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Health expectations in patients with diabetes mellitus and the factors affecting it: an integrative systematic review†

Review

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Abstract: **Objective:** The aim of this study was to investigate the health expectations (HEs) in patients with diabetes and the factors affecting it using an integrative systematic review.
Methods: A comprehensive literature search was conducted in databases including PubMed, Scopus, Science Direct, Google Scholar, ProQuest, CINAHL, SID, Iran Doc, and Magiran without time limitation using related keywords. The systematic literature search was performed using a guide provided by York University.
Results: From a total of 1883 articles, 17 of them finally met the eligibility criteria. According to the findings of this study, HE of diabetic patients was included in four categories: "dynamism," "consequentialism," "comprehensive care," and "access to facilities." Also, these expectations can be influenced by various factors, including "developments in societies," "changing the conditions of health care systems," and "individual factors."
Conclusions: Health professionals should pay attention to the expectations of diabetic patients who are involved in complex disease conditions and consider meeting them as a key factor in providing patient-centered care, improving health outcomes, and patient satisfaction.

Keywords: *diabetes • expectation • health • patient-centered care • systematic review*

1. Introduction

Diabetes is the most common metabolic disease worldwide, and its prevalence is expected to increase with obesity, population growth, and aging. Moreover, the global burden of disease study in 2010 showed that between 1990 and 2010, diabetes was one of the most prevalent non-communicable diseases that contributed

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the fastest to the burden of lost disability-adjusted life-years (DALYs).[1] In 2021, the International Diabetes Federation (IDF) reported that approximately 537 million adults worldwide were living with diabetes.[2] In 2017, the global prevalence of diabetes among adults aged 18–99 years was estimated at 451 million and it is estimated to increase to 693 million by 2045.[3] As one of the countries in the Middle East and North Africa (MENA) region, Iran has been involved in a diabetes epidemic. In Iran, in 2018, approximately 5.3 million people were diagnosed with diabetes, which is expected to reach 9.2 million by 2030.[4] Diabetes is a medical disorder with serious physical and psychological effects on the patient, including personal identity, psychosocial dimensions, emotional balance, self-satisfaction, sense of worth and efficiency, social interactions, and interpersonal relationships.[5] Nowadays, every client has a right to access the most desirable services in health centers.[6] As the prevalence of Type 2 diabetes and associated healthcare costs continue to increase, it is apparent that new healthcare delivery strategies are needed to help patients better manage their disease and achieve improved outcomes.[7] In 2000, the World Health Organization (WHO) stated that the three main goals of the health system were to improve health, meet patient expectations, and provide services.[8] The patient's expectation of the health system is defined as the prediction of events that are likely to occur during healthcare or its consequences.[9] Unmet expectations are a common cause of patient dissatisfaction with healthcare.[10] At present, with the change of service delivery to health-oriented, providing more services has become patient-centered. Therefore, care and service delivery should be based on patients' expectations and needs.[11] Discovering health expectations (HEs) to ensure the delivery of high-quality healthcare,[12] a better understanding of patients by health providers, proper planning for care, and thus increasing patient satisfaction[13] and treatment adherence is crucial and valuable.[14] Evidence shows that patients who receive healthcare according to their expectations will recover better than other patients.[12,14] Also, understanding clients' expectations for better allocation of limited resources and identifying competing positions provides a practical reference.[15] In addition, understanding the HE of patients with diabetes mellitus and the factors affecting it, can provide valuable information to healthcare providers and increase the effective participation of patients in the planning of care programs. However, in most cases, the care programs for diabetic patients are based only on the treatment of the physiological aspects of the disease and its referral, which causes emotional, social, and psychological problems in patients.[16] Also, studies have shown that 45% of healthcare professionals are unaware of care programs for these patients and do not have sufficient knowledge about them.[17] Therefore, considering the importance of paying attention to the expectations of diabetic patients to improve the quality of nursing services, the different expectations of diabetic patients, and the lack of sufficient studies in this field, the aim of this study was to investigate the HE in patients with diabetes mellitus and the factors affecting it, using an integrative systematic review.

2. Methods

We conducted an integrative systematic review because of its usefulness for generating theory and classifications of constructs.[18] The integrative review approach provides us with the opportunity to combine diverse methodologies (i.e., observational, experimental, and mixed method studies) to understand the context, processes, and subjective elements and generate new knowledge and perspectives.[19] For this review, the University of York Center for Reviewers and Dissemination Guidance approach was used as the research framework[20] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020[21] statement was followed as a reporting guideline. The University of York Center for Reviewers and Dissemination Guidance approach has seven steps as follows.

2.1. Research question formulation

This study has two questions:

1. What are the HE in patients with diabetes mellitus?
2. What are the factors affecting it?

2.2. Search strategy

All searches were done by two researchers independently, and any inconsistencies were resolved by the third and fourth researchers. Also, any discrepancies between the researchers were discussed and a consensus was reached. Data were extracted based on a checklist prepared by researchers including the name of the first author, the year of publication of the article, the design of the study, the aims of the study, HE in patients with diabetes, and the factors affecting it. To examine the HE of patients with diabetes, available and valid electronic databases such as PubMed, Scopus, Science Direct, Google Scholar, ProQuest, CINAHL, Scientific Information Database (SID), Iran Doc, and Magiran with related keywords such as "expectation", "experiences", "perception", "health", "care", "system", "service", "hospital", "setting", "diabetes", "diabetes mellitus", and their combination with the help of Boolean operators "OR"

and/or "AND" without time limitation were searched. A sample of a search strategy using related keywords is shown in Table 1.

2.3. Setting the inclusion and exclusion criteria

To be included for initial screening, articles were required to: (1) be written in English or Persian; (2) have access to the full text of the article; and (3) have keywords relevant to the review objectives in the title and abstract. Exclusion criteria include (1) lack of access to the full text of the article; (2) duplicate and unrelated articles; (3) articles published in languages other than English and Persian, and (4) editorial or commentarial articles. In addition, if an article investigated the expectations of patients with diabetes from issues other than health, it was excluded. This systematic review includes quantitative, qualitative, systematic review, and mixed-method articles.

2.4. Quality assessment

After applying the inclusion and exclusion criteria, to assess the quality of quantitative articles, Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) tool[22]; qualitative articles, Consolidated Criteria for Reporting Qualitative Research (COREQ) tool[23]; review articles, PRISMA checklist[21]; and mixed method articles, Mixed Methods Appraisal Tool (MMAT)[24,25] were used. Also, a checklist was designed according to the inclusion criteria and the researchers evaluated the articles based on it. The STROBE tool used to evaluate the quality of quantitative articles consists of 22 items. The scoring of this tool was such that the met cases were counted and then divided into the maximum possible score (cohort = 84, case–control = 83, and cross-section = 77) and the percentage was obtained based on the formula.[26] Percentages >85 were considered excellent, between 70 and 85 good, 50–70 relatively good, and <50 poor. In this study, articles with a quality score >70 were included. The 32-item COREQ tool was used to evaluate the quality of qualitative articles. The qualitative ranking of this tool was such that if 66% or more of the items were met, they were of good quality, 33%–65.9% of the cases were of medium quality, and 32% or less were of poor quality.[27] In this study, high-quality articles were included for systematic review. PRISMA 2020 checklist with 27 items was used to evaluate review articles. The tool covers seven modules with 27-items: title, abstract, introduction, methods, results, discussion, and other information. Each of the items were assessed as follows: "Yes" for total compliance, scored "1"; "partial" for partial compliance, scored "0.5"; and "No" for non-compliance, scored "0"; with a total maximum score of "27". The review was considered to have major flaws if it received a total score of ≤15.0, minor flaws if it received a total score of 15.5–21.0, and minimal flaws if it received a total score of 21.5–27.0.[28] Finally, good-quality articles with a total score of 21.5–27.0 were included in this study. Also, the 2018 version of MMAT was used to assess the quality of mixed-method studies. The advantage of this tool is that it can be used to evaluate all research projects using a quality scoring system of 0, 25%, 50%, 75%, and 100%, where a higher score indicates a higher quality[24,25] In this study, articles with a quality of 50% and above were included in the final analysis.

2.5. Application of the checklist

The full text of the articles was investigated according to the designed checklist. According to the included criteria, only 17 articles remained in the research process.

2.6. Deriving the question's responses

In this step, the responses to the three initial questions were extracted from the retained articles in the review process. Data analysis was performed by conventional content analysis with MaxQDA 2010. By carefully reading the text of each resource, HE in patients with diabetes and the factors affecting it were extracted.

2.7. Combination of the derived information

The combination of derived data to the response to the review questions was done in this step.

Search keywords: "expectation", "experiences", "perception", "health", "care", "system", "service", "hospital", "setting", "diabetes", "diabetes mellitus"
("patient expectation"[Title/Abstract] OR "patient experiences"[Title/Abstract] OR "patient perception "[Title/Abstract]) AND ("diabetes mellitus"[Title/Abstract] OR "diabetes"[Title/Abstract]) AND "setting"[Title/Abstract] OR "health"[Title/Abstract] OR "care"[Title/Abstract] OR "service"[Title/Abstract] OR "system"[Title/Abstract] OR "hospital"[Title/Abstract]

Table 1. Sample of a database search strategy using keyword combinations.

3. Results

3.1. Literature search

During the integrative systematic review, 1883 articles were identified; 151 articles were removed due to duplication and 868 articles were removed after reviewing the title and summary of the article due to lack of coordination with the objectives of the study; 864 articles were fully

evaluated in terms of inclusion criteria, of which 847 original texts did not meet the required criteria, and in terms of method and results obtained were not consistent with the present study. Finally, after considering the inclusion and exclusion criteria and reviewing the full text of the articles and their qualitative evaluation, 17 studies were included in this systematic review (Figure 1). All articles were in English. Table 2 shows the specifications of the reviewed articles. Seven categories were identified after analyzing the data. Based on the findings, the HEs of diabetic patients were in four categories: "dynamism," "consequentialism," "comprehensive care," and "access to facilities." Also, the factors affecting the expectations of these patients were in three categories including "developments in societies," "changing the conditions of healthcare systems," and "individual factors." In the following, the responses to questions are explained, respectively.

3.2. Responses to Questions

3.2.1. First question: HE in patients with diabetes mellitus

Dynamism

HE in patients with diabetes mellitus is dynamic. HE is changeable, multidimensional, time-based, and future-oriented and has an interactive mode, all of which point to the dynamics of its nature.[33] HE in these patients includes various physical, mental, social, and moral dimensions. Variability of HE is due to its mental nature and dependence on multiple factors such as experience and history of previous hospitalization of the client, personal characteristics and contextual factors of the client (age, gender, culture, beliefs, and values, etc.), and environmental factors (physical structure, equipment, etc.).[14,30,34] HE in these patients is also interactive, because expectations in these patients are created and changed by the individual's interactions with the health system and community system based on the individual's beliefs and values.[38] Therefore, when examining clients' expectations, we should know that expectations are dynamic and constantly changing due to increasing patient experience and other factors, and patient expectation assessments should be repeated at different times to detect changes in the relationship between expectations and satisfaction levels.[11,14,30,34,38,40,43] This is because expectations are complex beliefs and values that arise from cognitive processes and are modified by the individual's previous experiences.[14]

Consequentialism

In some studies, HE in diabetic patients has been expressed as result-oriented and purposeful. In

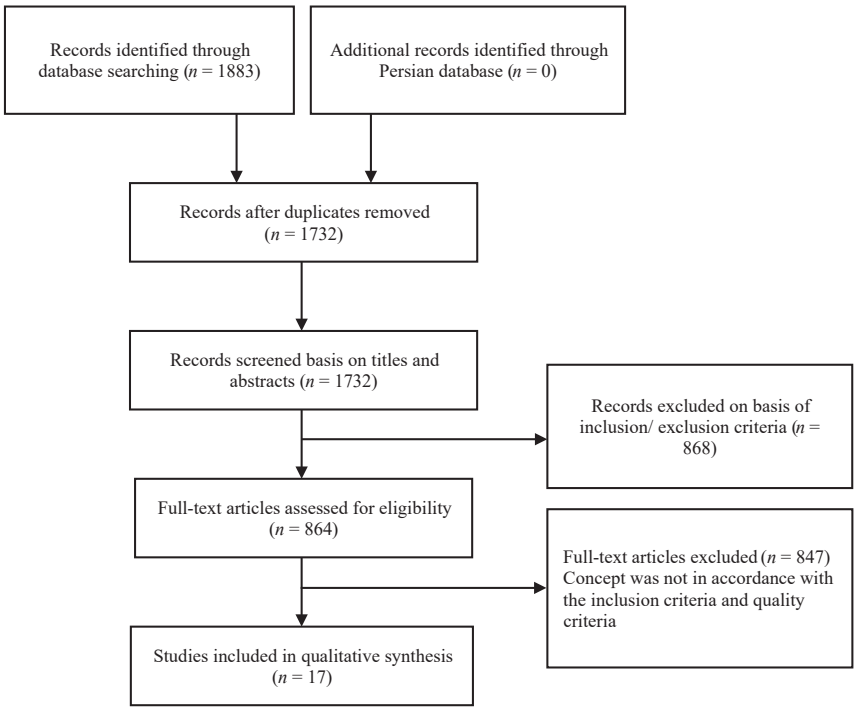

Figure 1. PRISMA flow diagram of the present study.
Note: PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Author (Publication year)	Design of study	Aims of study	HEs in patients with diabetes mellitus and factors affecting it
Atapour et al. (2023)[29]	Qualitative study	Investigating the consequences of meeting the HEs of patients with diabetes-related visual impairment	Main category: improving access to comprehensive care, and four sub-categories: receiving preventive care, access to home care, safety promotion, and increasing health literacy
Yao et al. (2022)[30]	Qualitative study	A review of the experiences of people with type 2 diabetes in relation to general practitioners in China	patients' understanding, diabetes medication, communication with general practitioners, physician-patient relationships, and healthcare systems and context
Chan et al. (2020)[31]	Qualitative study	To explore the barriers and recommendations regarding service delivery and research of IM service among diabetes patients and physicians	Seven subthemes regarding barriers towards IM (integrative medicine) service were identified including finance, service access, advice from medical professionals, uncertainty of service quality, uncertainty of CM effect, difficulty in understanding CM epistemology and access to medical records
Halperin et al. (2018)[32]	Qualitative study	To gather patient perspectives on quality of care provided in diabetes clinics	Knowledgeable, caring, available, and communicative team that assists with self-management and overall control of diabetes (effective, patient-centered and timely), avoiding the complications of diabetes, participating in care planning and achieve patient-centered goals, financial support to cover medical and pharmaceutical expenses
da Silva et al. (2018)[16]	Qualitative study	To identify the experiences, needs, and expectations of subjects with diabetes, for self-reliance for health promotion	Recognizing the rights and responsibilities, the capacity to decide, responsibly, protagonism of subjects, autonomy for them to have a better quality of life
Vachon et al. (2017)[33]	Qualitative study	Investigating patients' expectations and solutions for improving primary diabetes care	Follow-up by a family physician, continuous access to services adapted to evolving needs, motivation and maintenance of healthy behaviors, knowledge about diabetes, psychological support, financial constraints, and collaboration with secondary-level services, facilitating access to services, disseminating information about available services, centralizing diabetes information on the internet, offering personalized services and improving inter-professional collaboration
Jacklin et al. (2017)[34]	Qualitative study	Reviewing the healthcare experiences of people with type 2 diabetes	The colonial legacy of healthcare, the perpetuation of inequalities, structural barriers to care, and the role of the healthcare relationship in mitigating harm
Gadsby et al. (2017)[35]	Quantitative study	Measuring patient experience in diabetes care	More explanation and advice during appointments, listening to the patient, respecting the patient, increasing continuity of care, effective communication, screening services, ensuring regular foot, examinations and increasing access to foot care, easy access to Blood sugar control equipment and drugs, sufficient number of personnel, more support in early diagnosis, coordination in providing services, especially scheduling blood tests and multidisciplinary appointments in the clinic
Boyle et al. (2016)[36]	Qualitative interpretive	Explaining the experiences of patients with type 2 diabetes from the care	Additional information and counseling
Oberg et al. (2012)[37]	Qualitative study	Assessing the perception of people with type 2 diabetes from their first experiences with naturopathic care for diabetes	Health promotion, improving self-efficacy, pragmatic and practical self-care recommendations, novel treatment options, strengthening hope, improving patient education
Bowling et al. (2012)[14]	Mixed-methods study	The concept of HE and develop scale	Personal experience of the patient and health staff, counseling, review of counseling outcomes, space and environment, time, Outcome, examinations and tests, treatment and medicine
Escudero-Carretero et al. (2007)[11]	Qualitative study	To understand the expectations held by type 1 and 2 diabetes mellitus patients and their relatives regarding the healthcare provided to them	Expectations regarding healthcare professionals: understanding, treatment and communication capacity, providing information, recognition, perception of patients, respectful behavior, good communication skills, knowledge of patients' knowledge and skills and providing transparent information, the ability to respond, have a normal life and no restrictions on work, education, social and family due to having diabetes and preventing complications expectations regarding healthcare centers: primary care consultation, specialized care consultation, necessary and sufficient equipment for treatment

(*Continued*)

Table 2. Continued

Author (Publication year)	Design of study	Aims of study	HEs in patients with diabetes mellitus and factors affecting it
Alazri et al. (2006)[38]	Qualitative study	To evaluate the perceptions and experiences of patients with type 2 diabetes from continuing care, focusing on the advantages and disadvantages	Personal factors between themselves and the health care professional, their beliefs and behaviors, the presence of diabetes, and the systems and structures of general practices
Clementi (2006)[39]	Dissertation (qualitative study)	Evaluation of experiences of patients during encounters with healthcare providers	Core category: respectful behavior other categories: appropriate body language, truth-telling, listening, problem-solving, effective communication, reassurance, outcome
Naithani et al. (2006)[40]	Qualitative study	To identify patients experiences and values with respect to continuity in diabetes care	Regular clinical testing and provision of advice over time (longitudinal continuity) communication, understanding patients, concerned and interested in listening and explaining, and spending time communicating with the patient (relational continuity) flexibility of service provision in response to changing needs or situations (flexible continuity); and consistency and coordination between members of staff, and between hospital and general practice or community settings (team and cross-boundary continuity)
Lawton et al. (2005)[41]	Qualitative study	To explore newly diagnosed Type 2 diabetes patients' views about Scottish diabetes services	Information about self-management, the presence of a diabetes specialist and the availability of a specialist, specialist nurses, time
Hornsten et al. (2005)[42]	Qualitative study	To report the findings of a study that elucidated the experiences and reflections of people with type 2diabetes about clinical encounters	Agreeing vs. in disagreement about the goals, autonomy, and equality vs. feeling forced into adaptation and submission, feeling worthy as a person vs. feeling worthless, being attended to and feeling welcome vs. ignored, and feeling safe and confident vs. feeling unsafe and lacking confidence

Note: CM, Chinese medicine; HE, health expectation.

Table 2. Details of literature reviewed in this study.

this category, health outcomes,[14,32,34,37,39] including follow-up and control of the disease, prevention of diabetes complications,[11,30,32,34] complete recovery,[32,34,37] care and education,[11,14,32–34,37,44,45] self-management promotion,[11,16,32,37,41] increasing life chances, and improving quality of life[11,16,32,37] are emphasized. Also, some studies mention having a normal life, controlling the conditions, and preventing further problems, including occupational, academic, social, and family restrictions due to the disease.[11,16,32,37]

Comprehensive care

According to the literature, HE in diabetic patients refers to comprehensive care.[29] In this regard, in various works, attention to the individual needs of the patient with diabetes, including psychological needs, physical needs, social needs, supportive needs, nursing care based on individual needs,[33,37,39,45] education and counseling based on the personal needs,[11,14,31,35–37,40,46–49] follow-up,[33] cooperation and coordination with health services at different levels to meet individual needs,[11,33,35,40] patient-centered care, and holistic care[37] is mentioned. Also, individual awareness, including providing information to the patient about the diagnosis and prognosis of diabetes,[47–49] awareness of patients' knowledge and skills and providing information,[11,33] and motivation to adopt and maintain health behaviors, has been expressed.[33] Also, in this category, client support, including physical, psychological, spiritual, social, and financial supports, is emphasized.[11,31,33,35,42,47]

In addition, this category refers to the observance of ethical-professional values by service providers including confidentiality, responsibility and accountability, respectful behaviors, understanding of patients, empathy, honesty, truth-telling dignity, trust, providing information and facts, addressing patient problems and needs, reassurance, appropriate interactions, competence, nurses' knowledge, clinical experience and skills,[11,32,34,35,42,47–49] communication principles and skills, interpersonal behavior, effective communication, interaction, and quick attention.[11,30,32,34,35,39,40,42,47–49] In this regard, attention to the patient's rights, including the right to receive information, patient participation in care, and health decision-making has been emphasized.[11,16,37,42,47–49]

Access to facilities

The provision of specialized welfare facilities and services is one of the main tasks of the health system. In this regard, various studies refer to access to health centers and facilities and equipment to provide services to patients with diabetes, including access to health care centers, specialized care and services, hotel services, appropriate environment, appropriate time to provide services, access to health professionals, and 24-hour presence of specialist doctors and nurses.[11,14,30–35,37–39,41,44,46,47]

3.2.2. Second question: Factors affecting the expectation of health in patients with diabetes

The most important factors affecting HE in patients with diabetes mentioned explicitly or implicitly in the literature include "developments in societies," "changing the conditions of health care systems," and "individual factors."

Developments in societies

Expectations of care standards in patients with diabetes are rising for a variety of reasons.[49] Socio-political developments, access to higher education, and increasing health literacy among the population mean that society's expectations for communication and participation in self-care have increased.[33,38] To some extent, the Internet and social media have also facilitated this. There is no doubt that the expectations of patients with diabetes have increased to some extent due to the availability of health information on the Internet. Also, these patients have different and high expectations due to the involvement of multiple physical systems, frequent visits to medical centers, and access to the Internet and various resources, all of which are to meet their individual needs.[30,33,38]

Changing the conditions of healthcare systems

Awareness of patients' expectations for their care and the realization of realistic expectations are important aspects of policy development and service delivery; because in health policy, especially in the late 1980s and 1990s, the importance of health assessment from the perspective of patients and customers has been emphasized.[14] Also, to move toward continuous quality improvement in the 1990s, patient expectations were placed at the core of the treatment mission.[49] The WHO also emphasized this in 2000.[8] On the contrary, currently, the process of providing health services is shifted to patient-centered care, and this leads to the provision of care and services in accordance with the needs and expectations of patients.[11]

Individual factors

Patient expectations are created through interaction with the health system based on cognitive and psychological beliefs and values.[38] Patients with diabetes have expectations that they may or may not be fully aware of. These expectations may have been explicitly stated by him/her, or medical staff may have had to try to extract them.[12] Expectations can be related to the individual characteristics of the diabetic patient. The needs and complications of diabetes, the belief in being understood by the health team, the belief in receiving care and education, and the full support of the health team in critical situations can affect the expectation of health in patients with diabetes.[11] Patient expectations are also affected by age, sex, health literacy, cultural conditions, ethnicity, and social factors such as deprivation, unemployment, and health conditions.[11,40,44] Other factors such as economic facilities, patient's past experiences, environmental factors, medical institutions, and social insurance are the factors affecting patients' expectations.[11,14,30,34,38,43] Experience with health services and social education of the individual can affect the formation of HE in patients with diabetes mellitus.[11,14,30,34,38] Also, experiences after treatment of the disease and people's perception of side effects are effective in shaping his/her expectations.[11,14,30,34,38] In addition, the successful experiences of family and friends and their repeated recommendations seem to be effective in forming expectations and perceptions.[50]

4. Discussion

The purpose of this study was to investigate the HE in patients with diabetes and the factors affecting it using an integrative systematic review. Providing efficient healthcare within limited budgets requires understanding the patient's priorities. However, the services provided do not always match the needs or preferences of the patients. Therefore, the health recommendations of healthcare providers are not always accepted and implemented by patients.[51] Vachon et al. (2017) showed in their study that there is a gap between the needs and expectations of patients with diabetes and the health services provided.[33] In our study, this gap was also identified using a systematic literature review. On the contrary, the alignment of clinical practice and health policies with patients' priorities and needs improves the effectiveness of therapeutic and health interventions. Policymakers and health service providers should pay special attention to this issue in their decisions. They should have information about their patients' expectations of health and then look for a useful and reasonable care plan in relation to the patients'

needs and preferences.[51] Based on this, it has been suggested that every clinical encounter should begin with determining the patient's expectations.[13] In this study, HE in diabetic patients was extracted in the four categories of "dynamism," "consequentialism," "comprehensive care," and "access to facilities" as well as the factors affecting the expectations of these patients was extracted in the three categories of "developments in societies," "changing conditions of health care systems," and "individual factors."

4.1. Dynamism

HE in these patients is dynamic and influenced by various factors. Patients' expectations should be checked by healthcare providers at different times, and care and services should be provided based on that. Although in previous studies, the dynamicity of HEs in patients with diabetes was not clearly mentioned, but in our review study, this characteristic was clearly obtained. The results of our study showed that the expectations of these patients are dynamic and health staff should pay attention to this important issue in providing care. There is strong evidence that although initial expectations may be formed, but in the process of healthcare experiences, they are subject to constant change. These expectations may be general or specific, positive or negative, but by establishing a relationship with the nurse and the health team, it can change over time.[52] In the conceptual model of HE by Janzen et al. (2006), the concept of expectation emerged as a combination of several longitudinal stages (precipitating phenomenon, prior understanding, cognitive processing, expectation formulation, outcome, post-outcome cognitive processing), which indirectly refers to the continuous and dynamic nature of the concept over time.[53]

4.2. Consequentialism

In this study, one of the expectations of diabetic patients was consequentialism, which refers to the outcome of the service. These outcomes can be in the form of receiving different physical, psychological and social support, health consequences, absence of disease complications, absence of restrictions caused by the disease, and achieving a normal life. In general, expectations are the stored links between behaviors and consequences that guide subsequent behaviors. According to various studies, the influence of outcome expectations on behavior may be the most compelling aspect of HE models. Behaviors are mainly purposeful and controlled by forethought.[53] According to studies, patients expect to achieve good health outcomes without increasing costs or requiring many visits to health centers.[12] In this regard, in the study by Liu et al. (2019)54 and Vachon et al. (2017),[33] expectations are expressed as receiving physical, psychological, economic, and social support. Silva et al. (2018) also presented the improved quality of life as HE in diabetic patients.[16] The results of our study highlighted this feature.

4.3. Comprehensive care

In this study, another expectation of patients with diabetes was to provide comprehensive care, which refers to paying attention to the patient's individual needs and respecting ethical professional values. Patients' expectations evolve through interaction with healthcare based on knowledge, beliefs, and individual moral values and dynamic interaction with the therapist and experience of the patient.[50] In this regard, Yao et al. (2022) emphasized the proper communication between health professionals and patients.[30] Kurne (2020) mentioned in his study on value-ethical factors, including communication, choice, security, respectful and empathetic care, and continuity of services.[55] Najafi Kalyani et al. (2014) expressed the expectations of patients from nurses to improve moral performance (responsibility, respect for patient's rights) and to have appropriate personal characteristics (appropriate behaviors and interest in work).[56] In fact, the need and personal belief of these patients to receive support and comprehensive care creates expectations before entering the health system and medical centers. In the study by Kurne (2020)[55] and Jacklin et al. (2017)[34] on the need to receive medical care in compliance with moral-value principles as the main expectations of these patients are emphasized. In the study of Van Eijk-Hustings et al. (2013)[57] the need to receive comprehensive and organized care along with compliance with ethical principles has been mentioned as the main expectations of patients with diabetes. In our study, the result was extracted more comprehensively in the form of receiving comprehensive care, which culture, and other social factors can be effective in this.

4.4. Access to facilities

The last of HE in patients with diabetes in this study was "access to facilities," which included ease of access to health service providers, professional and skilled health staff, medicine, equipment, and welfare services for the patient. Before entering health centers, patients with diabetes believe in full access to health services. In the study by Larson et al. (2019), the availability of services and resources and healthcare providers are mentioned as expectations of patients.[58] Also, access to quality health services, experts, and information in

various studies are included in the study of Vachon et al. (2017)[33] and Taylor et al. (2014).[59]

The expectations of patients with diabetes can be affected by various factors. In this study, factors affecting the expectations of patients with diabetes were included in three categories: "developments in societies," "changing conditions of healthcare systems," and "individual factors."

4.5. Developments in societies

Political–social developments and access to higher education among the population mean that society's expectations regarding health have increased.[33,38,59] Internet and social media have facilitated this to some extent. Undoubtedly, the expectations of patients with diabetes have increased due to the availability of health information on the Internet. Due to the involvement of multiple physical systems, frequent visits to medical centers, and access to the Internet and various resources, these patients have differentiated and high-level expectations, all of which are aimed at meeting their individual needs.[30,33,38,59] In their study, Taylor et al. (2014) stated that access to the Internet and social media are factors influencing the formation of HEs.[59] In their study, Vachon et al. (2017) mentioned the access of patients with diabetes to the Internet and information related to the disease as effective factors in the formation of HEs.[33]

4.6. Changing conditions of healthcare systems

With the change in the conditions of health service provider systems toward patient-centeredness and organizational ideology changes in line with the movement toward continuous quality improvement, patients' expectations of health have been affected and changed. In this regard, in the 1990s, the patient's expectation was placed at the core of the mission of treatment.[49] Also, other factors such as the features and quality of services, economic facilities, environmental factors, existing medical institutions, and social insurances are factors influencing the formation of the expectations of these patients.[60] In this regard, Alazari et al. (2006) also stated in their study the conditions of service provider organizations and their structures as effective factors in forming expectations.[38]

4.7. Individual factors

The last factor affecting HE in patients with diabetes in this study was "individual factors." Individual factors of the client refer to the contextual factors and personal characteristics of the client and his/her previous experiences of health services. According to the results of the studies, the expectations of patients with diabetes are subjective; therefore, it may change in different situations. The expectations of these patients are created through interaction with health based on the person's cognitive and psychological beliefs and values.[61] According to the study by Lakin et al. (2022), expectations are subject to social and cultural factors and individual characteristics such as race, gender, social and economic class, level of education, political position, social rewards, and behavioral exchange patterns. Based on the model of Larson et al. (2019), the expectations of patients are not only influenced by factors related to the health system, but also by the influence of social contexts, society and family, socio-economic status, age, health status, and past experiences of interaction with the health system.[58] Expectations allow us to use previous possible conditions to adjust subsequent actions.[62] The previous experience of receiving health services and social education can influence the formation of expectations of diabetic patients from health.[14,30,34] Psychologists also defined expectation as a conscious prediction of future events based on previous experience.[52] In this regard, Pavlov (1927, 1960) defined a conditioned response as a response that can be predicted based on previous experience.[63] The premise of the stimulus–response psychologist Skinner's theory was that new behavior is formed by old behavior.[52,63] Therefore, according to these theories, the previous experiences of a person with diabetes and its complications can be effective in forming his/her expectations of health. The results of the present study are almost in line with the results of similar studies, but in the present study, individual factors include wider dimensions. Therefore, according to the results of the present study and other studies conducted in this field, it can be concluded that individual factors have a high impact on the formation of expectations from health, but it is mostly influenced by culture and ethnicity and can be expressed in different ways in different studies.

The results of these studies are very consistent with the results of the present study. These slight differences in the results of different studies can confirm the effect of different factors on HE in patients with diabetes and its dynamics and multidimensionality; as mentioned in the present study. Therefore, due to the variability and dynamism of HE in these patients, emphasis is placed on examining expectations in service delivery and patient-centered care in order to increase the satisfaction and effectiveness of services. In addition to highlighting the expectations and needs of patients with diabetes, this study highlighted the shortcomings of the health system. By identifying the needs of these patients and discovering the obstacles in the system, useful measures can be taken to remove the obstacles and meet the needs

of patients with diabetes. These measures can be useful for improving the quality of healthcare and customer orientation. In conclusion, this study provides valuable insights into the expectations of patients with diabetes. These findings highlight the need for healthcare providers to address patient expectations and adjust their approach accordingly to ensure optimal patient satisfaction and care. The findings of our study have important implications for research and documenting diabetes patients' expectations of healthcare.

One of the limitations of this study was the comprehensive review of articles in Persian and English. Articles on health expectancy in patients with diabetes mellitus may have been published in other languages that researchers have not included in the study due to their lack of proficiency in other languages. Therefore, it is suggested that a comprehensive study be conducted by reviewing all articles in other languages. Because patient expectations are influenced by various factors such as cultural and individual factors, it is recommended to use other study methods to assess the HEs of these patients. It is also recommended to conduct a variety of quantitative studies to investigate the impact of factors affecting the expectations of these patients to confirm the results of the present study to use these factors to improve the quality of services.

Similar studies in different fields are needed to further understand patient expectations and the transferability of our findings. This may include a greater variety of experiences and patient demographics (e.g., pediatric patients) and clinical contexts such as intensive care units. We hope that this can lead to the development of more accurate and feasible methods for measuring patient expectations. A better understanding of patient expectations can also inform the planning of healthcare services and the design and delivery of healthcare education programs.[13] With such measures, physicians and healthcare providers can be enabled to deliver and monitor patient-centered care with outcomes tailored to patients' desires.

5. Conclusions

The health system faces a great challenge to meet the needs, wants, and expectations of patients by using measures based on the preferences and desires of each patient and taking into account its own cultural and social context. The most powerful structural innovation in healthcare is based on changing the paradigm of the health system toward being patient-centered. Despite this hypothesis, policymakers and healthcare professionals in most cases consider healthcare delivery systems with the least public participation.[51] Patient-centered care, on the other hand, is essentially healthcare that responds to patients' wants, needs, and preferences.[49] Awareness of the perceived experience of patients' HE is important for generating knowledge in the field of health, health behaviors, illness, and outcome reported by the patient, and as a result, the patient's wishes and expectations of health are better understood and the impact of these beliefs on the consequences of healthcare will be more.[14] Despite the importance of examining patient expectations, the expectations of patients with diabetes and the factors affecting it have been less studied. Therefore, this study aimed to investigate the HE in patients with diabetes using an integrative systematic review to answer the study questions. This study refers to the expectations of patients with diabetes and the factors affecting it and shows that HE in patients with diabetes is affected by various factors. Identifying HE in patients with diabetes provides in-depth insights into the nature of HE for nursing managers and nurses. These findings have practical implications in providing patient-centered care and emphasize the special attention of health policymakers. Paying attention to the expectations of these patients from the health system and meeting them can improve the health of the community, improve the quality of services, and reduce costs and patients' satisfaction with health. Also, by using the factors affecting the formation of expectations, steps can be taken to rationalize expectations and meet them in order to improve the quality of services.Therefore, health professionals in providing services to these patients who are involved in complex health conditions, should pay attention to this and consider it as themain effective factor in patient satisfaction and promoting health outcomes.

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Author contributions

MA: Conceptualization, design of the study, methodology, acquisition of data, formal analysis, critical review, writing of the original draft, review of versions and critical review, and validation. ShGh: Conceptualization, design of the study, methodology, formal

analysis, validation, writing of the original draft, review of versions and critical review, and supervision. ASSH: Methodology, validation, supervision, and writing of the original draft. ZBM: Methodology, acquisition of data, formal analysis, and writing of the original draft. All authors read and approved the final manuscript and had full access to all of the data in this study and take complete responsibility for the integrity of the data and the accuracy of the data analysis.

Ethical approval

This study was approved by the ethics committee of the Tehran University of Medical Sciences (IRB Approval No.: IR.TUMS.FNM.REC.1399/039).

Conflicts of interest

All contributing authors declare no conflicts of interest.

References

1. Haj B, Popa SG. Retinopathy and chronic kidney disease in type 2 diabetes mellitus. *Rom J Diabetes Nutr Metab Dis*. 2021;28:160–169.
2. Chona EZ, Kayange LF, Iseselo MK. Barriers and facilitators to satisfaction with diabetes care: The perspectives of patients attending public diabetic clinics in Dares Salaam, Tanzania. *PLoS One*. 2024;19:e0302858.
3. Cho NH, Shaw JE, Karuranga S, et al. IDF Diabetes Atlas: global estimates of diabetes prevalence for 2017 and projections for 2045. Diabetes Res Clin Pract. 2018;138:271–281.
4. Jalilian H, Heydari S, Imani A, Salimi M, Mir N, Najafipour F. Economic burden of type 2 diabetes in Iran: a cost-of-illness study. *Health Sci Rep*. 2023;6:e1120.
5. Mansourizadeh M, Anoosheh M, KazemNejad A. The effect of physical activity program based on pender health promotion model on type 2 diabetic middle-aged women's mental health. *Iran J Health Educ Health Promot*. 2018;6:159–167 (in Persion).
6. Redi A, Marliana L. Hospital responsibilities toward patients in the implementation of health services. *Int J Eng Bus Soc Sci Med*. 2024;2:997–1008.
7. Deol R, Bashir S. Exploring the complications of type 2 diabetes mellitus: pathophysiology and management strategies. *EPRA Int J Res Dev*. 2024;9:173–182.
8. Chiou SJ, Lee PC, Chang YH, Huang PS, Lee LH, Lin KC. Assessment of patient experience profiles and satisfaction with expectations of treatment effects by using latent class analysis based on a national patient experience survey in Taiwan, China. *BMJ Open*. 2019;9:e023045.
9. Salinas Martínez AM, Juárez Montes AG, Ramírez Morado Y, et al. Idealistic, realistic, and unrealistic expectations of pharmacological treatment in persons with type 2 diabetes in primary care. *Front Public Health*. 2023;11:1058828.
10. Patil B, Morabiya M, Patidar N. A study emphasizing that healthcare service quality is positively related with patient satisfaction and patient loyalty. *Int Res J Mod Eng Tech Sci*. 2024;6:156–160.
11. Escudero-Carretero MJ, Prieto-Rodríguez M, Fernández-Fernández I, March-Cerdá JC. Expectations held by type 1 and 2 diabetes mellitus patients and their relatives: the importance of facilitating the health-care process. *Health Expect*. 2007;10:337–349.
12. Lateef F. Patient expectations and the paradigm shift of care in emergency medicine. *J Emerg Trauma Shock*. 2011;4:163–167.
13. El-Haddad C, Hegazi I, Hu W. Understanding patient expectations of health care: a qualitative study. *J Patient Exp*. 2020;7:1724–1731.
14. Bowling A, Rowe G, Lambert N, et al. The measurement of patients' expectations for health care: a review and psychometric testing of a measure of patients' expectations. *Health Technol Assess*. 2012;16:i–xii.
15. Kicsiny R, Hufnagel L, Varga Z. Allocation of limited resources under quadratic constraints. *Ann Oper Res*. 2023;322:793–817.
16. Silva JAD, Amorim KPC, Valença CN, Souza ECFDJRB. Experiences, needs and expectations of people with diabetes mellitus. *Rev Bioét (Impr)*. 2018;26:95–101.
17. McGlinchey L, Barr O, Black P. Healthcare professionals knowledge of inherited cardiac arrhythmias ICA their views towards and confidence in caring for a person with an ICA in a surgical environment. *Eur Heart J*. 2022;43(suppl_2):ehac544.670.
18. Torraco RJ. Writing integrative literature reviews: guidelines and examples. HRDR. 2005;4:356–367.
19. Kutcher AM, LeBaron VT. A simple guide for completing an integrative review using an example article. *J Prof Nurs*. 2022;40:13–19.
20. Tacconelli E. Systematic reviews: CRD's guidance for undertaking reviews in health care. *J Lancet Infect Dis*. 2010;10:226.

21. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Syst Rev*. 2021;10:89.
22. von Elm E, Altman DG, Egger M, et al. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ*. 2007;335:806–808.
23. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19:349–357.
24. Hong QN, Fàbregues S, Bartlett G, et al. The mixed methods appraisal tool (MMAT) version 2018 for information professionals and researchers. *Educ Inf*. 2018;34:285–291.
25. Pluye P, Hong QN. Combining the power of stories and the power of numbers: mixed methods research and mixed studies reviews. *Annu Rev Public Health*. 2014;35:29–45.
26. Limaye D, Limaye V, Pitani RS, et al. Development of a quantitative scoring method for STROBE checklist. *J Acta Pol Pharm Drug Res*. 2018;75:1095–1106.
27. Sgarbi AKG, Ivo ML, de Queiroz AI, et al. Problems evidenced by nursing care in blood transfusions: an integrative review. *Int J Innov Educ Res*. 2020;8:48–57.
28. Li JL, Ge L, Ma JC, et al. Quality of reporting of systematic reviews published in “evidence-based”. *Chin J Syst Rev*. 2014;3:58.
29. Atapour M, Sadat Hoseini AS, Ghiyasvandian S, Behboodi Moghadam Z. The expectations of patients with diabetes-related visual impairment: a qualitative study. *J Nurs Midwifery Sci*. 2022;10:e134477.
30. Yao M, Zhang DY, Fan JT, et al. The experiences of people with type 2 diabetes in communicating with general practitioners in China – A primary care focus group study. *BMC Prim Care*. 2022;23:24.
31. Chan KW, Lee PW, Leung CPS, et al. Patients’ and clinicians’ expectations on integrative medicine Services for Diabetes: a focus group study. *BMC Complement Med Ther*. 2020;20:205.
32. Halperin IJ, Mukerji G, Maione M, et al. Adult patient perspectives on care for type 1 and type 2 diabetes across the institute of medicine’s 6 domains of quality. *Can J Diabetes*. 2018;42:36–43.
33. Vachon B, Huynh AT, Breton M, et al. Patients’ expectations and solutions for improving primary diabetes care. *Int J Health Care Qual Assur*. 2017;30:554–567.
34. Jacklin KM, Henderson RI, Green ME, Walker LM, Calam B, Crowshoe LJ. Health care experiences of indigenous people living with type 2 diabetes in Canada. *CMAJ*. 2017;189:E106–E112.
35. Gadsby R, Fargher L, Dunn L, Young B. Measuring patient experience in diabetes care in England and Wales: proof of concept from the patient experience of diabetes services (PEDS) pilot. *Br J Diabetes*. 2017;17:11–13.
36. Boyle E, Saunders R, Drury V. A qualitative study of patient experiences of type 2 diabetes care delivered comparatively by general practice nurses and medical practitioners. *J Clin Nurs*. 2016;25(13–14):1977–1986.
37. Oberg EB, Bradley R, Hsu C, et al. Patient-reported experiences with first-time naturopathic care for type 2 diabetes. *PLoS One*. 2012;7: e48549.
38. Alazri MH, Neal RD, Heywood P, Leese B. Patients’ experiences of continuity in the care of type 2 diabetes: a focus group study in primary care. *Br J Gen Pract*. 2006;56:488–495.
39. Clementi PS. Patient Expectations During Health Care Encounters Theory: a Grounded Theory Study. Chicago: Loyola University Chicago; 2006.
40. Naithani S, Gulliford M, Morgan M. Patients’ perceptions and experiences of ‘continuity of care’ in diabetes. *Health Expect*. 2006;9:118–129.
41. Lawton J, Parry O, Peel E, Douglas M. Diabetes service provision: a qualitative study of newly diagnosed Type 2 diabetes patients’ experiences and views. *Diabet Med*. 2005;22:1246–1251.
42. Hornsten A, Lundman B, Selstam EK, Sandstrom H. Patient satisfaction with diabetes care. *J Adv Nurs*. 2005;51:609–617.
43. Andrews KS. Assessment of Exceeding Patient Expectation in Healthcare at a Naval Medical Center. San Diego: United States International University; 1995.
44. Davis LA. A Phenomenological Study of Patients’ Expectations Concerning Nursing Care. Texas: Texas Woman’s University; 2003.
45. Sharts-Hopko NC, Smeltzer S, Ott BB, Zimmerman V, Duffin J. Healthcare experiences of women with visual impairment. *Clin Nurse Spec*. 2010;24:149–153.
46. Crossland MD, Gould ES, Helman CG, Feely MP, Rubin GSJVIR. Expectations and perceived benefits of a hospital-based low vision clinic: results of an exploratory, qualitative research study. *J Visual Impair Res*. 2007;9(2–3):59–66.
47. Dawn AG, Freedman SF, Lee PP, Enyedi LB. Parents’ expectations regarding their children’s eye care: interview results. *Am J Ophthalmol*. 2003;136:797–804.

48. Dawn AG, McGwin G Jr, Lee PP. Patient expectations regarding eye care: development and results of the eye care expectations survey (ECES). *Arch Ophthalmol*. 2005;123:534–541.
49. Dawn AG, Santiago-Turla C, Lee PP. Patient expectations regarding eye care: focus group results. *Arch Ophthalmol*. 2003;121:762–768.
50. Cross V, Leach CM, Fawkes CA, Moore AP. Patients' expectations of osteopathic care: a qualitative study. *Health Expect*. 2015;18:1114–1126.
51. Juhnke C, Mühlbacher AC. Patient-centredness in integrated healthcare delivery systems – Needs, expectations and priorities for organised healthcare systems. *Int J Integr Care*. 2013;13:e051.
52. Miller EG. Clients' Expectations of Public Health Nurses' Home Visits. San Diego: University of San Diego; 2006.
53. Janzen JA, Silvius J, Jacobs S, Slaughter S, Dalziel W, Drummond N. What is a health expectation? Developing a pragmatic conceptual model from psychological theory. *Health Expect*. 2006;9:37–48.
54. Liu Q, Zhou W, Niu L, et al. Comparison of expectations for health services between inpatients from mental health department and endocrinology department In China. *Patient Prefer Adherence*. 2019;13:1851–1860.
55. Kurne S. Examining Patient Expectations of Hospitality Services in a Private Hospital in Nairobi. Johannesburg: University of Johannesburg; 2020.
56. Najafi Kalyani M, Illon Kashkooli R, Molazem Z, Jamshidi N. Qualitative inquiry into the patients' expectations regarding nurses and nursing care. *Adv Nurs*. 2014;2014:647–653.
57. van Eijk-Hustings Y, Ammerlaan J, Voorneveld-Nieuwenhuis H, Maat B, Veldhuizen C, Repping-Wuts H. Patients' needs and expectations with regard to rheumatology nursing care: results of multicentre focus group interviews. *Ann Rheumatic Dis*. 2013;72:831–835.
58. Lakin K, Kane S. Peoples' expectations of healthcare: a conceptual review and proposed analytical framework. *Soc Sci Med*. 2022;292:114636.
59. Taylor M, Hill S. *Consumer Expectations and Healthcare in Australia*. Deakin West: Australian Healthcare and Hospitals Association; 2014.
60. Chen C, Song J, Xu X, Zhou L, Wang Y, Chen H. Analysis of influencing factors of economic burden and medical service utilization of diabetic patients in China. *PLoS One*. 2020;15:e0239844.
61. Nozimakhon K. Psychological features of personal attitude to diabetes disease. *Am J Soc Sci Educ Innov*. 2023;5:104–112.
62. Braun A, Donner TH. Adaptive biasing of action-selective cortical build-up activity by stimulus history. *Elife*. 2023;12:R86740.
63. Laferton JA, Kube T, Salzmann S, Auer CJ, Shedden-Mora MC. Patients' expectations regarding medical treatment: a critical review of concepts and their assessment. *Front Psychol*. 2017;8:233.