

ORIGINAL ARTICLE

Cognitive Determinants of Health Information Seeking Behavior through Social Media Platforms among Malaysian Adults

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ABSTRACT

Introduction: Health information-seeking behaviour is a process of gathering information for individuals to understand and cope with his/her health problems. Apart from the Internet or Web 1.0, Web 2.0 tools has been increasingly used as alternative to seek health information and one such tool is social media platform. This study aims to identify cognitive determinants of health information-seeking behaviour through social media platforms among Malaysian adults. **Methods:** A cross-sectional study by means of convenience sampling was conducted during a nationwide pandemic lockdown. Cognitive determinants were defined as respondent's perceived usefulness, perceived ease of use, perceived benefit, perceived costs, perceived behavioural control, and perceived risk towards social media use. Questionnaires were distributed via Google Form link to multiple social media platforms and cross-platform messaging app. Differences between group of sociodemographic factors and other independent variables were tested with nonparametric tests while multiple linear regression was employed to determine the significant predictors of the health information seeking behavior. **Results:** A total of 705 individuals responded to the survey invitation, the majority of which were females (65%), Malay (93.6%), married (52.1%), and received tertiary education (88.5%). Multiple linear regression analysis showed that perceived benefit ($\beta = 0.612$, 95% CI: 0.517-0.708, $p < 0.001$), perceived usefulness ($\beta = 0.653$, 95% CI: 0.453-0.853, $p < 0.001$), and perceived risk ($\beta = 0.131$, 95% CI: 0.03-0.259, $p = 0.044$) significantly predict health information seeking behavior through social media platform. **Conclusion:** Our findings provide fundamental grounds for stakeholders to better understand and influence online behavior. Staying abreast of the current online trend is crucial as more people have begun to rely on social media for health information. *Malaysian Journal of Medicine and Health Sciences* (2022) 18(4): 113-118. doi:10.47836/mjmhs18.4.16

Keywords: Health information-seeking behaviour, Social media, Web 2.0

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INTRODUCTION

Health information-seeking behaviour is defined as strategies individuals use to seek information about their health, risk, illnesses, and health-protective behaviours as a mean to understand and cope with their health problems (1). A few decades ago, people relied heavily on conventional media to access health information. Sources from newspapers, magazines, radio announcements, and TV shows are some of the alternatives to health information besides the doctors' advice. Since then, the Internet has evolved dramatically with the rapid advancement of modern media technologies and has given people better options to search for health information. The Internet has given people a better way to look for digital health information that was not readily available to them in the past,

irrespective of their integrity, accuracy, and reliability (2). The Internet began as the World Wide Web (WWW) and was designed to support computer-to-computer interaction with its intricate software system (3). Notably known as the Web 1.0, the Internet is a system of interlinked, hypertext documents of read-only web (3).

The term Web 2.0 first came to light in 2004 (4) and is also known as the participatory web, in which users use the internet to provide platforms (for other users) through which network effects emerge (5). Unlike Web 1.0 which is a read-only web, Web 2.0 provides a bi-directional communication (6) through its widely available tools. One such tool is social media platform. Facebook, Twitter, Instagram, and YouTube are among the popular social media platforms used worldwide with increasing new users annually (7). Social media enables users to share content quickly, effectively, and in real-time (8) which in turn encourages users to communicate with each other. A typical form of communication between social media users can include share, retweet, like, and comment on any given posting (9). For these

reasons, many Internet users have turned to social media to seek for health-information (10).

Kapln & Haenlein (11) categorized social media into six different types: collaborative projects (e.g., Wikipedia), blogs and microblogs (e.g., Twitter), content communities (e.g., YouTube), social networking sites (e.g., Facebook), virtual game worlds (e.g., World of Warcraft) and virtual social worlds (e.g., Second Life). According to Hootsuite Global Digital Report 2019, 3.4 billion people are active social media users. Of this, 2.2 billion users are using Facebook, 1.9 billion are on YouTube, 1 billion are on Instagram, while 326 million users are on Twitter (7).

In the US, 87% of the population has access to the Internet (12) but only 30% of Americans used the Internet to get health information (13). The percentage of Malaysian who have access to the Internet is about the same as the US (87%) according to a study conducted by the Malaysian Communication and Multimedia Commission (14). However, out of the 2,402 individuals surveyed, Malaysian fared better (77.2%) than the Americans in terms of utilizing the web to search for health information. The most common health information searched by Malaysians was on 'symptoms and diseases' (91.4%), followed by 'health care tips' (89.8%) and 'treatment method' 83.5% (15). Malaysia also has one of the highest social media users among its Internet users with 96% coverage (7). Nonetheless, no specific figures have been reported on Malaysians who use social media platforms to search for health information.

Many studies have investigated the determinants of health information-seeking behaviour of Web 1.0 users in the past (16–18), however, studies focusing on the health and cognitive determinants of users of social media platforms are still scarce. A meta-analytic review by Wang et al. (19) referred cognitive factors as individuals' capacity for decision-making based on their perception of things namely perceived usefulness, perceived ease of use, perceived behavior control, perceived risk, perceived benefit, and perceived costs. Wang et al. (19) also highlighted that only two studies from Malaysia have analysed such determinants in the last decade (20,21). However, these studies along with the other studies included in the review did not specifically differentiate the platforms of which the respondents utilized when browsing for information. The authors considered the Internet and Web 2.0 as one and the same in their pooled estimates. Given the fundamental difference between the two, the current study aims to identify factors associated with health seeking behavior through social media platforms among Malaysian adults. Moreover, the data gathered would provide crucial baseline information in understanding social media usage on health-related topics in the country.

MATERIALS AND METHODS

This was a cross-sectional study by means of convenience sampling conducted during a period of nationwide lockdown due to the Covid-19 pandemic. The questionnaires were distributed via Google Form link to multiple social media platforms (i.e., Facebook, Twitter) as well as cross-platform messaging app (i.e., WhatsApp). Prior to data collection, a pilot study with 80 individuals was carried out to determine the sample sizes of each variable involved. The pilot was deemed necessary given the lack of data from previous publications (i.e., r = correlation coefficient) required for sample size estimation using the formula by Hulley et al. (22). The mean calculated sample size was 210. Respondents aged 18 years or older and understand English or Malay were invited to answer the questionnaires. Those who does not own social media account or have not been using any social media platforms for over a year were excluded from the study. Informed consent and respondent information sheet were asked and given online respectively. Respondents who completed the survey were compensated accordingly.

Information on sociodemographic factors such as age, gender, ethnicity, level of education, and marital status were recorded. Data on cognitive determinants and health information seeking behavior through social media were also collected. Cognitive determinants were quantified using questionnaires that measure perceived usefulness, perceived ease of user, perceived benefit, perceived costs, perceived behavioural control, and perceived risk. Perceived usefulness (4 items, scoring range= 4-20) and perceived ease of use (4 items, scoring range= 4-20) were adapted from a questionnaire by Sadat Ahadzadeh (20) with construct reliability of 0.889 and 0.842, respectively. Perceived benefits (9 items, scoring range= 9-45) and perceived cost (8 items, scoring range= 8-40) were adapted from the questionnaire by Ren et al. (23) with Cronbach's alpha = 0.78 and 0.80, respectively. Perceived behavioural control (3 items, scoring range= 3-15) was adapted from the questionnaire from George (23) (α = 0.81) while perceived risk (4 items, scoring range= 4-20) was adapted from the questionnaire by Liang et al. (24) (α = 0.82). The questionnaire for health information seeking behavior (11 items, scoring range= 11-55) was adapted from Sadat Ahadzadeh (20).

These questionnaires were translated to Malay by an expert Malay-English translator and were back-translated to English by another expert Malay-English translator. They were then evaluated by five independent respondents who gave feedback on the questionnaire's transparency, clarity, and readability. Two public health specialists further evaluated the questionnaires content for comprehensiveness, clarity, and formatting. All questionnaires used a 5-point Likert scale. Respondents chose one from five answer options namely 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5=

Strongly Agree. Higher scores indicate more usefulness, ease of use, benefit, costs, behaviour control, and risk towards health information-seeking behaviour. Higher score also indicates higher social media use for health information. Each instrument was pre-tested among a separate group of eligible respondents and the resultant mean Cronbach's alpha score remains high and acceptable ($\alpha = 0.90$).

Statistical analyses were performed using IBM SPSS statistical software (version 25; SPSS Inc). Following data non-normality, nonparametric tests were employed on all variables. Specifically, Mann-Whitney and Kruskal Wallis test were carried out to analyze the difference between gender, ethnicity, education level, and marital status. Significant findings were then subjected to post-hoc analysis to determine where the difference lies between the groups. The Spearman correlation was used to assess the correlation between independent and dependent variables while multiple linear regression (MLR) analyzed the significant predictors of the health information seeking behavior. The forward method was applied with coefficient (β) obtained at 95% confidence interval (CI). The final model fit was assessed using homoscedasticity, normality and linearity. Significant p-value was set at <0.05 .

RESULTS

A total of 705 individuals responded to the survey invitation, of which 65% were females. Most of them were Malay (93.6%), followed by Indians (2.8%), Others (2.6%), and Chinese (1.0%). The respondents were between 18 and 44 years old with over half of them married (52.1%), while the rest were single (46.0%) or widowed/divorced (2.0%). Nearly 90% of them had received tertiary education (88.5%). Additional information on social media use is presented in Table I. Results showed that respondent's health information-seeking behaviour through social media platform did not differ significantly in terms of age groups, gender, and marital status. However, ethnicity ($\chi^2(2) = 19.450, p < 0.001$) and level of education ($\chi^2(2) = 9.251, p = 0.026$) showed significant findings.

Perceived usefulness, perceived ease of use, perceived benefit, and perceived behavioural control were also found to positively correlated, albeit moderately, with health information-seeking behaviour through social media platform. In contrast, perceived costs and perceived risk negatively correlated with health information-seeking behaviour through the social media platform. Nonetheless, the correlations were weak ($r = -0.292$) and very weak ($r = -0.132$) respectively (Table II). All significant determinants including ethnicity and level of education were later regressed in multiple linear analysis. The best model fit showed that only perceived benefit ($\beta = 0.612, 95\% \text{ CI: } 0.517-0.708, p < 0.001$), perceived usefulness ($\beta = 0.653, 95\% \text{ CI: } 0.453-0.853,$

Table I: Relationship between health information-seeking behaviour through social media platform and sociodemographic data

Demographic Factor	Health Information Seeking Behaviour through Social Media Score		p-value
	Median	Range	
Age Categories			
18-44	42.00	11.00-55.00	0.273 ^a
45-59	43.00	11.00-55.00	
60 and above	51.00	33.00-55.00	
Gender			
Male	42.00	15.00-55.00	0.804 ^b
Female	42.00	11.00-55.00	
Ethnicity			
Malay	42.00	11.00-55.00	< 0.001^a
Chinese	29.00	18.00-50.00	
Indian	38.50	15.00-55.00	
Others	35.50	22.00-44.00	
Education Level			
No formal education	0	0	0.026^a
Primary school	55.00	44.00-55.00	
Secondary school	40.50	24.00-55.00	
Pre-University	43.00	23.00-55.00	
University	42.00	11.00-55.00	
Marital Status			
Single	42.00	11.00-55.00	0.196 ^a
Married	41.00	11.00-55.00	
Widowed/Divorce	41.50	25.00-49.00	

* Significant: $p < 0.05$

^a Performed using Kruskal Wallis

^b Performed using Mann-Whitney

Table II: Correlation between health information-seeking behaviour through social media platform with cognitive determinants

		Health information-seeking behaviour through social media
Perceived usefulness	Correlation coefficient	0.507
	Sig. (2 tailed)	< 0.001
	N	705
Perceived ease of use	Correlation coefficient	0.486
	Sig. (2 tailed)	< 0.001
	N	705
Perceived benefit	Correlation coefficient	0.610
	Sig. (2 tailed)	< 0.001
	N	705
Perceived costs	Correlation coefficient	-0.292
	Sig. (2 tailed)	< 0.001
	N	705
Perceived behaviour control	Correlation coefficient	0.422
	Sig. (2 tailed)	< 0.001
	N	705
Perceived risk	Correlation coefficient	-0.132
	Sig. (2 tailed)	< 0.001
	N	705

Spearman rho

$p < 0.001$), and perceived risk ($\beta = 0.131, 95\% \text{ CI: } 0.03-0.259, p = 0.044$) significantly predict health information-seeking behaviour (Table III), while ethnicity, education and other cognitive determinants did not.

DISCUSSION

The current study explored selected sociodemographic

Table III: Multiple linear regression analysis of health information-seeking behaviour through a social media platform

Variable	Coefficient	Standard error	t statistic	P-value	95% CI	
					Lower bound	Upper bound
Intercepts	7.851	1.816	4,323	<0.001	4.285	11.417
Perceived benefit	0.612	0.049	12.559	<0.001	0.517	0.708
Perceived usefulness	0.653	0.102	6.422	<0.001	0.453	0.853
Perceived risk	0.131	0.065	2.015	0.044	0.03	0.259

R² = 0.472; Homoscedasticity, normality, and linearity of the model checked, and the model assumption met.

factors and cognitive determinants as predictors of health information-seeking behaviour via social media platform. The findings showed that perceived benefit, perceived usefulness, and perceived risk significantly predicted online health information-seeking behaviour, while ethnicity and level of education did not. Perceived usefulness was found to be associated with health information-seeking behaviour through social media platform. This finding corroborates Lim, Yen and Chang (25) who found significant association between perceived usefulness and mobile phone use for health information among undergraduates, postgraduates and university staffs aged 21 to 50 years old. The result also showed that the relationship of these two variables was not significant among the older age group as reported by Wong, Heung, and Ho (26) who suggested that cultural values of the older adults in China might be playing an important role in the outcome.

Perceived benefit was also associated with health information-seeking behaviour through social media. This is consistent with another study in which participants believe that accessing health information through online platforms give them access to a wealth of information about healthy living, self-diagnosis, information on drugs, disease status, and healthcare options (27). Arguably, health information on social media platforms helps the public add new knowledge as well as refresh their existing knowledge about health. The acquired information will in turn be used to improve the ability and skills of managing their own health. Social media platforms provided them with a more convenient way to access health information in comparison to traditional health websites or other messenger applications.

The respondents in this study were also more likely to search for health information on social media when the perceived risk of finding false information is lesser. In other words, when users perceived that the use of social media may lead to incorrect health decision, they will not rely on such platforms. Nonetheless, Kortum, Edwards and Richards-Kortum (28) demonstrated that the risk of misinformation can be contained if users are taught to use the social media platforms responsibly. Given the low perceived risk in our sample, it can be said that the respondents consider social media as a legit platform to get health information from.

In terms of ethnicity, a study by Dawood et al. (29)

found Malay respondents are more likely to seek health information offline (i.e., consult a physician, pharmacists, or traditional practitioners) when facing health problems compared to Chinese and Indians. The study also highlighted that Chinese were more likely to self-medicate rather than seeing medical professionals in similar situation following their cultural practice and beliefs in traditional herbs and alternative medicine (29). Nonetheless, the current study found that ethnicity was not a significant predictor for online health information-seeking behaviour which not only contradict Dawood et al. (29), but further complicates the argument of transferability of offline behavior to online setting as previously suggested by Riebel et al. (30) and Casas et al. (31) in the case of bullying and cyberbullying. It is however beyond the scope of this study to delve into such discussion.

This study also showed that high education levels did not influence health information-seeking behaviour through social media. The result contradicts finding from a study on health care consumers and their online health-seeking behaviour where it found individuals who seek health information online are significantly more educated than those who seek health information offline (32). Highly educated Iranians were also more likely to seek health information online than the less educated (33). This discrepancy can be attributed in part to Malaysians' high rate of digital access (88.7%), with 93% of them having a social media account (14) which may have diluted the influence of education on their online health behavior.

The study has several limitations. We used convenience sampling technique thus our data is exposed to sampling bias and generalizability is not possible. Therefore, the results must be treated with caution. However, it is important to note that this study was carried out in a middle of government imposed public health lockdown and the selected sampling approach was among the few techniques that conformed with the Covid-19 pandemic safety protocols.

CONCLUSION

Social media is a platform with vast potentials and have recently been utilized by healthcare professionals to gather, organize, and provide health information. Understanding individuals' perceptions towards social

media may help the healthcare professionals to better influence their online behavior. Such information is also vital for related stakeholders to improve public engagement strategies and strengthening social media presence to aid dissemination of verified health information. The current study has demonstrated significant relationship between several of these perceptions with health information seeking behavior through social media platform.

Given the limitations of convenience sampling, future studies employing probability sampling techniques should be considered. Nonetheless, this study provides insightful views on participants' cognitive determinants which can be utilised to increase online health information seeking behaviour. Additionally, more variables should be examined moving forward such as internal factors (self-efficacy, attitude, internet experience, health anxiety, and trust) and the external factors (individual's behaviour including social support and social norm) given the variables significance impact in health research. Qualitative approach should also be considered moving forward as in-depth data may reveal new perspectives on Malaysian adults' cognitive determinants of online health information seeking behavior.

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