

Modified CMIS Factors Predicting Chinese Women's Mental Health Information Seeking in Douyin

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Abstract

The popularity of Douyin (known as TikTok overseas) could provide additional mental health information services to Chinese women. However, the factors that influence women to seek mental health information services in Douyin are still understudied. The study applied the Comprehensive Model of Information Seeking (CMIS) to Chinese women's mental health information seeking behaviors on Douyin to examine this. The study used a questionnaire (N=505), and the data analysis was conducted using partial least squares structural equation modeling (PLS-SEM). SmartPLS 4.0 was the primary data analysis technology. Results showed that direct experience, beliefs, salience, and characteristics of mental health information could significantly affect the utility of mental health information on Douyin. In addition, utility, social support, and characteristics directly affect Chinese women's mental health information seeking. Moreover, utility partially mediates the relationship between direct experience, beliefs, salience, characteristics, and mental health information seeking. Rather than targeting specific diseases or pan-health information, this study demonstrates the possibility of applying CMIS to mental health information seeking. This insight could contribute to Douyin and government health interventions to better meet the mental health information needs of Chinese women.

Keywords: Chinese Women, Douyin, CMIS, mental health information seeking in Douyin, PLS-SEM

1. Introduction

Mental health issues are prevalent in China, particularly affecting women due to historical and societal factors (Huang et al., 2019; Pearson, 1995). For instance, cultural norms and gender roles influence women's mental health information seeking (MHIS) behavior, which is exacerbated by unique societal pressures (Xu, Huang, Tang, & Kaufman, 2022; Gao et al., 2020). Disorders like daily depression, postpartum depression, and eating disorders are more prevalent than men among women (Ali & Toner, 1996; Lin et al., 2019; Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999). Despite this, quality mental health care resources, especially for women, remain limited in China (Wu, Zhao, & Ye, 2016).

Social media, such as Twitter and Facebook, play a crucial role in mental health regulation and information-seeking (Ulvi et al., 2022). These platforms provide valuable tools for receiving information, connecting with others, and reducing isolation (Berry et al., 2017; Naslund, Aschbrenner, Marsch, McHugo, & Bartels, 2018). However, there are gender differences in the use of social media for MHIS (Fergie, Hilton, & Hunt, 2016). Notably, women are central online health information seekers, emphasizing the importance of understanding their MHIS behavior on platforms (Lupton & Maslen, 2019). The above highlights the potential for online platforms as a crucial avenue for Chinese women to access mental health services (Ulvi et al., 2022).

Douyin, a popular social media app in China with 600 million daily users, is a unique platform for short video creation (Yang, Zhao, & Ma, 2019). Douyin's version outside China is TikTok; it has gained popularity among millennials since 2016 (Du, Liechty, Santos, & Park, 2022). Chinese health committees recognize its potential and use Douyin to share health information (Zhu, Xu, Zhang, Chen, & Evans, 2020). The popularity of Douyin not only helps people with mental health to find related information, but it can also reduce the stigma against mental illness, according to Li, Tang, and Pu (2023). However, there is a research gap on Mental Health Information Seeking (MHIS) by Chinese women on Douyin, despite extensive health information research on social media (Lin, Zhang, Song, & Omori, 2016; Niu, Willoughby, & Zhou, 2021).

To understand the factors that influence Mental Health Information Seeking (MHIS) among Chinese women on Douyin. The Comprehensive Model of Information Seeking (CMIS) provides an adequate framework for exploring this behavior (Johnson & Meischke, 1993). While CMIS has been employed in MHIS research (DeLorme, Huh, & Reid, 2011; Basnyat, Nekmat, Jiang, & Lin, 2018; Ruppel, 2016), its application to women's health topics is less common in the literature. To address these gaps, this study aims to investigate Chinese women's MHIS behaviors on Douyin using a modified CMIS. The unique characteristics of Douyin as a social media platform and its relevance to mental health demand a focused, in-depth investigation. By identifying factors influencing women's MHIS behavior and understanding the mediating role of utility, this research will contribute to theoretical knowledge and practical implications for promoting mental health support systems.

2. Theoretical Background

The CMIS (Figure 1) integrates three theorizing approaches: the use and satisfaction theory (Nabi & Mary, 2009), the health belief model (Janz & Becker, 1984), and the media exposure and evaluation model (Johnson & Meischke, 1993). CMIS aligns with the scope of this study regarding social media users' MHIS behaviors and emphasizes personal factors in health information seeking. The model posits that antecedents such as demography, direct experience, salience, and personal beliefs initiate user-seeking behavior moderated by information carrier factors (characteristics and utility) influencing seeking actions (Johnson & Meischke, 1993). CMIS has demonstrated effectiveness in online health information scanning (Ruppel, 2016) and has been applied in various studies, including social media health information seeking concerning tobacco control (Xiao, Lee, Zeng, & Ni, 2020) and disease-specific information seeking among women (Qazi & Hayat, 2020).

However, CMIS has not been extended to study MHIS in the unique social media environment that this study aims to address. While some studies suggest an impact of age, marital status, income, and race (Cotten & Gupta, 2004; Ruppel, 2016), others conclude that the impact of demographics is limited in CMIS research (Grant, Wiegand, & Dy, 2015; Basnyat et al., 2018; Tustin, 2010; Han et al., 2010). Hence, demographic variables were not used as independent variables in this study.

Based on the preceding discussion, this study aims to answer the following research questions: 1) What factors influence Chinese women's mental health information seeking behavior on Douyin? 2) Does utility mediate the relationship between antecedents and Chinese women's mental health information seeking behavior on Douyin?

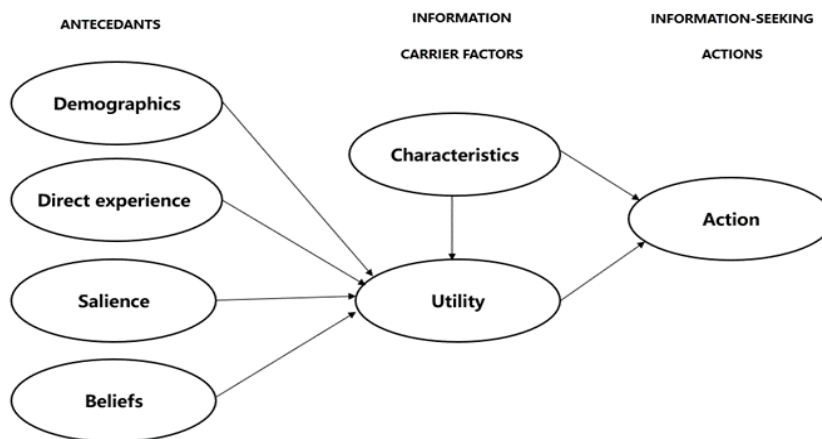


Figure 1. Comprehensive model of information seeking (Johnson & Meischke, 1993).

3. Conceptual Framework

3.1 Health-related Antecedents

3.1.1 Direct Experience

Direct experience (DE) encompasses a person's extensive personal health encounters, including self-reported health and non-somatic distress (Hartoonian, Ormseth, Hanson, Bantum, & Owen, 2014). It relates to assessing one's health status and the extent of illness experience (Johnson & Meischke, 1993; Oh, 2016). Studies suggest that people's health evaluations affect their use of media to seek health information (Van-Stee & Yang, 2018). Furthermore, experience with mental health issues can positively influence the information-seeking process, such as the perceived utility of women users (perceived relevance and usefulness of Douyin mental health information) (Powell & Clarke, 2006). In CMIS, direct experience affects utility through emotional symptoms and the individual's social network (Xiao et al., 2020). Therefore, we propose the following hypothesis.

H1: Direct experience is positively related to the utility of mental health information.

3.1.2 Salience

Salience refers to the perceived relevance of information to an individual's dilemma (Evans & Clarke, 1983), and it represents the importance of perceived health information to the individual (Johnson & Meischke, 1993). In online health information seeking research, Basnyat et al. (2018) replaced salience with perceived susceptibility and perceived severity, finding significant correlations between salience and utility. D. Johnson, Donohue, Atkin, and S. Johnson (1995) established a connection between women's health information seeking and their health status, concerns, and fears. Ruppel (2016) identified salience as a health correlate linked to health information scanning. In a study on smoking health information, salience and utility were also correlated (Xiao et al., 2020). Therefore, we propose the following hypothesis.

H2: Salience is positively related to the utility of mental health information.

3.1.3 Belief

Johnson and Meischke (1993) emphasize the importance of beliefs in information seeking outcomes in the CMIS model, highlighting an individual's perception of competence in the seeking process. Furthermore, in the CMIS model, beliefs are equivalent to an individual's self-efficacy, which is defined as "the degree to which an individual believes that he or she has control over the future or that effective methods of prevention, treatment, and control exist" (Johnson, Andrews, & Allard, 2001). Studies have shown that when people seek general health information online, beliefs significantly influence their perceived usefulness of the content (Basnyat et al., 2018; Johnson et al., 1995). In addition, beliefs encompass efficacy, which is relevant to health information seeking. Studies on specific health topics, such as tobacco and cancer, have found that beliefs influence the utility of health information (Xiao et al., 2020; Qazi & Hayat, 2020). Therefore, we propose the following hypothesis.

H3: Belief is positively related to the utility of mental health information.

3.1.4 Social Support

Social support refers to expressions of care, love, respect, or value from others (Kim, Kreps, & Shin, 2015) and is seen as an exchange of resources through social relationships (Cohen & Hoberman, 1983). Numerous studies highlight the internet's ability to construct practical social support (Drentea & Moren-Cross, 2005; Barrera, Glasgow, McKay, Boles, & Feil, 2002), significantly influencing online health information behavior (Deng & Liu, 2017) and health information use intentions for specific groups (Kong, Deng, & Zhang, 2019). Huurne and Gutteling (2008) identify social influence as a predictor of information seeking.

Moreover, social support is crucial in disseminating health information (Zhao et al., 2021). Qualitative research indicates that sharing stories among people with mental health issues can positively impact their psychological well-being (Powell & Clarke, 2006). In a CMIS study, social support influenced health service system use (Han et al., 2010). During the COVID-19 pandemic, social support mitigated the impact of low resilience on mental health across age groups (Li et al., 2021). In depression studies, women perceive social support more strongly than men (Lu, Pan, Liu, & Wu, 2021). Based on the evidence above, we propose the following hypothesis.

H4: Social Support is positively related to mental health information seeking.

3.2 *Information Carrier Factors*

3.2.1 Characteristic

The CMIS model suggests that information carrier characteristics influence perceptions of the information carrier's utility and impact media use behavior (Johnson & Meischke, 1993). For example, credible features are considered essential in organizational communication for the value of information individuals receive (Glauser, 1984), information tone features can also influence individuals' perception of information (Johnson & Meischke, 1993). Studies indicate that engineers prefer reading materials that are easy to understand, suggesting that the easy-to-understand characteristics of communication information can influence individual reception (Allen, 1984). In a media experiment, the most reliable path in CMIS was found from information carrier characteristics to information carrier utility (Johnson & Meischke, 1993).

The study adopts Douyin as a research environment and provides a space for creative expression (Yang, 2020). Further, Douyin's interactive and social attributes enhance health knowledge-seeking experiences for younger generations (Montag, Yang, & Elhai, 2021). Professional Douyin video content is easily comprehensible and impacts users' perceptions of content usefulness (X. Lu & Z. Lu, 2019). Thus, Characteristics associated with mental health information on Douyin could impact users' assessment of its utility.

Moreover, characteristics may influence information-seeking behavior directly (Johnson & Meischke, 1993). Studies indicate that Douyin enhances health information-seeking behavior by providing a variety of information formats,

including text, images, audio, and video (Deng, Liu, & Hinz, 2015; Basch, Hillyer, & Jaime, 2022). Thus, we posit the following hypothesis.

H5: Characteristics of mental health information are positively related to the utility of mental health information.

H6: Characteristics of mental health information are positively related to mental health information seeking.

3.2.2 Utility

Johnson and Meischke (1993) defined utility as the perceived usefulness of information for a specific health condition while noting that higher utility corresponds to higher trust. Their subsequent studies revealed a positive correlation between individuals' health information-seeking actions and utility. Moreover, a study on tobacco health information showed a positive association between utility and information seeking (Xiao et al., 2020). In India, the pursuit of online health information is strongly correlated with the utility of the information (Basnyat et al., 2018). Previous health information-seeking research (Johnson & Meischke, 1993; Basnyat et al., 2018) has shown utility mediating between antecedents, characteristics, and seeking behavior. Based on this perspective, we present the following hypothesis for this study.

H7: The utility of mental health information is positively related to mental health information seeking.

H8: The utility of mental health information mediates the relationship between Beliefs, Characteristic, Direct experience, Saliency, and mental health information seeking.

According to the hypothesis, the research framework of the study is as follows (Figure 2).

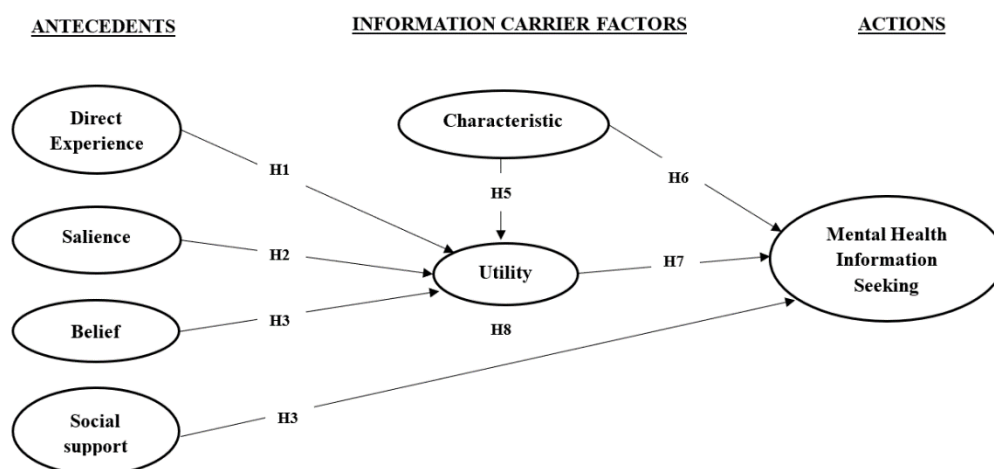


Figure 2. Research framework

4. Methodology

This cross-sectional study recruited Chinese women who had used Douyin through a commercial research company in China (Questionnaire Star). A total of 505 valid questionnaires were obtained from participants who met two conditions: being Chinese nationals and having used Douyin. The questionnaire was distributed via web links, WeChat, and Douyin, with a participation reward of RMB 5. An informed consent form was provided to ensure privacy. Calculating sample size for the study using PLS-SEM involves equation (1), as per Yamane (1967). The resulting sample size of approximately 400 was computed using n (Sample Size). According to the National Bureau of Statistics of China (2021), the total number of women in China is N ($N=688,550,000$). In order to expand the sample size, more than 500 were collected during this research.

$$n = \frac{N}{1+N(e)^2} \tag{1}$$

The researchers included a questionnaire divided into two sections - A for basic information and B for mental health information factors. Demographic information and standard bias measures were analyzed using SPSS 25.0. The PLS-SEM method, widely acknowledged for validating theories (Lowry & Gaskin, 2014), was employed to analyze data in Part B.

5. Measurements

5.1 Antecedents

The direct experience was assessed using four questions adapted from Hartoonian et al. (2014), Powell and Clarke (2006),

Johnson and Meischke (1993), and Oh (2016). The questions explored the participants' encounters with mental health problems, experiences related to poor mental health, ability to identify mental health conditions quickly, and overall perceptions of current mental health. Participants responded on a 5-point Likert scale, yielding a mean score of 4.03 (SD = 0.92; Cronbach's $\alpha = 0.87$).

To capture the spontaneity and health management abilities of women users seeking mental health information, the "beliefs" in the model are primarily represented by "self-efficacy. Self-efficacy, as conceptualized by Bandura (1977) and Oh (2016), refers to an individual's belief in their ability to achieve health-related goals. The Personal Beliefs Scale, adapted from Johnson et al. (2001), comprises four questions that gauge respondents' confidence in preventing mental health problems, addressing poor mental states, comprehending useful mental health information, and employing sound mental health knowledge from Douyin. Participants responded using a 5-point Likert scale, with an average score of 3.59 (SD=1.02, Cronbach's $\alpha=0.88$).

The Salience construct integrates dimensions from perceived severity and perceived susceptibility scales, adapted from studies by Hartoonian et al. (2014) and Basnyat et al. (2018). Respondents used a 5-point Likert scale (ranging from 1=strongly disagree to 5=strongly agree) to assess the potential impact of their mental health, concerns about future psychological effects, familial predisposition, and adaptability to life changes. This resulted in a mean score of 3.61 (SD=0.91, Cronbach's $\alpha=0.88$).

Social support dimensions, as defined in Cha's (2010) framework, comprise tangible, emotional, respectful, and evaluative aspects that have been validated in the context of social media sites. Respondents agreed with statements regarding the mental health assistance links, the comfort gained from the mental health content of Douyin, the lack of offensiveness of the content, and the use of information in decision-making. The 5-point Likert scale results (1=strongly disagree to 5=strongly agree) revealed a mean of 4.01 (SD=0.83, Cronbach's $\alpha=0.83$).

5.2 Information Carrier Factors

Characteristics analyzed in Yang (2020) and Zeng, Abidin, and Schäfer (2021) were evaluated by assessing the mental health information of Douyin: lively text style, ease of understanding, content credibility, creativity, and interactivity. A mean score of 3.66 (SD=0.91, $\alpha=0.86$) was obtained from responses on a 5-point Likert scale.

Utility, as measured by the combination of the Health Information National Trends Survey (HINTS) in America and the Perceived Usefulness scales (Davis, 1989; Hendrickson, Massey, & Cronan, 1993), was evaluated using four items that measured factors including time efficiency, concern for information quality, increased access to mental health information, and perceived assistance in managing mental health. Responses, based on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), yielded a mean score of 3.80 (SD=0.89, Cronbach's $\alpha=0.83$).

5.3 Actions

MHIS dimensions, adapted from studies in health information, encompass factors such as length, research subject, breadth, and participant count (Akhther & Sopory, 2022; Johnson et al., 1995; Weaver et al., 2010). Participants evaluated statements regarding their experiences with mental health information on Douyin over the past six months, including using Douyin weekly for mental health information, actively seeking based on personal needs, continually expanding their search based on requirements, and following popular mental health topics. Ratings were given on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), resulting in a mean rating of 3.91 (SD = 0.85, Cronbach's $\alpha = 0.90$).

6. Results

6.1 Basic Information of the Respondent

The study analyzed data from 505 Chinese women (Table 1) with a normal distribution. Age distribution was consistent with the Chinese Statistical Yearbook 2021 (National Bureau of Statistics of China, 2021). Skewness and kurtosis values were within suitable ranges for SEM analysis (Brown, 2006). Education levels were as follows: 5.1% of respondents had completed primary education (N=26), while 4.4% indicated junior high school as their highest qualification (N=22). 35.4% had completed high school or secondary education (N=179), and 20.2% had attended vocational college (N=102). 28.1% were undergraduates (N=142), while 5.3% had obtained a Master's degree (N=27), and 1.4% reported holding a doctoral degree or higher (N=7). In terms of marital status, 26.9% were single (N=136), 24.8% were in a committed relationship (N=125), and 48.3% were married (N=244). Concerning income, 65.1% reported earning between RMB 3001-5000 (N=329). The subsequent highest income category is RMB 5001-10000, comprising 107 individuals accounting for 21.2% of the sample.

Table 1. Demographic characteristics (N=505).

Characteristics	Frequency	Percent	Skewness	Kurtosis
Age (M=39.50, SD=20.00)			0.4	-1.2
Education (M=3.83, SD=1.26)			-0.1	-0.2
1=Completed Years of Primary Education or Less	26	5.1		
2=Junior High School	22	4.4		
3=High school or secondary school	179	35.4		
4=Vocational University	102	20.2		
5=Undergraduate	142	28.1		
6=Master's degree	27	5.3		
7=Doctoral students and above	7	1.4		
Marital Status (M=2.21, SD=0.84)			-0.4	-1.5
1=Single	136	26.9		
2=In a love relationship	125	24.8		
3=Married	244	48.3		
Income (M=3.28, SD=0.78)				
1=RMB 1000 and below	12	2.4	0.5	2.2
2=RMB 1001-3000	21	4.2		
3=RMB 3001-5000	329	65.1		
4=RMB 5001-10000	107	21.2		
5=RMB10001-20,000	31	6.1		
6=RMB 20001 and above	5	1.0		

Table 2 displays the frequency at which participants viewed or skimmed through mental health information in Douyin. The findings suggest that only 1.8% of respondents never watched or scanned. Most participants (39.4%) reported weekly usage, followed by 38.6% who reported monthly usage. A smaller percentage of respondents (15.8%) reported watching or scanning less than once a month. A small percentage of participants (4.4%) reported watching or scanning daily. The predominant means Chinese women seek mental health information (Table 3) is by consulting professionals offline (N=505, 28.9%) using sources such as Douyin. Notably, Chinese women also seek mental health information from short video platforms (N=505, 24.8%).

Table 2. How often participants watched (or scan to) mental health information in Douyin (N=505).

Items	Frequency	Percent
1=Never	9	1.8
2=Less than once a month	80	15.8
3=Monthly use	195	38.6
4=Weekly use	199	39.4
5=Daily use	22	4.4

Table 3. Favorite access to mental health information (N=505).

Items	Frequency	Percent
1=Radio	7	1.4
2=TV	30	5.9
3=Off-line professional doctor consultation	146	28.9
4=Professional website or forum browsing	94	18.6
5=Information-based social media (e.g., Weibo, Twitter)	84	16.6
6=social media mainly for chatting (e.g., WeChat)	19	3.8
7=Video-based social media (e.g., Douyin)	125	24.8

6.2 Measurement Model Assessment

The measurement of model reliability and validity were assessed using SmartPLS 4.0. According to Hair, Risher, Sarstedt, & Ringle (2019), convergent validity was evaluated through outer loadings, composite reliabilities (CR), average variance extracted (AVE), and Cronbach's alpha coefficients. Outer loadings for measurement items ranged from 0.80 to 0.87, indicating satisfactory convergent validity. Constructs' composite reliabilities (CR) exceeded the recommended threshold of 0.70, ranging from 0.83 to 0.92, demonstrating adequate construct reliability (Hair et al., 2019). AVE values surpassed 0.50 for all constructs, ranging from 0.66 to 0.74, signifying good convergent validity (Aimran, Ahmad, Afthanorhan, & Awang, 2017). Cronbach's α exceeded 0.70, ranging from 0.83 to 0.90, indicating good internal consistency (Cappelleri et al., 2007). Further details are available in Table 4.

Table 4. Construct reliability and validity (N=505)

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
Beliefs	0.884	0.885	0.920	0.742
Characteristics	0.863	0.864	0.901	0.646
Direct experience	0.872	0.882	0.912	0.723
MHIS	0.895	0.896	0.922	0.704
Significance	0.879	0.887	0.912	0.674
Social Support	0.831	0.833	0.887	0.664
Utility	0.829	0.830	0.886	0.661

Note. MHIS=Mental Health Information Seeking.

Tables 5 and 6 present the results of the Discriminant Validity evaluation using the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) ratio of correlations. Additionally, comparisons were made between each construct's square root of the average variance extracted (AVE) and the inter-construct correlations. Results revealed that AVE values for all constructs exceeded their corresponding inter-construct correlations, affirming discriminant validity (Fornell & Larcker, 1981). Moreover, the HTMT ratio of correlations remained below the 0.9 thresholds for all construct pairs, indicating a lack of significant overlap between constructs (Franke & Sarstedt, 2019).

Table 5. Heterotrait-monotrait ratio (N=505)

	Beliefs	Characteristics	Direct Experience	MHIS	Significance	Social Support	Utility
Beliefs							
Characteristics	0.359						
Direct experience	0.349	0.358					
MHIS	0.551	0.502	0.547				
Significance	0.524	0.423	0.467	0.704			
Social Support	0.351	0.366	0.371	0.543	0.442		
Utility	0.405	0.396	0.369	0.458	0.448	0.410	

Note. MHIS=Mental Health Information Seeking.

Table 6. Fornell-larcker criterion (N=505)

	Beliefs	Characteristics	Direct Experience	MHIS	Significance	Social Support	Utility
Beliefs	0.861						
Characteristics	0.314	0.804					
Direct experience	0.308	0.314	0.850				
MHIS	0.491	0.442	0.484	0.839			
Significance	0.461	0.371	0.408	0.624	0.821		
Social Support	0.301	0.311	0.316	0.469	0.382	0.815	
Utility	0.349	0.336	0.316	0.396	0.388	0.339	0.813

Note. MHIS=Mental Health Information Seeking.

6.3 Structural Model Assessment

The structural model, analyzed with SmartPLS 4.0, explored relationships between latent constructs and assessed the model's predictive power. Table 7 displays path coefficients, t-values, p-values, F-square, and Variance Inflation Factor (VIF). Significant relationships among latent constructs were observed in the results.

Table 7. Structural model parameters (N=505).

	VIF	T values	P values	F-square	Path coefficients(Beta)
Beliefs -> Utility	1.328	3.265	0.001**	0.027	0.165
Characteristics -> MHIS	1.185	6.962	0.000**	0.100	0.278
Characteristics -> Utility	1.232	3.533	0.000**	0.031	0.170
Direct experience -> Utility	1.263	2.783	0.003**	0.018	0.133
Saliency -> Utility	1.474	3.866	0.000**	0.033	0.195
Social Support -> MHIS	1.189	7.454	0.000**	0.130	0.317
Utility -> MHIS	1.210	4.914	0.000**	0.048	0.195

Note. MHIS=Mental Health Information Seeking. One-tailed Bootstrapping used.

*p<.05. **p<.01. ***p<.001.

VIF was computed for each exogenous construct to detect multicollinearity issues in assessing collinearity. Following Hair, Ringle, and Sarstedt (2011), $VIF \geq 5$ indicates potential collinearity. In this study, inner VIF values ranged from 1.189 to 1.474, signaling no significant multicollinearity among exogenous constructs. Bootstrapping with 5,000 resamples yielded p-values, all indicating statistically significant path coefficients at 0.05, confirming substantial relationships between constructs. T-values for all paths exceeded 1.96 (95% CI and 1-tailed), supporting research hypotheses from H1 to H8. As per Hair, Thomas, Hult, Ringle, & Sarstedt (2017), Beta values discussed in intervals indicated a moderately strong impact of social support and the characteristic of mental health information on Douyin ($0.3 < \text{Beta value} < 0.5$). Other variables exhibited relatively weak impact levels ($0.1 < \text{Beta value} < 0.3$). This underscores that Characteristics and Social Support are the most significant predictive factors in mental health information seeking on Douyin among Chinese women.

Table 8. Parameter for predictive relevance (N=505).

	Q ²	R ²
Utility	0.146	0.232
MHIS	0.241	0.349

Note. MHIS=Mental Health Information Seeking.

Q² and R² values from SmartPLS 4.0 were analyzed to gauge the structural model's predictive relevance and explanatory power (Table 8). Regarding Q², a measure of predictive relevance, utility showed a moderate value of 0.146, indicating meaningful predictive relevance in the dependent variable. Mental Health Information Seeking also exhibited a notable Q² value of 0.241, signifying significant predictive relevance. These values fall within the moderate predictive relevance range (0.15 to 0.34), as defined by Hair et al. (2017) and Henseler, Ringle, & Sarstedt (2015). The results suggest that beliefs, characteristics, direct experience, and saliency have predictive relevance over utility, while utility, characteristics, and social support have predictive relevance over mental health information seeking. These findings underscore the substantial roles of Utility, Characteristic, and Social Support in explaining variations in the MHIS construct.

Examining the R² values, which signify the proportion of variation explained by the model on the dependent variable, the measurement and interpretation follow the guidelines provided by Hair et al. (2017). The Utility model yielded an R² value of 0.232, indicating that Beliefs, Characteristics, Direct experience, and Saliency collectively account for 23.2% of the variance in Utility of mental health information. This underscores the significant contribution of Beliefs, Characteristics, Direct experience, and Saliency in explaining variations in Utility. Similarly, Utility, Characteristic, and Social Support collectively explain 34.9% of the variance ($R^2=0.349$) in MHIS.

The F-square values in Table 7 offer insights into the effect sizes and strengths of the relationships between the constructs. Following Cohen (2013), values above 0.02, 0.15, and 0.35 characterize the relationships' small, medium, and large effect sizes and strengths.

The first relationship examined is between 'Beliefs' and 'Utility.' With an F-square value of 0.027, 'Beliefs' explain approximately 2.7% of the variance in 'Utility,' indicating a small effect ($f^2 = 0.027$). Moving on to the relationship between 'Characteristics' and 'MHIS,' the F-square value of 0.100 suggests that 'Characteristics' account for around 10% of the variance in 'Mental Health Information Seeking' (MHIS), signifying a small effect size ($f^2 = 0.100$). Continuing with the impact of 'Characteristics' on 'Utility,' the F-square value of 0.031 indicates that 'Characteristics' explains approximately 3.1% of the variance in 'Utility,' representing a small effect size ($f^2 = 0.031$). Next, the relationship between 'Direct experience' and 'Utility' is statistically significant with an F-square value of 0.018, signifying that 'Direct experience' explains around 1.8% of the variance in 'Utility' ($f^2 = 0.018$), reflecting a small effect. Similarly, the 'Saliency' construct significantly impacts 'Utility' with an F-square value of 0.033, explaining approximately 3.3% of the variance in 'Utility' ($f^2 = 0.033$), constituting a small effect size. Transitioning to the impact of 'Social Support' on 'MHIS,' the F-

square value of 0.130 suggests that 'Social Support' explains around 13% of the variance in 'MHIS,' indicating a small effect size ($f^2 = 0.130$). Finally, the 'Utility' construct significantly impacts 'MHIS' with an F-square value of 0.048, explaining around 4.8% of the variance in 'MHIS' ($f^2 = 0.048$), considered a small effect size.

Table 9. Mediation effect at 95% CI (N=505)

Path	Direct Effect	95%CI of Direct Effect	T value	P value	Indirect Effect	95%CI of Indirect Effect	T value	P value
Beliefs-> MHIS	0.032	[0.013-0.056]	2.432	0.008	0.032	[0.013-0.056]	2.432	0.008
Characteristic-> MHIS	0.311	[0.247-0.376]	7.911	0.000	0.033	[0.016-0.052]	3.081	0.001
Direct experience-> MHIS	0.026	[0.009-0.046]	2.310	0.010	0.026	[0.009-0.046]	2.310	0.010
Salience-> MHIS	0.038	[0.017-0.064]	2.667	0.004	0.038	[0.017-0.064]	2.667	0.004

Note: Number of bootstrap samples for percentile bootstrap confidence intervals: 5000. MHIS=Mental Health Information Seeking. One-tailed method.

All indirect effects are found to be significant from the 95% Confidence Intervals, as none of the intervals include zero (Hair et al., 2017). Moreover, examining individual paths, the t-values and p-values for the indirect effects from Beliefs ($t=2.432$, $p=0.008<0.05$), Characteristics ($t=3.081$, $p=0.001<0.05$), Direct Experience ($t=2.310$, $p=0.010<0.05$), and Salience ($t=2.667$, $p=0.004<0.05$) to Mental Health Information Seeking (MHIS) are all statistically significant. According to Hair et al. (2017), the significance of indirect effects allows for examining the direct effects in validating the mediating effect. Table 9 reveals the t-values and p-values for the direct effects from Beliefs ($t=2.432$, $p=0.008<0.05$), Characteristics ($t=7.911$, $p=0.000<0.05$), Direct Experience ($t=2.310$, $p=0.010<0.05$), and Salience ($t=2.667$, $p=0.004<0.05$) to MHIS, all of which are statistically significant.

Consequently, all four paths exhibit significant direct effects, suggesting the existence of partial mediation effects. Regarding the specific type of mediation, given the positivity of both direct and indirect effects, it can be inferred that the mediation effect of 'Utility' on the relationship between 'Beliefs, Characteristics, Direct experience, and Salience' and 'MHIS' is complementary mediation (Hair et al., 2017).

Based on the results above, the H1 to H8 were all accepted.

7. Discussion

7.1 Antecedents

The study reveals that personal and social experiences, as seen in direct experience, significantly influence the perceived utility of mental health information on Douyin, which is consistent with CMIS findings (Johnson & Meischke, 1993). On the other hand, results from studies with fewer items, like Xiao et al. (2020) and Basnyat et al. (2018), suggest the need for nuanced interpretation. Additionally, beliefs (e.g., self-efficacy) and salience (perceived severity and susceptibility) play vital roles in shaping the utility perception, aligning with broader CMIS studies (Lee & Kim, 2015; Xiao et al., 2020). Moreover, the research highlights that social support directly impacts mental health information seeking on Douyin. Increased support from various sources, including family, friends, and strangers, enhances women's engagement in seeking mental health information on the platform. This aligns with prior findings emphasizing the crucial role of social support in shaping mental health help-seeking attitudes (Jung, von, & Davis, 2017) and the positive impact of social support on mental and physical well-being through social media (Gilmour, Machin, Brownlow, & Jeffries, 2020).

7.2 Information Carrier Factors

The characteristics of Douyin communication impact utility and significantly and positively influence Chinese women's mental health information seeking, in line with findings by Johnson and Meischke (1993) and Xiao et al. (2020). This implies that features like solid interactivity, creativity, and engaging text language directly enhance women's perception of the utility of mental health information on Douyin, attracting them to seek relevant content. Moreover, the utility of mental health information positively influences information-seeking behavior in Douyin, aligning with previous CMIS studies (Johnson & Meischke, 1993; Xiao et al., 2020; Basnyat et al., 2018). The dimensions of usefulness, trust, and information quality determine whether women actively seek mental health information. People tend to choose information that best meets their needs when selecting content. This improves information acquisition efficiency and addresses individuals' needs, making utility a crucial factor in predicting mental health information seeking among Chinese women.

7.3 Mental Health Information Sources

The supportive nature of social media has been established (Vornholt & De, 2021; Kapadia, Brooks, Nazroo, & Tranmer, 2017) and has been identified as crucial in the seeking of mental health information in this study, with 45.2% of Chinese

women preferring to use social media to seek mental health information. Among these social media, Douyin has become a conspicuous platform for Chinese women seeking mental health information, with nearly 40% accessing content weekly and nearly 39% accessing content monthly. This data underscores the critical role played by social media in delivering interaction, personalized data, and increased health-related exposure. The proliferation of short-form video platforms in China underscores the importance of citizens' health literacy, warranting more comprehensive research. Despite digital innovations, women continue to rely on offline doctor consultations as their primary source of mental health information, emphasizing the perceived professionalism of in-person physicians—a crucial condition for women in their search for mental health information (Cotten & Gupta, 2004). The above highlights the significance of medical professionals' authority in the eyes of Chinese women.

7.4 Study Implications, Limitations and Directions

The study has important practical implications for designers of government health interventions to address the mental health needs of Chinese women who use social media. Additionally, this can guide social media platforms to improve their capabilities for providing psychological health information. In terms of theory, the study extends the applicability of CMIS the scope of the CMIS model in social media research and contributes to understanding women's mental health information seeking behavior.

This study has limitations due to its cross-sectional survey design, allowing only inferred causal relationships between variables. Longitudinal studies and experimental data could confirm the model's accuracy. Additionally, using a web-based questionnaire may limit the scope of application of the results. Combining research samples online and offline could result in a broader selection of women's studies.

Future studies can concentrate on specific groups and topics, such as the mental health information seeking behavior of Chinese male migrant workers on social media. The antecedent design section can include social support, information needs, other variables, including cultural norms (Chang & Huang, 2020), and knowledge level (Huurne & Gutteling, 2008) that can be considered in the CMIS model.

8. Data Availability

Data is available upon request from the corresponding author, subject to participant consent restrictions and non-commercial use.

9. Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

10. Disclosure statement

The Authors declare that there is no conflict of interest.

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Authors contributions

Xin Zhang and Dr. Syafila were responsible for study design and revising. Xin Zhang and Qingqing Tang was responsible for data collection. Xin Zhang drafted the manuscript and Dr. Syafila revised it. All authors read and approved the final manuscript. All authors contributed equally to the research.

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Competing interests

The Authors declare that there is no conflict of interest.

Informed consent

Obtained.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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