An Analysis of Factors Influencing Knowledge Sharing in Online Health Communities

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Ⅰ. Introduction

In recent years, with the rapid development of online technology, health-related community platforms have expanded rapidly (Goh et al., 2016). These platforms provide patients with new avenues to access health and medical information, making online health communities (OHCs) important spaces for patient interaction, experience sharing, and emotional support (Zhang et al., 2018). OHCs, by enabling online communication without time, geography, and space constraints, mark a significant shift from traditional face-to-face consultations to online interactions. The rise of OHCs has changed how patients access information and profoundly impacted the interaction patterns between patients and doctors. On these platforms, patients can anonymously ask questions and share health experiences, thereby receiving support and advice from around the world. This open and shared environment helps alleviate loneliness and anxiety, providing valuable psychological support (Huh et al.,

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2013). Moreover, OHCs offer timely and valuable health information to patients in remote areas with limited access to medical services (Cline et al., 2001). By providing information and emotional support, OHCs significantly enhance patients' ability to manage their health and improve their quality of life.

In OHCs, individuals with high personal innovativeness are generally more open to new ideas, actively seek information, and are willing to share new knowledge and experiences (Agarwal & Prasad, 1998; Yuan et al., 2016). Interaction among members is a crucial feature of OHCs, used not only for seeking and sharing information but also for exchanging emotional support, personal experiences, feelings, opinions, and advice (Shah, 2017). This interactive mode promotes patient communication, creating a virtual support network that helps them better manage their diseases (Yan et al., 2016). Health topics are trendy in social Q&A sessions. Individuals who raise health-related questions usually hope to connect with others facing similar issues and seek relevant health information before and after consulting doctors. They often value personal experiences of similar conditions or treatments more than traditional medical advice (Wicks et al., 2010). Therefore, the active participation of responders in social Q&A is crucial, as the quantity and quality of responses play a key role in effectively solving problems

(Imlawi et al., 2020).

The unique interactivity and real-time nature of OHCs make them powerful platforms for continuously updating and disseminating the latest medical information and research findings. This not only helps patients better understand their health conditions and treatment options but also enhances their health literacy and self-management capabilities. OHCs enable patients to receive support from other patients and interact directly with medical professionals, obtaining professional medical advice and the latest research results. Medical professionals can also use these platforms to share their expertise and insights, promoting the dissemination and sharing of knowledge. For example, doctors can conduct online lectures or Q&A sessions through OHCs, providing patients with more convenient and personalized services.

Therefore, this study aims to fill the current research gap by introducing personal innovativeness as a new variable. Based on previous studies, personal innovativeness is defined as the degree to which an individual adopts innovations earlier than others within their social system (Rogers & Shoemaker, 1971). In OHCs, individuals with high personal innovativeness are generally more open to new ideas, actively seek information, and are willing to share new knowledge and experiences (Agarwal & Prasad, 1998; Yuan et al., 2016). This study explores its

comprehensive impact, along with other support factors (such as informational support, emotional support, etc.), on different types of health knowledge sharing. Additionally, there has been limited research on the role of the Amount of Experience in Participating (AEP) as a moderating variable, and previous studies have overlooked the role of variables like personal innovativeness in health knowledge sharing, which constitutes a significant research gap. Therefore, this study also focuses on examining the role of AEP as a moderating variable, analyzing how AEP influences the relationships between informational support, emotional support, altruism, personal innovativeness, and knowledge sharing behavior.

Through these analyses, this study aims to expand the existing research framework on online health communities (OHCs) and provide empirical support for optimizing the design and management of OHCs to enhance their user appeal and effectiveness, thereby promoting more efficient knowledge sharing and community interaction. At the same time, by providing information and emotional support, OHCs significantly improve patients' health management capabilities and quality of life. In the future, as technology continues to advance, these platforms will play increasingly important roles in healthcare services. Therefore, in-depth research on the factors influencing knowledge sharing in OHCs is crucial for optimizing these

platforms' functions and enhancing patient engagement. By combining advanced technology with effective management strategies, OHCs can provide higher-quality services to more patients in the future, promoting overall development in the healthcare industry.

Ⅱ. Literature Review

Online health communities (OHCs) are crucial in promoting health information exchange and enhancing public health awareness and the quality of medical services. Knowledge sharing involves transferring personal knowledge, experiences, and skills (Shehab et al., 2023). In OHCs, knowledge sharing is categorized into general health and specific health knowledge sharing.

General health knowledge sharing mainly includes health promotion and education information disseminated by medical institutions or professionals to reach a broader audience and improve overall health levels (Zack, 1999). This includes guidelines on preventive measures, healthy lifestyle advice, and basic knowledge about common diseases (Cline & Haynes, 2001). Such information helps the public prevent diseases, enhances health literacy, and enables healthier choices in daily life (Zhang et al., 2017). Research indicates that general health knowledge sharing

can effectively improve the health behaviors of community members. Community members can better manage their health by participating in health promotion activities and accessing reliable health information (Goh et al., 2016). For instance, sharing dietary and exercise advice in OHCs can help members develop healthy habits, thereby reducing the incidence of chronic diseases (Fang & Chiu, 2010).

In contrast, specific health knowledge sharing focuses on exchanging personal health information, medical experiences, and treatment insights. Despite potential issues such as privacy and cost, this type of sharing is invaluable for patients seeking personalized medical services (Wicks et al., 2010). Patients can receive tailored advice and support by sharing treatment experiences and recovery processes, helping them make more informed health decisions (Yan et al., 2016). This exchange of experiences not only aids patients in better understanding their conditions but also provides practical treatment advice and psychological support (Huh et al., 2013). Specific health knowledge sharing is particularly significant in OHCs because it offers personalized information that is unavailable through other channels. Studies have found that patients who engage in specific health knowledge sharing receive practical medical advice and reduce anxiety and loneliness by learning from others' experiences (Imlawi & Gregg, 2020).

Furthermore, specific health knowledge sharing fosters a supportive community environment, promoting mutual assistance and trust among members (Wang et al., 2012).

Motivation theory divides motivation into intrinsic and extrinsic (Pritchard & Campbell, 1977; Ryan & Deci, 2000). Intrinsic motivation drives individuals to engage in inherently interesting, enjoyable, and satisfying activities, such as participating in knowledge-sharing activities in virtual communities. In contrast, extrinsic motivation focuses on external goals such as financial rewards or social recognition. As a fundamental driver of human behavior, motivation significantly influences individuals' intentions and behaviors within the community (Deci et al., 1999). Intrinsic motivation is the drive to perform an activity due to inherent interest or enjoyment.

In OHCs, intrinsic motivations for sharing knowledge may include helping others, gaining self-satisfaction, and enhancing personal knowledge (Wasko & Faraj, 2005). Studies show that intrinsic motivation significantly impacts knowledge sharing behavior because it stimulates personal initiative and sustained participation (Hung et al., 2011). Additionally, intrinsic motivation includes obtaining social connections and a sense of belonging through community activities, which is psychologically vital for participants (Bock et al., 2008).

Extrinsic motivation involves external rewards such as money, social recognition, or

career advancement. In OHCs, extrinsic motivations may include gaining community recognition, enhancing one's status within the community, or receiving economic rewards (Lin et al., 2007). While extrinsic motivation can promote knowledge sharing in the short term, over-reliance on external rewards might reduce the impact of intrinsic motivation and even lead to decreased participation once the rewards are removed (Deci et al., 1999). However, well-designed extrinsic incentive mechanisms, such as point systems, badges, and reward programs, can effectively encourage members to share knowledge (Hsu et al., 2007).

Altruism and personal innovativeness are also significant factors in promoting knowledge sharing. Altruistic individuals often help others without expecting any form of compensation,

enhancing community cohesion and fostering trust among members (Ma & Chan, 2014; Batson et al., 2002). Users with high personal innovativeness are more likely to try new methods and share new knowledge, significantly enhancing the overall knowledge level of the community (Yuan et al., 2016; Pagani et al., 2011). In summary, OHCs are indispensable in facilitating the exchange and sharing of health information, with motivation, altruism, and personal innovativeness being key driving factors.

III. Research Model and Research Hypotheses

This study investigates the factors influencing knowledge sharing within online
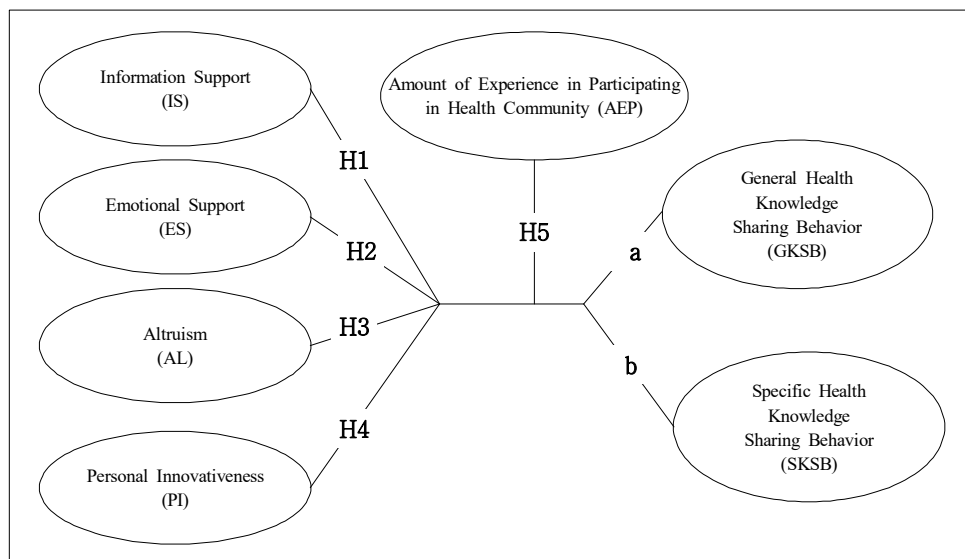
<Figure 1> Research Model

health communities (OHCs). It incorporates the extent of user experience with health communities as a moderating variable. The research model is illustrated in < Figure 1 >.

3.1 Information Support

Online Health Communities (OHCs), information support facilitates user interaction and the Information support, a core feature of online health communities, is instrumental in creating a dynamic knowledge ecosystem. It helps users understand and manage their health issues by providing timely and relevant health information. Research by Zhang et al. (2017) has shown that information support significantly improves health outcomes by promoting patient engagement. Goh et al. (2016) also found that information support not only enhances the flow of information among community members but also strengthens the overall health knowledge base of the community through information sharing.

This information sharing evolves into knowledge sharing, a key process involving the exchange of experiences, skills, and personal insights, all of which are central to managing health. According to Nonaka & Kodama (2019), social interactions guided by information support are crucial in the knowledge-creation process. Such collaborative relationships promote the widespread dissemination of health information and

experiences, thereby enhancing the community's overall health management capabilities and fostering positive interactions and information sharing among members (Fornell & Lacker, 1981). Based on these insights, the following hypotheses are proposed:

H1-a: Informational support has a positive (+) impact on general health knowledge sharing behavior.

H1-b: Informational support has a positive (+) impact on specific health knowledge sharing behavior.

3.2 Emotional Support

In Online Health Communities (OHCs), emotional support triggers positive emotional responses that not only enhance members' ability to absorb health information but also foster the acceptance of health behaviors, encouraging members to adopt proactive health measures. Through interactions such as sharing personal stories, providing positive feedback, expressing understanding and empathy, and building emotional connections, members receive psychological comfort and emotional support. These interactions not only alleviate psychological burdens but also cultivate close interpersonal relationships and mutual dependency, enhancing the sense of trust and belonging within the community. Wuthnow (2012) emphasized that emotional support provides encouragement, care, and compassion

to community members. Burleson (2003) noted that emotional support can exist independently and be offered through sharing joy or sorrow and expressing care and compassion. This type of support is particularly important for those seeking sympathy, encouragement, and other forms of emotional support. Members can communicate with other patients who understand their feelings, offering compassion and care, thereby reducing feelings of loneliness and isolation. This enhances members' sense of belonging and identity, making them more likely to provide support to others and see themselves as part of the community. Such emotional interactions promote knowledge sharing, creating a mutually beneficial community environment where each member's contribution is valued and appreciated.

Therefore, by providing emotional support, OHCs not only foster understanding and care among users, meeting their emotional needs, but more importantly, they inspire members to participate more actively in discussions on health topics and information sharing. This emotional exchange and support become a key driving force for knowledge sharing, transforming OHCs into a platform for accessing health information and an active community capable of actively sharing and disseminating knowledge. Based on these insights, the following hypotheses are proposed:

H2-a: Emotional support has a positive (+)

impact on general health knowledge sharing behavior.

H2-b: Emotional support has a positive (+) impact on specific health knowledge sharing behavior.

3.3 Altruism

Altruism reflects an individual's sense of social responsibility and mission Krebs 1975, Smith 1981, Fehr 2000. Fang & Chiu (2010) proposed that altruism can be understood as a behavior in which individuals voluntarily assist others without expecting any form of repayment. In virtual communities, altruism plays a crucial role, especially in fostering knowledge sharing among participants, a viewpoint supported by Yan et al. (2016). Altruism is described as an unconditional act of goodwill, devoid of expectation for reciprocation, and involves proactively offering assistance and deriving satisfaction from these actions. It is reflected in helping others regardless of the outcome (Ma et al., 2014).

Ozinga (1999) defined altruism as "undertaking a certain personal cost for the benefit of others," conceptualizing it as the opposite of selfish behavior. It is worth noting that participating members in online health communities (OHCs) primarily seek non-monetary benefits rather than monetary gains. This contrasts with specific online communities where people seek benefits through financial

rewards or enjoyment (Zhang et al., 2017). On social question-and-answer platforms, respondents are expected to provide information and support to anonymous individuals without expecting compensation or reward. Furthermore, Bock (2008) pointed out that altruistic behavior is an essential factor driving the intention to share knowledge. They argue that community members demonstrating altruistic behavior are often more willing to share their expertise within virtual communities. This finding emphasizes the core role of altruism in constructing and maintaining the dynamics of virtual communities, particularly in facilitating the free flow and exchange of knowledge. Based on these insights, the following hypothesis is proposed:

H3-a: Altruism has a positive (+) impact on general health knowledge sharing behavior.

H3-b: Altruism has a positive (+) impact on specific health knowledge sharing behavior.

3.4 Personal Innovativeness

Personal innovativeness is the degree to which an individual adopts an innovation earlier than other members of the social system (Rogers & Shoemaker, 1971). Rogers & Shoemaker (1971) noted that the behavioral characteristics displayed by innovators include actively seeking information and minimizing dependence on the subjective evaluations of their social peers regarding innovations.

Individuals with high personal innovativeness tend to be more open to new ideas (Anderson, 2004; Agarwal, 1998).

Research on personal technological innovation has been extensive across various fields, including knowledge sharing within online communities (Yuan et al., 2016), consumer satisfaction in digital media environments (Dai et al., 2015), blog platforms (Wang et al., 2010), and wireless mobile services (Sarker & Wells., 2003). These studies contribute to introducing new concepts in consumer communities in online environments (Yuan et al., 2016). Pagani, Hofacker, and Goldsmith (2011) identified a positive relationship between user innovativeness and the use of online social networking sites for information exchange, suggesting that innovative users are more likely to contribute content on these platforms (Kumi & Sabherwal, 2019). Based on these insights, the following hypothesis is proposed:

H4-a: Personal innovativeness positively (+) impacts general health knowledge sharing behavior.

H4-b: Personal innovativeness positively (+) impacts specific health knowledge sharing behavior.

Ⅳ. Data Analyses

To create the questionnaire for the 7

<Table 1> Operational Definitions and Related Literature

Distinction	Variable	Definition	Reference
Independent Variable	Information Support	Provide information in the form of advice or knowledge to help solve problems.	Liang et al.(2011) Wu, Bing. (2018)
	Emotional Support	Provide information that includes emotional concerns such as care, understanding, or empathy.	Liang et al. (2011) Wu, Bing. (2018)
	Altruism	Individuals gain satisfaction fromproviding help and from the act itself.	Hung, et al. (2011)
	Personal Innovativeness	The degree to which an individual is relatively earlier in adopting an innovation than other members of his or her system.	Rogers & Shoemaker. (1971) Lee et al. (2006)
Dependent Variable	General Health Knowledge Sharing Behavior	Publicly sharing available health education and professional articles.	Yan, et al. (2016)
	Specific Health Knowledge Sharing Behavior	In the specific health domain, knowledge exchange and sharing through personal unique health experiences, skills, and insights promote cooperation and learning, enhancing overall effectiveness.	Yan, et al. (2016)
Moderating Variable	Amount of Experience in Participating in Health Community	Active participation in health Communities are characterized by frequent, diverse interactions, high-quality information sharing, and the establishment of support networks to promote healthy living.	Mirzaei et al. (2021) Lee et al. (2006)

research variables used in this study, the questionnaire items mentioned in existing literature were referenced. The questionnaire items employed a 5-point Likert scale, and data were collected from large, representative online health communities. A total of 335 questionnaires were collected. During the data cleaning process, 27 questionnaires were excluded due to missing critical data or incompleteness, resulting in 308 valid questionnaires for the final analysis. The definitions of research variables and related literature sources are presented in < Table 1 >.

4.1 Analysis of Measurement Model

In this comprehensive study model, the proposed measurement model meticulously analyzes 23 observed variables representing six latent variables, excluding moderating variables, using data from a robust sample of 308. We employed Lisrel 8.8's Simplis (Simple Lisrel) for the analysis, with data interpretation guided by the esteemed work of Koufteros & Marcoulides (2006). The latent variables in <Table 2> were derived through Confirmatory Factor Analysis (CFA), ensuring the inclusion of measurement items with factor loadings of

at least 0.7 (R^2 at least 0.5). All measurement items for Information Support (IS), Emotional Support (ES), Altruism (AL), Personal Innovativeness (PI), General health Knowledge Sharing Behavior (GKSB), and Specific health Knowledge Sharing Behavior (SKSB) were retained in this rigorous process, as shown in <Table 2>.

When the values of Composite Reliability (CR) and Average Variance Extraction(AVE) reach 0.7 and 0.5, respectively, the questionnaire items generally have no significant issues. Thus, the measurement items for the latent variables all meet this standard. The Chi-Square (χ^2) value in the measurement indicators divided by the degree of freedom (df) is used as the standard Chi-Square value (Chi-Square). Generally, if the χ^2 value does not exceed twice the degree of freedom, the model is considered appropriate even if the

<Table 2> Analysis Results of the Measurement Model

Latent Variable	Observed Variable			Composite Reliability (CR	Average Variance Extraction (AVE)
	Measurement Items	Factor Loading	T-Value		
Information Support (IS)	V10	0.87	1	0.8810	0.7118
	V11	0.85	11.2		
	V12	0.81	10.20		
Emotional Support (ES)	V13	0.88	1	0.8867	0.6543
	V14	0.79	9.6		
	V15	0.81	10.4		
	V16	0.75	8.5		
Altruism (AL)	V21	0.89	1	0.8991	0.6908
	V22	0.78	9.5		
	V23	0.80	11.2		
	V24	0.85	11.5		
Personal Innovativeness (PI)	V36	0.82	1	0.8715	0.6295
	V37	0.84	11.3		
	V38	0.76	8.9		
	V39	0.75	8.6		
General Health Knowledge Sharing Behavior (GSKB)	V28	0.87	1	0.8937	0.6783
	V29	0.85	11.9		
	V30	0.81	10.80		
	V31	0.76	9.00		
Specific Health Knowledge Sharing Behavior (SKSB)	V32	0.83	1	0.8828	0.6536
	V33	0.78	9.8		
	V34	0.86	11.7		
	V35	0.76	8.9		

*: Number of measurement items

*: n=308, χ^2=362.16, df=218, χ^2/df=1.66, NNFI = 0.91, CFI = 0.89, RMSEA = 0.047

p-value is small. For comparing the base model with the proposed or alternative models, a Non-Normed Fit Index (NNFI) is close to 0.9, and the Comparative Fit Index (CFI) is close to 0.9; the model is considered to have a good fit. The Root Mean Square Error of Approximation (RMSEA) was developed to overcome the limitations of the $\chi 2$ statistic, which may reject the proposed model in large samples. A value below 0.05 indicates a good model fit (Koufteros & Marcoulides, 2006).

As shown at the bottom of <Table 2>, the sample size used is 308, exceeding ten times the number of questionnaire items (total of 23), which is 230. Therefore, the sample size is considered adequate. In the evaluation of the measurement model fit, the χ^2 divided by the degree of freedom is 1.66, which is less than 2, and the RMSEA is close to 0.05. Other model fit indicators, including NNFI and CFI, also indicate a good fit, providing strong support for the model's reasonableness (n=308, χ^2=362.16, df=218, χ^2/df=1.66, NNFI=0.91,
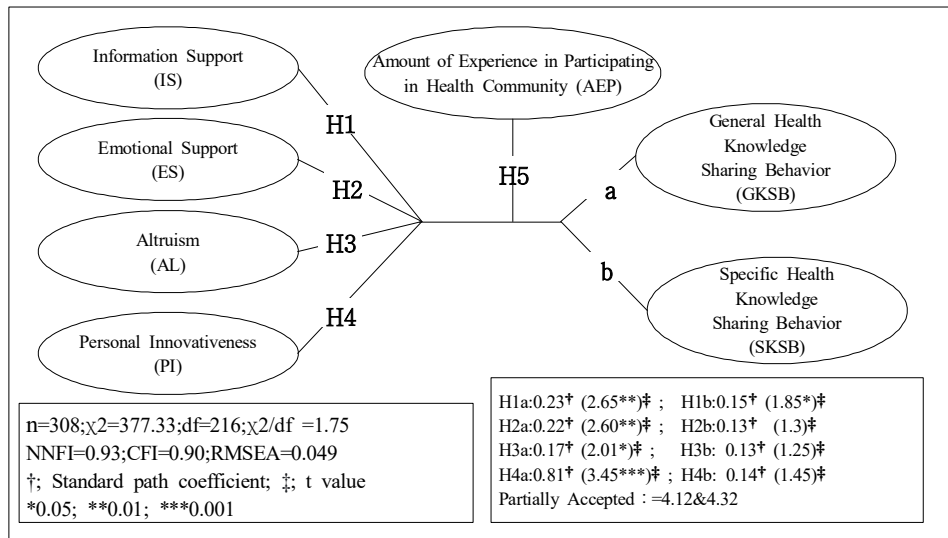
CFI=0.89, RMSEA=0.047).

Although there is no explicit standard for the correlation matrix of latent variables, in social science research, a correlation coefficient exceeding 0.8 generally indicates potential multicollinearity issues (Fornell & Larcker, 1981).

In the analysis of the correlation matrix, the correlation coefficients among the latent variables are shown in <Table 3>. The square roots of the average variance extracted values in the study were at least 0.79, with each variable's square root value on the diagonal of the correlation matrix exceeding the correlation coefficients between the latent variables. This meets the convergent and discriminant validity standards (Fornell & Larcker, 1981), further validating the model's applicability. Therefore, although some variables exhibit high correlations, the fulfillment of construct validity and the appropriate distribution of variable correlations collectively support the rationality of the research result.

<Table 3> Correlation Matrix of Latent Variable

	GKSB	SKSB	IS	ES	AL	PI
GKSB	0.82*					
SKSB	0.52	0.81*				
IS	0.58	0.49	0.84*			
ES	0.47	0.56	0.43	0.80*		
AL	0.40	0.38	0.56	0.34	0.83*	
PI	0.42	0.43	0.39	0.58	0.49	0.79*

*: The square root of the variance extracted through the average variance extracted

Information Support (IS)

Amount of Experience in Participating in Health Community (AEP)

Emotional Support (ES)

General Health Knowledge Sharing Behavior (GKSB)

Altruism (AL)

Personal Innovativeness (PI)

Specific Health Knowledge Sharing Behavior (SKSB)

H1 H2 H3 H4 H5 a b

n=308;χ2=377.33;df=216;χ2/df =1.75
NNFI=0.93;CFI=0.90;RMSEA=0.049
†; Standard path coefficient; ‡; t value
*0.05; **0.01; ***0.001

H1a:0.23† (2.65**)‡ ;   H1b:0.15† (1.85*)‡
H2a:0.22† (2.60**)‡ ;   H2b:0.13† (1.3)‡
H3a:0.17† (2.01*)‡ ;   H3b: 0.13† (1.25)‡
H4a:0.81† (3.45***)‡ ; H4b: 0.14† (1.45)‡
Partially Accepted : =4.12&4.32

<Figure 2> Results of Hypothesis Testing Analysis

4.2 Analysis of Structural Model

In this study, we utilized Structural Equation Modeling (SEM) to analyze data collected from 308 surveys across three large online health communities. Due to SEM's ability to simultaneously handle complex relationships between multiple independent and dependent variables, this method was particularly well-suited to our research needs. Through this modeling approach, we not only assessed the direct impacts of informational support, emotional support, altruism, and personal innovativeness on knowledge-sharing behavior but also explored the moderating effects of these factors under various conditions. This allowed for a deeper understanding of the internal dynamics within online health communities, revealing the subtle roles different types of support play in either facilitating or hindering knowledge sharing among community members.

The fit indices of the structural model demonstrated good model fit: χ^2 = 377.33, degree of freedom = 216, χ^2/df = 1.75, NNFI = 0.93, CFI = 0.90, RMSEA = 0.049 (see< Figure 2>. These indices collectively indicated that the overall fit of the model was appropriate. Causal relationships between latent variables were revealed through various pathways in the structural model and were validated through statistical analysis using the covariance structure model. A one-tailed test was used to analyze causal relationships, with a significance level set at α=0.05. Paths with |t| values greater than 1.645 supported the hypotheses.

To verify hypotheses H1-a, H1-b, H2-a,

<Table 4> Structural Model Analysis

	Hypothesis Test		Result
H1-a	Informational support has a positive (+) impact on general health knowledge sharing behavior.		Accepted
H1-b	Informational support has a positive (+) impact on specific health knowledge sharing behavior.		Accepted
H2-a	Emotional support has a positive (+) impact on general health knowledge sharing behavior.		Accepted
H2-b	Emotional support has a positive (+) impact on specific health knowledge sharing behavior.		Rejected
H3-a	Altruism has a positive (+) impact on general health knowledge sharing behavior.		Accepted
H3-b	Altruism has a positive (+) impact on specific health knowledge sharing behavior.		Rejected
H4-a	Personal innovativeness has a positive (+) impact on general health knowledge sharing behavior.		Accepted
H4-b	Personal innovativeness has a positive (+) impact on specific health knowledge sharing behavior.		Rejected

H2-b, H3-a, H3-b, H4-a, and H4-b, we conducted a series of structural model analyses in online health communities (see <Table 4>). Information support positively influenced general health knowledge sharing behavior (H1-a) and specific health knowledge sharing behavior (H1-b). This indicates that information support in online health communities effectively facilitates the exchange and sharing of knowledge, whether in general health or specific health contexts. Emotional support significantly enhanced general health knowledge sharing behavior (H2-a), indicating that community members are more willing to share knowledge in a compassionate and understanding emotional environment. However, emotional support slightly negatively impacted specific health knowledge sharing behavior (H2-b), possibly

because specific health knowledge sharing relies more on technical support rather than pure emotional solace. The reason for this phenomenon may be that, in specific health knowledge sharing, users are more concerned with the accuracy and professionalism of the information. Although emotional support can provide psychological comfort, its role is relatively small when dealing with technical issues.

Therefore, specific health knowledge sharing relies more on professional technical support and detailed technical documentation (Yan et al., 2016). Altruism positively affected general health knowledge sharing behavior (H3-a), reflecting community members' willingness to share under selfless motives. However, for specific health knowledge sharing (H3-b), altruism did not show a positive effect.

They even had a negative impact, likely due to the complexity of specific health knowledge and the higher personal investment required. Personal innovativeness positively affected general health knowledge sharing behavior (H4-a), indicating that individuals with innovative tendencies are more likely to share and disseminate new knowledge. However, for specific health knowledge sharing behavior (H4-b), personal innovativeness did not show positive effects and sometimes even led to negative consequences, likely due to potential conflicts between innovative thinking and existing knowledge systems. For the moderating effect analysis of the amount of experience in participating in health community(AEP), the difference in Chi-square values between the free model and the equivalent constraint model exceeded the critical value of 3.84 (degree of freedom = 1), specifically: H5-c: $\Delta\chi^2$=4.12, χ^2(705.07) - χ^2(700.92) = 4.12, and H5-f: $\Delta\chi^2$ = 4.32, χ^2(708.17) - χ^2(703.85) = 4.32, indicating significant moderating effects. These results reveal the amount of emotional support and general health knowledge sharing behavior, as well as between altruism and general health knowledge sharing behavior (see <Table 5>).

The reasons for rejecting most hypotheses include the following: In OHCs, participants may quickly reach the limit of their ability to utilize support for health knowledge sharing, with additional experience not significantly

enhancing their health knowledge sharing capability (He et al., 2017; Fang et al., 2021). Moreover, individual motivations, engagement levels, and personal characteristics may overshadow the impact of experience, with some participants being naturally more adept at sharing knowledge regardless of their experience level (Zhou,T., 2019). The measurement or operationalization of AEP might have limitations, failing to fully capture the actual moderating effect of AEP (Cai et al., 2024; Wang et al., 2022). Different types of health knowledge sharing (general and specific) may have varying demands for support types, with specific health knowledge sharing being more dependent on technical support and concrete experience, whereas general health knowledge sharing relies more on informational and emotional support (Mirzaei et al., P. (2021).; Meng et al., 2021). Therefore, the role of AEP in these different types of knowledge sharing may vary depending on the type of support. Although AEP can enhance the impact of specific support interactions (such as emotional support and altruism), its overall moderating effect is limited, highlighting the complexity of factors influencing knowledge sharing behavior in OHCs. Future research should further explore other potential moderating factors and mechanisms, as well as more accurately measure participation experience, to understand how experience can enhance

<Table 5> Results of The Moderating Effects

	Hypothesis Test	Result
H5-a	The amount of experience participating (AEP) in OHC has a (+) moderating effect between information support and general health knowledge sharing behavior.	Rejected (2.55)
H5-b	The amount of experience participating (AEP) in OHC has a (+) moderating effect between information support and specific health knowledge sharing behavior.	Rejected (2.35)
H5-c	The amount of experience participating (AEP) in OHC has a (+) moderating effect between emotional support and general health knowledge sharing behavior.	Accepted (4.12)
H5-d	The amount of experience participating (AEP) in OHC has a (+) moderating effect between emotional support and specific health knowledge sharing behavior.	Rejected (2.44)
H5-e	The amount of experience participating (AEP) in OHC has a (+) moderating effect between altruism and general health knowledge sharing behavior.	Rejected (2.42)
H5-f	The amount of experience participating (AEP) in OHC has a (+) moderating effect between altruism and specific health knowledge sharing behavior.	Accepted (4.32)
H5-g	The amount of experience participating (AEP) in OHC has a (+) moderating effect between personal innovativeness and general health knowledge sharing behavior.	Rejected (2.47)
H5-h	The amount of experience participating (AEP) in OHC has a (+) moderating effect between personal innovativeness and specific health knowledge sharing behavior.	Rejected (2.59)

Moderating Effects: $\Delta \chi^2 > 3.84$

knowledge sharing in specific contexts, providing valuable insights for designing more effective OHCs (Lu & Zhang, 2021; Maqsood et al.; S., 2021).

V. Conclusions

This study, through an analysis of data from 308 questionnaires, not only confirms the critical role of informational support in promoting knowledge sharing within online health communities (OHCs) but also elucidates the specific impacts of emotional support, altruism, and personal innovativeness in different knowledge sharing contexts. These findings provide new empirical evidence to the existing literature and contribute significantly to understanding how to optimize OHC functions and enhance user engagement.

The results indicate that informational support significantly facilitates the dissemination and sharing of knowledge in both general health knowledge sharing and specific health knowledge sharing contexts (Wasko & Faraj, 2005; Jarvenpaa & Staples, 2001). Emotional support notably enhances the willingness to share among members in general health knowledge sharing scenarios (Hsu et al., 2007), but its effect is relatively limited in technical specific health knowledge sharing contexts (Chiu et al., 2006). Additionally, altruism shows a positive impact on general health knowledge sharing (Batson et al., 2002), yet its effect is less pronounced in specific health knowledge sharing contexts, possibly

due to the requirements of handling complex and challenging knowledge (Lin, 2007). Personal innovativeness positively influences general health knowledge sharing but may conflict with existing knowledge systems in specific contexts, sometimes leading to negative outcomes (Scott & Bruce, 1994; De Vries et al., 2006).

In terms of academic significance, this study provides new empirical evidence for Online Health Communities (OHCs), addressing a research gap regarding the influence of multiple factors on knowledge-sharing behaviors. By deeply analyzing how various factors affect health knowledge-sharing behaviors within OHCs, this study reveals the distinct roles of informational support, emotional support, altruism, and personal innovativeness in general knowledge sharing behaviors and specific knowledge sharing behaviors, thereby expanding existing theoretical frameworks (Wasko & Faraj, 2005; Hung et al., 2011). Additionally, the study explores the moderating effect the Amount of Experience in Participating in Health Community (AEP). The results show that informational support, emotional support, and personal innovativeness have a significant positive impact on general health knowledge-sharing behaviors, while their impact on specific health knowledge-sharing behaviors varies (Wasko & Faraj, 2005; Hsu et al., 2007). Furthermore, AEP significantly

moderates the relationship between emotional support and general health knowledge-sharing behaviors, as well as between altruism and specific health knowledge-sharing behaviors (Zhou, T., 2019; Mirzaei et al., 2021). However, AEP's moderating effect on other types of support is weaker, highlighting the complexity and diversity of AEP in different contexts (Fang et al., 2021; Cai et al., 2024).

In terms of practical significance, this study emphasizes the importance of tailoring support strategies according to different types of knowledge and sharing objectives. For general health knowledge sharing, it is recommended to provide abundant informational resources and emotional support to enhance community participation and interaction (Goh et al., 2016; Zhang et al., 2021). For instance, regular online lectures and discussion sessions can be organized to facilitate member interactions. For specific health knowledge sharing, professional technical support and training should be provided to help users overcome the challenges of sharing complex knowledge (Wicks et al., 2010; Yan et al., 2016). Creating expert Q&A sections, publishing detailed technical documents, and providing operation guides can also enhance users' professional knowledge. Additionally, administrators should consider the different impacts of altruism and personal innovativeness on knowledge sharing, designing targeted incentive mechanisms such as knowledge sharing point systems,

certifications, rewards, and community status enhancements to motivate member engagement (Batson et al., 2002; Lin, 2007).

Although this study mainly developed a robust research model based on existing literature and conducted rigorous statistical analysis through structural equation modeling, Future studies could explore knowledge sharing behaviors in OHCs across different cultural contexts and examine how cultural factors influence the effectiveness of informational and emotional support (Pritchard & Campbell, 1977; Ryan & Deci, 2000). With the advancement of artificial intelligence and machine learning technologies, future research could also investigate how these technologies can be integrated into OHCs to improve the efficiency and quality of knowledge sharing (Deci et al., 1999; Hsu et al., 2007). These strategies will help enhance the overall activity and knowledge sharing efficiency of OHCs, thereby optimizing the flow of health information and the health management capabilities of community members (Fang & Chiu, 2010; Imlawi & Gregg, 2020).

Moreover, future research should investigate the long-term impacts of OHCs, including the motivations for sustained user participation and outcome evaluations. This can be achieved through longitudinal studies to better understand the long-term effects of OHCs on users' health management behaviors. Additionally, studies should focus on how to protect user privacy and data security through technological means to increase users' trust and reliance on OHCs.

Exploring these research directions can lead to a better understanding and enhancement of the functions of online health communities, providing more effective support for users, and ultimately improving the health management outcomes and quality of life for community members.

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랴오닝과학기술대학교 전기자동화공학 학사를 취득하고, 경희대학교 경영학석사를 취득하였다. 현재 동국대학교 일반대학원 경영정보학과 박사 과정을 수료하였다. 주요 관심분야는 온라인 플랫폼, 소셜데이터 분석, 지식공유, IT 서비스 등이다.

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<Abstract>

An Analysis of Factors Influencing Knowledge Sharing in Online Health Communities

Han, Guoqiang · Kim, Injai

Purpose

This study investigates the key factors influencing knowledge sharing within Online Health Communities (OHCs), focusing on how different types of support impact sharing general health and specific health knowledge.

Design/Methodology/Approach

This study adopts a quantitative research design, collecting data from 308 participants across various OHCs through a questionnaire survey. The questionnaire assesses the relationships between informational support, emotional support, altruism, personal innovativeness, and knowledge-sharing behavior. Using structural equation modeling (SEM), the researchers systematically analyzed the impact of these factors on the sharing of general health knowledge (such as health advice and lifestyle information) and specific health knowledge (such as medical, technical details, and treatment plans).

Findings

The analysis revealed that informational support significantly promotes general health and specific health knowledge sharing in OHCs. Emotional support has a notable effect on general health knowledge sharing but is limited in its impact on specific health knowledge sharing, potentially due to the technical nature of the information involved. Altruism positively influences general health knowledge sharing but shows mixed effects on specific health knowledge sharing, possibly due to the complexity and difficulty of the knowledge being shared. Personal innovativeness enhances general health knowledge sharing but may conflict with existing norms in specific health knowledge contexts, leading to variable outcomes.