onset of diabetes attacks is infection and inflammatory activities. Therefore, these researchers also expressed concern about the use of IUDs in these patients.

However, it seems that there are no clinical studies and strong evidence of the positive or negative effects of hormonal contraceptive methods on the symptoms and attacks of diabetes. Therefore, it is recommended that women with diabetes who desire to use these methods should be carefully informed about their advantages and disadvantages.

Marital Dimension (Unfavorable Marital Satisfaction)

In the qualitative phase of the study, unfavorable marital satisfaction has been demonstrated to be another reproductive health problem among women with diabetes. The contentment and pleasure a couple feels from sharing a life together is known as marital satisfaction [29]. The outcome of a marriage agreement that outlines the ideal husband-wife relationship is said to be marital satisfaction. Unfavorable aspects of marital happiness in this research included fear and secrecy, emotional conflict between spouses, damaged family relationships, and dysfunctional sexual-urinary systems.

Unfavorable marital satisfaction was associated with genitourinary dysfunction in women with diabetes. Most of the participants in the present research believed that their sexual relations were significantly affected by diabetes. According to various studies, sexual dysfunction in patients with chronic disease can be seen in three primary, secondary, and tertiary forms [56].

Primary sexual dysfunction occurs as a result of neurological damage related to diabetes that directly affects sexual function [30]. For instance, based on the findings from the literature, the damage caused in the nervous system of the genital system of women with diabetes leads to a decrease in the sensation of the genital system, vaginal slippage, and failure to reach orgasm [56]. In our study, the participants also complained of reduced sensation in the genital area and insufficient vaginal lubrication.

Secondary sexual dysfunction is caused by physical changes that indirectly affect the sexual function of patients with diabetes [39]. In the current research, similar to Yılmaz et al. [57], it was found that physical changes, such as muscle weakness, movement restriction, and bladder dysfunction, negatively affected the participants' sexual performance. Moreover, participants were concerned about how these physical changes would progress. These concerns had an effect on the mental state of women with diabetes and increased the risk of depression symptoms in them. It was found in the present study that in addition to physical damage, depression and mental damage caused by diabetes have a negative effect on the sexual life of affected women as well.

Relationship damage within the family was detrimental to other levels of marital satisfaction. According to studies by Abolhassani et al. [39], diabetes can harm family roles and erode closeness and relationships. Patients' lives are greatly impacted by this medical condition, which can cause problems in social situations as well as in their relationships with children and their parents.

The findings of the qualitative research conducted by Saadatnia et al. [36] revealed that individuals with diabetes experienced the family and social impacts of this condition in four key domains: family relationships, transformation in social relationships, job disruption, and an inability to meet living expenses. Notably, the majority of participants in this research stated that the various complications stemming from their diabetes led to disruptions and difficulties within their family relationships.

A sizable portion of patients (39% of men and 29% of women) in different research looking at the impact of chronic disease on the family stated that they had lost close connections with long-standing friends and family members [33].

The emotional conflict that the couples were experiencing was another factor that the current research found to be associated with decreased marital satisfaction. The spouses who took part in our study conveyed their discontentment with the current circumstances. The studies demonstrate that the experiences of people with diabetes's sexual partners have not received much attention in the literature. These sexual partners often feel less

content with their relationships, according to a review that examined the marital satisfaction of couples with one spouse having diabetes [17]. Interestingly, in our research, the husbands' dissatisfaction was accompanied by their continued love and affection for their wives and families. In fact, the husbands participating in our study could not fully reconcile the conflicting feelings of dissatisfaction and affection they were experiencing.
Previous research by Shirpak et al. [58] has clarified that Iranian women's taboo discussion of sexual matters—they often feel embarrassed to publicly address them—is a major contributing factor to their silence surrounding these matters. Meanwhile, our study revealed that Iranian women with diabetes attempt to conceal a variety of other challenges and worries from their spouses in addition to their tendency to keep quiet regarding sexual matters. These women viewed themselves as patients who were suffering from a range of health concerns, such as difficulties relating to their sex and fertility, as well as the financial burden of high medical costs. As a result, many of these women covered up their issues out of concern that they could lose their spouses. Some even concealed these difficulties from their husbands out of love and devotion, not wanting to add to their partners' distress. Consequently, the husbands of these women often did not know about the problems their spouses were having and did not provide the help and support that was required. Therefore, it is advised that in addition to offering suitable educational and counseling services to women with diabetes, these interventions should also include their husbands in order to increase knowledge and encourage a more honest and encouraging conversation within the relationship.
Contrary to the results of the present research, Esmail et al. [59], who studied the sexual life of women with diabetes in Canada, did not mention that women hid sexual problems from their spouses. In general, in the studies conducted in European and American countries, the concealment of women with diabetes from their husbands has not been mentioned.
Therefore, it seems that women's experiences of diabetes are related to the conditions and context of the region in which they live. Differences in the cultural background of countries, as well as their different attitudes and views towards disabled patients with chronic diseases, can be effective in this field.

Supportive and Informative Dimension

One of the most significant challenges for chronic patients, especially those with diabetes, has been the aspect of support and information provided to these patients. The lack of adequate support can isolate the patient and cause an unpleasant feeling of being unloved or unsupported due to their condition. This issue is a critical concern that necessitates proactive measures for prevention. The failure to address the secondary complications of the disease in a timely manner can result in these problems rapidly expanding to encompass all aspects of the patient's life.
Physical and mental disability caused by illness is significant from the point of view of society because those who are not able to continue living and maintain a job must be supported by others. This support can be emotional, informational, and instrumental. Emotional support entails treating the patient with respect and exhibiting love, acceptance, and care. Friends and relatives of the sufferer may provide this sort of assistance. Instrumental support is defined as tangible aid in the form of commodities or services. Nurses and other healthcare professionals may assist in facilitating this type of support by putting patients in contact with official and informal institutions and support groups specially designed to help patients with their conditions. Informational support is the provision of knowledge and awareness-raising during physical and emotional challenges [50].
Hui-Dan Yu [17] reported that social support is realized when people feel that they are the subjects of attention and interest from others, are valuable from their point of view, and if they have a particular problem and discomfort, other influential people in their life will help them. People with high social support will be better able to adapt to life events, while those with weak social support will be more vulnerable.
In general, many studies have been conducted regarding chronic patients, but in Iranian culture, less research has been carried out explicitly on the social support that these people may get, especially in terms of its instrumental and informational aspects. Healthcare professionals, including nurses, may serve as referral sources for instrumental accompaniment and play a critical instructional role in offering emotional support. More studies must be performed in this area since there is a clear correlation between these patients' social support and QOL. In order to improve the QOL for chronic patients in Iran, it is necessary to have a more profound knowledge of their social support system.

Discussion

Interviews with impacted persons revealed the reproductive health issues that women with diabetes encounter. Reproductive health concerns represent significant aspects that affect the health and

functionality of the reproductive system, and they cover the worries and challenges that an individual encounters in many areas of their reproductive health. The medical, psychological (mental vulnerability), social, reproductive (threat to fertility), contraceptive method constraints, marital (unfavorable marital satisfaction), and supporting aspects are the main problems highlighted in women with diabetes. Among the opinions expressed by the participants was the idea that menstruation abnormalities and early menopause might be effectively caused by mental involvement and psychological vulnerability. Furthermore, social fear prevented the participants from attending educational sessions, visiting specialist offices and clinics, or receiving information. This issue was explained by the participants' lack of understanding about reproductive health and their reluctance to be constantly monitored by a gynecologist, which may make their issues worse. The study's first results emphasize the need for planners to take these complex issues into account when developing plans aimed at enhancing the reproductive health and general well-being of diabetic women.

Conclusions

Given that diabetes is a disease that is rapidly spreading among young people and has an adverse effect on the quality of marriage and sexual life, it is necessary to determine the perceived priorities of reproductive health concerns and to develop an intervention that considers these concerns. The disease is spreading more broadly, and it may be inferred that these individuals have difficulties related to the marriage realm (marital satisfaction, sexual function).

Compliance with ethical guidelines

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Authors' contributions

All the authors participated in the initial writing of the article and its revision, and all accepted the responsibility for accuracy.

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Conflicts of Interest

The authors declare that they have no conflict of interest.

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