

Online Health Information Seeking Behavior Among Patients with Diabetes: The Mechanisms of Information Overload, Perceived Risk, and Health Anxiety

Ya Shao¹, Yu Wang¹, Yu Hua¹, Xu Zhou¹, Huiqin Zhong^{2*}

¹Health Management Center, Wudangshan Branch, TaiHe Hospital, Hubei University of Medicine, Shiyan 442000, Hubei, China

²Innovation Center of Nursing Research, TaiHe Hospital, Hubei University of Medicine, Shiyan 442000, Hubei, China

*Corresponding author: Huiqin Zhong, zhq66077@163.com

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To explore the characteristics of online health information seeking behavior among diabetic patients, identify its influencing factors, and reveal the underlying mechanisms, thereby providing a theoretical basis for optimizing health information service platforms and enhancing patients' information literacy. *Methods:* A mixed-methods research design was employed. First, qualitative analysis through in-depth interviews (n = 15) was conducted to examine diabetic patients' online information-seeking processes, exploring how antecedent factors such as information overload and perceived risk influence patients' information-seeking behavior through the mediating role of health anxiety. Second, through literature analysis and theoretical derivation, an integrated model of online health information-seeking behavior among diabetic patients was constructed based on the CAC (Cognitive-Affective-Behavioral) theoretical framework. *Results:* The study identified four key characteristics of patients' online information-seeking: (1) Information-seeking is multifaceted and progressive, evolving from symptom recognition to disease management needs; (2) Patients commonly face information overload dilemmas, struggling to distinguish information authenticity and quality, with significant advertising interference; (3) Perceived risks (medical pitfalls, privacy breaches) and information overload mutually reinforce each other, triggering health anxiety; (4) Health anxiety simultaneously drives active information-seeking and leads to over-reliance and decision difficulties. The proposed integrated model indicates that information environment quality, patient information literacy, and platform design are three critical factors influencing information-seeking efficacy. *Conclusion:* The transition of patients from passive recipients of medical guidance to active self-managers is an important global health trend; however, this transition faces structural barriers. Optimizing the online health information ecosystem, enhancing patient information literacy, and establishing information credibility assessment mechanisms are important pathways to improve patients' information-seeking efficacy.

Keywords: Diabetic patients; Online health information seeking; Information overload; Perceived risk; Health anxiety; Mixed-methods research

Online publication: Jun 30, 2026

1. Introduction

Diabetes has become a global public health problem. According to the latest data from the International Diabetes Federation (IDF), there were approximately 589 million diabetic patients worldwide in 2024, with projections reaching 783 million by 2050 ^[1]. China, as the country with the largest number of diabetic patients globally, had over 126 million diabetic patients in 2020, ranking first in the world ^[2]. The chronic nature of diabetes necessitates long-term disease self-management by patients, which involves not only medical adherence but, more importantly, the accumulation of patient knowledge and health decision-making capacity ^[3].

In the era of digital healthcare, the Internet has become an important channel for patients to obtain health information. Research demonstrates that over 70% of diabetic patients actively seek disease-related information through web searches, social media, health applications, and other channels ^[4]. Patients' active information-seeking behavior transforms them from passive subjects of medical intervention to active participants in health management, a role transition that contributes to enhanced health literacy and self-management efficacy ^[5]. However, the complexity of the online information environment brings concurrent challenges--uneven information quality, widespread medical misinformation, and pervasive advertising interference create unprecedented "information overload" dilemmas for patients ^[6].

Current research primarily focuses on analyzing the motivations and sources of information-seeking, but an in-depth understanding of the psychological barriers, risk perceptions, and emotional responses that patients encounter during information-seeking processes remains insufficient. Particularly in the Chinese context, there is a lack of systematic research on the online health information-seeking behavior of diabetic patients. Therefore, the core research questions addressed in this study are: How do diabetic patients make decisions under the dual pressure of information overload and perceived risk during their online health information-seeking processes? What mediating role does health anxiety play in this dynamic?

Based on the Cognitive-Affective-Conative (CAC) integrated framework, this study positions information overload and perceived risk as antecedent factors in patients' information-seeking behavior, introduces health anxiety as an affective mediating variable, and systematically explores how these factors interact to influence patients' online information-seeking behavior and decision-making quality. Through a mixed-methods research design combining qualitative interviews with theoretical analysis, this study aims to develop an in-depth understanding of patients' lived experiences and psychological mechanisms, ultimately providing evidence for optimizing health information services and improving patients' information acquisition experiences.

2. Literature review and theoretical framework

Health information seeking is a process by which patients actively acquire, evaluate, and utilize health information to address health problems ^[7]. In the era of widespread internet access, patients increasingly tend to seek health information online, a phenomenon particularly pronounced among patients with chronic diseases ^[8]. Diabetes, as a globally prevalent metabolic disease, confronts patients with sustained pressures of self-management and treatment decision-making, creating persistent and urgent needs for health information ^[9].

This study employs an integrated CAC framework to explain patients' online health information-seeking behavior. The cognitive dimension focuses on patients' understanding and evaluation of disease, treatment options, and information sources; the affective dimension emphasizes psychological factors such

as health anxiety and perceived risk in driving information seeking ^[10]. The behavioral dimension manifests in concrete strategies and decision-making patterns patients employ during information seeking. This framework effectively integrates patients' rational cognition, affective needs, and actual behavior, providing a comprehensive perspective for understanding the complex information-seeking process.

In the specific manifestations of information seeking, patients frequently encounter core challenges including information overload, perceived risk, and health anxiety ^[11]. Information overload refers to situations where the volume of information obtained through online searches exceeds patients' processing capacity, leading to decision difficulty; perceived risk reflects patients' concerns about the accuracy and safety of online health information; health anxiety stems from fears of disease progression and uncertainty. These three factors interact to influence patients' ultimate decisions and behaviors ^[12]. A deeper understanding of these factors and their interactive mechanisms contributes to improving patient education strategies and the design of medical information services.

3. Research methods

This study employed a qualitative research design to obtain authentic insights into how patients with diabetes seek online health information. Using purposive sampling, we recruited 20 participants diagnosed with type 1 or type 2 diabetes, aged 18-65 years, who were able to clearly articulate their experiences with online health information seeking. Participants came from diverse geographical locations, educational backgrounds, and disease progression stages to ensure sample diversity and representativeness.

Data collection was conducted through semi-structured in-depth interviews, each lasting 45-90 minutes, structured around four core dimensions:

- (1) Patients' information needs and seeking frequency;
- (2) Cognitive assessment during the information-seeking process, such as evaluating source credibility and content relevance;
- (3) Emotional experiences, such as health anxiety and perceived information overload; and
- (4) Final decision-making behaviors and healthcare choices ^[13]. All interviews were audio-recorded with participants' consent and subsequently transcribed verbatim.

Data analysis employed thematic analysis methodology with a three-stage iterative coding process ^[14]: First, open coding was conducted to extract primary concepts from the data line-by-line; second, axial coding was performed to cluster related concepts into sub-themes; and third, selective coding was applied to integrate themes within the CAC theoretical framework, constructing a comprehensive model of patients' information-seeking behaviors. To ensure research credibility, triangulation was employed by inviting three independent researchers to independently re-code portions of the data and compare coding consistency ^[15]. The entire process complied with ethical standards, with institutional review board approval obtained, and all participants provided informed consent. Interview data were anonymized during analysis.

4. Qualitative findings

4.1. Cognitive dimension: Tension between information needs and information overload

Interview data reveal that patients with diabetes face significant cognitive challenges in seeking online health information. Patients commonly expressed the need to acquire professional knowledge about blood glucose

control, complication prevention, and medication guidance, but frequently encountered information overload during their search processes ^[16]. One patient noted: “There is so much information about diabetes online, and some of it contradicts each other. I simply don’t know which source to trust”. This reflects the difficulty patients experience in effectively processing information from multiple sources.

The research reveals that patients’ information needs demonstrate stage-specific characteristics: during the initial diagnosis period, demand for basic knowledge is most urgent, whereas in long-term management phases, patients focus more on personalized dietary and exercise recommendations. However, existing online information resources tend to be presented in generalized forms, failing to meet patients’ stratified needs. Patients prefer to filter information through doctor recommendations, patient forums, and official medical websites, yet the consistency and authority of these channels remain variable ^[17].

4.2. Affective dimension: Perceived risk and the drivers of health anxiety

Affective factors play a pivotal role in patients’ information-seeking behaviors. During interviews, most patients expressed concerns about complications and uncertainty regarding treatment efficacy. This perceived risk directly drives patients’ active search for online information. One patient stated: “Whenever I see that a certain organ might develop problems, I immediately search online, wanting to understand more”.

However, frequent information seeking often intensifies patient health anxiety. Interview data demonstrates that patients encountering negative cases or descriptions of severe complications online reinforce their perception of disease risk, subsequently creating a vicious cycle of anxiety-seeking-anxiety. Consequently, some patients adopt “information avoidance” strategies, deliberately reducing their attention to disease-related information to protect their psychological well-being ^[18].

Patients’ emotional states are closely associated with their choice of information sources. When anxious, patients are more likely to believe patient experience narratives that resonate emotionally; when thinking rationally, they place greater trust in medical professionals’ advice. This indicates that the interactive effects between affect and cognition shape patients’ information-seeking preferences.

4.3. Behavioral dimension: Multi-channel information seeking and decision-making actions

At the behavioral level, patients’ online health information seeking demonstrates multi-channel and multi-strategy characteristics. Primary information channels include search engines, medical specialty websites, patient communities, and social media. Among these, Baidu and Weibo patient communities are the most frequently used channels, though patients’ trust in their information authenticity varies considerably.

The research identifies three categories of actions patients take based on information-seeking results: First, verification actions, by comparing online information with doctor advice, increasing treatment confidence when they align; Second, adjustment actions, such as modifying diet or exercise plans based on online information, though most patients consult their doctors before implementation; Third, delay actions, collecting information but postponing action pending doctor guidance.

Notably, there is a positive correlation between patients’ information-seeking behaviors and the quality of doctor-patient communication. When patients are satisfied with their communication with physicians, the frequency of online information seeking is relatively lower, though searches are more targeted. This highlights the importance of healthcare providers improving their communication approaches.

Integrating findings across these three dimensions, patients' online health information-seeking behavior is not merely a cognitive process, but rather a complex phenomenon in which cognition, affect, and behavior are deeply interwoven. The CAB framework provides robust theoretical support for understanding this phenomenon.

5. Discussion and recommendations

This study reveals the complex mechanisms underlying online health information-seeking behavior among patients with diabetes through qualitative analysis. The CAB framework effectively explains the entire process from patients' cognitive needs, affective drivers, to behavioral decisions ^[19]. The study findings resonate with existing literature while presenting unique, novel insights.

At the cognitive level, the information overload problem faced by patients stems not only from abundant online resources but also from variations in patients' own information literacy and diversity in disease understanding. Compared to the general population, chronic disease patients' information search exhibits stronger goal-directedness and anxiety-driven characteristics ^[20]. This suggests that healthcare institutions should proactively provide professionally reviewed, targeted health information resources rather than passively waiting for patients to conduct independent searches.

At the affective level, the "information-seeking loop" formed by perceived risk and health anxiety deserves attention. Patients may encounter non-standard or even erroneous medical information during their search process, which further intensifies anxiety and drives more frequent searching--forming a potentially vicious psychological cycle ^[21]. Therefore, psychological interventions and information guidance should proceed in parallel.

At the behavioral level, multi-channel information-seeking strategies reflect patients' rational judgment--using cross-verification to circumvent biases from single information sources. However, the efficiency issue of this process cannot be overlooked: many patients spend excessive time on information discrimination rather than on disease self-management ^[22].

Practical Recommendations:

- (1) At the clinical level, healthcare professionals should recognize the inevitability of patients' online information-seeking and establish professional guidance mechanisms rather than simply prohibiting such behavior;
- (2) At the platform level, internet healthcare platforms should establish medical information review and stratification systems that emphasize authoritative sources;
- (3) At the policy level, health literacy education should be integrated into primary healthcare service systems to enhance patients' information discrimination capabilities ^[23].

Funding

Hubei Provincial Department of Education (Project No.: 24Q186, 24Q192)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] International Diabetes Federation, 2025, IDF Diabetes Atlas, 11th Edition.
- [2] Saeedi P, Petersohn I, Salpea P, et al., 2019, Global and Regional Diabetes Prevalence Estimates for 2019 and Projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th Edition. *Diabetes Research and Clinical Practice*, 157: 107843.
- [3] Misra S, Khunti K, Goyal A, et al., 2025, Managing Early-Onset Type 2 Diabetes in the Individual and at the Population Level. *Lancet*, 405(10497): 2341–2354.
- [4] Zeng R, Li Y, 2023, Meta-Analysis of the Relationship Between Self-Efficacy and Online Health Information Seeking. *Advances in Psychological Science*, 31(4): 535–551.
- [5] Han J, Fan W, Luo X, et al., 2018, Research Progress on the Impact of Users' Health Information-Seeking Behavior on Health Behaviors. *Information and Documentation Work*, 2018(2): 48–55.
- [6] Wang M, Zhou C, Lin G, 2021, A Review of Research on the Impact of Online Health Information-Seeking Behavior. *Knowledge Management Forum*, 6(3): 158–166.
- [7] Ming Y, Matteson M, Zhang Y, 2026, Relationship Between Online Health Information Acquisition and Shared Decision-Making Among Patients with Diabetes: Cross-Sectional Survey Study. *Journal of Medical Internet Research*, 28: e86137.
- [8] Hwang H, Kim N, You J, et al., 2025, Harnessing Social Media Data to Understand Information Needs About Kidney Diseases and Emotional Experiences with Disease Management: Topic and Sentiment Analysis. *Journal of Medical Internet Research*, 27: e64838.
- [9] Pengpid S, Peltzer K, 2024, Prevalence and Associated Factors of Depressive Symptoms Among Older Adults in the Philippines. *Actas Esp Psiquiatr*, 52(5): 705–715.
- [10] Chen J, Duan Y, Xia H, et al., 2025, Online Health Information Seeking Behavior Among Breast Cancer Patients and Survivors: A Scoping Review. *BMC Women's Health*, 25(1): 1.
- [11] Sundell E, Wångdahl J, Grauman Å, 2022, Health Literacy and Digital Health Information-Seeking Behavior - A Cross-Sectional Study Among Highly Educated Swedes. *BMC Public Health*, 22(1): 2278.
- [12] Jia C, Li P, 2024, Generation Z's Health Information Avoidance Behavior: Insights from Focus Group Discussions. *Journal of Medical Internet Research*, 26: e54107.
- [13] Wong K, Wong K, O'Brien B, et al., 2026, Reflexive Thematic Analysis. *Academic Medicine*, 101(6): 737–738.
- [14] Bodenstein T, Kemmerling A, Kemmerling A, et al., 2026, Taking Stock of Qualitative Methods of Evaluation: A Study of Practices and Quality Criteria. *Evaluation Review*, 50(1): 89–115.
- [15] Pong C, Roberts N, Lum E, 2024, The “What, Why, and How?” of Story Completion in Health Services Research: A Scoping Review. *BMC Medical Research Methodology*, 24(1): 159.
- [16] Kishore Kumar C, Premaraja R, Arulraja S, et al., 2026, Scope and Prospects of Social Media for Patient Education and Engagement in Medical Practice. *Cureus*, 18(4): e106411.
- [17] Bendig E, Bauereiß N, Ebert D, et al., 2018, Internet-Based Interventions in Chronic Somatic Disease. *Deutsches Ärzteblatt International*, 115(40): 659–665.
- [18] Andrade A, Di Girolamo Martins G, Scatena A, et al., 2022, The Effect of Psychosocial Interventions for Reducing Co-Occurring Symptoms of Depression and Anxiety in Individuals with Problematic Internet Use: A Systematic Review and Meta-Analysis. *International Journal of Mental Health and Addiction*, (online): 1–22.
- [19] Last B, Schriger S, Timon C, et al., 2021, Using Behavioral Insights to Design Implementation Strategies in Public Mental Health Settings: A Qualitative Study of Clinical Decision-Making. *Implementation Science*

Communications, 2(1): 6.

- [20] Ou Z, Wei J, Guo Y, et al., 2026, Information Overload, Cognitive Fusion, and Health Literacy Among Individuals with Type 2 Diabetes: A Moderated Network Analysis. *Scientific Reports*, 16(1): 4203.
- [21] McMullan R, Berle D, Arnáez S, et al., 2019, The Relationships Between Health Anxiety, Online Health Information Seeking, and Cyberchondria: Systematic Review and Meta-Analysis. *Journal of Affective Disorders*, 245: 270–278.
- [22] Soroya S, Farooq A, Mahmood K, et al., 2021, From Information Seeking to Information Avoidance: Understanding the Health Information Behavior During a Global Health Crisis. *Information Processing & Management*, 58(2): 102440.
- [23] Karamitros G, Karamitrou I, Grant M, et al., 2025, The Intersection of Quality and Readability in Online Health Information: Implications for Patient Education—A Critical Perspective. *Dermatologic Surgery*, 51(6): 653–654.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.