Postprint: Factors Influencing the Formation of Non-use of Online Health Information Services among Older Adults under the CAC Paradigm

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Abstract

[目的/意义] To investigate the formation mechanism of elderly users' negative usage of online health information services, and to provide reference suggestions for operators and management practitioners of online health platforms. [方法/过程] Employing the "Perception-Emotion-Behavior Intention" paradigm and integrating Cognitive Load Theory and Perceived Value Theory, this study explores the occurrence mechanism of anxiety and avoidance/withdrawal behaviors among elderly users of online health platforms, explaining the influencing mechanism between elderly users' perceived emotions, emotional manifestations, and negative behavioral outcomes. [结果/结论] Research results indicate that perceived cost, information overload, and service overload have significant positive effects on elderly users' anxiety, which in turn leads to negative usage behavioral intentions of avoidance and withdrawal. However, perceived risk and system overload have no significant effect on elderly users' anxiety.

Full Text

Research on the Formation and Influencing Factors of Negative Use of Online Health Information Services for the Elderly Under the CAC Paradigm

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Abstract

[**Purpose/Significance**] This study aims to explore the formation mechanism of negative use behaviors among elderly users of online health information services, providing reference suggestions for practitioners in online health platform operations and management. [**Method/Process**] Using the "Cognition-Affect-Conation" (CAC) paradigm, combined with cognitive load theory and perceived value theory, this research investigates the mechanism of anxiety and avoidance/withdrawal behaviors among elderly users of online health platforms, explaining the influence mechanism between elderly users' perceived emotions, emotional expression, and negative behavioral outcomes. [**Result/Conclusion**] The results show that perceived cost, information overload, and service overload have significant positive effects on elderly users' anxiety, which in turn leads to negative use intentions such as avoidance and withdrawal behaviors. However, perceived risk and system overload have no significant effects on elderly users' anxiety.

Keywords: CAC paradigm; elderly; health information services; negative use
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With the deep integration of the Internet and traditional healthcare fields, the online health information service industry has grown increasingly robust. Online health information services help users conduct scientific health management and enable instant communication between doctors and patients, significantly saving time and economic costs in medical resource utilization. The tremendous impact of the COVID-19 pandemic in 2020 led to rapid expansion of online channels for health platforms, with user demand for health information services becoming more oriented toward online platforms. Statistics show that by December 2020, the user base of online health information service platforms in China reached 215 million, accounting for 21.7% of all internet users [1].

Online health information service platforms are dedicated to providing medical health information and services to users, such as medical health websites, online health communities, health apps, and official accounts. The elderly population has a relatively large demand for health medical services, and promoting their use of online health services helps improve their health information literacy while also being crucial for their self-health management. However, when facing the digital divide, elderly people are easily "marginalized" and may develop technological anxiety or avoidance psychology toward device operation [4], avoiding unfamiliar content and functions [5]. In December 2020, the General Office of the State Council urgently issued the "Implementation Plan for Effectively Solving the Difficulties of Elderly People in Using Smart Technology" [6], aiming to provide necessary aging-friendly transformations for elderly people's technology use.

Population aging has gradually become a common global development issue. The "China Development Report 2020: Trends and Policies of Population Ag-

ing in China" predicts that by 2050, China's population aged 60 and above will approach 500 million, exceeding one-third of the total population [2], clearly entering an "aged society." To improve elderly medical care levels, the state has successively issued important documents such as the "Smart Healthy Aging Industry Development Action Plan (2017-2020)" [3], vigorously promoting information technology applications and health information services to support healthy aging development. Notably, avoidance and withdrawal behaviors that elderly people exhibit when facing online health information services constitute negative use behaviors. Clarifying the internal mechanism of such negative behaviors among elderly users of online health information services is therefore extremely necessary.

This study draws on the "Cognition-Affect-Conation" (CAC) paradigm, combined with cognitive load theory and perceived value theory, to construct a research model that explores the main factors influencing elderly people's negative use behaviors in online health information services. This approach not only reflects the humanistic dimension of scientific research but also provides valuable countermeasures and suggestions for platform practitioners.

2 Related Research Status

2.1 Research Status on Elderly Health Information Behavior

Compared with other user groups, elderly people have more urgent health information needs, focusing more on medical care, mental health, and nutritional information [7]. The main factors influencing elderly people's online health information acquisition include behavioral subjects, information objects, and social environments. Behavioral subject factors involve demographics and health information literacy [8]; information object factors center on information content itself, such as information quality; information technology factors mainly involve social networks and e-health technologies; and social environmental factors include economic level, spatial distance, and social support. Additionally, elderly people primarily obtain online health information through search engines, medical health websites, and social networking sites [9]. Many elderly people's ability to acquire and judge quality health information is concerning, with low-education elderly generally having lower cognitive and information search capabilities [10], and those in poor health experiencing difficulties in searching for, screening, and using health information.

Scholars have employed various theoretical models to analyze factors influencing elderly people's online health information adoption behavior. For example, Y. Zhao et al. conducted a meta-analysis based on 35 relevant empirical studies, finding that perceived ease of use, perceived vulnerability, and perceived severity are important factors affecting elderly people's online health information adoption [11]. G. Fox and R. Connolly applied protection motivation theory and social cognitive theory to explore driving factors of elderly people's resistance psychology, proposing suggestions to narrow the online health digital divide

through inclusive design and literacy education [12].

2.2 Research Status on Negative Use Information Behavior

Negative use information behavior currently lacks a unified definition. Some studies define social media users' negative behaviors as users' attempts to prevent information system use [13], while others consider negative use behaviors as opposition behaviors triggered by changes in information system use [14]. Reviewing existing literature reveals that users' negative use behaviors in internet environments manifest in varying degrees, specifically including: reducing usage frequency, suspending/interrupting use, switching to other platforms, exiting/discontinuing use, etc. Research has further categorized negative behaviors on social media into resistance, avoidance, lurking, intermittent discontinuance, withdrawal, and endurance [15-16].

Current research has begun exploring users' negative behavior patterns, formation mechanisms, and influencing factors. For instance, S. Zhang et al. [17] verified, based on the S-O-R framework and from an overload perspective, that users' burnout emotions are positively and significantly correlated with discontinuance intention. T. Ravindran et al. [18] studied Facebook users' information behaviors, finding that negative emotions such as fatigue positively and significantly affect negative use behaviors, with increased fatigue ultimately leading to abandonment of social media use. M. Takahashi et al. [19] explored lurking behavior under negative use states, where users browse needed content without creating content. In health information avoidance research, some scholars conducted semi-structured interviews with college students [20]; in resistance research on elderly users, studies mainly employed "human-system interaction theory" to conclude that elderly people's resistance to mobile social media primarily involves personal information literacy, usage expectations, and familiarity preferences [21].

In summary, current research on online negative use behaviors still lacks exploration results regarding online health information service platforms, while user characteristic behaviors on different network platforms show considerable differences, requiring targeted platform types. Moreover, existing research results mostly focus on elderly people's health information needs and positive adoption behaviors like searching and adoption, paying less attention to their negative use behaviors in online health information services. As a vulnerable group in the digital era, elderly people are more sensitive to perceived technology limitations, more easily triggered by negative emotions, and exhibit more typical negative use behavior types, thus requiring in-depth analysis of their formation mechanisms and influencing factors.

3 Theoretical Basis and Research Hypotheses

This study introduces the "Cognition-Affect-Conation (CAC)" paradigm as a theoretical model framework from the subjective personal perspective of elderly

users, combined with cognitive load theory and perceived value theory. This approach helps understand elderly people's online health information behavior from the process perspective of personal subjective cognition, emotion formation, and behavioral tendency.

The CAC model consists of three elements: "cognition," "affect," and "conation." As an important research conclusion in cognitive psychology, it explains the influence mechanism between users' perceived emotions, emotional experience, and behavioral results. Cognition represents subjective personal experience based on individual traits, cognition, and experience; affect represents emotional expression formed based on cognition; and conation represents the final behavioral tendency under the combined effect of cognition and affect. This paradigm indicates that users' information behavior intentions are jointly affected by personal perception and emotion [22], with scholars having built models based on the "CAC" paradigm to summarize that privacy concerns on social media platforms play a mediating role in the formation process of social media fatigue [23]. As an emotionally sensitive population and a major group demanding health information, elderly people's perception of the information environment affects their health information behavior. When perceiving overload, cognitive load triggers negative emotions such as burnout and anxiety. As a relatively strong and common emotional response among elderly people, anxiety may lead to a series of negative behaviors like avoidance and withdrawal. Therefore, this study primarily considers the mediating role of anxiety emotion in negative behaviors.

3.1 Perceived Value and Anxiety Emotion

Online health platform users' perceived value of health information services is closely related to their health decision-making behaviors. Perceived value represents users' overall utility evaluation of service attributes. According to perceived value theory, perceived cost is the cost users feel during service acceptance, representing an important characterization factor of perceived value [24], while perceived risk is also a main factor affecting user behavior [25]. From the perspective of perceived sacrifice, when elderly people perceive that acquired health information cannot bring value to themselves, it causes negative emotions, leading to resistance or withdrawal behaviors. This study divides perceived value into two dimensions: perceived cost and perceived risk.

3.1.1 Perceived Cost and Anxiety Emotion Perceived value theory indicates that perceived cost significantly affects perceived value [26]. Perceived cost includes economic cost and time cost. Due to elderly people's limitations in personal technical ability and cognitive level, using online health information requires continuous expenditure of time, energy, and money. Compared with traditional medical consultation models, various costs perceived from technological environment changes can easily cause personal avoidance behaviors [27], thereby triggering negative emotions like anxiety. Therefore, the following

hypothesis is proposed:

H1: Perceived cost positively affects elderly users' anxiety emotion.

3.1.2 Perceived Risk and Anxiety Emotion Perceived risk represents users' subjective judgment that online health information services themselves or their behaviors may bring negative results. Perceived risk includes false health information, privacy concerns, privacy leakage, and online payment security, representing one of the important factors affecting elderly people's use of online health information services [21]. When facing uncertainties about the authenticity of online health information sources and doctors' qualifications, these easily become major concerns for elderly people using online health information services. When perceiving reliability risks in health information, anxiety emotions emerge. Therefore, the following hypothesis is proposed:

H2: Perceived risk positively affects elderly users' anxiety emotion.

3.2 Perceived Overload and Anxiety Emotion

According to cognitive load theory, users consume cognitive resources in knowledge learning and problem-solving. When consumed cognitive resources exceed the total working memory resources, cognitive overload occurs [28]. Perceived overload represents individuals' subjective judgment that objective things' quantity and content exceed their processing capacity [29]. Existing research confirms that an information gap exists between network information and humans' limited cognition and processing capacity, with online platform users easily experiencing physiological or psychological pressure and tension during use, thereby triggering anxiety emotions [16]. When searching for, acquiring, and using health information, elderly people are easily affected by information overload, system overload, and service overload, triggering emotional exhaustion manifested as negative emotions [18]. Therefore, this study divides perceived overload into three dimensions: perceived information overload, perceived system overload, and perceived service overload.

3.2.1 Perceived Information Overload and Anxiety Emotion Information overload includes two dimensions: information redundancy and information quality decline [30]. Information redundancy mainly manifests as complex and repetitive content, while information quality decline manifests as low-quality and false information. Overload health information triggers confusion and worry about health conditions. Research finds that users perceiving higher degrees of information overload experience greater health pressure [31], especially for elderly people with declining physical function and memory who find it more difficult to understand and digest complex information, affecting their screening and identification of health information, increasing usage pressure, and thereby triggering anxiety emotions. Therefore, the following hypothesis is proposed:

H3: Perceived information overload positively affects elderly users' anxiety emotion.

3.2.2 Perceived System Overload and Anxiety Emotion Perceived system overload refers to users' perception of functional redundancy and increased system usage complexity in information products. Research finds that online health platforms' system functions significantly affect users' intention to adopt health information, specifically manifested as complex system interfaces, excessive functions, and complicated operations [32], which increase users' usage costs and trigger negative emotions [33]. For elderly groups who are not proficient in information skills, perceiving complex functions and interfaces and mobile applications' stability vulnerability (such as lagging, black screens, and crashes) affects elderly people's perceived ease of use, thereby triggering anxiety emotions. Therefore, the following hypothesis is proposed:

H4: Perceived system overload positively affects elderly users' anxiety emotion.

3.2.3 Perceived Service Overload and Anxiety Emotion Online health information service overload mainly manifests as untimely service, poor quality, and forced services. Elderly people are cautious about using online health information, while frequent service recommendations, advertisements, and excessive service content affect their smooth usage, increasing usage concerns and causing cognitive load. According to cognitive load theory, when service overload conflicts with elderly people's limited cognitive resources, anxiety emotions are triggered. Therefore, the following hypothesis is proposed:

H5: Perceived service overload positively affects elderly users' anxiety emotion.

3.3 Anxiety Emotion and Negative Use Behavior

Changes in user emotions have very important effects on usage behavior, with adverse negative emotions having more direct effects on negative behavior generation. Existing research confirms that anxiety emotions cause users to avoid or reduce network usage frequency, exhibiting avoidance behaviors [34]. When online health information systems trigger excessive anxiety emotions, users reduce usage frequency due to discomfort. Different degrees of adverse emotions manifest as different types of negative behaviors, with research finding that adverse emotions are the main determinant of users' information blocking intention [35]. For elderly people, common negative behaviors include no longer using online health information services, exiting online health communities, uninstalling health mobile apps, and unsubscribing from health official accounts. This study conceptualizes negative use behaviors as avoidance behavior and withdrawal behavior. Therefore, the following hypotheses are proposed:

H6: Elderly users' anxiety emotion positively affects avoidance behavior.
H7: Elderly users' anxiety emotion positively affects withdrawal behavior.

Based on the above hypotheses, this study constructs a research model of elderly people's negative use behaviors in online health information services, as shown in [Figure 1: see original paper].

4 Research Design and Methods

4.1 Questionnaire Design

This study's questionnaire mainly consists of two modules: basic user information and main body. The basic user information includes three parts: basic demographic characteristics of elderly people (age, gender, education level, living situation, etc.); personal health and medical conditions (disease status, medical treatment, medical payment methods, etc.); and internet usage (internet frequency, proficiency, whether they have used online health information services, etc.).

The main body primarily selects and adapts from mature scales with good construct validity, as detailed in . To ensure scientific validity and effectiveness, 36 elderly people participated in a pre-test interview before formal distribution. To ensure elderly people's full understanding of each question, the pre-survey questionnaire's item structure, logical jumps, and question expressions were appropriately adjusted, resulting in the final formal survey questionnaire with 31 items.

4.2 Questionnaire Distribution and Recovery

The survey targets elderly people aged 60 and above who are cognitively clear and capable of independent thinking. Due to the special nature of the respondents, both self-administered and proxy-administered methods were combined through online and offline distribution. To ensure elderly people could better understand questionnaire content, guarantee completeness and validity, and improve recovery quality, sufficient explanations (including item content, connotations, and filling rules) were provided to respondents and proxy fillers. Online questionnaires were distributed as links on the Wenjuanxing platform through mainstream social media platforms like WeChat, Weibo, and Douban. Offline questionnaires were distributed by visiting community activity centers, senior activity rooms, and urban libraries.

The research team officially distributed questionnaires on November 20, 2020, concluding on February 28, 2021. After more than three months of distribution and recovery, 234 questionnaires were recovered. Invalid questionnaires with mismatched ages, wrong answers, missing answers, or extreme responses were excluded, retaining 176 valid questionnaires.

Survey results show that among respondents, females (59.66%) slightly outnumbered males (40.34%), with ages concentrated in the 60-70 age bracket, mostly living with family. Over 50% held positions as civil servants, state-owned enterprise/institution employees, or medical workers, with monthly disposable

income mostly above 3,000 yuan (81.82%). Elderly people's daily expenses ranked as food, daily necessities, and medical care, with most expressing relatively high concern for medical health information (59.89%). Smart devices now bring many conveniences to elderly people's daily lives, with many able to use mobile phones or computers for chatting, shopping, entertainment, and social networking. Notably, most respondents spent more than 2 hours online daily (55.04%). However, elderly people's main channels for obtaining health information remained medical institutions and healthcare professionals (69.32%), followed by news media. While most elderly people who had not used online health information services expressed understanding of such services (78.65%) and interest/willingness to use them (48.74%), some indicated unwillingness due to illiteracy, technical barriers, or vision problems, with some stating they only seek medical care when symptoms appear and do not maintain health information attention when healthy (26.14%).

5 Data Testing and Results

5.1 Reliability and Validity Testing

The questionnaire's overall Cronbach's α values and those of all factors exceeded 0.7. As shown in , all factor loadings for items corresponding to model latent variables exceeded 0.7, and composite reliability (CR) values also exceeded 0.7, indicating high consistency among items and good reliability. Average variance extracted (AVE) values exceeded 0.5, demonstrating good convergent validity. Moreover, the square root of each variable's AVE value exceeded the correlation coefficient between that variable and other variables, indicating good discriminant validity, as shown in .

5.2 Model Testing

This study uses six indicators to measure model fit: X^2/df, AGFI, RMSEA, IFI, CFI, and NFI. After correction and improvement, model fit indices were: X^2/df = 1.226, AGFI = 0.940, RMSEA = 0.036, IFI = 0.908, CFI = 0.983, NFI = 0.891, all meeting recommended values and indicating good measurement model fit.

Structural equation model hypothesis testing results are shown in , with path coefficients illustrated in [Figure 2: see original paper]. Path coefficients reflect the direction and magnitude of direct relationships between variables, with positive coefficients indicating positive effects and larger values indicating stronger influence.

6 Results Discussion

6.1 Influence of Perceived Value on Elderly People's Anxiety Emotion

Perceived value includes perceived cost and perceived risk. Perceived cost positively affects elderly people's anxiety emotion ($\beta = 0.050$, $p < 0.01$). Perceived

cost includes elderly people's subjectively perceived information technology complexity and the time and energy costs required to maintain information use. Survey results show that most elderly people still primarily obtain health information through medical professionals and news media, indicating greater trust and dependence on traditional medical models. Technology-centered health information use remains a significant cognitive challenge for elderly people. Research shows elderly people experience difficulties in searching for, screening, and using health information [42], with their physiological functions, information literacy levels, and social support factors affecting health information use [43]. Perceived cost brings certain psychological burdens to elderly people, leading to anxiety emotions during health information use.

Perceived risk does not significantly affect elderly people's anxiety emotion (β = -0.027, $p > 0.05$). This indicates that, on one hand, online health platforms have become increasingly mature in user information protection and payment security, gaining elderly users' trust. On the other hand, current online health information service platforms have extensively collaborated with authoritative medical institutions, hiring hospital doctors to provide synchronized online and offline diagnosis and treatment services. Many large public and private hospitals also have official websites and public accounts, eliminating elderly people's usage concerns, reducing perceived risks in online health information service use, and thereby avoiding anxiety generation.

6.2 Influence of Perceived Overload on Elderly People's Anxiety Emotion

Perceived overload is an important subjective perception among elderly people regarding network information service use exceeding their capabilities. This study conceptualizes perceived overload as information overload, system overload, and service overload. Information overload positively affects elderly people's anxiety emotion ($\beta = 0.369$, $p < 0.01$). When information to be processed exceeds personal processing capacity, information overload occurs. The rapid development of digital communication technology has intensified people's perception of information overload and pressure [44]. Some online health platforms add exaggerated titles to ordinary health information texts, even exaggerating the efficacy of certain drugs and folk remedies, seriously affecting elderly people's adoption of health information. Such false and redundant information causes information overload, making elderly people exhibit negative emotions like anxiety, fear, disgust, and disappointment [45].

Service overload positively affects elderly people's anxiety emotion ($\beta = 0.409$, $p < 0.01$), with service overload having the greatest impact on anxiety. Service overload specifically manifests as poor service quality, lack of personalized and tracking services for elderly people. Different elderly people have different needs for online health information services. For elderly people who rarely use or have just learned to use health information platforms, they are in the learning and exploration stage, simply browsing health information without contacting other

service content. Therefore, they have weaker needs for personalized services and social aspects but experience usage anxiety due to unfamiliar operation methods and lack of corresponding service guidance. For elderly people who continuously and deeply use online health information services, besides browsing health information, they also expect to communicate with others on health platforms to meet social needs. Elderly people with consultation experience expect doctors or customer service staff to continuously monitor their health status and provide timely assistance after online consultation. Particularly, some elderly patients hope to alleviate health anxiety and obtain psychological comfort through mutual encouragement with fellow patients to jointly combat diseases. Thus, different elderly people have diverse needs for online health information services, but personalized services targeting these needs are still lacking. When expectations and needs cannot be met, large psychological gaps easily occur, generating negative emotions like burnout and anxiety [46].

System overload does not significantly affect elderly people's anxiety emotion ($\beta = 0.198$, $p > 0.05$). System overload involves users' perception of technical characteristics [17]. This study's conclusion indicates that most elderly people nowadays learn to use online devices for chatting, obtaining information, online shopping, etc., with the encouragement and help of relatives and friends, making their network information behaviors richer and operations more proficient. Moreover, online health information service platforms themselves have begun to focus on elderly user groups, successively launching professional online health platforms convenient for elderly operation and use, such as 39 Elderly Channel and Zhejiang Online Health Network (Middle-aged and Elderly Channel). These websites feature simple and beautiful designs with easy operations, facilitating elderly people's information acquisition and use, greatly increasing elderly people's perceived ease of use, and to some extent alleviating anxiety caused by system overload.

6.3 Influence of Anxiety Emotion on Avoidance and Withdrawal Behaviors

Research results show that anxiety emotion positively affects elderly people's information avoidance behavior ($\beta = 0.881$, $p < 0.001$) and information use withdrawal behavior ($\beta = 0.914$, $p < 0.001$). Anxiety emotion is positively correlated with elderly people's negative use behaviors of online health information services, consistent with previous research conclusions on information system adoption that positive satisfaction is an important determinant of continuous use [41]. T. Ravindran et al. found through interviews with Facebook users that users change their behaviors to avoid social network fatigue [18]. During contact with health information services, elderly people easily develop complex anxiety emotions such as information-seeking anxiety, information-missing anxiety, and information-security anxiety due to cognitive conflicts and expectation deviations. Research shows that people with higher health anxiety levels understand knowledge more negatively [47], thus avoiding anxiety through negative

behaviors like information avoidance and withdrawal.

7 Discussion

7.1 Research Contributions

This study targets elderly people as a special group, constructing a negative use model of online health information services for elderly user groups and empirically analyzing current negative use behavior phenomena among elderly users of online health information services. Theoretically, it consolidates the existing knowledge foundation of health information behavior, enriching and perfecting theoretical and methodological approaches in the health informatics field and forming new knowledge growth points for the discipline. It also expands the research scenario of users' online health information service use, extending the group boundaries of user health information behavior research and deepening understanding of the relationship between elderly people's anxiety emotions and negative behaviors. Finally, it enriches research models of negative use behaviors in internet environments. Differentiating from commonly used "human-system interaction" models and "S-O-R" models in existing research, this study forms a theoretical framework based on the CAC paradigm, exploring the mechanism of anxiety and avoidance/withdrawal behaviors among online health platform elderly users from perception, emotion, and behavioral intention levels, more comprehensively analyzing elderly people's behavioral patterns in online health information contexts.

7.2 Practical Implications

Based on this study's conclusions, the following practical implications are proposed for online health information service platform operation and management:

7.2.1 Platform Level: Provide Quality Health Information Online health information providers should fully improve information readability and reduce unrealistic health solutions. Platform operators should, on one hand, rely on authoritative medical institutions to establish professional health information databases and arrange medical experts to conduct online lectures, ensuring elderly people can obtain scientific and correct health information. On the other hand, they should establish information review and screening mechanisms, such as regularly cleaning false information and rumors, enhancing user trust in platforms, maintaining long-term platform development, improving elderly people's sense of gain and security in using online health information services, and reducing cognitive load caused by information overload.

7.2.2 Social Level: Develop Personalized, Scenario-based, and Aging-friendly Online Health Information Services for Elderly People Since online health information services for elderly people represent both a dynamic changing process and a refined specific process, social service institutions should,

on one hand, deeply understand the needs of elderly people with different ages and education backgrounds, develop and release different application scenarios for online health information services, and guide health information services toward elderly people's real core needs to amplify perceived value effects. On the other hand, enterprises should increase investment in aging-friendly technology design, especially meeting functional requirements in memory, operation, and mental models for elderly people, unifying terminology standards, eliminating functional redundancy, and stimulating more elderly people's interest and motivation to learn and use online health information services, thereby reducing perceived cost.

7.2.3 Community Level: Advocate "Digital Feedback within Communities" to Improve Elderly People's Health Information Literacy
Elderly people's long-term social relationship structures determine their close dependence on family members, and informal education plays an important role in improving digital literacy among elderly populations. Therefore, family members' educational feedback can effectively solve elderly people's digital divide: Strengthen family responsibilities. Advocate that children, relatives, and neighbors increase discussions about information services, convey usage experience through interactive communication, and provide timely positive feedback. Expand existing volunteer service content accordingly. Volunteers should increase patience and operational guidance while providing emotional encouragement to improve elderly people's self-efficacy in information service use.

7.3 Limitations and Future Research

This study has certain limitations. First, the survey subjects mainly focused on urban elderly populations in Chongqing and Guizhou regions. Due to the special nature of respondents, sample data were relatively concentrated and small-scale. Future research can expand sample data from different regions, especially adding rural elderly samples to discover differences in health information behaviors between urban and rural elderly people and promote digital equality. Second, this study did not select a representative online health platform to understand elderly people's information behavior patterns. Future research can combine diverse online health platforms for differential studies to improve model universality. Finally, this study conceptualized elderly people's negative use behaviors as two types: avoidance behavior and withdrawal behavior, while negative use behaviors can be further divided into lurking, intermittent discontinuance, switching, and other types based on different usage degrees. Future research can continue to deeply analyze antecedents of different types of negative use behaviors.

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Research on the Formation and Influencing Factors of Negative Use Behavior of Online Health Information Services for the Elderly Under the CAC Paradigm

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Abstract: [**Purpose/Significance**] This study aims to explore the formation mechanism of negative use behaviors among elderly users of online health information services, providing reference suggestions for practitioners in online health platform operations and management. [**Method/Process**] Using the "Cognition-Affect-Conation" (CAC) paradigm, combined with cognitive load theory and perceived value theory, this research investigates the mechanism of anxiety and avoidance/withdrawal behaviors among elderly users of online health platforms, explaining the influence mechanism between elderly users' perceived emotions, emotional expression, and negative behavioral outcomes. [**Result/Conclusion**] The results show that perceived cost, information overload, and service overload have significant positive effects on elderly users' anxiety, which in turn leads to negative use intentions such as avoidance and withdrawal behaviors. However, perceived risk and system overload have no significant effects on elderly users' anxiety.

Keywords: CAC paradigm; elderly; health information services; negative use

Note: Figure translations are in progress. See original paper for figures.