Personal Characteristics of Youths and Their Influences on Sexual Health Information Seeking

YESUSELVI MANICKAM MUMTAZ AINI ALIVI* University of Malaya

ABSTRACT

The primary aim of this research is to examine how youths in the Klang Valley utilize social media to seek information about sexual health issues, particularly premarital heterosexuality. By investigating this relatively unexplored area, the study aims to address a gap in the existing literature concerning the use of social media as a technology to seek sexual health information among youths in the Klang Valley. A survey technique was employed to collect data from youths aged between 18 and 24 years old who knew about sexual health issues caused by premarital heterosexuality. Three hundred eightyfour usable responses were received and analyzed using appropriate statistical procedures. The Partial Least Squares Structural Equation Modeling (SmartPLS 4.0) technique was used to test the research model. The study confirmed that user personal characteristics, which were problem recognition and involvement, enabled youths in the Klang Valley to seek sexual health information through social media. The empirical results of this study also led to several significant findings. The findings indicated that user personal characteristics directly influenced the use of social media for sexual health information. The platform's usefulness and abundance of sexual health information aided youths in the management of sexual health information in Malaysia.

Keywords: Premarital heterosexuality, youth, social media, Technology Acceptance Model, information-seeking.

INTRODUCTION

Youths generally undergo dynamic physical, social, and psychological changes. Although this period is considered healthy, the processes of urbanization, modernization, and lifestyle changes have exposed youths to be engaged in premarital sexuality (Uğurlu & Karahan, 2022). Risk behaviors such as sexual experiences before marriage, unplanned intercourse, having more than one sexual partner, and inconsistent use of contraception are frequently observed among unmarried youths. Due to their active engagement in premarital sexuality, sexual health problems are the most common issues experienced by them. When the problems experienced regarding sexuality are analyzed, sexually transmitted infections (STI), sexually transmitted diseases (STD), unwanted pregnancies, early marriage, unsafe abortions, and baby dumping, besides psychological problems, come to the forefront. Widespread unprotected and insecure sexual activities among youths may lead to infertility, cervical cancer, unwanted pregnancy, and unsafe abortion under unsanitary conditions, causing bleeding and loss of life among female youth (Ghaffari et al., 2020).

Evidence showed that Malaysian youths who had encountered sexual health issues were actively seeking sexual health information to manage their health before consulting a doctor or healthcare provider (Wang et al., 2022). Youths with sexual health issues felt embarrassed to discuss with their parents, peers, or healthcare providers about their sexual health conditions (Sunkara, 2021). Besides that, due to cultural taboos on premarital sexuality in Malaysia, shyness and embarrassment concealed these issues. Youths were associated with the fear of stigma and a lack of confidence about how to approach health services and discuss their sexual problems, which made them use social media for sexual health information. Threats and Bond (2021) identified that a lack of relevant sexual health information led youths to go online as an alternative source.

Many studies have been conducted in Malaysia to look into the impact of social media on healthcare and health technology (Yusoff et al., 2023). However, studies examining Internet use for sexual health information and sexual health information seeking are relatively limited (Lim et al., 2022; Mataraarachchi et al., 2023). Therefore, this study aims to evaluate the antecedents of youths' personal characteristics and social media use for sexual health information seeking from their perspective. Thus, the objectives of the study are as follows:

- 1. To examine the association between user personal characteristics and the use of social media for sexual information seeking.
- 2. To assess the influence of youth personal characteristics on social media's perceived usefulness in sexual information-seeking.

LITERATURE REVIEW OR RESEARCH BACKGROUND

Personal Characteristics

Health situations are considered ongoing and non-emergency by nature, such as the performance of day-to-day health behaviors (Kim & Grunig, 2011), including sexual health situations among youths. In recent years, their engagement in premarital sexual activities in Malaysia has increased, as reported by the Health Ministry of Malaysia (Syed Mohamed et al., 2023). Youths who are involved in premarital activity may encounter some sexual health issues that may have a severe impact and can cause long-term complications to their health. Youth who recognize sexual health issues such as STIs, STDs, unwanted pregnancies, and other health complications may need sexual health information to understand their sexual health issues before they get treatments for their conditions (Abdullah et al., 2020). The perceived need for sexual health information is likely to differ among routines; youths may experience a greater need for that information and pursue it more actively through familiar channels, such as social media (Amin & Nazan, 2022). Youths who are affected by sexual health issues feel personally connected and show more involvement in seeking information to understand their health conditions (Jones II et al., 2022). There is a tendency among youths to look for information on sexual health that may help them improve their knowledge and find solutions to their sexual health issues, considering the possibility that they see their sexual health problems as being more problematic. If this is the case, then individuals are more likely to demonstrate a greater level of involvement in obtaining further information via social media platforms related to sexual health material (Nikkelen et al., 2020).

Social Media and Sexual Health Information Seeking

Social media has become a massively meaningful part of our daily lives and the most popular platform to raise awareness and educate the public about health issues (Azudi et al., 2023). It is a technology-driven world that helps people to share ideas, thoughts, and information, building virtual networks and online communities (Suryanto et al., 2024; Alivi et al., 2021). Various motivations drive social media use among youths, including social connection, self-presentation, and information seeking (Alivi, 2023). These motives are crucial in shaping youths' engagement with social media platforms (Djuric et al., 2023).

In a broader sense, social media has rapidly emerged as a source of health information among young people in Malaysia. Social media is a vital instrument that enables health professionals, healthcare institutions, and other health facilities to communicate health information more quickly (Brony et al., 2024; Yang et al., 2024). Additionally, these platforms eliminate geographical and physical access obstacles, improving health equality among youths seeking sexual health information. Free access to an extensive array of online health information sources creates an opportunity for youth empowerment, knowledge sharing, and involvement in behaviors that benefit their health (Alhusseini et al., 2021; Brony et al., 2024). Because of social media, healthcare providers and online health seekers can interact. It enables them to have open conversations that help them better understand their sexual health problems. It allows them to ask questions to other young people who are experiencing similar sexual health problems. The necessary help provides them with the spiritual and emotional support they need to overcome their sexual health problems. Youths are also able to get information on sexual health, including information about many sexual health topics, such as prevention, symptoms, treatments, and information about healthcare providers (Rosenberg et al., 2023).

Social media platforms offer new channels for sexual health issues that match the needs and preferences of the target audience, which can increase the chances of sexual communication success. Unlike other methods of disseminating sexual health information, social media offers a multidirectional method in which youths participate actively in discussion and share their knowledge and experience rather than passive recipients of sexual health information (Olamijuwon et al., 2021). Interaction with health experts and peers, as well as participation in social support groups, led youths to utilize social media to access sexual health information when they were confronted with any question about their sexual health (Zhang et al., 2021). Youths who use social media frequently for health would learn new information on sexual health, cases, and sexual health experiences of others and avoid potential risks, which leads them to higher confidence in managing their health when they encounter sexual health issues (Niu et al., 2021).

Malaysian youths who are at risk of sexual health problems are actively searching for information about sexual health on social media platforms when they realize that their level of knowledge on sexual health problems is inadequate (Sundell et al., 2022). The lack of knowledge due to cultural taboos and the severity of the sexual issues motivate youths to seek sexual health information. Besides, they recognize the risk of sexual health issues with an effective risk response by being worried, scared, and uncertain about their conditions and automatically use social media to seek relevant information to clarify their health conditions (Cho & Kim, 2023; Hailegebreal et al., 2022). There is a high use of social media among youths to seek sexual health information because of the diverse forms of text, videos, forums, discussions, and social media support groups in Malaysia (Lu et al., 2020). They often turn to social media because it is quick, easy, helpful, and provides an opportunity to seek sexual health information gives a safer environment for youths in Malaysia to use social media to seek sexual health information.

Theoretical Framework and Hypotheses Development

The Extended Technology Acceptance Model (TAM), developed by Davis, is the foundation for this study (Al-Adwan et al., 2022). This model explains why people are willing to adopt a

specific technology. TAM proposed that perceived ease of use and usefulness are two fundamental determinant factors of users' attitudes and intentions toward new technology. Perceived Usefulness (PU) was defined as an individual's impressions of the degree to which the utilization of a particular technology increases performance. *Perceived Ease of Use* (PEOU) refers to the extent to which an individual believes that utilizing a specific system requires no effort (Astari et al., 2022; Toraman & GeÇİT, 2023). These two constructs mainly influence the acceptance or rejection of technologies among users. In addition, knowledge of user personal characteristics is helpful to increase the predictive power of TAM (Wang et al., 2018). The traditional TAM considers only the user's subjective perceptions about the technology's qualities, which does not consider the users' characteristics. The lack of research on premarital heterosexual difficulties and the use of social media for sexual health information seeking among youths might be compensated for by including the personal characteristics of users into TAM by incorporating these variables. The two most important personal characteristics that influence the use of social media by young people to obtain information about sexual health are the problem recognition of sexual health problems and involvement in those problems. In light of these, the current research includes these two into TAM in order to build a complete framework for investigating the usage of social media by youths in Malaysia to seek information about sexual health through social media.

USER PERSONAL CHARACTERISTICS

Problem Recognition

The problem recognition construct, as the external variable, pertains to the degree to which an individual acknowledges a problem, identifies and takes steps to address it (Chon & Harrell, 2024). The individual's acknowledgment of health difficulties or knowledge about a particular health issue sometimes determines his/her motives to seek information regarding the issue to find a solution (Johnson & Possemato, 2021). Previous research has suggested that young individuals are inclined to actively seek medical knowledge, treatment options, and symptom management strategies to address premarital heterosexual difficulties driven by their problem recognition. For instance, youths are more likely to seek sexual health information if they encounter severe sexual health complications such as STI infections, spontaneous abortion, unplanned pregnancy as well as congenital infections (Mokgatle et al., 2021). In this regard, the first hypothesis is as follows:

H1: Problem Recognition directly influences the use of social media for sexual health information seeking

Based on people's problems in critical situations, they tend to seek more information to solve their problems, as Hasanah and Busro (2023) mentioned. Shang et al. (2020) argued that when youths recognize sexual health risks, they will directly influence the use of social media for sexual health information because of the perceived usefulness of social media. The perceived usefulness of health information can significantly influence an individual's inclination to take proactive measures in maintaining their health. Individuals are more inclined to embrace health-enhancing behaviors, adhere to medical guidance, or modify their lifestyle if they perceive the information as pertinent. Hence, the second hypothesis is:

H2: Problem recognition has a positive relationship with the perceived usefulness of social media

Involvement

Involvement Involvement measures how personally public members are involved in an issue (King et al., 2023). The level of involvement notes the degree to which an individual is considered personally and emotionally connected to and involved in a problem (Chon & Harrell, 2024). The level of involvement is often used to predict whether a person will be active in their communication behavior in a situation. Within the external variable of the TAM context, involvement referred to individuals who possessed the prior sexual experience and showed a fourfold increase in the likelihood of actively seeking sexual health information in the event of encountering any health problems, as opposed to individuals who did not manifest any health symptoms. The findings indicated that individuals demonstrated heightened involvement and eagerness in accessing health-related material about sexuality when confronted with sexual health concerns (Shimie et al., 2022). In this regard, the third hypothesis is as follows:

H3: Involvement directly influences the use of social media for sexual health information seeking

An essential benefit of accessing sexual health information via social media is the ample availability of comprehensive content that can easily be understood (Zhang et al., 2021). Compared to traditional mediums like books and instructional materials, social media offers a plethora of knowledge deemed more valuable by youths. As a result of increased accessibility, young people believe that they can independently identify and comprehend their sexual health concerns faster before seeking guidance from a medical expert (Gursoy & Yesildere Saglam, 2021). So, they show more involvement in sexual health information on social media compared to other resources. The dynamic and engaging character of social media platforms seems to resonate better with the younger demographic, generating a sense of empowerment and autonomy in regulating their sexual health. Therefore, the fourth hypothesis is as follows:

H4: Involvement has a positive relationship with the perceived usefulness of social media

Perceived Usefulness

This notion focuses on explaining the benefits of a system to its users in terms of enhancing productivity, job performance, efficiency, and overall usefulness. The process entails a thorough evaluation of how the system improves several facets of the user's experience, ultimately resulting in higher efficiency, successful completion of job-related tasks, enhanced task effectiveness, and overall better usefulness (Lin et al., 2021; Loda et al., 2020; Sholikah & Sutirman, 2020). According to Lee and Lee (2022), Korean women utilize health information acquired from social media to manage and attend to their health requirements successfully during pregnancy. Conversely, Mwamba et al. (2022) discovered that university students tend to adopt prudent health behaviors shaped by the sexual health information they actively pursue on social media platforms. These studies emphasize the crucial importance of social media in acquiring health-related information, influencing pregnant Korean women's health management behaviors, and molding university students' health-conscious actions, specifically in the context of sexual health. Therefore, the fifth hypothesis is:

H5: Perceived usefulness of social media has a positive relationship with the use of social media for sexual health information seeking

METHODOLOGY

This study aimed to examine the relationship between youths' characteristics (problem recognition and involvement) and the use of social media for sexual health information-seeking in Klang Valley. From October to December 2019, a cross-sectional study was conducted among youth aged between 18 and 24 years old in the Klang Valley, which comprises six regions, namely the Federal Territory of Kuala Lumpur, Gombak, Hulu Langat, Klang, Petaling, and Sepang. This study focuses on Klang Valley because previous studies have shown that urbanization and modernization in the Klang Valley have increased premarital sexual activities among youths. With so many nightlife alternatives, youth are more likely to have sexual relations before marriage. Due to their frequent sexual activities, youth in the Klang Valley have more sexual health issues compared to other regions (Hassan & Masoud, 2020). Stratified random sampling was adopted to ensure the representativeness of samples from Klang Valley in this study. This study excluded youth who did not know about sexual health issues or knowledge about premarital sexuality.

The study obtained permission from the youths to conduct the survey. Informed consent was provided, anonymity and confidentiality terms were explained, and respondents' obligations and right to withdraw from the study were detailed in the information sheet. For the questionnaire, the respondents were asked to provide sociodemographic information, including gender, age, religion, and status. Following Krejcie and Morgan's table (Krejcei & Morgan, 1970), the proposed sample size was determined to be 384 respondents, which would be appropriate for this study. A stratified random sampling technique was employed as respondents were randomly selected from 6 regions of Klang Valley: Federal Territory of Kuala Lumpur, Gombak, Hulu Langat, Klang, Petaling, and Sepang. Sixty-four respondents aged between 18 and 24 from each region were chosen. Four hundred questionnaires were filled and returned; however, only 384 sample sizes were used for this study. Among the respondents, 279 were identified as female, whereas 105 were male respondents.

Furthermore, respondents between the ages of 19 and 21 comprised 42% of the total respondents in this study. 47% of the respondents were Malay, followed by Chinese with 35% and Indians 18%. Concerning the status of the respondents, the majority were college and university students with total 346 people (90%), working in total of 34 people (9%), and the rest is with unknown status which only 4 people (1%).

The study employed a self-administered questionnaire as the data collection method. The items used to measure TAM's variables, problem recognition, involvement, perceived usefulness of social media, and information seeking, were adapted in designing the questionnaire. The questionnaire was adapted from previous literature. Problem recognition and involvement were adapted from (Won et al., 2018), perceived usefulness was based on (Ahadzadeh et al., 2018), and the measurement of the information seeking was based on the measurement scale by (Ahadzadeh et al., 2015). The questionnaire consisted of two sections aimed at gathering demographic information about the respondents, including variables of gender, age, ethnicity, religion, and status—the second section comprised 39 items to assess four constructs within the proposed model. The questionnaire included a 5-point Likert scale, which included strongly disagree, disagree, neutral, agree, and strongly agree, allowing respondents to choose according to their perceptions and understanding. It is worth mentioning that slight modifications were made to adjust these scales to appropriately align them with the context of social media use for sexual health information seeking.

The data analyses were done using SPSS and the Partial Least Square Structural Equation Modelling technique 4 (PLS-SEM). The powerful Partial Least Square Structural Equation Modelling technique (SmartPLS 4.0) is used to delve deeper to obtain unique insights into the complex relationships between the variables. (Henseler et al., 2016; Sarstedt et al., 2021). Unlike covariance-based structural equation modeling, PLS-SEM can be used for small and large data distributions, even if the data is not normally distributed. PLS-SEM is a particular specification model that can describe the structural path between constructs (structural model) and the relationship between each construct and the related indicators (measurement model) (Sarstedt et al., 2021). Considering the complexity of the TAM model with numerous external constructs, the application of PLS-SEM was deemed more appropriate for this study. A two-stage approach was employed for data analysis. The first stage involved analyzing the measurement model and assessing the reliability and validity of selected constructs. Then, the hypothesized relationship between constructs was tested using the same approach.

RESULTS

Before analyzing the measurement and structural models, the study addressed common method bias (CMB). CMB can potentially threaten the validity of the research findings (Zhao et al., 2022). As recommended by (Podsakoff et al., 2003), this study employed Harman's one-factor test to measure CMB. The confirmatory principal factor analysis results indicated that the primary factor accounted for 31.02% of the total explained variance, which was below the threshold of 50%. Considering that no overarching component explained more than fifty percent of the variance, this finding lends credence to the notion that the dataset does not include any indications of common technique bias.

Following the recommendation of Hair et al. (2011), this study assessed the potential issue of multicollinearity among the constructs using the variance inflation factor (VIF). The VIF values were examined with a generally accepted threshold of 3.3 (Diamantopoulos & Siguaw, 2006; Lynn, 1986) to ensure that multicollinearity was not present in this study. The finding indicates no multicollinearity issues among the constructs, and the VIF values ranged from 1.449 to 2.456. These results suggest that the variables in the study are not highly correlated.

The measurement model's internal consistency, indicator reliability, convergent validity, and discrimination validity could be assessed (Lewis et al., 2017; Straub & Gefen, 2004). The internal reliability consistency can be measured through Cronbach's alpha and composite reliability (CR). Criteria values must be 0.7 and above to attain satisfactory dependability in this study (Ramayah et al., 2018). As can be seen from Table 1, Cronbach's alpha values range from 0.837 to 0.899, and the CR values range from 0.842 to 0.900. All Cronbach's alpha and CR values are higher than the threshold values. The items used to represent the constructs in this study have sufficient internal consistent reliability.

This study calculated average variance extracted (AVE) and factor loading values to evaluate convergent validity. The factor loading values should be greater than 0.7 (Henseler & Chin, 2010), and the AVE values should be above 0.5 (Fornell & Larcker, 1981). However, other items have high loading scores to complement the Average Variance Extracted (AVE) and composite reliability (CR). In that case, the loadings less than 0.70 are considered appropriate (Ramayah et al., 2018). Table 2 reveals that factor loading values range from 0.669 to 0.831, higher than the threshold value 0.5. All items were sufficient to have a strong

relationship with corresponding latent variables. Therefore, convergent validity could be considered adequate in this study.

Constructs	Items	Factor Loading	Cronbach's Alpha	CR	AVE
PR	PR1	0.740	0.871	0.874	0.609
	PR2	0.810			
	PR3	0.753			
	PR4	0.823			
	PR5	0.786			
	PR6	0.767			
INV	INV1	0.769	0.837	0.842	0.555
	INV2	0.829			
	INV3	0.805			
	INV4	0.694			
	INV5	0.728			
	INV6	0.626			
PUSM	PUSM1	0.715	0.855	0.864	0.536
	PUSM2	0.742			
	PUSM3	0.667			
	PUSM4	0.634			
	PUSM5	0.814			
	PUSM6	0.774			
	PUSM7	0.762			
INFOSK	INFOSK1	0.677	0.899	0.900	0.555
	INFOSK2	0.768			
	INFOSK3	0.789			
	INFOSK4	0.774			
	INFOSK5	0.767			
	INFOSK6	0.730			
	INFOSK7	0.742			
	INFOSk8	0.661			

Note : PR = problem recognition, INV = involvement, PUSM = perceived usefulness of social media, INFOSK = information seeking, CR = composite reliability, AVE = average variance extracted

The criteria for discriminant validity assessment are the Heterotrait-Monotrait (HTMT) ratio correlation (Henseler & Chin, 2010) and the Fornell-Lacker criterion (Fornell & Larcker, 1981). Based on Henseler and Chin (2010), discriminant validity could be achieved when HTMT values are less than 0.85 (Kline, 2023). The results in Table 2 show that HTMT values range from 0.606 to 0. 843. According to the Fornell-Lacker criterion, the square root of the AVE value should be greater than the inter-construct correlation coefficients. Table 3 reveals that the square root of AVE exceeds the correlation coefficients among the paired. The discriminant validity in this study is satisfactory. Figure 1 shows the measurement model of the study.

Table 2: HTMT Ratios				
Item	PR	INV	PUSM	INFOSK
PR	-			
INV	0.651	0.757		
PUSM	0.606	0.758	0.843	
INFOSK	0.684	0.768	0.823	0.750

Note : PR = problem recognition, INV = involvement, PUSM = perceived usefulness of social media, INFOSK = information seeking

Table 3: Fornell-Larcker Criterion					
Item	PR	INV	PUSM	INFOSK	
PR	0.780				
INV	0.557	0.745			
PUSM	0.534	0.651	0.732		
INFOSK	0.609	0.668	0.728	0.745	

Note : PR = problem recognition, INV = involvement, PUSM = perceived usefulness of social media, INFOSK = information seeking

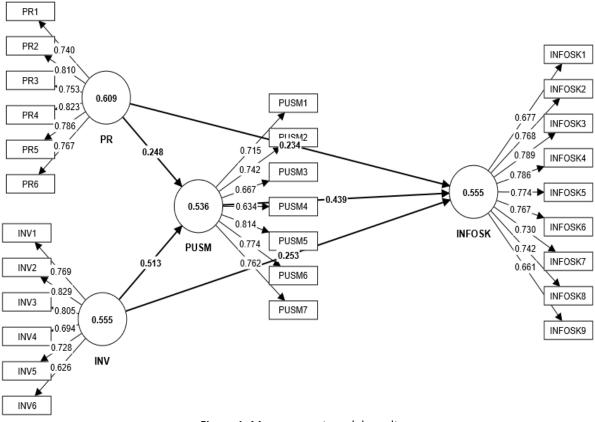


Figure 1: Measurement model results

Structural Model Assessment

This study tested the hypothesized model using the bootstrapping procedure with 5000 subsamples. The criteria for assessing the structural model are the coefficient of determination (R^2), Stone-Geisser's (Q^2), effect size (f^2), and path coefficient (Geisser, 1974). Table 4 and Figure 2 display the results obtained from the structural model testing.

Table 4 shows that all the hypotheses are statistically significant. Problem recognition significantly and positively impacts information seeking on sexual health on social media (β = 0.218, t = 5.262, p < 0.001). As for involvement, it is positively significant with information seeking on sexual health on social media (β = 0.217, t = 4.521, p < 0.001). It is also supported that problem recognition is significant and positively influences the perceived usefulness of social media, offering evidence for H3 (β = 0.249, t = 5.431, p < 0.001). Moreover, involvement appeared to significantly and positively influence the perceived usefulness of social media (β = 0.512, t = 10.988, p < 0.001 The perceived usefulness is influenced positively by information seeking on sexual health on social media (β = 0.374, t = 8.165, p < 0.001). Thus, this study accepted H1, H2, H3, H4 and H5.

Table 4: Hypotheses testing							
Hypothesis		β	t-value	p-value	f	Results	
H1	$PR \rightarrow INFOSK$	0.204	5.013	0.000	0.073	Supported	
H2	$INV \rightarrow SK$	0.192	3.931	0.000	0.049	Supported	
H3	PR →PUSM	0.249	5.431	0.000	0.008	Supported	
H4	INV →PUSM	0.512	11.014	0.000	0.339	Supported	
H5	$PUSM \rightarrow INFOSK$	0.336	7.206	0.000	0.127	Supported	

The amount of variance in the endogenous latent construct and the model's predictive accuracy could be measured using the coefficient of determination R² values (Chin, 1998). The levels of predictive power were classified by (chin, 1998): substantial is 0.67, moderate is 0.33, and weak is 0.19, according to a rule of thumb that was used to establish the acceptability of R values. The model of this study could explain 47% and 64% of the variance in the perceived usefulness of social media and information seeking on sexual health in social media (table 6). It indicates the predictive accuracy of the hypothesized model. The study measured the predictive relevance of the structural model using cross-validated redundancy measure Stone-Geisser's Q² values. The structural model could have excellent predictive relevance when the Q2 value is more significant than zero (Geisser, 1974). Based on the findings shown in Table 6, Q2 values in this study were 0.462 and 0.524, thereby demonstrating the structural model's good predictive relevance.

The effect size (f^2) values of 0.02, 0.15, and 0.35 correspond to the small, medium, and significant effects on independent latent constructs on dependent latent constructs, respectively (Chin, 1998). Based on Table 5, involvement had a significant effect size on the perceived usefulness of social media $(f^2 = 0.339)$, and the same goes for the perceived usefulness of social media on information seeking on sexual health social media $(f^2 = 0.127)$. All other independent latent constructs had a relatively small effect on dependent variables. Overall, all the hypotheses in this study are considered valid so that they could offer an adequate explanation for the acceptance and use of social media for sexual health information seeking.

DISCUSSION & CONCLUSION

This research studied the influence of user personal characteristics and the use of social media for sexual health information seeking among youth in Malaysia, especially in Klang Valley. A research model based on extended TAM was developed. The study found that both 'problem recognition' (the ability to identify and acknowledge sexual health issues) and 'involvement' (the level of personal engagement and interest in addressing these issues) have positive effects on information seeking on social media for sexual health. Youth who are aware of sexual health issues are more likely to take action to address them because they fear for their well-being and because they dwell on these issues often. They are more prone to seek out specialized sexual health information in a state of fear when they experience symptoms like STDs, signs of undesired pregnancy, or any number of other sexual health problems. Youth are also too ashamed, scared, or hesitant to talk to a doctor or ask for help from loved ones when they are in this predicament. This scenario supports previous literature findings (Cho & Kim, 2023; Hailegebreal et al., 2022; Ndugga et al., 2023). Another study supported the argument of the findings that when people recognize the problems according to their situation, they intentionally or intentionally will search for information to understand the problem deeply based on the nature of the problem (Shafie & Hashim, 2023).

This study showed that the perceived usefulness of social media platforms was significantly shaped by the unique effects of problem recognition and involvement, two features of individual user characteristics. Highly involved youth who identify problems often consider social media more advantageous. In this study, the youths could better understand and manage their health problems with the assistance of personal blogs written by medical professionals, in which these experts shared articles, comments, and their own opinions. The dissemination of news and instructional materials about sexual health via broad social media networks also positively impacted youths. By reading articles, stories, and medical advice from other young people who had been through the same situation, they were able to get their sexual health issues under control. This result is in accord with the recent study indicating that personal blogs, articles, comments, or personal opinions on sexual health by health professionals are beneficial and helpful for young people to manage their health issues, and they also trust the information (Rivas et al., 2020). Research by Lee and Lee (2022) corroborated the findings of this study, showing that many Korean women valued social media more than traditional news outlets due to the emotional support they got from their online peers. They were able to control their pregnancy with the use of social media information and free test responses that had amassed a significant amount of data. In addition, when youth realized they had sexual health difficulties, they were more likely to utilize social media platforms to discuss these issues, perhaps due to their positive perceptions of the platforms' usefulness. Besides, privacy protection and security concerns also become factors for people who use social media for sexual health information (Ven & Hashim, 2023).

Additionally, the results showed that youths who were aware of sexual health concerns demonstrated increased involvement and activity on social media platforms to get sexual health information. Their involvement was due to the abundance of resources accessible in the form of films, social media Q&A sites, and global social communities. The varied array of social media platforms, each possessing distinct attributes of promptness, inclusivity, and independence, has prompted youth to seek sexual health information on these platforms actively. As reported by (Hwang, 2020) and (Rosenberg et al., 2023), a broader range of sexual health information prompts youth to dedicate more time and exhibit more involvement and engagement on social media platforms.

Furthermore, as hypothesized, the perceived use of social media influences youths to use social media to seek sexual health information. Youth found it more convenient to look for sexual health information on social media platforms due to the anonymity (Sunkara, 2021) and privacy features offered by these sites. Given the persistent taboo and sensitivity around sexual health problems in Malaysia, youth choose to use social media platforms since they may maintain their anonymity. This anonymity guaranteed that neither their internet acquaintances nor healthcare providers knew their true identity. Due to its ease, social media is increasingly being used as a forum for youngsters to seek information about sexual health.

Additionally, it aligns with the discovery made by Zhang et al. (2021) that there is a notable correlation between the perceived usefulness of social media and information seeking on sexual health information on social media. Nevertheless, social media platforms provide a certain level of anonymity, which shields youth from experiencing immediate personal repercussions when they seek authentic information about sexual health on these platforms (Amin & Nazan, 2022). Besides, Malaysians who used social media to seek health information during COVID-19 could understand health issues clearly and control their health

situation (Kamaruzaman & Mohamad, 2023). In conclusion, this study demonstrates the positive influences of users' characteristics, the perceived usefulness of social media, and the use of social media for sexual health information seeking.

PRACTICAL CONTRIBUTION

The Ministry of Higher Education needs to prioritize and endorse a comparable communication approach at both public and private colleges and universities in Malaysia. This approach aims to raise awareness among young people about sexual health issues and the consequential implications they may have. A considerable proportion of the youth who took part in the study had a restricted comprehension of sexual health matters, as shown by the results of this investigation. Thus, to influence young people, the Ministry of Higher Education must actively support the implementation of sexual health education programs on college and university campuses. Disseminating this information to a significant number of young individuals in higher education institutions might potentially decrease the probability of college and university students engaging in premarital heterosexual activities.

The study findings may provide an opportunity for policymakers in Malaysia to understand and take necessary actions regarding the current state of youth perceptions of the potential factors affecting the usage of social media for sexual health information. Incorporating social media platforms from trusted sources such as health ministry into school websites could be an effective way to obtain timely information on sexual health. Sexual health information may be deemed accurate and credible if sourced from a reliable and trustworthy authority. This information includes health issues, indications, therapy, and other relevant data. Consequently, young individuals have convenient access to information on sexual health in case they encounter any health issues.

BIODATA

Yesuselvi Manickam is pursuing PhD in Communication studies at the Department of Media and Communication Studies, University of Malaya. She is a lecturer at the Department of Communication at Sunway University. Her research interests include Health Communication and Social Media interventions. Email: yesuselvim@sunway.edu.my

Dr. Mumtaz Aini Alivi is a Senior Lecturer at the Department of Media and Communication Studies at the University of Malaya. She earned her PhD in Mass Communication from the University of Putra Malaysia. Her research interests focuses on Journalism, Broadcasting, Online Media, and Political Communication. Email: mumtazaini_alivi@um.edu.my

REFERENCES

- Abdullah, F., Draman, S., Abd. Aziz, K. H., Zainuddin, N. A., & Muhammad, N. A. (2020). Predicting sexual intention to engage in premarital sex among late adolescent in Kuantan government secondary schools: An application of theory of planned behaviour. *IIUM Medical Journal Malaysia*, 19(1). <u>https://doi.org/nhx6</u>
- Ahadzadeh, A. S., Pahlevan Sharif, S., Ong, F. S., & Khong, K. W. (2015). Integrating health belief model and technology acceptance model: Investigating health-related internet use. *Journal of Medical Internet Research*, *17*(2), e45. <u>https://doi.org/ghdgtc</u>
- Ahadzadeh, A. S., Pahlevan Sharif, S., & Sim Ong, F. (2018). Online health information seeking among women: the moderating role of health consciousness. *Online Information Review*, 42(1), 58-72. <u>https://doi.org/10.1108/oir-02-2016-0066</u>
- Al-Adwan, A. S., Li, N., Al-Adwan, A., Abbasi, G. A., Albelbisi, N. A., & Habibi, A. (2023). Extending the Technology Acceptance Model (TAM) to predict university students' intentions to use metaverse-based learning platforms. *Education and Information Technologies*, 28, 15381–15413. <u>https://doi.org/10.1007/s10639-023-11816-3</u>
- Al-Husseini, N., Banta, J. E., Oh, J., & Montgomery, S. B. (2021). Social media use for health purposes by chronic disease patients in the United States. *Saudi Journal of Medicine & Medical Sciences*, *9*(1), 51–58. <u>https://doi.org/10.4103/sjmms.sjmms_262_20</u>
- Alivi, M. A. (2023). Voter's gratification in using online news and the implications on the political landscape in Malaysia. *Asian Politics & Policy*, *15*(4), 623–642.
- Alivi, M. A., Ghazali, A. H. A., Tamam, E., & Osman, M. N. (2021). Motives to use online news and the impact on satisfaction with the government and vote choice. *Electronic Government, an International Journal, 17*(1), 55-74.
- Amin, K. H. A. K., & Nazan, A. I. N. M. (2022). Cognitive determinants of health information seeking behavior through social media platforms among Malaysian adults. *Malaysian Journal of Medicine & Health Sciences*, 18(4), 113-118.
- Astari, A. A. E., Yasa, N. N. K., Sukaatmadja, I. P. G., & Giantari, I. G. A. K. (2022). Integration of Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB): An ewallet behavior with fear of COVID-19 as a moderator variable. *International Journal* of Data and Network Science, 6(4), 1427-1436. <u>https://doi.org/nhzc</u>
- Azudi, N., Hussin, R., & Rahman, S.H.A. (2023). Social media approach to crisis communication during the COVID-19 pandemic: A case study of Saudi Arabia. *SEARCH Journal of Media and Communication Research*, 15(2), 67–82.
- Brony, M., Alivi, M. A., Syed, M. A. M., Dharejo, N., & Jiaqing, X. (2024). A systematic review on social media utilization by health communicators in India: Insights from COVID-19 pandemic. Online Journal of Communication and Media Technologies, 14(4), e202449. <u>https://doi.org/10.30935/ojcmt/15007</u>
- Brony, M., Alivi, M. A., Syed, M. A. M., & Dharejo, N. (2024). A systematic review on social media health communications and behavioural development among Indians in the COVID-19 context. *Studies in Media and Communication*, *12*(2), 37–49.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295–336.
- Cho, M. K., & Kim, M. Y. (2023). Factors affecting the sexual behavior of Korean University students. *Healthcare*, *11*(13), 1837. <u>https://doi.org/10.3390/healthcare11131837</u>

- Chon, M.-G., & Harrell, J. R. (2024). Building bridges for anti-racism activism: Testing situational problem-solving theory and problem chain recognition effect. *Public Relations Review*, *50*(1), 102425. <u>https://doi.org/10.1016/j.pubrev.2024.102425</u>
- Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management*, *17*(4), 263-282.
- Djuric, P., Stevanovic, A., Rajovic, N., Todorovic, J., & Laaser, U. (2023). Reproductive health of medical students: Exploring knowledge, experiences, and behaviors. *South Eastern European Journal of Public Health*.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.
- Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, *61*(1), 101-107.
- Ghaffari, M., Rakhshanderou, S., Gharlipour, Z., Khalajabadi Farahani, F., Ramezani, T., & Izadkhah, F. (2020). Students' perspective on factors influencing premarital sexual intercourse. *Journal of Holistic Nursing and Midwifery*, 111-119. <u>https://doi.org/nhzt</u>
- Gursoy, E., & Yesildere Saglam, H. (2021). Factors affecting sexual health-seeking behaviors of young people. *Journal of Public Health*, *30*(12), 2899-2910. <u>https://doi.org/nhzf</u>
- Hailegebreal, S., Gilano, G., Seboka, B. T., Sidelil, H., Awol, S. M., Haile, Y., Simegn, A. E., & Haile, F. (2022). Prevalence and associated factors of early sexual initiation among female youth in East Africa: Further analysis of recent demographic and health survey. *BMC Womens Health*, 22(1), 304. <u>https://doi.org/10.1186/s12905-022-01895-8</u>
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152.
- Hasanah, U., & Busro, B. (2023). Holdy Your Fingers: The Communication Ethics on WhatsApp Based on the Hadith. *Jurnal Komunikasi: Malaysian Journal of Communication*, *39*(3), 239-254. <u>https://doi.org/10.17576/jkmjc-2023-3903-13</u>
- Hassan, S., & Masoud, O. (2020). Online health information seeking and health literacy among non-medical college students: gender differences. *Journal of Public Health*, 29(6), 1267-1273. <u>https://doi.org/10.1007/s10389-020-01243-w</u>
- Henseler, J., & Chin, W. W. (2010). A comparison of approaches for analyzing interaction effects between latent variables using partial least squares path modeling. *Structural Equation Modeling*, *17*(1), 82-109.
- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2-20.
- Hwang, J. (2020). Health information sources and the Influenza vaccination: The mediating roles of perceived vaccine efficacy and safety. *Journal of Health Communication*, 25(9), 727–735. <u>https://doi.org/10.1080/10810730.2020.1840675</u>
- Jones II, V., Kim, S., Mewani, A. H., Jacques, E. T., Ardouin-Guerrier, M. A., Huggins, S., & Basch, C. H. (2022). Immigration status as a determinant of health information-seeking behavior among undergraduates of color at an urban commuter college. *Health Promot Perspect*, 12(3), 295-300. <u>https://doi.org/10.34172/hpp.2022.38</u>
- Kamaruzaman, M. F., & Mohamad, E. (2023). Analisis tingkah laku pencarian maklumat COVID-19 dari perspektif model literasi e-kesihatan transaksional. Jurnal Komunikasi: Malaysian Journal of Communication, 39(4), 183-201. <u>https://doi.org/nhzh</u>
- Kim, J.-N., & Grunig, J. E. (2011). Problem solving and communicative action: A situational theory of problem solving. *Journal of Communication*, 61(1), 120-149.

- King, J., Halversen, A., Morrow, O., Westhoff, W., & Brubaker, P. (2023). COVID-19, digital media, and health | Communicating about mental health during a pandemic: An examination of active and aware publics on Twitter. *International Journal of Communication*, 17(18). <u>https://ijoc.org/index.php/ijoc/article/view/17593</u>
- Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford Publications.
- Krejcei, R., & Morgan, D. (1970). Determining sample size for research. *Educational and Psychological Measurement*, *30*(3), 607-610. <u>https://doi.org/ggb4r2</u>
- Lee, J. Y., & Lee, E. (2022). What topics are women interested in during pregnancy: Exploring the role of social media as informational and emotional support. *BMC Pregnancy Childbirth*, 22(1), 517. <u>https://doi.org/10.1186/s12884-022-04842-5</u>
- Lewis, B. R., Templeton, G. F., & Byrd, T. A. (2017). A methodology for construct development in MIS research. *European Journal of Information Systems*, 14(4), 388–400. <u>https://doi.org/10.1057/palgrave.ejis.3000552</u>
- Lim, H. M., Wong, S. S., Yip, K. C., Chang, F. W. S., Chin, A. J. Z., Teo, C. H., Abdullah, A., & Ng, C. J. (2022). Online health information-seeking behavior of patients attending a primary care clinic in Malaysia: A cross-sectional study. *Family Practice*, 39(1), 38-45. <u>https://doi.org/10.1093/fampra/cmab099</u>
- Lin, C.-W., Lin, Y.-S., Liao, C.-C., Chen, C.-C., & Yang, C.-F. (2021). Utilizing Technology Acceptance Model for Influences of Smartphone Addiction on Behavioural Intention. *Mathematical Problems in Engineering*, 5592187. <u>https://doi.org/gp6z3n</u>
- Loda, T., Erschens, R., Junne, F., Stengel, A., Zipfel, S., & Herrmann-Werner, A. (2020). Undergraduate medical students' search for health information online: Explanatory cross-sectional study. *JMIR Med Inform*, 8(3), e16279. <u>https://doi.org/10.2196/16279</u>
- Lu, L., Liu, J., & Yuan, Y. C. (2020). Health information seeking behaviors and source preferences between Chinese and U.S. Populations. *Journal of Health Communication*, 25(6), 490-500. <u>https://doi.org/10.1080/10810730.2020.1806414</u>
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*(6), 382–386.
- Mataraarachchi, D., Vithana, P., Lokubalasooriya, A., Jayasundara, C. J., Suranutha, A. S., Pathirana, T. E. A., & De Silva, C. (2023). Knowledge and practices on sexual and reproductive health among youth trainees are attached to youth training centers in Sri Lanka. *Contraception and Reproductive Medicine*, 8(1), 18. <u>https://doi.org/nhzp</u>
- Mokgatle, M. M., Madiba, S., & Cele, L. (2021). A comparative analysis of risky sexual behaviors, self-reported sexually transmitted infections, knowledge of symptoms, and partner notification practices among male and female university students in Pretoria, South Africa. *Int J Environ Res Public Health*, *18*(11), 5660. <u>https://doi.org/gprhff</u>
- Mwamba, B., Mayers, P., & Shea, J. (2022). Sexual and reproductive health knowledge of postgraduate students at the University of Cape Town, South Africa. *Reproductive Health*, *19*(1), 225. <u>https://doi.org/10.1186/s12978-022-01507-6</u>
- Ndugga, P., Kwagala, B., Wandera, S. O., Kisaakye, P., Mbonye, M. K., & Ngabirano, F. (2023).
 "If your mother does not teach you, the world will...": A qualitative study of parentadolescent communication on sexual and reproductive health issues in Border districts of eastern Uganda. *BMC Public Health*, 23(1), 678. <u>https://doi.org/nhzr</u>

- Nikkelen, S. W. C., van Oosten, J. M. F., & van den Borne, M. (2020). Sexuality Education in the Digital Era: Intrinsic and Extrinsic Predictors of Online Sexual Information Seeking Among Youth. *The Journal of Sex Research*, *57*(2), 189-199. <u>https://doi.org/gf8h3t</u>
- Niu, Z., Willoughby, J., & Zhou, R. (2021). Associations of health literacy, social media use, and self-efficacy with health information-seeking intentions among social media users in China: Cross-sectional survey. *Journal of Medical Internet Research*, 23(2), e19134. <u>https://doi.org/10.2196/19134</u>
- Olamijuwon, E., Clifford, O., & Adjiwanou, V. (2021). Understanding how young African adults interact with peer-generated sexual health information on Facebook and uncovering strategies for successful organic engagement. *BMC Public Health*, 21(1), 2153. <u>https://doi.org/10.1186/s12889-021-12165-x</u>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). Partial least squares structural equation modeling (PLS-SEM) using smartPLS 3.0: An updated guide and practical guide to statistical analysis. Pearson Malaysia Sdn Bhd.
- Rivas, R., Sadah, S. A., Guo, Y., & Hristidis, V. (2020). Classification of health-related social media posts: Evaluation of Post Content-Classifier Models and Analysis of User Demographics. JMIR Public Health Surveill, 6(2), e14952. <u>https://doi.org/nhzv</u>
- Rosenberg, D., Mano, R., & Mesch, G. S. (2023). Health information seeking on social media: The diversification approach. *Equality, Diversity and Inclusion: An International Journal*, 42(3), 364-381.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In Homburg, C., Klarmann, M., Vomberg, A. (Eds), *Handbook of Market Research* (pp. 587-632). Springer. <u>https://doi.org/10.1007/978-3-319-05542-8_15-1</u>
- Shafie, S. A., & Hashim, N. (2023). Teori Situasi Publik (STP): Mengungkai isu komunikasi WhatsApp di Malaysia. Jurnal Komunikasi: Malaysian Journal of Communication, 39(4), 445-466. <u>https://doi.org/10.17576/jkmjc-2023-3904-24</u>
- Shang, L., Zhou, J., & Zuo, M. (2020). Understanding older adults' intention to share health information on social media: The role of health belief and information processing. *Internet Research*, *31*(1), 100–122. <u>https://doi.org/10.1108/intr-12-2019-0512</u>
- Shimie, A. W., Gashu, K. D., Shiferaw, A. M., & Mengiste, S. A. (2022). Information-seeking behavior on sexually transmitted infections and its associated factors among university students in Ethiopia: a cross-sectional study. *Reproductive Health*, 19(1), 25. <u>https://doi.org/10.1186/s12978-022-01340-x</u>
- Sholikah, M. a., & Sutirman, S. (2020). How Technology Acceptance Model TAM) factors of electronic learning influence education service quality through students' satisfaction. *TEM Journal*, 9(3), 1221-1226. <u>https://doi.org/10.18421/tem93-50</u>
- Straub, D., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications* of the Association for Information Systems, 13. <u>https://doi.org/gg2chf</u>
- Sundell, E., Wångdahl, J., & Grauman, Å. (2022). Health literacy and digital health informationseeking behavior – A cross-sectional study among highly educated Swedes. *BMC Public Health*, 22(1), 2278.
- Sunkara, J. (2021). Sexual health misinformation and potential interventions among youth on social media. *The Cardinal Edge*, 1(1), 16. <u>https://doi.org/10.18297/tce/vol1/iss1/16</u>

- Suryanto, D., Akbar, A. R. e., Dawami, D., Zur Raffar, I. N. A., & Hamjah, S. H. (2024). The utilization of social media in improving adolescent social interaction with parents. *Jurnal Komunikasi: Malaysian Journal of Communication*, 40(1), 395-407. https://doi.org/10.17576/jkmjc-2024-4001-22
- Syed Mohamad, S. N., Kamaruddin, K. N., Shibraumalisi, N. A., Mohamad, F., Mohd Azlan, S., Dahlan, R., Ismail, I. Z., & Shahar, H. K. (2023). Permissive attitude towards premarital sex among university students in Malaysia - Does childhood abuse play a role? *Malaysian Journal of Medicine and Health Sciences*, 19(s17), 48-56.
- Threats, M., & Bond, K. (2021). HIV information acquisition and use among young black men who have sex with men who use the internet: Mixed methods study. *Journal of Medical Internet Research*, 23(5), e22986. <u>https://doi.org/10.2196/22986</u>
- Toraman, Y., & GeÇİT, B. B. (2023). User Acceptance of metaverse: An analysis for ecommerce in the framework of Technology Acceptance Model (TAM). Sosyoekonomi, 31(55), 85-104. <u>https://doi.org/10.17233/sosyoekonomi.2023.01.05</u>
- Uğurlu, M., & Karahan, N. (2022). Sexual health knowledge and influencing factors among health science students at a state university in Turkey. *The European Journal of Contraception & Reproductive Health Care*, 27(1), 75-82.
- Ven, E. P., & Hashim, N. H. (2023). Determinants of contact tracing apps: An adoption study using UTAUT model. Jurnal Komunikasi: Malaysian Journal of Communication, 39(4), 581-596. <u>https://doi.org/10.17576/jkmjc-2023-3904-31</u>
- Wang, Y., Li, C., Zhang, J., Yang, M., Zhu, G., Liu, Y., & Cao, J. (2022). Using social media for health education and promotion: A pilot of WeChat-based prize quizzes on China National Malaria Day. *Malaria Journal*, 21(1), 381. <u>https://doi.org/nhzx</u>
- Wang, Y., Wang, S., Wang, J., Wei, J., & Wang, C. (2018). An empirical study of consumers' intention to use ride-sharing services: using an extended technology acceptance Model. *Transportation*, 47(1), 397-415. <u>https://doi.org/10.1007/s1116-018-9893-4</u>
- Won, J., Hon, L., & Lee, A. R. (2018). Predicting public interest issue campaign participation on social media. *The Journal of Public Interest Communications*, *2*(1), 129-129.
- Yang, Y., Adnan, H. M., Alivi, M. A., & Sarmiti, N. Z. (2024). Unveiling the influence of TikTok dependency on university students' post-COVID-19 health protective behavior. *Studies in Media and Communication*, *12*(1), 390-400.
- Yeh, C. J., Li, K. Y., Zahiri, M. A., & Jumaat, N. F. (2022). Awareness of university students towards environmental communication on social media. SEARCH Journal of Media and Communication Research, 123-133.
- Yusoff, H. A. M., Hamzah, M. R., Manaf, A. R. A., Ismail, A., Ahmad, Y., Hussin, H., & Huzili, A.
 I. (2023). Health-related social media use: A systematic review. *Advances in Material Science and Manufacturing Engineering*, 2544, 050020. <u>https://doi.org/nhzz</u>
- Yusoff, H. A. M., Hamzah, M. R., Manaf, A. R. A., Suanda, J., Mutalib, S. A., & Ayub, S. H. (2023).
 Health-related social media use among youth in Malaysia. *Advances in Material Science and Manufacturing Engineering*, 2544, 030004. <u>https://doi.org/nhz2</u>
- Zhang, D., Zhan, W., Zheng, C., Zhang, J., Huang, A., Hu, S., & Ba-Thein, W. (2021). Online health information-seeking behaviors and skills of Chinese college students. BMC Public Health, 21(1), 736. <u>https://doi.org/10.1186/s12889-021-10801-0</u>
- Zhao, J., He, H., X., & Lin, J. (2022). Modeling and simulation of microblog-based public health emergency-associated public opinion communication. *Information Processing & Management*, *59*(2), 102846. <u>https://doi.org/10.1016/j.jpm.2021.102846</u>