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Exploring sexual health challenges in men with type 2 diabetes-related erectile dysfunction: a qualitative study

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Abstract

Background Type 2 diabetes mellitus (T2DM) is a prevalent chronic disease that is frequently associated with erectile dysfunction (ED). This complication adversely affects sexual function, quality of life, marital relationships, and psychological well-being. Despite its high prevalence, sexual health issues remain overlooked, especially with respect to diabetes management. This qualitative study explored sexual health challenges from the perspective of Iranian men with T2DM and ED.

Methods Using conventional content analysis, semistructured interviews were conducted in 2025 with 19 purposively selected men experiencing T2DM-related ED from Shariati Hospital. Data analysis followed the approach of Graneheim and Lundman. Trustworthiness was ensured through member checking and intercoder reliability (Kappa = 0.82).

Results The participants' average age was 49.8 ± 8.2 years. Most were middle-aged (51.8%), married (89.5%), and had been living with diabetes for less than 10 years (78.9%). Educational and occupational backgrounds varied widely. Qualitative analysis identified the main theme of "silent distress," which included four categories: (1) Shaming and embarrassment in the disclosure ED: Fear of social disgrace and cultural constraints prevented discussion of the ED; (2) Fragmentation of sexual identity: ED reduced sexual self-confidence, caused feelings of humiliation, and damaged masculine identity. (3) Threat to marital life: Participants worried about spousal rejection and potential relationship breakdown. (4) Inadequate sexual healthcare services: Major barriers include a lack of awareness among patients and physicians about the diabetes-ED connection, the absence of sexual counseling during visits, and a lack of private clinical environments.

Conclusion ED in men with T2DM causes significant psychosocial distress, creating a cycle of "silent distress." This situation is worsened by cultural barriers (stigma preventing disclosure), educational gaps (insufficient patient/provider awareness), and structural issues (lack of private counseling). Key solutions include integrating sexual counseling into routine diabetes care; training healthcare teams to address sexual health proactively; establishing confidential clinical environments; and launching public awareness campaigns to reduce stigma. These strategies are

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essential not only for improving quality of life but also for breaking the cycle of silent distress and possibly enhancing adherence to diabetes treatment.

Trial registration Not applicable.

Keywords Erectile dysfunction, Type 2 diabetes, Sexual health, Sexual health services, Qualitative research

Background

Diabetes mellitus (DM) is a chronic metabolic disorder with a steadily increasing global prevalence. It is primarily classified into two types: type 1 diabetes and type 2 diabetes (T2DM) [1]. Over 90% of people with diabetes have T2DM, which results from complex interactions among socioeconomic, demographic, environmental, and genetic factors [2]. Diabetes statistics highlight a growing worldwide burden on individuals, families, and nations. In 2021, approximately 537 million adults (aged 20–79 years) worldwide had diabetes, representing 10.5% of the global adult population in this age group [3]. Projections suggest that by 2045, one in eight adults—approximately 783 million people—will have diabetes, reflecting a 46% increase [3]. Notably, nearly half of those affected remain undiagnosed, which exacerbates diagnostic and treatment challenges. In Iran, the prevalence of diabetes has also increased, with an estimated 5.4 million Iranian adults (10.8% of the adult population) affected in 2021 [3].

Living with diabetes presents significant physical, psychological, and social challenges. It negatively impacts sexual function both directly—through complications such as neuropathy, angiopathy, and endothelial dysfunction—and indirectly—via comorbid psychological conditions such as depression [4]. Sexuality is widely recognized as a vital part of human life and can greatly influence personal and relational quality of life. In this context, sexual health—defined as a state of physical, emotional, psychological, and social well-being related to sexuality—requires a positive and respectful attitude toward sexual experiences and relationships [5]. It plays a crucial role in maintaining psychological and social balance. However, this aspect of health is often overlooked in people with diabetes, which can lead to serious negative consequences. Systematic reviews confirm that sexual dysfunction is a common complication among adult men and women with diabetes [6].

ED is a common disorder that affects approximately 37% to 66% of men with diabetes [7, 8], with a prevalence approximately 3.5 times higher than that in non-diabetic individuals [8]. Studies in Iran also reported an ED incidence of 62.2% among diabetic patients, with significantly higher odds of occurrence in those over 50 years old [8]. Sexual dysfunction can impact all stages of the sexual response cycle (desire, arousal, orgasm), presenting as reduced libido, erectile dysfunction (ED), premature ejaculation, or dyspareunia [4].

Furthermore, T2DM-related ED causes significant psychological and social distress in patients. It not only affects family interactions but also greatly reduces quality of life [9], leads to depression [10], increases psychological distress and hopelessness [11], and, in some cases, results in lower adherence to diabetes self-management tasks (such as blood glucose monitoring and dietary therapy) [12]. Many individuals with diabetes are unaware that the condition can cause sexual problems [13] and might stay silent about the ED, hoping that healthcare providers will bring it up during visits. Barriers such as embarrassment, feelings of helplessness, reluctance to seek help, financial issues, and neglect by healthcare professionals hinder patients from addressing these concerns. As a result, both patients and caregivers often lack a proper understanding of this critical aspect of care [14].

Although several diabetes care guidelines recommend regular ED screening for men [15] and sexual health assessment is recognized as part of comprehensive nursing care [16], studies report ongoing challenges in discussing sexual problems during healthcare encounters [17, 18]. A systematic review revealed that nurses find it challenging to start conversations about sexuality and sexual health when caring for individuals with chronic conditions such as diabetes. As a result, sexual health discussions often play a minor role in nursing care. For instance, conservative attitudes among nurses and beliefs about the private nature of sexual health are seen as barriers [16]. Healthcare professionals often neither fully understand sexual dysfunction in diabetic patients nor demonstrate a proactive willingness to address it [19]. These issues are especially significant in societies such as Iran, where discussing sexual matters remains somewhat taboo [20], leading to delays in seeking care and further limiting open dialog, understanding, and research on these topics. These barriers create a cycle of silence and neglect, preventing patients from receiving the essential care they need.

Improving care for diabetic patients with sexual dysfunction requires a deep understanding of their lived experiences and perspectives. Considering the high rate of ED among Iranian men with diabetes and the lack of previous qualitative studies in Iran exploring patients' in-depth experiences with type 2 diabetes-related ED (T2DM-related ED), qualitative research provides an

important way to identify patient-perceived barriers and facilitators for improving sexual health, including ED management. This study used a qualitative content analysis approach to explore the challenges to sexual health from the perspective of men with T2DM-related ED. The goal was to gain a deeper understanding of these challenges, which can help improve nursing care practices. Understanding these experiences is essential for designing evidence-based interventions and enabling nurses and healthcare teams to offer sexuality-sensitive care.

Methods

Study design

In line with the research objectives and questions, this study used a qualitative research approach, employing the content analysis method in 2025. The paradigm of content analysis involves systematically examining communication content to identify patterns, themes, and trends. The core of content analysis is its systematic and replicable process for analyzing textual data, which includes studying both the manifest content of texts and their latent content. It aims to draw inferences about context, meaning, and potential impact. The conventional approach in qualitative content analysis is used when the goal is to explain a phenomenon, especially in cases where existing theories or research literature on the subject are limited. A key benefit of this approach is that it enables data collection directly from study participants without relying on predefined categories or existing theoretical frameworks [21]. In this study, owing to the limited availability of explicit knowledge and information about the sociocultural context of Iranian society, the conventional content analysis approach was employed. The study received ethical approval from the Ethics Committee of the Asadabad School of Medical Sciences (Ethics Code: IR.ASAUMS.REC.1403.020). All procedures strictly adhered to the committee's guidelines and regulations [22].

Table 1 Example of the qualitative data analysis process employed in this study

Category	Meaning Unit	Participants' Quotations	Extracted Codes
Shame and embarrassment in disclosure	Feeling shame and difficulty discussing erectile problems with physicians or others	P1: "On the first day, I wanted to discuss the problem with my doctor, but I broke into a cold sweat. I stammered so much that the doctor himself realized and asked: 'Do you have erectile dysfunction?' I said yes, and he started explaining, but I could not understand anything – because I felt so ashamed and uncomfortable that I could not concentrate or comprehend what he was saying."	• Feeling ashamed of disclosing the problem • Fear of social disgrace • Discomfort in clinical dialog

Data analysis

The content analysis in this study was conducted via the methods outlined by Graneheim and Lundman [22]. The steps included immediately transcribing each interview after it was performed; reading the entire text to gain an overall understanding; identifying meaning units and assigning initial codes; grouping similar initial codes into broader categories; and determining the main themes within these categories. First, the interviews were recorded via the Sony voice recorder model ICD-UX570. The recordings were listened to, and as soon as possible, the interview transcripts and notes were transcribed into Microsoft Word by an independent assistant. These transcripts were then carefully read multiple times—word by word, line by line, and paragraph by paragraph—to ensure comprehensive understanding. Any segment of text that indicated a key concept or thought was identified as a meaning unit and assigned a code. These initial codes were organized into subcategories around a central idea. By reviewing and comparing these subcategories on the basis of similarities and differences, categories and overarching themes were developed to ensure maximum homogeneity within themes and maximum heterogeneity between them. To enhance dependability, the intercoder reliability coefficient was calculated by having two qualitative researchers independently code 30% of the interviews, resulting in a kappa coefficient of 0.82. Codes and categories that required significant revision were re-evaluated, and discrepancies were resolved through group discussion until a consensus was achieved. To ensure credibility, preliminary analysis reports were shared with five participants, and their feedback was used to refine the codes. The management of textual data and codes was performed via MAXQDA 10 software. An example of the qualitative data analysis process used in this study is shown in Table 1.

Ultimately, the analysis of the interview data resulted in the identification of one main theme, four categories, and 183 codes.

Sampling method and size calculation

The participants in this study were selected through purposive sampling from male patients visiting Shariati Hospital who met the following criteria: a confirmed diagnosis of T2DM, an age between 18 and 65 years, ED onset after T2DM diagnosis (based on self-reported timeline during screening) and the absence of severe diabetic complications that might independently affect quality of life unrelated to the ED (Table 2). Purposive sampling aimed to cover a broad spectrum of participants with maximum variation in terms of age, education

Table 2 Demographic characteristics of male participants with type 2 diabetes-related erectile dysfunction

Participant Number	Age (Years)	Education Level	Duration of Type 2 Diabetes (Years)	Marital Status	Occupation
P1	52	High School Diploma	8	Married	Retired
P2	48	Bachelor's Degree	5	Married	Government Employee
P3	60	Middle School	12	Married	Salesperson
P4	38	Associate Degree	3	Married	Technical Technician
P5	55	Illiterate	10	Married	Farmer
P6	43	Bachelor's Degree	6	Married	Engineer
P7	50	High School Diploma	7	Married	Motor Driver
P8	58	Middle School	15	Married	Retired
P9	45	Master's Degree	4	Married	Teacher
P10	62	Illiterate	11	Divorced	Homemaker
P11	35	Bachelor's Degree	2	Married	Programmer
P12	53	High School Diploma	9	Married	Shopkeeper
P13	47	Middle School	6	Married	Laborer
P14	56	Illiterate	13	Divorced	Taxi Driver
P15	40	Bachelor's Degree	5	Married	Sales Manager
P16	44	High School Diploma	4	Married	Carpenter
P17	59	Middle School	10	Married	Truck Driver
P18	37	Associate Degree	3	Married	Nurse
P19	65	Illiterate	14	Married	Farmer

level, socioeconomic status, and occupation. Factors associated with ED include age, hypertension, diabetes mellitus, lower urinary tract symptoms, obesity, smoking, and depressive symptoms [20]. Therefore, in this study, only patients who met the American Diabetes Association's criteria for diabetes mellitus (fasting plasma glucose [FPG] ≥ 126 mg/dL when HbA1c ≥ 6.5%) were interviewed [23, 24]. ED diagnosis was based on self-reported persistent inability to achieve or maintain an erection sufficient for satisfactory sexual performance, confirmed by clinical history review during recruitment. Additional inclusion criteria included the absence of acute/chronic physical illnesses, no psychiatric disorders (per patient declaration), and no use of erection-affecting medications (e.g., antidepressants such as SSRIs, beta-blockers, diuretics, antipsychotics, or other agents known to impair erectile function, as screened via medical history review) [25–27]."

Data collection instruments and procedures

Data were collected primarily through semistructured (Table 3), in depth, face-to-face interviews (supplemented by field notes, memos, and written reflections). Following institutional approval and written/verbal informed consent, interviews were conducted. The interview duration was adjusted according to the participants' abilities and cooperation. Core questions (e.g., inquiries about problem experiences, perceptions of sexual impact, associated emotions, overall effects, disclosure patterns, and ease of communication) were rigorously focused on the research objectives to explore the manifest content of participants' experiences [28]. "These questions were predominantly open-ended (e.g., 'How.? ', 'What did you feel.? ', 'What impact.?') and nondirective in design, enabling unique narrative expression while minimizing researcher-imposed assumptions [29]. Specifically, questions emphasizing emotions ('How do you feel about this disorder?') and adaptation processes ('How have you coped with these circumstances?') directly served the goal of achieving a deeper phenomenological understanding of the studied phenomenon and lived experience. Standardized yet flexible probing techniques (e.g., requests for elaboration, clarification, and exemplification) were employed to extract latent content, deepen comprehension, resolve ambiguities, explore unexpected dimensions of responses, and adhere to the principles of in-depth qualitative interviewing. These follow-up questions enable the researcher to maintain fidelity to the protocol while allowing the conversation to progress naturally, thereby achieving the necessary flexibility to adapt to diverse responses [30]. The interview guide's design—progressing from general to specific topics—facilitates psychological safety and trust-building, which are crucial for discussing sensitive issues such as sexual health. This approach, combined with strict adherence to ethics and measures to ensure participant comfort, enabled the collection of rich, valid data, which continued to reach theoretical saturation [31].

Interview implementation and quality assurance

To ensure effective communication and reduce bias, the researcher dedicated time before each interview to self-introduction and an explanation of the study's objectives, emphasizing the confidentiality of the information

Table 3 Semistructured interview guide: impact of diabetes-related erection dysfunction on sexual health

Category	Question Objective	Probing Questions	Core Question
Problem experience	Identifying objective/subjective challenges	- "Can you describe a specific example of this situation?" - "What measures were implemented to adapt to these conditions?"	What has been your experience of problems caused by diabetes in your personal and sexual life? How have you coped with these circumstances?
Impact perception	Understanding the personal perception of the disease effect	- "How would you describe this impact?" - "What changes have you observed?"	How has diabetes affected your sexual function?
Associated emotions	Exploring disorder-related emotions	- "How did these feelings affect your relationships?" - "When did you feel this most intensely?" (Provide an example)	How do you feel about this disorder?
Comprehensive effects	Examining broader consequences	- "In which life aspects was this impact most noticeable?" - "Were there unexpected effects?"	How has this disorder affected you? (Relationships, self-confidence, body image, etc.)
Disclosure patterns	Analyzing communication approaches	- "Why did you choose this person?" "How did their reaction affect you?"	Have you ever discussed this disorder with anyone? How did you raise the topic?
Communication ease	Assessing discussion barriers	- "What factors made expression difficult/easier?" "Would you choose the same person if it happened again?"	Was discussing this problem easy for you?

gathered. During the interviews, active listening techniques and open-ended, nondirective questions were used to facilitate the free expression of experiences. In daily reflections, the researcher considered potential personal influences on participants' responses and maintained objectivity. Throughout the data collection process, the researcher consistently fostered mutual, trust-based communication. Nonverbal data (tone, facial expressions, participant posture) were documented in interview guides with timestamps. The interviews were conducted by the first author (male, PhD in Nursing Education, qualitative researcher with no prior contact with participants) and lasted 30–50 min. The interviews continued until code saturation was achieved, where no new conceptual information requiring new or expanded codes emerged [32]. Two participants withdrew after initial explanations due to discomfort in discussions of ED-related issues, despite providing informed consent. Data saturation was declared after the 19th interview, and three additional interviews were then conducted to confirm no new conceptual information emerged. Research team discussions confirmed that no new codes emerged (no new codes in three consecutive interviews). One interrupted interview was reconducted at the participant's convenience. No repeat interviews were necessary, given the sufficient depth/variety of data. All interviews took place in a quiet, private endocrinology education room at Shariati Hospital, which is situated away from the hospital's main traffic area. Research facilities were provided to ensure participant comfort and ethical compliance. The researcher minimized intervention while using the interview guide to maintain focus and ensure the interviewee's autonomy. Field notes were recorded during and after the interviews. Data collection occurred from March to May 2025.

All participants provided written and verbal informed consent, with assurances that participation was voluntary and that they could withdraw at any time. To ensure confidentiality, all identifying information was removed and replaced with numeric codes. The interview data are stored in encrypted files accessible only to the research team. At the request of some participants, due to privacy concerns regarding sensitive content, transcripts were not provided to them. The participant who discontinued due to shame was offered immediate psychological support and referral to hospital counseling services, with no further involvement required. To ensure high-quality reporting in the qualitative part of this study, we adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) to thoroughly document the study methods, context, results, analysis, and interpretations related to content analysis [33].

Trustworthiness/rigour

In qualitative research, trustworthiness ensures accurate representation of participant experiences. Lincoln and Guba proposed four criteria: credibility, dependability, confirmability, and transferability [32]. Authenticity was additionally assessed for content analysis rigour.

For credibility, member checking was conducted to enhance the validity of the findings. Preliminary findings were shared with select participants for verification and validation. Peer debriefing was also used: transcripts with codes/categories/themes were reviewed by qualitative experts (including supervisors). Two PhD-prepared nursing faculty members experienced in content analysis

independently reviewed the selected interviews. Discrepancies were resolved through group discussions and collaboration. Dependability refers to the consistency of data over time/conditions, analogous to quantitative reliability. Intercoder reliability (qualitative equivalent of interrater reliability) involves independent coding by peer researchers [34]. In this study, qualitative researchers independently coded the data to verify the consistency of the results. Codes/categories requiring revision were reexamined.

The audit trail technique enhances confirmability by documenting research procedures in a step-by-step manner, thereby providing a clear record of the research process. The researcher meticulously documented all stages to enable replication. Recording participant statements, transcript verification (by participants and experts), and audit trials supported confirmability. Transferability was assessed by sharing findings with external readers for confirmation. Participant diversity (gender, age, education, and demographic/cultural differences) facilitated transferability judgments. Detailed contextual descriptions enable applicability assessments in similar settings. However, these findings require cautious generalization because of the use of single-site sampling and the exclusion of spouses.

Results of the demographic characteristics

The study included nineteen male participants with T2DM-related EDs, with an average age of 49.8 ± 8.2 years (range: 35–65 years). Among these, 13 (68.4%) were classified as middle-aged (40–59 years), whereas 3 (15.78%) were young adults (35–39 years). The remaining participants were elderly (over 60 years, 15.78%). Educational levels varied: 21.1% (4 participants) were illiterate, 21.1% (4 participants) had a middle school education, 21.1% (4 participants) graduated from high school, 10.5% (2 participants) held an associate degree, 21.1% (4 participants) earned a bachelor's degree, and 5.3% (1 participant) had a master's degree. The participants' duration of diabetes ranged from 2 to 15 years, with a mean of 7.6 years. All participants were receiving standard treatment for T2DM (e.g., oral antidiabetic medications or insulin), but none were on specific treatments for ED at the time of the study, to capture experiences of unmanaged sexual health challenges. Most participants fell into these categories: less than 6 years (8 participants, 42.1%), 6–10 years (7 participants, 36.8%), and more than 10 years (4 participants, 21.1%). The majority (89.5%) were married, while 10.5% were divorced, reflecting the marital status distribution. Occupations varied widely: 26.3% (5 participants) held administrative roles (e.g., government employee, sales manager, teacher), 21.1% (4 participants) worked in technical fields (e.g., technician, engineer, programmer, carpenter), 31.6% (6 participants) were self-employed (e.g., vendor, shopkeeper, taxi driver, truck driver), and 15.8% (3 participants) were engaged in agriculture or related roles (e.g., farmer, homemaker), highlighting diverse occupational backgrounds to support maximum variation sampling.

Table 4 Summary of qualitative analysis: main theme, Categories, and key codes

Main Theme	Categories	Extracted Codes
Silent distress	Shaming and embarrassment in disclosure	- Feeling shame and discomfort in disclosing the problem - Fear of social disgrace following disclosure - Attempts to overcome shame over time - Cultural influence on problem disclosure - Need for privacy - Minimization and denial of the problem
	Fragmentation of sexual identity	- Reduced sexual self-confidence - Loss of masculinity - Feeling humiliated in sexual life
	Threat to marital life	- Fear of losing one's spouse - Sense of threat in relationships - Impact on married life
	Ineffective sexual healthcare services	- Patients' inadequate awareness - Absence of appropriate discussion environments - Physicians' inattention to sexual problems - Need for patient/spouse education - Lack of medical follow-up - Self-medication

Qualitative results

The core findings of this study focused on one main theme: silent distress, which included four categories: shaming and embarrassment in disclosing ED, fragmentation of sexual identity, threats to marital life, and ineffective sexual healthcare services (Table 4).

Category: shaming and embarrassment in disclosure

Most participants reported feelings of shame and modesty regarding disclosure of their condition, preferring not to discuss their problem. Patients avoided disclosure in the presence of others and sought appropriate opportunities to discuss it with healthcare teams. However, the topic was generally considered embarrassing, leading to nondisclosure due to modesty and a sense of chastity. Shame intensity was highest during initial disease onset, with participants attempting to overcome these feelings as the disease progressed.

> *P1: "On day one, when I wanted to tell my doctor about the issue, I broke into cold sweat. I stammered so much that the doc himself figured it out and asked, 'Erectile problems?' I said yeah. He started explaining, but I could not grasp a word - too damn embarrassed even to focus."*

P7: "Could not spit it out face-to-face. Ended up scribbling it on paper and handing it over. That is how bad the shame was."
P4: "Hell, I could not even tell my wife. Kept thinking it would fix itself with time. Felt like I'd lose all respect if I admitted it."

Shame and embarrassment were most pronounced during the initial onset of the disorder. As ED progressed over time, the participants attempted to overcome these emotions to disclose their condition. Following disclosure, they gradually experienced improved psychological well-being and asserted that they should have discussed the problem with their treating physician earlier.

P8: "Took me forever to say it out loud. However, man, after? Enormous relief. Next visit, I'd actually ask my doc questions. Still awkward as hell talking about it, but way better than those first months."
P2: "Break that first barrier - say it once - and next time it gets easier. You start owning it."
P3: "Our culture's messed up about this stuff. I'm not sure why, but we just don't talk. Took me hitting rock bottom to realize: This is a medical condition! Has treatments! Wish I'd swallowed my pride sooner."
P11: "Early on? Total denial. Too shameful to mention anywhere. Now? Spot a diabetic guy, and I'm like 'Talk about ED!' Getting it out there gets easier with practice."

A significant number of participants sought opportunities to discuss this issue with their physicians; however, owing to prevailing conditions, they were hesitant to disclose it out of embarrassment and actively sought confidential consultation settings to facilitate more comfortable communication with their healthcare providers.

P17: "Every damn appointment - other patients listen, random people in the room. How're you supposed to say 'My dick does not work' with an audience?"
P9: "Hospital chaos - doctors doing group rounds, always crowded. Never caught my doc alone."
P16: "Look, talking about the ED sucking period. However, when is there zero privacy? Cannot do it. Docs need to get that - give us a damn quiet room."

Category: fragmentation of sexual identity

ED in men results in diminished self-esteem and compromised self-worth. The participants expressed profound distress regarding this issue, explicitly articulating the negative impact on their self-confidence and self-perception. They characterized this diabetes-related complication as a profound challenge to their lived experience.

P13: "This ED made me lose a big part of my life. I stopped feeling like a man – it wrecked my confidence. Just thinking about it twists my gut. It is messed with my manhood real bad."
P18: "I stopped caring about anything for so long. Started avoiding my wife 'cause I was so ashamed. When I could not… perform… I could not even look her in the eye."
P4: "I keep blaming myself. Felt worthless. I have always wondered what my wife thinks of me. Like I was not a real man anymore."

In addition to causing feelings of lost masculinity and humiliation in sexual life, participants perceived ED as a bitter, marriage-threatening experience that cannot be concealed and is rapidly detected by their cohabiting partner.

P6: "Losing your manhood? That is the hardest damn thing. You cannot hide it. For women, it might be about pleasure, but for me? It is not just about sex—it is your power. Your manly dignity. Once that is gone, your confidence just… crumbles."
P5: "When you lose that power, it is not just sex. Your wife sees your weakness. She knows."
P18: "Sometimes I'd get mad during sex. Could not do anything, so I'd pick fights about stupid things to get out of it. Always thinking: How do I fix this?"
P12: "Your pride as a man gets shattered. That feeling of being powerless? It breaks you. We live for life's joys – and this is one of the biggest."
P7: "It is not just about losing pleasure. This thing kills marriages. I know too many guys whose relationships went south because of it. Some even split up over it."

Category: threat to marital life

The participants acknowledged that the impact of ED generated a perceived threat to their marital relationships, resulting in persistent preoccupation with potential spousal disillusionment and subsequent consideration of separation.

P8 "I keep thinking I'd lose my wife soon—not just her but also my entire life. Because I'd lost myself and was shattered inside."
P3 "I constantly feel like my wife might lose hope because of this problem and be with someone else. This feeling eats me alive."
P3 "My mind's always haunted by whether my wife might get upset with me and do something behind my back or get involved with someone else. This fear consumes my thoughts, making me feel threatened in our relationship."

Category: ineffective sexual healthcare services

Most participants reported insufficient awareness of this condition and viewed it as a principal yet overlooked complication of diabetes. Participants explicitly linked their ED to T2DM complications, such as neuropathy and poor blood flow, which they described as worsening over time with longer diabetes duration (e.g., those with >10 years of T2DM reported more entrenched distress and identity fragmentation compared to those with shorter durations). Additionally, in addition to patients' lack of knowledge about the link between the ED and diabetes, sexual health concerns are systematically ignored in diabetes management protocols by the healthcare system. The participants highlighted that treating physicians should routinely ask about sexual dysfunction, including erectile issues, during follow-up visits and incorporate its management into diabetes care. This oversight continues due to combined issues: patients' limited understanding and physicians' failure to recognize sexual health as a vital part of diabetes treatment.

P1 "I was unaware that this disorder was related to diabetes. I assumed it was age-related—although I did think it started prematurely—but did not know diabetes could cause it. Unfortunately, my physician never informed me."

P10"During all checkups, only diabetes and blood sugar levels were monitored by the doctor. No questions beyond medication dosages were asked. I did not suspect diabetes as the root cause of my problem."

P14"My spouse did not know that diabetes causes this issue. Despite my explanations, they remained skeptical. I finally asked my doctor to clarify it for them."

P15"I first learned about this at a gathering from a friend. When I mentioned having sexual difficulties—meaning erectile dysfunction—he immediately recognized it as diabetes-related, having diabetes himself. He assured me that it was treatable. Only then did I pursue treatment and discover its simplicity. I'd suffer needlessly for years."

P5"While I have diabetes and other complications, I still have diverse needs as a living person. This requires treatment, such as for diabetes itself. Physicians must explain this to patients—it should not be dismissed as insignificant."

Several patients reported various signs of incomplete treatment, indicating that a lack of knowledge may cause them to use inappropriate medications or develop maladaptive coping strategies, which can lead to further complications and even increase risky behaviors. Therefore, active management by treating physicians is crucial to prevent the condition from worsening and leading to self-treatment practices.

P11"I think many patients self-medicate, and it is hazardous. It might not only fail to solve the problem but could also make the main disease, diabetes, worse."

P19"I think partial treatment causes more problems. For example, I did not know what the real issue was, so I thought it was due to aging or psychological problems. I tried some medications I'd heard about from friends. Of course, those also gave me side effects such as headaches when I took them, so I got scared and stopped."

P6"I tried everything and did all kinds of home remedies, but nothing worked. Eventually, I realized that the problem could be fixed with proper prescription medication. I even ended up trying opium and becoming addicted to it, because I heard from others that it might help me."

P17"I tried various approaches. After that, I tried to come to terms with it and completely forget about it, stopping all thoughts about it altogether. My condition is complex, and I have multiple issues from diabetes complications, too."

Overall, the results of this study revealed that barriers to health promotion among male diabetic patients with ED include psychosocial barriers (such as low self-confidence and fear of rejection), sociocultural barriers (such as shame and embarrassment about revealing the problem), educational barriers (including a lack of patient awareness and limited physician knowledge), and structural barriers (such as the absence of private examination rooms in clinics).

Figure 1 presents a conceptual map illustrating sexual health challenges in men with type 2 diabetes and comorbid erectile dysfunction, showing how stigma, fear of judgment, and systemic barriers create a cycle of silent suffering and delayed care.

Discussion

Diabetes, a chronic and widespread disease, causes various complications in affected individuals. Sexual dysfunction, especially manifested as erectile dysfunction (ED) in men, is one of these complications. Managing and treating diabetes-related ED requires identifying factors such as overweight, hyperlipidemia, alcohol use, long-standing diabetes (more than 5 years), and other elements [35], as well as exploring the barriers to and enablers of sexual health promotion from the patients' perspective. Qualitative studies can be helpful here. The results of this study revealed that diabetic patients with EDs face many problems and see them as serious complications of

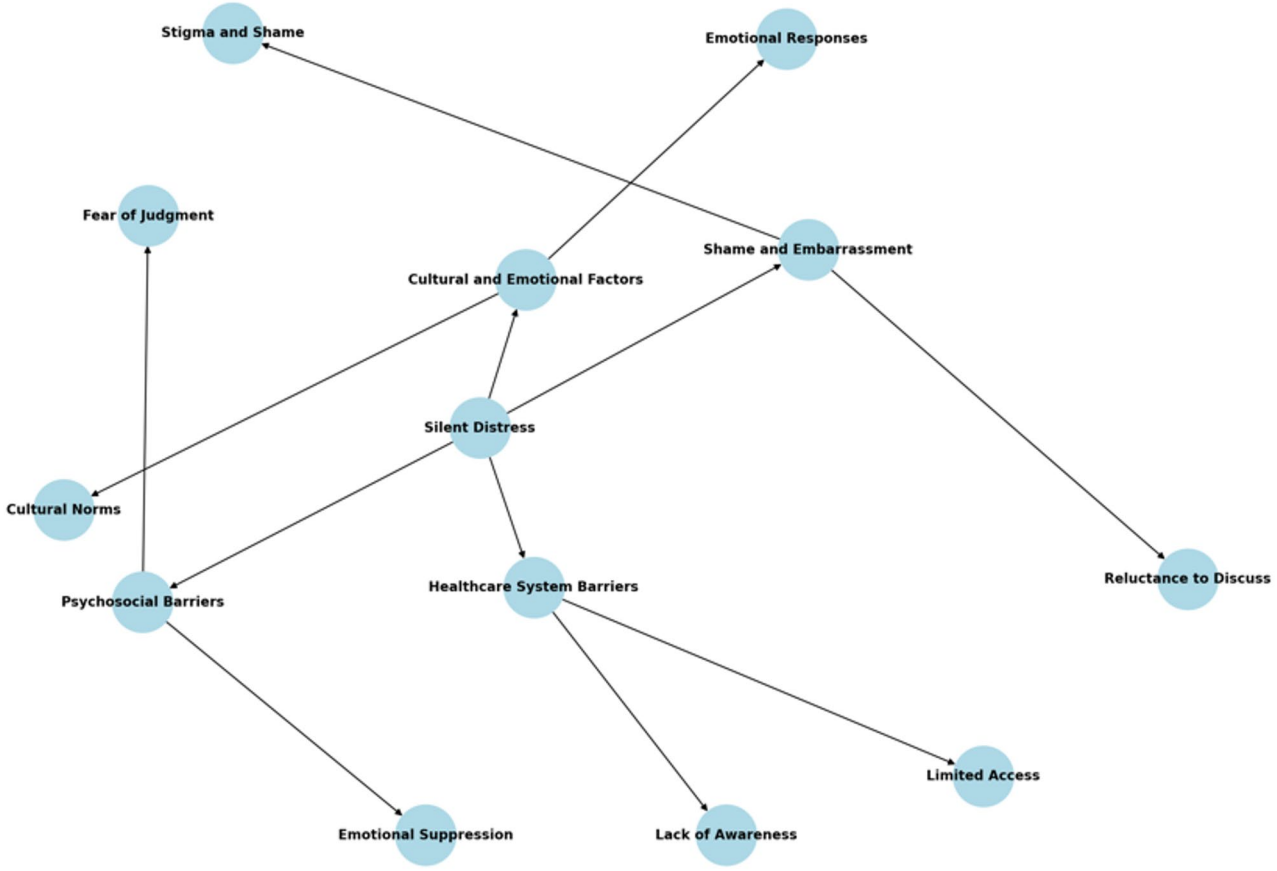

Fig. 1 Conceptual map of sexual health challenges in men with type 2 diabetes-related erectile dysfunction

their disease. Participants described T2DM's contribution to ED through direct physiological mechanisms (e.g., neuropathy, angiopathy, and endothelial dysfunction, as referenced in the Background), which they perceived as exacerbating their sexual challenges. For instance, those with longer T2DM duration (> 10 years) highlighted how uncontrolled hyperglycemia intensified ED severity, leading to greater psychosocial impacts like silent distress. While this study did not quantitatively analyze severity/duration, these qualitative insights reveal a direct perceived relationship between T2DM progression and ED dysfunction, aligning with prior literature [36, 37]. In addition to diabetes itself, they also encounter issues such as a lack of knowledge and low self-confidence. At the same time, shame and embarrassment about discussing these problems with healthcare providers often lead patients to share negative experiences. Therefore, we described these factors as " silent distress," the main theme identified in this study.

Shame and embarrassment: the primary barrier to treatment

The main obstacle to seeking treatment and follow-up for this disorder is the sense of shaming and embarrassment experienced by most patients. Discussing this topic proved to be a significant challenge for the majority of participants; in fact, two participants withdrew from the study because they were embarrassed about the interview topic. In Waling's study, shame and embarrassment when expressing sexual problems, even online, were reported as key findings, indicating that many participants were unable to bring up the subject due to these feelings [38]. Similarly, Al-Shaiji's study identified feelings of modesty and embarrassment as significant barriers to communication between healthcare teams and ED patients [39]. Another study also revealed embarrassment to be a key factor, with patients citing shame and modesty as reasons that hinder discussions about ED [40]. All these findings align with those of the present study. Several participants mentioned cultural context as a reason for the topic's taboo nature, as highlighted by Tohit in their research, which emphasized that discussing sexual matters is highly taboo in certain cultures [41]. This was clearly reflected in the experiences of the participants in the present study, many of whom preferred to hide their problems to avoid shame. Additionally, several patients noted how culture influences the adoption of high-risk coping strategies. In societies with limited

access to reliable information, patients often turn to traditional remedies or destructive behaviors such as opium use [42].

Fragmentation of individual identity in sexual life

Diminished sexual self-confidence, a weakened sense of masculinity, and experiences of humiliation in sexual life were prevalent psychosocial consequences of ED in the present study, significantly impairing men's quality of life. These findings reflect a profound disruption of identity that extends beyond sexual function and is deeply intertwined with cultural constructs of manhood. Studies indicate that men with ED frequently perceive their traditional gender identity as compromised [43], wherein the inability to achieve satisfactory sexual performance becomes linked to the internalization of cultural stereotypes associated with "male potency," resulting in structured feelings of inadequacy [44]. In Iran's patriarchal context, masculinity is closely tied to virility, strength, and familial provision. ED directly threatens these pillars, evoking intense shame and perceived social emasculation. The participants framed ED as a betrayal of their role as "men of the house". This cultural lens amplifies the identity crisis, as ED signifies not only biological failure but also a loss of social honor. Furthermore, ED represented a critical biographical disruption—an unanticipated rupture in life narratives and future expectations. For middle-aged participants (mean age: 49.8 years), it destabilized plans for marital intimacy, legacy, and social standing, compounding diabetes's existing burdens. Critically, identity fragmentation eroded overall self-worth beyond sexuality. Men reported diminished value in nonsexual domains—avoiding social gatherings, withdrawing from decision-making, and perceiving themselves as "incomplete".

This phenomenon can be explained through the lens of gender role strain theory: when individuals fail to fulfill their expected roles in marital relationships, performance anxiety intensifies, triggering a vicious cycle of sexual avoidance, negative rumination, and reduced self-esteem [45].

Moreover, the subjective experience of humiliation arises not only from physical failure but also from the social taboo surrounding sexual incapacity and fear of judgment by one's partner—a factor reflected in the participants' accounts in this study. Notably, these destructive emotions persist even among men receiving emotional support from their spouses, underscoring the profound psychological vulnerability induced by ED [44]. The convergence of cultural stigma, biographical disruption, and eroded self-worth creates a self-perpetuating cycle of distress. Nevertheless, promising evidence suggests that acceptance-based psychotherapeutic interventions (e.g., ACT) and redefining gender identity beyond rigid cultural scripts (e.g., emphasizing emotional resilience or familial commitment over sexual performance) can disrupt this maladaptive cycle [46].

Impact of erectile dysfunction on marital life

In addition to the distressing experience of ED and diminished self-esteem, this disorder affects other life dimensions, particularly participants' marital relationships. Many reported that fear of rejection or spousal infidelity due to unmet sexual expectations often triggers anxiety, feelings of inadequacy, and threats to the relationship's foundation [47]. Similarly, Gahm et al. demonstrated that men frequently conceal their condition from spouses owing to shame and fear of judgment [48]. Such concealment reduces emotional intimacy, fosters misunderstandings (e.g., perceived disinterest), and exacerbates relational isolation—these findings are consistent with those of the present study. In this context, open dialog with spousal involvement in ED treatment can alleviate men's anxiety and enhance marital life [49].

Ineffective sexual health services

Under the category of ineffective sexual health services, two critical codes emerged in the present study: educational gaps and consequences of self-medication. The participants emphasized the need for patients to understand the T2DM-related ED association and the need for healthcare providers to recognize their neglect of direct sexual health inquiries during consultations. Providing comprehensive information from treating physicians could resolve patients' difficulties, with such knowledge significantly altering treatment trajectories and quality of life. Although most patients lacked adequate sexual health knowledge, they concurrently reported that physicians failed to allocate sufficient time or provide appropriate information about diabetes-related EDs.

Kassahun et al. [50] similarly identified knowledge acquisition regarding diabetes-associated ED as a primary study finding, indicating that most patients lack sufficient disorder-related information. Hadisuyamana's study demonstrated that participating men lacked adequate disease awareness and expressed an eagerness to receive ED symptom and treatment information from healthcare teams [51]. Another study emphasized that not only should patients receive comprehensive education about diabetes-related erectile dysfunction, but training should also be provided to patients' spouses [52]. This aims to increase their awareness of their condition and support the preservation of their marital relationships. Elevated awareness levels and continuous education play crucial roles in improving sexual health status, necessitating sustained and integrated planning [53]. Collectively, the results underscore the importance of implementing multifaceted programs encompassing

education, lifestyle behavior modification, and disease control to enhance diabetic patients' sexual health.

Consequently, knowledge gaps among both patients and physicians emerged as a key challenge in this study, potentially leading to risky self-medication practices due to a lack of awareness. Insufficient knowledge may trigger high-risk behaviors and drive patients to self-medicate. Several participants reported trying various treatments without a prescription from a medical doctor. This finding aligns with those of Chu et al. [54], who warned that diabetic patients turn to high-risk solutions such as unapproved medications when credible information is unavailable. Kuraishy et al. (2020) further demonstrated that a lack of awareness about the diabetes–sexual dysfunction connection delays diagnosis and treatment, identifying this educational gap within healthcare systems as the leading cause of patient distress [55].

The evidence-based practical recommendations derived from the present study findings to promote sexual health in diabetic men with ED include the following: (a) Educational facilitators: training physicians to include sexual health questions in diabetes consultations; implementing professional training programs for nurses and physicians on culturally sensitive sexual health counseling; conducting workshops to raise healthcare providers' awareness of diabetes-related sexual issues; and adding ED screening questions to diabetes visit forms. (b) Structural facilitators: Creating private consultation rooms in clinics to allow for confidential discussions. (c) Cultural facilitators: Public awareness campaigns should use media to reduce the stigma of sexual dysfunction and educate patients' spouses to improve support and mutual understanding. (d) Psychological facilitators: Offering psychological counseling through male-staffed sexual health helplines to address ED-related confidence issues and anxiety.

This study was limited by its small sample size and its focus on a specific geographic region. Future studies should employ larger, more diverse samples and conduct interviews with spouses of ED-affected individuals to increase generalizability.

Conclusion

The findings of this study show that diabetes-related ED negatively affects men's sexual health and creates significant challenges for individuals with diabetes. Research indicates that men with T2DM and ED face various psychological, cultural, and educational obstacles to improving their sexual well-being. The results emphasize the importance of including sexual health as a vital part of diabetes care and highlight the need to incorporate sexual health counseling into Iran's national diabetes management programs to increase patients' quality of life and treatment adherence. By understanding sexual dysfunction and its impact on diabetic patients' lives, preventive measures and treatment strategies can increase patients' confidence, strengthen marriages, and improve sexual function. Additionally, training healthcare teams to openly discuss sexual health during diabetes consultations, along with raising public awareness about the link between diabetes and sexual dysfunction, can break the cycle of hidden suffering, reduce social stigma, and improve treatment adherence.

Abbreviations

ED	Erectile Dysfunction
T2DM	Type 2 diabetes mellitus
FPG	Fasting plasma glucose
HbA1c	Glycated hemoglobin
MAXQDA	Qualitative Data Analysis Software

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Authors' contributions

AKR and AKh conceptualization, methodology, investigation, formal analysis, writing – original draft. LS and MRMT: validation, supervision, writing – review & editing. AKh, AA, and VM data control, software (MAXQDA), visualization. All the authors read and approved the final manuscript.

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Data availability

The anonymised qualitative datasets (interview transcripts) generated and analyzed during this study are not publicly available owing to ethical restrictions that protect participant privacy and the sensitive nature of the data. Deidentified excerpts supporting the findings are available from the corresponding author upon reasonable request. The interview guide, codebook, and analytical framework are included in the manuscript.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of the Asadabad School of Medical Sciences (Approval ID: IR.ASAUMS.REC.1403.020). All participants provided written and/or verbal informed consent prior to participation. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Confidentiality was maintained through the anonymization of data, and participants were informed of their right to withdraw at any time.

Consent for publication

Not Applicable.

Competing interests

The authors declare no competing interests.

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