Postprint: Research on Health Information Behavior of Social Q&A Users Based on Social Capital Theory

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Abstract

[Purpose/Significance] The social capital of social Q&A users is influenced by multiple factors. This study aims to investigate the impact of different health information behaviors of social Q&A users on the accumulation of their social capital. [Method/Process] With 1,650 users who posted 2,537 questions and 3,567 answers under the diabetes topic on Zhihu as research subjects, and based on L. Nan' s social capital theory and N. Uphoff' s classification of social capital, this study categorizes the social capital of social Q&A users into cognitive and structural types, and employs multiple linear regression to analyze the relationship between health information behaviors and social capital of social Q&A users. [Results/Conclusion] Users' health knowledge contribution behavior and self-disclosure behavior positively promote social capital accumulation to varying degrees, while different health knowledge acquisition behaviors exert differential influences on cognitive social capital and structural social capital. These findings can assist social Q&A users in enhancing their social capital and help platforms improve user services and incentive mechanisms.

Full Text

Preamble

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Research on Social Q&A Users' Health Information Behavior Based on Social Capital Theory

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Abstract

[**Purpose/Significance**] The social capital of social Q&A users is influenced by multiple factors. This study aims to explore how different health information behaviors of social Q&A users affect their social capital accumulation.

[**Method/Process**] Taking 1,650 users from 2,537 question posts and 3,567 answers under the diabetes topic on Zhihu as research subjects, this study applies L. Nan' s social capital theory and N. Uphoff' s classification of social capital to categorize users' social capital into cognitive and structural types. Multiple linear regression analysis was used to examine the relationship between social Q&A users' health information behaviors and their social capital.

[**Result/Conclusion**] Users' health knowledge contribution behavior and self-information disclosure behavior positively promote social capital accumulation to varying degrees, while different health knowledge acquisition behaviors have differential impacts on cognitive social capital and structural social capital. These results help social Q&A users improve their social capital and provide references for platforms to refine user services and incentive mechanisms.

Keywords: social capital; health information behavior; influencing factors; social Q&A

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With the rapid development of network technology and improved living standards, the Internet has become the primary channel for people seeking health information. The 37th "Statistical Report on Internet Development in China" indicates that 152 million Chinese users search for medical information online, accounting for 22.1% of all netizens [1]. Meanwhile, social Q&A platforms have quickly become mainstream channels for health information seeking due to their support for natural language queries and provision of targeted information. On Zhihu alone, 8,091,541 users follow the "health" topic, raising 689,590 questions and generating over 1,000 featured answers [2]. Driven by health information seekers' demand for reliable, high-quality content and selfless contributions from knowledgeable individuals, online health information behavior has gradually entered public view and become a daily activity for both knowledge suppliers and seekers. On these platforms, users can acquire knowledge by following questions, topics, columns, or other users, and can also gain social capital through knowledge contribution behaviors such as answering questions and public editing, earning likes and followers from other users. Research shows that social capital can reflect users' capabilities and reliability to some extent, and that users' knowledge behaviors on social Q&A platforms significantly impact their acquisition of social capital [3]. To accurately and objectively reveal the influence mechanisms between social capital and different health information behaviors of social Q&A users, this study crawls real data from Zhihu, China' s most influential social Q&A platform, to conduct theoretical and empirical research on the relation-

ship between social capital and users' health information behaviors, aiming to provide references for social Q&A platform users to improve their social capital and for platforms to refine user services and incentive mechanisms.

2 Related Research

2.1 Social Capital Theory Research

All behaviors of social Q&A users revolve around social networks, which serve not only as resources users can access but also as channels for acquiring resources. On Zhihu, users can edit their personal homepage information and selectively disclose personal details to shape their self-image, and raise questions based on personal interests while following questions of interest. "Social capital" was first evolved from P. Bourdieu' s "capital" concept in economics [4], and J.S. Coleman initially defined it as a symbol of personal wealth at the theoretical level [5]. N. Lin conceptualized social capital as social resources invested in social networks that are expected to yield returns and can be acquired through individual effort as fluid capital [6]. R.S. Burt' s "structural holes" theory from the group level posits that an individual' s position in a social network is more important than the strength of their personal social network—if a third party can connect two socially unconnected network nodes, they possess greater information and control advantages [7]. The classification and measurement of social capital are also core components of social capital theory. F. Fukuyama focused on macro-level social capital research [8], while N.T. Uphoff divided social capital from subjective-objective perspectives, arguing that cognitive social capital arises from subjective factors such as individual consciousness, values, and attitudes, whereas structural social capital emerges from objective factors like individual connections, rules, and procedures [9].

Through reviewing social capital theory, N. Lin' s definition not only demonstrates the inherent nature of social capital—people can obtain social capital embedded in social structures by following specific rules—but also emphasizes individual agency, as users can acquire needed social capital through personal effort [5]. In this study, social capital primarily refers to the sum of resources embedded in social networks that can be accessed and utilized, reflecting virtual community users' capabilities, reliability, and social relationships.

2.2 Health Information Behavior Research

Social Q&A users' health information behavior extends from general network user information behavior, referring to activities users engage in on social Q&A platforms to meet health information needs, including health information need recognition and expression, information searching, selection, storage, absorption, and utilization [10]. C.M.K. Cheung et al., from the perspective of health information users, categorized user health information behavior into health knowledge contribution behavior and health knowledge acquisition behavior. Contribution behavior includes information publishing, processing, creation, and uti-

lization, while acquisition behavior specifically encompasses information browsing, searching, and storage [11]. Self-information disclosure behavior is a special type of information publishing behavior and a unique component of health information contribution behavior [12]. Therefore, this study divides health information behavior into three categories: health knowledge contribution behavior, health knowledge acquisition behavior, and self-information disclosure behavior.

Health knowledge contribution behavior refers to actions where individuals with health knowledge surplus publish, process, create, and utilize their knowledge in specific contexts [11]. Identity-based trust, social exposure, word-of-mouth marketing, and reciprocal norms with others directly influence social Q&A users' knowledge contribution intentions [13]. External factors such as economic rewards or social recognition affect initial contribution behavior, while internal factors drive sustained contribution [14]. Health knowledge acquisition behavior refers to users' actions driven by specific health information search tasks to obtain needed health knowledge from multiple sources to meet health needs [11]. Users with different health information needs vary in the content they focus on and their evaluation criteria [15]. Knowledge satisfaction, entertainment, social interaction, and instrumentality are primary motivations for young people' s health information searching [16], while older adults focus more on chronic disease conditions [17]. Self-information disclosure behavior refers to the process where users convey personal information or images to others in specific contexts, accumulating social capital and constructing self-identity [18]. A. Batenburg et al. believe users primarily use social media to establish new social relationships and maintain friend connections [19], while other scholars argue users continuously self-disclose to control self-presentation processes [20-21]. Therefore, social needs, self-presentation, and personalized services are the main reasons users disclose personal information [22].

2.3 Relationship Between Social Capital and Health Information Behavior of SQA Users

Due to the rapid development of social Q&A platforms, the impact of users' health information behavior on social capital has attracted scholarly attention domestically and internationally. Existing research on social Q&A users mainly focuses on determining user roles and exploring user characteristics based on behavior [23]. According to users'behavioral performance on social Q&A platforms, some users actively participate in Q&A and contribute knowledge, while others only browse and search for knowledge. However, users who actively contribute knowledge in communities receive more external favor such as social capital [24]. S. Valenzuela et al. conducted grouped experiments on Facebook users and found a significant positive relationship between social media use and social capital [25]. Zhang Pengyi et al. analyzed behavioral data from 1,952 Zhihu users and found that users could accumulate social capital through content-based or interactive activities [26]. G. Wang et al.' s research demonstrated that when users serve as information providers, those with larger follower bases

receive more likes, thereby attaining higher social capital [27].

In knowledge-economy social Q&A communities, users can gain recognition from others through knowledge contribution or expand social networks through knowledge acquisition to accumulate social capital. Therefore, studying the relationship between social capital and users' online behaviors on social Q&A platforms helps understand social capital accumulation mechanisms in the knowledge economy era. However, current research rarely examines the relationship between users' health information behaviors and social capital by subdividing user health information behaviors and considering users' social Q&A behaviors holistically, and most studies use questionnaire surveys, lacking objectivity and accuracy. This study uses webpage log data to explore the relationship between social Q&A users' social capital and different health information behaviors, helping knowledge providers improve social capital while providing references for social Q&A platforms to refine user services and incentive mechanisms.

3 Theoretical Model and Research Hypotheses

As a product of the knowledge economy era, social Q&A platforms have formed knowledge contribution and acquisition-centered social networks through discussion topics, live sessions, columns, roundtables, and other interaction modes. Existing literature confirms that users' platform usage and community activity levels affect their social capital acquisition [24-25]. Based on this, this study applies social capital theory to measure social Q&A users' health knowledge contribution behavior, health knowledge acquisition behavior, and self-information disclosure behavior from both cognitive and structural dimensions. The theoretical framework is shown in Figure 1 [Figure 1: see original paper].

3.1 Impact of Health Knowledge Contribution Behavior on Social Capital Acquisition

The foundation of social Q&A platform operation is knowledge surplus contributors. Information contribution behavior and social capital have a very significant relationship [28]. On social Q&A platforms, social capital serves as a background factor regulating knowledge contributors' perceived external benefits, representing an important motivation for users' knowledge sharing behavior [3]. J. Jin et al., based on social capital, social cognition, and social exchange theories, empirically found that users' continuous information contribution behavior intentions on social Q&A platforms significantly correlate with others' recognition, and that longer information contribution time on social Q&A platforms corresponds to more social capital [29]. Meanwhile, P. Fichman analyzed questions on Yahoo! Answers and found that one in seven answers was high-quality [30]. Therefore, when users contribute more knowledge in social Q&A communities, they attract more users and obtain higher social capital. Moreover, controlling for answer quality, experienced users more easily obtain social capital than inexperienced users [31]. That is, the more information users contribute on social Q&A platforms, the more social capital they obtain. Thus, we propose:

H1a: Social Q&A platform users' health knowledge contribution behavior positively influences their cognitive social capital.

H1b: Social Q&A platform users' health knowledge contribution behavior positively influences their structural social capital.

3.2 Impact of Health Knowledge Acquisition Behavior on Social Capital Acquisition

Social Q&A users can effectively complete the three necessary steps of knowledge acquisition on platforms: attention—learning without distraction; retention—remembering learned knowledge; and production—reproducing learned knowledge [29]. Most social Q&A users play the role of knowledge acquirers, searching for information to meet their needs. C.A. Johnson's research on how social networks affect users' information acquisition behavior found that users' information acquisition behavior also affects social capital acquisition [32], confirming L. Song et al.' s view that social capital as a member resource affects users' health information acquisition behavior [33]. Z. Deng' s study on social Q&A users' health information searching found that social capital has a significant positive effect on perceived health risk and self-efficacy during health information searching [34]. Zhu Peng explored academic search behavior in social media and found a strong positive relationship between users' social capital and academic information acquisition behavior [35]. R. Nylund et al., using MySpace as a research subject, found that users motivated by knowledge acquisition had higher social capital than those using platforms for entertainment [36]. That is, the more knowledge users acquire on social Q&A platforms, the more social capital they obtain. Therefore, we propose:

H2a: Social Q&A platform users' health knowledge acquisition behavior positively influences their cognitive social capital.

H2b: Social Q&A platform users' health knowledge acquisition behavior positively influences their structural social capital.

3.3 Impact of Self-Information Disclosure Behavior on Social Capital Acquisition

H. Tajfel and J. Turner first proposed social cognition theory, arguing that social identity is a concept explaining social behavior patterns [37]. Users' self-disclosure behavior and sociality have a strong "dual effect" —users are willing to reveal their personalities to exchange information and develop social networks [38]. On social Q&A platforms, users operate in an extremely open and shared virtual environment. To quickly understand others, users typically view disclosed information to infer personality, interests, experiences, and thereby understand social status or personal identity [11]. Users' rational judgment of information based on common interests and hobbies can improve perceived information value, thereby increasing social capital [39]. H. Lee et al. established a complex research model between social capital and self-information disclosure

behavior, verifying through questionnaires that social capital promotes users'self-information disclosure while self-information disclosure behavior also increases users' social capital [40]. E. Tzortzaki et al. found that Facebook usage intensity, self-disclosure behavior, and social capital are positively correlated [41]. Therefore, we believe that the more identity information users disclose on social Q&A platforms, the more easily they obtain social capital in social Q&A communities. Thus, we propose:

H3a: Social Q&A platform users' self-information disclosure behavior positively influences their cognitive social capital.

H3b: Social Q&A platform users' self-information disclosure behavior positively influences their structural social capital.

4 Validation Experiment on the Relationship Between Social Q&A Platform Users' Health Information Behavior and Social Capital

4.1 Data Collection

As one of China' s most influential social Q&A platforms, Zhihu had over 100 million registered individual users as of September 2017, with monthly page views exceeding 18 billion [42]. In nearly 30 years of statistics, diabetes-related deaths in China rank only below cardiovascular diseases and malignant tumors [43]. Therefore, this study selected answerers under Zhihu' s diabetes topic as research subjects. Since Zhihu does not provide an API, we used Python to write crawler code to capture answer content and user data under the diabetes topic. By December 2017, we had captured 2,537 question posts with 3,567 answers under Zhihu' s diabetes topic. After screening for duplicate users, the final research sample consisted of 1,650 users' Zhihu homepage data.

4.2 Variable Description and Measurement

4.2.1 Dependent Variables Cognitive social capital primarily refers to users sharing common values. G. Wang et al. empirically found that Weibo users' follower counts are proportional to the likes and reads their posts receive, facilitating the acquisition of attention and social capital from other users [27]. Social Q&A users' values are mainly expressed through recognition, and the number of likes reflects users' endorsement of knowledge contributors [44]. Therefore, cognitive social capital is measured by the number of likes received. On social Q&A platforms, "followers" can immediately know about the followed user' s activities. Knowledge contributors mainly disseminate and share knowledge through their "followers," forming social networks. Meanwhile, follower counts reflect users' positions and influence in social networks [11]. Therefore, structural social capital is measured by follower counts.

4.2.2 Independent Variables Based on C.M.K. Cheung et al.'s classification of health information behavior [11], this study divides users' health information behavior on social Q&A platforms into three categories. When users act as knowledge contributors, they can contribute knowledge by answering questions, writing columns, participating in live sessions, and public editing. The number of answers well measures users' contribution to the community [29], while column and live session counts are only available to a very small number of users with uneven distribution. Therefore, this study uses answer counts and public edit counts to measure health knowledge contribution behavior. Meanwhile, users acquire knowledge by asking questions and following people or topics, so question counts [26] and follow counts [45] reflect users' knowledge acquisition behavior. This study selects question counts, number of people followed, number of questions followed, number of collections followed, number of columns followed, and number of topics followed to measure health knowledge acquisition behavior. For self-information disclosure behavior measurement, this study adopts J. Jin et al.' s scoring system for personal information disclosure level —the sum of disclosed personal information items [29]. On Zhihu, users can disclose nine types of personal information on their homepage: name, avatar, gender, one-sentence description, industry, location, work experience, education experience, and personal introduction. Each item scores 1 point (1 for public, 0 for non-public), with a total possible score of 9.

4.3 Data Analysis and Results

In statistical methods, multiple linear regression is a typical approach for estimating the effects of two or more explanatory variables. Social Q&A users' social capital acquisition is influenced by multiple health information behaviors, representing a multivariate problem. Therefore, this study uses multiple linear regression to predict users' social capital acquisition on social Q&A platforms.

4.3.1 Descriptive Statistics and Feature Analysis Table 2 shows that except for self-disclosure behavior, other variables exhibit means much larger than medians and far smaller than maximum values, indicating most data are concentrated in smaller value intervals. Since data for health knowledge contribution behavior, health knowledge acquisition behavior, and social capital are highly skewed, this study uses logarithmic transformation to address this. Table 2 shows the frequency distribution characteristics of social Q&A users' health information behavior and social capital with fixed effects.

Figures 2 [Figure 2: see original paper] and 3 [Figure 3: see original paper] show the distribution of users' health knowledge contribution behavior and health knowledge acquisition behavior, respectively. Answer counts and public edit counts represent health knowledge contribution behavior, while health knowledge acquisition behavior includes answer counts, number of people followed, number of questions followed, number of collections followed, number of columns followed, and number of topics followed. The x-axis in these figures represents

the logarithmic coordinates of these measurement items plus 1, and the y-axis represents the logarithmic coordinates of the frequency of each behavioral data point plus 1.

Figure 4 [Figure 4: see original paper] shows the distribution of self-information disclosure behavior. The total personal information score ranges from 3-9, with frequencies relatively concentrated except for one extreme value. Therefore, fixed user effects are not applied, with real statistics shown in Figure 4. The x-axis represents the total number of personal information items disclosed by users, and the y-axis represents the frequency of each total score, following a positive skew distribution.

Figure 5 [Figure 5: see original paper] shows the distribution of users' cognitive and structural social capital. The x-axis represents the logarithmic coordinates of likes and followers plus 1, and the y-axis represents the logarithmic coordinates of user frequency plus 1. The figure shows that social capital approximately follows a power-law distribution, indicating that only a very small number of users hold the vast majority of social capital, while most users have only small amounts.

4.3.2 Relationship Between Social Q&A Users'Health Information Behavior and Social Capital (1) Factor Analysis. Before multiple linear regression, correlation analysis was conducted. Table 3 shows that when correlation coefficients exceed 0.3, they are defined as highly correlated; coefficients between 0.2-0.3 indicate moderate correlation. The table shows that except for the moderate correlation between information disclosure behavior and cognitive social capital, other behaviors are highly correlated with social capital. The results also show KMO = 0.850 > 0.8, and Bartlett' s sphericity test p = 0.000 < 0.001, indicating that the analyzed variables are correlated and suitable for factor analysis.

(2) Multicollinearity Diagnosis. This study uses Variance Inflation Factor (VIF) to test multicollinearity between social Q&A users' health information behavior and social capital. Using SPSS 22.0, the results show VIF values for these explanatory variables range from 1.089-6.526, all below the critical value of 10, indicating multicollinearity effects are within acceptable limits.

(3) Multiple Linear Regression Analysis. After confirming the variables are suitable for multiple linear regression, this study used SPSS 22.0' s multiple linear regression module to build prediction models, estimate parameters, and conduct significance tests. The "forward selection method" was used to test each independent variable' s effect on dependent variables, with results shown in Table 4 .

Table 4 shows that in Model 1a, health knowledge contribution behavior positively influences cognitive social capital ($\beta\{answer\} = 1.304$, $p < 0.001$; $\beta\{\{\text{public}\}\}\{\{edit\}\} = 0.160$, $p < 0.001$), *supporting H1a. Model 1b shows health knowledge contribution behavior positively influences structural social*

capital (β{answer} = 0.928, p < 0.001; β{{{*public*}}}{{edit}}} = 0.164, p < 0.001), supporting H1b.

Building on Model 1a, Model 2a shows different health knowledge acquisition behaviors differentially affect cognitive social capital. Specifically, the number of people followed positively influences cognitive social capital acquisition (β{{{*people*}}}{{followed}}} = 0.135, p < 0.001), while the number of questions asked and number of questions followed negatively influence cognitive social capital (β{{{*questions*}}}{{asked}}} = -0.315, p < 0.001; β{{{*questions*}}}{{followed}}} = -0.123, p < 0.001). The number of collections followed, columns followed, and topics followed have no significant effect on cognitive social capital. Therefore, H2a is not supported.

Model 2b shows the number of questions asked positively influences structural social capital acquisition (β{{{*questions*}}}{{asked}}} = -0.333, p < 0.001), while the number of people followed negatively influences structural social capital (β{{{*people*}}}{{followed}}} = 0.157, p < 0.001). The number of questions followed, collections followed, and columns followed have no significant correlation with structural social capital. Different health knowledge acquisition behaviors affect users' structural social capital to varying degrees, thus H2b is not supported.

Model 3a shows self-information disclosure behavior positively influences cognitive social capital (β{{{*personal*}}}{{info}}} = 0.042, p < 0.05), supporting H3a. Model 3b shows self-information disclosure behavior positively influences structural social capital (β{{{*personal*}}}{{info}}} = 0.153, p < 0.01), supporting H3b. Figure 6 [Figure 6: see original paper] visualizes the impact of social Q&A users' health information behavior on social capital.

(4) Endogeneity Test. Two potential challenges exist for the conclusion that social Q&A users' health information behavior affects social capital acquisition: first, whether health information behavior affects social capital or whether increased social capital intensifies users' health information behavior; second, whether omitted key variables simultaneously affect both users' health information behavior and social capital, thereby biasing results. To address these, this study conducted endogeneity testing by sampling 200 users' data at intervals, randomly dividing them into two groups, conducting correlation analysis and multicollinearity diagnosis, then performing multiple linear regression on increments of health information behavior and social capital. Endogeneity test results are largely consistent with main test results, indicating the research findings are robust.

5 Results Discussion

Based on real user data from Zhihu' s diabetes topic, this study analyzed social Q&A platform users' social capital and health information behavior. The distribution of social capital data shows that most social capital is concentrated in

the hands of a very small number of users, conforming to the Pareto principle observed in social phenomena.

Health knowledge contribution behavior, health knowledge acquisition behavior, and self-information disclosure behavior represent three different health information behaviors generated by users to meet health information needs. High-level users contribute high-quality knowledge on Zhihu, attracting users to browse and acquire needed knowledge, thereby building social networks. Simultaneously, users' self-information disclosure helps gain others' trust, strengthen connections, expand social networks, and form a virtuous cycle of knowledge contribution and acquisition. Analysis of the relationship between social Q&A users' social capital acquisition and health information behavior reveals:

(1) Social Q&A users' health knowledge contribution behavior positively influences social capital. Unlike enterprise knowledge management communities, social Q&A platforms offer no economic rewards for knowledge contribution, and users don' t know each other or have real-world stakeholder relationships. Therefore, when users act as knowledge providers, they gain primarily social capital. Table 4 shows that the number of questions users answer on social Q&A platforms is highly correlated with both cognitive and structural social capital accumulation, consistent with existing research [44]. The correlation between answer counts and cognitive social capital is higher than with structural social capital because answer counts demonstrate users' insights on specific questions, quickly establishing initial impressions in others' minds and thus more easily accumulating cognitive social capital. When users have high public edit counts on the platform, both cognitive and structural social capital increase correspondingly. Public editing involves editing questions or topics and represents community service contributions, so its impact on different types of social capital is similar, with no large variation in magnitude.

(2) Different health knowledge acquisition behaviors of social Q&A users affect social capital to varying degrees. Since social Q&A platforms' main function is knowledge dissemination, when users act as information acquirers, asking questions on the platform weakens social capital accumulation. However, the number of people followed is positively correlated with social capital—following others on social Q&A platforms constitutes a social activity to some extent, as this behavior may attract the attention of those followed, thereby accumulating social capital. This aligns with N. Lin' s theory that "users acquiring resources to achieve goals simultaneously increase resources" [6]. The number of questions followed is associated with cognitive social capital but significantly uncorrelated with structural social capital, possibly because following questions reflects users' knowledge acquisition attitudes and values rather than user connections or structures. The three information acquisition behaviors—following collections, following columns, and following topics—are significantly uncorrelated with both cognitive and structural social capital, indicating these behaviors are personal channels for acquiring learning information unrelated to social networks and thus cannot accumulate social capital based on these

behaviors.

(3) Social Q&A users' health information disclosure behavior positively influences social capital. Social Q&A users'self-information disclosure indicates that users make themselves transparent on the platform to gain others' trust, thereby winning more recognition and higher social status [46]. The more personal information users disclose on social Q&A platforms, the higher their social participation level, which strengthens reciprocal participation between users and greatly helps social capital accumulation. Research indicates that interpersonal trust is the main bridge between social Q&A behavior and social capital acquisition, and users' self-information disclosure behavior overcomes communication barriers caused by trust deficits in virtual networks, enabling social capital formation and growth [47]. Zhihu' s advocated real-name system can quickly and effectively connect acquired information about others with information owners, thereby establishing interpersonal trust. Increasing interpersonal trust through personal information disclosure on social Q&A platforms thus positively influences social capital accumulation.

6 Research Conclusions

This study aims to understand the relationship between different health information behaviors of social Q&A platform users and social capital. Results from Zhihu' s diabetes topic show that users' knowledge contribution behaviors—such as actively answering questions and public editing—positively promote social capital accumulation. More answers lead to faster cognitive social capital accumulation, while asking questions on the platform affects social capital acquisition. The number of people followed helps acquire social capital, but the number of questions followed hinders cognitive social capital accumulation while being significantly uncorrelated with structural social capital. Following collections, columns, and topics are significantly uncorrelated with social capital. Social Q&A users' health information disclosure behavior significantly impacts social capital accumulation. To obtain high social capital on social Q&A platforms, users should strengthen knowledge contribution behavior and self-disclosure behavior, such as actively answering questions, editing questions, and disclosing personal information.

This research helps social Q&A platform managers recognize that users with different social capital levels exhibit significantly different behaviors, and should improve user services and incentive mechanisms accordingly. For users with low social capital, platforms can adopt reward methods to encourage them to improve personal information and gain higher user recognition. For users with high social capital, platforms should encourage them to answer questions, participate in public editing, and actively contribute knowledge on social Q&A platforms to enable better knowledge sharing cycles. Additionally, social Q&A platforms should maintain commitments to user information security, increase users' sense of belonging—users with belongingness are more likely to disclose self-information on social Q&A platforms and maintain long-term relationships

with communities.

As an exploratory study, this research has limitations. First, in data collection, this study only used an automated Python program to capture user data without considering the dynamic nature of social Q&A platforms where user data constantly changes. Future research should obtain more and more accurate user follow-up behavior data. Second, in variable selection, this study used likes and followers to represent cognitive and structural social capital, respectively, representing a certain degree of simplification in measuring social capital. Future research could broaden social capital research dimensions. Finally, since this study crawled real data from the social Q&A platform Zhihu for quantitative variable analysis, it is subject to limitations in crawling platform data, and the measurement indicators used have certain generalization errors and cannot very accurately characterize users' health information behavior. However, the measurement indicators are still based on previous research [29, 34, 48-53], possessing certain relevance and rationality.

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