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Exploring the Relationship Between Social Media Use and Health Information-seeking Behaviour During COVID-19 Among Chinese Students

Li Jianmo [a, *], Hamedi M. Adnan [a], Fadli Abdullah [a]

[a] University Malaya, Kuala Lumpur, Malaysia

Abstract

This study uses semi-structured interviews to gain insight into Chinese university students' perceptions of media exposure, social media perceptions and media trust during the Covid-19 pandemic. While most past studies have focused on quantitative research, this study attempts to analyse it from a qualitative perspective. The study found that during the covid-19 epidemic, Chinese university students mainly relied on social media and official government news media. The complementary nature of the media channels could meet their primary cognitive information needs, Social media bridges the gap between interpersonal and group communication on a virtual level, but this still does not fill the gap in the comprehensiveness of health-related knowledge. Meantime there were also problems with information overload and information anxiety. This study used the technology acceptance model (TAM) model for social media health information seeking. Chinese university students mainly focus on the reliability of information and social support; they also evaluate the authenticity of the news in relation to the source and content of the information. Chinese university students have a high degree of professionalism and dependability on news media practitioners. The majority of respondents were not satisfied with the existence of online health information access platforms.

Keywords: Covid-19, health information seeking, social media, reliability information, health literacy.

1. Introduction

Coronavirus Disease 2019 (Covid-19) refers to pneumonia caused by the 2019 novel coronavirus infection (Rothan, Byrareddy, 2020). The cumulative positive cases worldwide are now over 600 million, and there is still no effective treatment other than a vaccine. With the development of online technology, social media has become one of the most important means of accessing relevant information, expressing public opinion and sharing information during a public health issue (Stellefson et al., 2021). The various types of interactive information on social media are also a reflection of real society.

In addition to epidemics, inappropriate dissemination of information can also be harmful to individuals and society. Research has been conducted in several countries on the use of different social media platforms for COVID-19 disease surveillance and prediction, access to information and health services, and reflection of public opinion (Cinelli et al., 2020; Davalbhakta et al., 2020). In fact, misinformation about COVID-19 is wildly passed around social media and the internet, which fundamentally distorts people's perception of the risk of the virus (Vander et al., 2020). The information epidemic has attracted more attention.

* Corresponding author
E-mail addresses: lijianmo0124@gmail.com (L. Jianmo)

Health Information Seeking Behaviour (HISB) is defined as "the process by which users seek and receive information or materials to reduce uncertainty about their health status (Cotton, Gupta, 2004). Health information-seeking behaviour is the behaviour of users in the process of acquiring, clarifying and confirming health-related knowledge or information at specific events (Beaudoin, Hong, 2011).

During Covid-19, health information-seeking behaviours were of global concern. Eight out of ten people in the United States use the internet to find health-related information in their daily lives (Fox, 2011). Both the relative internet search volumes (RSV) and the social media search index (SMSI) are information generated by users' search behaviour, which reflects the public interest in a topic and can be used to analyse and predict the characteristics of an epidemic in its early stages (Abdekhoda et al., 2022; Bhagavathula et al., 2020).

In the above description of the research context, we can find that both theoretical and empirical studies have proven that social media use has an impact on health behaviour. But how does media use affect health behaviours? What factors influence health information-seeking behaviour? How do these factors influence users' health information-seeking behaviour? What is the relationship between the two? Especially for the covid-19 outbreak.

Based on this, this study was guided by interpersonal behavioural theory and a qualitative interview to explore the impact of social media use and health information-seeking behaviour among Chinese university students. What are their perceptions of social media as a platform for health information seeking (related to Covid-19)?

a. Credibility, trustworthiness, validity, reliability of the information.

b. Availability, accessibility of the information.

2. Materials and methods

This article draws on online semi-structured interviews and uses the NVivo qualitative research tool. The interviewees were 15 university students from the Beijing University of Technology. The author will send the information on recruiting research volunteers on the Weibo homepage and WeChat homepage of the Beijing University of Technology. A snowballing approach was mainly used to recruit interviewees.

The interview questions, for example, "Would you like to get your health information from the internet? Why?" "What concerns do you have about seeking health information online?" etc. The semi-structured questions place no restrictions on the user's responses, ensuring that the theoretical points encoded in the interview text are as comprehensive as possible. To obtain the basis of respondents' ideas about seeking online health information. NVivo's text encoding is based on Grounded theory and divided into open, spindle, and selective coding.

3. Discussion

In the early years of the covid-19 epidemic around the world, including in China, Europe, and the United States, as reflected in the Google Trends (Walker et al., 2020), Baidu Index and *Sina Weibo* Index, shows a significant lagging correlation with the daily number of confirmed and suspected cases (Li et al., 2020). This correlation peaked between 6 and 14 days (Yin et al., 2021). A model built for the behavioural characteristics of *Sina Weibo* user discussions suggests that public attention to relevant information also increased early in the Covid-19 outbreak (Li et al., 2020) found that Between 23 December 2019 and 30 January 2020, there was a positive correlation between the number of daily positive cases and *Sina Weibo* in Hubei Province ($P < 0.001$), as well as a predictive value for the trend of increasing percentage of cases ($P < 0.001$).

However, The study found that although Google Trends showed a significant association with the number of confirmed COVID-19 cases across Europe in the early stages of the epidemic (Mavragani, Gkillas, 2020), the correlation coefficient decreased in the middle and late stages, and the association was time-limited (Strzelecki, 2020).

Social media has become an essential way for people around the world to access information about the Covid-19 epidemic (Hussain, 2020), medical science and health advice. In a survey of 4016 urban and rural residents in Anhui Province, China (Chen Yan et al., 2020) found that online social media such as WeChat and QQ were the main channels through which the majority of residents (97.8 %) obtained information about the epidemic, even they are got how to prevent and control the Covid-19 measures.

A survey of 559 residents in 23 Egyptian governorates showed that the most important way of acquiring knowledge was through social media (66.9 %) (Abdelhafiz et al., 2020), more than through communication with healthcare professionals (35.4 %) (Talevi et al., 2020). It is noted that during the covid-19 period, the Chinese student community relied on social media channels such as Facebook, Twitter and Weibo to obtain information. It is of interest to note that, a survey of 453 healthcare workers (HCWs) from around the world, showed that more than half (61 %) of HCWs also use social media to access relevant information (Bhagavathula, 2020).

However, the quality of covid-19 related information in social media is of concern (MacKay et al., 2021; Mansoor, 2021; Rocha et al., 2021). A survey of 673 COVID-19 messages on Twitter by found that 24.8 % of the content contained incorrect information (Kouzy et al., 2020). While 17.4 % included unconfirmed information. A survey of the content of Telegram and WhatsApp messages posted by the Iranian Medical Organization found that misinformation can lead to psychosocial effects such as stress and fear of incorrect preventive treatment and even individual health effects (Bastani et al., 2021).

4. Results

Demographics

Descriptive statistics were conducted to understand the distribution of study participants (Fisher, Marshall, 2009). Simple percentage distributions were estimated to assess social media use, covid-19 health information queries and perceptions of online health information, and health-related issues due to the lockdown. All analyses were conducted using the Statistical Package for the Social Sciences (SPSS version: 25).

Table 1. Charateristics of the study participants (n-15)

Characteristics	Frequency(n)	Percentage (%)
Age of students		
21 years and below	9	60.0
22 years and above	6	40.0
Sex		
Female	8	53.33
Male	7	46.67
Social media accounts		
Less than 3	3	20.0
More than 4	12	80.0
Residential area		
Rural	4	26.67
Urban	11	73.33
Monthly spending		
Below 2000RMB	2	13.33
2000-4000RMB	9	60.0
Above 4000RMB	4	26.67
Social media using time		
Less than 2 hours per day	0	0
2-4hours per day	11	73.33
Over 4hours per day	4	26.67

Stream of study		
Arts and social science	6	40.0
Commerce	5	33.33
Science	4	26.67

Open code

All the sentences from the interviews were organised to produce a total of over 400 original sentences. To ensure that the nodes coded were as representative as possible of the respondents' attitudes and opinions, all nodes in the open coding were naturally drawn from the respondents' original statements. For coding, one researcher selected 11 interview texts for coding, and the remaining four texts were coded by another researcher using a sample coding method to check theoretical saturation. The codes of the two researchers were checked for consistency, some ambiguous codes were adjusted, and nodes with frequencies less than three times were excluded, resulting in a total of 30 free nodes. Some of the high-frequency free nodes are shown in Table 2.

Table 2. High-frequency free nodes

Nodes Name	Reference Statements
Reliability of information	*Too much disinformation; Health information has not been reviewed*
	The quality of information is a concern; It is not possible to determine what information is credible
	Fake/false influencer accounts; parents cannot tell the difference between real and fake information.
Information is easily accessible	*Accessible anytime, anywhere*
	Internet fees are the cheap
	The mobile phone app is convenient; almost friends have social media accounts; Sharing information is the fastest.
Information Validity	*Not being able to judge your illness; sometimes was made wrong.*
	Too many rumours
	Can't read the information, too many specialised medical words
	Mixing official and fake accounts; Influencers are misinformation
Health status during Covid-19	*Lockdown made bad emotions; want to find the same status in social media;*
	Mental stress
	Parents/grandma/grandpa is not good. Hearing some people cannot find doctors; Hospital is full
Learning Covid-19 knowledges	*Relying on social media, fowling the official account and theme*
	Learning the relevant knowledge
	WeChat / Sina Weibo / QQ / Tiktok / Xiaohongshu / Zhihu / Live stream
Disease association	*Cannot find useful information*
	When you see symptoms similar to you, you will go to see it; a family member has the illness, lockdown cannot find the doctor

Spindle code

The 30 free nodes were coded at a secondary level, and the logical relationships between the free nodes were sorted out through deduction and induction, as well as constant comparison, linking the proximate codes together to form a total of seven conceptual genera (Table 3).

Table 3. Spindle code

No.	*Main categories*	*Free nodes*
1	Information Self-efficacy	Self-diagnosis, learning knowledge, cost savings, health status certainty and difficulty in accessing medical care.

2	Information Literacy	Information reliability, information accessibility, information validity
3	APP System environment	Information overload, privacy and security, medical advertising, platform authority, comprehensiveness of information.
4	Social influence	Data services, social recognition, Political reasons, lockdown during Covid-19.
5	Habits	High click-through rate and ranking, Familiarity app
6	Information Psychology	Information anxiety, herd mentality, Peer pressure
7	Intention	Self-diagnosis; knowledge learning; health status; cost savings; difficulty in accessing health care.

Selective coding

The main task of selective coding is to consolidate and condense the conceptual categories, identify the core categories and connect the main concepts by means of a coding paradigm.

Table 4. Selective coding

Core category	*Category*
External variables	APP System environment; Social influence
Perceived usefulness	Information Literacy; Information Self-efficacy
Perceived ease of use	Habits
Behavioural intention	Intention; Information Psychology
Actual system use	Information Self-efficacy

5. Conclusion

Perceived ease of use

Are university students meeting their health information needs through online access? The first consideration is what results in the act will actually achieve for them and whether it will satisfy their needs. When an information behaviour satisfies the user's information needs and value expectations, the user will have a positive attitude towards the behaviour, thus prompting the user to perform the information behaviour (Ferrara et al., 2020).

The user's preferred habits refer mainly to the type of information that the user is more receptive to (Fisk et al., 2020). To a certain extent, this type of information can meet users' expectations of information content, such as users' expectations of the platform, has been obtained authority of the information is required. When users do not have sufficient expertise to discern the quality of information.

They will default to content with high likes and click-through rates of higher quality (Interviewee 7).

In addition, users want to be able to access health information to find the right treatment for their condition. Or see a case similar to their condition, which is more convincing and informative for them. All information platforms have certain characteristics, and those that match users' preferences are more likely to be recognised and favoured by users, motivating them to obtain information from the platform. This is why platforms need to take into account the behavioural attitudes of users in terms of pre-design and resource integration.

External variables

External variables are mainly manifested as positive or negative pressures and stimuli from the external environment on the health information-seeking behaviour of users (Cuello-Garcia et al., 2020). As natives of the information society, university students are more attentive and sensitive to the external environment (Gálik, 2019; Gáliková Tolnaiová, Gálik, 2020). The first manifestation of this is the pressure the system environment puts on the user experience and the user's distrust of the platform. For example, information security, whether personal privacy will be compromised, and the problem of bidding rankings on platforms leading to too many medical advertisements thus affecting the authenticity and reliability of the information obtained.

Therefore, the system environment (including the platform's security settings, the comprehensiveness and authority of the platform's information, and whether the information is focused on quantity at the expense of quality) will largely influence which platform users choose to access. From the results of the interviews, the majority of respondents were not satisfied with the existence of online health information access platforms.

Social media in China already displays IP addresses when you post and reply to the information, meaning that everything we say can be targeted in real-time. (Interviewee 5).

Almost all social media, Weibo, WeChat, Xiaohongshu, Tiktok, all require real-name authentication to use and need to upload our ID information. Feelings of privacy being compromised at any time. (Interviewee 3).

Behavioural intention

Many users report that getting health information from social media makes them feel anxious, especially when some information is contradictory (Bastani et al., 2021). In addition, users are limited by their knowledge structure when filtering information.

Making it difficult to establish a better information filtering mechanism. The more information you obtain, the more you feel deprived and the more likely you are to get lost in the sea of information (Interviewee 12).

Even deviate from your intended goal of obtaining it, causing your behaviour to get out of control and negatively stimulating your information-seeking behaviour. For example, some respondents indicated *that they were reluctant to access online health information because the initial need for information would be overlooked during the access process* (interviewee 2).

Herd mentality is the tendency for users to be influenced by popular opinion when they cannot distinguish between true and false information that is consistent with their health status. Especially with covid-19, users are more likely to have a herd mentality when browsing information, leading to the spread of rumours. When users become part of the chain of spreading false information, they are no longer in control of their information and have deviated from the purpose of obtaining it in the first place.

Suggestions and limitations

This paper analyses the main factors that stimulate students' health information-seeking behaviour, starting from the priming mechanism of information-seeking behaviour. The study's shortcoming is that the sample size of students needs to be expanded. The follow-up study will expand the sample size to include other age groups. This study only focuses on one university's students and hardly represents all of the students in China.

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