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Siti Nur Izyandiyana Ab Hadi, Mohd Sufiean Hassan, Mohamad Hafifi Jamri,  
Siti Nurshahidah Sah Allam

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## Model of Health Behaviour Changes among Students

Siti Nur Izyandiyana Ab Hadi, Mohd Sufiean Hassan, Mohamad Hafifi Jamri, Siti Nurshahidah Sah Allam

Faculty of Communication and Media Studies, Universiti Teknologi MARA (UiTM), Melaka

### Abstract

Health is the primary key to the well-being of every human being. The healthcare practice should start from a young age and continue to be nurtured. However, the report of the Malaysian Youth Index 2015 (IBM '15) shows the overall health score of Malaysian youth is at a moderate level with a score of 68.42. Similarly, the nutrition practice score is at an alarming level of only 43.52 and needs to be given serious attention by all parties. A study conducted among IPTA students found that health literacy is a factor that predicts health information-seeking behaviour. Students with good health literacy (searching for health information through the Internet) can impact health management and are a determinant of good health quality. Therefore this study examines whether the search for health information through the Internet influences their health behaviours. In general, this study uses a survey method using a survey form on 261 respondents consisting of USAS students to determine factors that contribute to changes in health behaviours. It showed that the goal factor gave significant results with a value of  $F = 37.468$ ,  $p < 0.05$ , and a combination of goal factors with context factors ( $F = 21.584$ ,  $p < 0.05$ ). Significantly that goal factor contributed 12.6% of the variance to health behaviour change ( $R^2 = 0.126$ ) for 261 students. These findings mean that goal factors are the main predictors that influence student health behaviours.

**Keywords:** Internet, Health Information Search, Health Behaviour Change

### Introduction

The health aspect is one of the main focuses of the Malaysian government. A key goal of a health system is to provide the necessary healthcare services to all those in need, thereby improving the population's health status. Beginning in 1996, the Malaysian government launched the 1996 Healthy Lifestyle Campaign intending to increase the knowledge and practice of healthy lifestyles among Malaysians.

However, government campaigns implemented aimed at providing health awareness have found failure. For example, according to 2020 data from the World Health Organisation, more than 20% of Malaysians aged 15 years and older smoke.

Apart from that, a statistics report released by the Malaysian Youth Development Research Institute (2019) through the Tableau Public website found that in 2016 the number of infectious disease cases registered throughout Malaysia increased fivefold from 44,656 cases in 2012 to 225 035 cases in 2016. Meanwhile, statistics released by the Department of

Statistics Malaysia in 2018 showed that heart-related diseases (13.7%) were the leading cause of death in Malaysia and even increased by 0.7% compared to 2016 (Department of Statistics Malaysia, 2019). The results of both reports clearly show that the knowledge and practices of healthy lifestyles are still not fully practised by Malaysians.

The sugar intake of Malaysians far exceeds the recommended daily intake of no more than 50 grams or the equivalent of 10 teaspoons a day according to the Malaysian Nutrition Guidelines 2010 proves that sugar intake among Malaysians is increasing every year.

### **Problem Statement**

The youths are the generation that will shape the country's future, but the report of the Malaysian Youth Index 2015 (IBM '15) shows that the overall health score of Malaysian youths is at a moderate level with a score of 68.42. Similarly, the score of nutritional practices is at a disquieting level where the score obtained is only 43.52, therefore to be given serious attention by all parties. This study will focus on the youth, especially students of Private Institutions of Higher Learning (IPTS).

A previous study conducted among IPTA students found that health literacy is a factor that predicts health information-seeking behaviour (Mohammad Rezal, Mohd Yusof & Emma, 2016). A person is said to have good health literacy when the individual can find, understand and use health-related information in his daily life. This means that students with good health literacy (searching for health information through the Internet) can impact health management and are a determinant of good health quality. The use of the Internet as a medium of health-related communication among students needs to be explored (Benedict, Seth & Augustina, 2017); therefore, this study will look at whether the search for health information through the Internet influences students' health behaviours.

However, according to Ramirez et al. (2002), information-seeking activities can occur through intermediary mediums such as the Internet, television, and others. In the Model of Health Information Seeking through Computer-Mediated Communication proposed by Ramirez et al. (2002), five factors motivate a person to seek information. These factors are purpose, technology, information, communicator, and context/ situation factors. The question is, what factors motivate them to seek health information and subsequently change their health behaviours? Therefore, the objectives of this study are:

1. To identify patterns of health information seeking through the Internet
2. To identify the factors that encourage students to seek health information.
3. To identify the factors that influence health behaviour change.

### **Literature Review**

#### **Internet and Healthcare**

Social media applications such as Facebook, Twitter, Flickr, and many more are used by the Internet user community to find and disseminate information. Recently, the use of social media and mobile phones has become a part of the daily life of the world community. This development is also seen to be related to health. A study done in 2012 found that 26% of hospitals in the United States have their social site. Among the social media applications used were YouTube (46%), Facebook (84%), Twitter (64%), and Blog (12%) (Ottenhoff, 2012). At the same time, one in two adults will search for health information through their smartphone (Ottenhoff, 2012).

A study by Jacobs et al (2017) on adults in the United States found that young respondents with Internet skills are more likely to seek health information through the Internet, and those who are more educated make the Internet their primary source of health information. In contrast, older people choose traditional media such as magazines, books, and newspapers as a source of health information.

A similar study was also conducted by Siti Maon et al (2017) on adults aged 18 years and above, found that most health information seekers are women and young people aged 21 to 29 years. Among the factors that motivate them to seek health information through the Internet are time-saving (46.7%), low cost (25%), ease (39%), current health information (27%), and credibility (17%). Furthermore, a study from Basch, MacLean, Romero and Ethan (2018) also found that women are Internet users who regularly search for health information on the Internet and discuss the information with doctors and health professionals. However, not all Internet users consult health information obtained through the Internet with doctors, and even some doctors are not interested in such information (Wong & Cheung, 2019).

University students are also among the active users of the Internet who use the Internet for health purposes, such as information on diseases and treatments (Dastani et al., 2019). A study by Benedict et al (2017) found that 67.7% of students search for health information online because of its cheap, easy-to-access information, confidentiality, and even privacy features. Apart from that, the Internet also has other features that influence users to find information online, namely style, usability, and credibility (Sbaffi & Zhao, 2019).

### **Theory of Information Seeking Model through Computer-Mediated Communication**

The Information Seeking Model through Computer-Mediated Communication has proposed five main factors that influence information-seeking through a medium such as the Internet: technology, information, communicator, context or situation, and goal factors. The five proposed factors are based on the Model of Social Information Retrieval through Computer-Mediated Communication (CMC) (Ramirez et al., 2001).

The first factor, the technology factor, is the aspects of the information-seeking process that are influenced by information technology. For example, the extent to which technology facilitates information retrieval and requires minimal effort. Technology has made it easier for users to believe that the medium is capable of helping to get whatever information they need.

The second factor, which is the information factor, is the characteristics of the information that influence the search process. These include the quantity and quality associated with the information sought.

The third factor is the communicator factor which is the pre-existing characteristics of information seekers such as skills, personality, and background or history. These features will affect the pattern of information retrieval through the Internet. Next, the context or situational factors are external factors that influence information-seeking behaviour. Among them is the time to search for information, physical facilities such as computers, and Internet access.

The last factor, the goal factor, depends on the purpose of the information search. For example, users search for health information using various channels on the Internet, whether social media, search engines, email, and others, depending on their needs.

## Methodology

This study uses a survey method to determine the relationship between the independent variable (information-seeking factor) and the dependent variable (health behaviour change). Researchers have conducted a study on 261 respondents using the purposive sampling method to focus on respondents who meet the following criteria:

- i. Students
- ii. Find health information on the Internet

## Research Instrument

This research instrument that measures health information-seeking factors through the Internet has been adapted from (Rucha, 2009; Ramirez et al., 2002).

Section A contains questions designed to identify patterns of health information-seeking via the Internet. Three types of questions are used in this section: nominal scale, Likert scale, and open-ended questions. Among the questions asked in this section are the frequency of respondents using computers and the Internet within a week, the frequency of respondents seeking health information through the Internet, and whether respondents have ever received advice from doctors to seek health information through the Internet.

Section B contains questions related to health information-seeking factors on the Internet. There are 41 questions consisting of five factors, namely technology factors (6 questions), information factors (8 questions), communicator factors (11 questions), context/ situation factors (8 questions) and goal factors (7 questions). All questions used a scale of (0) irrelevant, (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree.

While Section C contains questions related to changes in health behaviours that occur to respondents after they seek and share health information with their families. Among the questions asked were about the health activities carried out by the respondents in their daily lives, such as exercise, stress management, nutrition, intake of supplements, hygiene, and so on. These questions use 5 scales namely (0) unchanged, (1) less changed (1- 20%), (2) somewhat changed (21- 40%), (3) changed (41- 60%) and (4) highly changed (61 - 100%)

## Analysis and Discussion

This section discusses the findings and analysis of health information-seeking patterns through the Internet, health information-seeking factors through the Internet, health behaviour changes, and factors influencing health behaviour changes.

### Patterns of Health Information-Seeking through the Internet

Table 1.0 shows the patterns of Internet health information-seeking activities evaluated through the duration of Internet use in a week. It can be seen that students spend an average of almost 30 hours a week surfing the Internet, but only 2.76 hours of the activity is used to search for health information via the Internet.

In addition, it was found that 74.7% of the respondents did not seek medical advice to search for health information on the Internet. This finding reflects the respondents' confidence and dependence on health information on the Internet. It also indicates that the respondents have good health information literacy. Respondents search for health information on the Internet if they do not get enough information from doctors and provide themselves with health information before seeing a doctor. Respondents also seek health information if they need immediate solutions to health problems, such as injuries from burns, sprains, and so on.



Table 1.0

*Patterns of Health Information-Seeking in a Week (n=261)*

Item	Frequency	Percentage
<b>Time spent on Internet surfing (hours/ week)</b>		
1 – 20 hours	133	51.0
21– 40 hours	70	26.8
41 – 60 hours	58	22.2
		<b>Average = 29.8 hours</b>
<b>Time spent on health information-seeking (hours/ week)</b>		
Low (< 1 hour)	204	47.5
Moderate( 1 - 2 hours)	57	21.8
High (> 3 hours)		
		<b>Average = 2.76 hours</b>
<b>Get advice from a doctor to search for health information on the Internet</b>		
Yes	66	25.2
No	195	74.7

**Descriptive Analysis of Health Information-Seeking Factors**

Based on the descriptive analysis, the average score of health information retrieval factors through the Internet (Table 2.0) showed that the highest average was on technology factor (Mean = 2.94, SP = 0.75), followed by goal factor (Mean = 2.74, SP = 0.86), information factor (Mean = 2.75, SP = 0.80), context/ situation factor (Mean = 2.72, SP = 0.83) and communicator factor (Mean = 2.44, SP = 0.96).

Based on the average value, it can be seen that the technology factor is a factor that respondents agreed as a motivator to find health information on the Internet. Among the aspects that support this factor are the features available on the Internet, such as being easy, fast, and interactive. The Internet will be the primary option for obtaining information if the information is needed immediately. Internet technology has dramatically helped consumers get information at a low cost while forming communities or groups that share health information (Banerjee & Leong, 2006).

Table 2.0

*Average, Standard Deviation, and Mode for Health Information-Seeking Factors Kesehatan*

Health Information-Seeking Factors	Average	Mode	SD
Technology	<b>2.94</b>	<b>3.00</b>	<b>0.75</b>
Goal	<b>2.74</b>	<b>3.00</b>	<b>0.86</b>
Information	<b>2.75</b>	<b>3.00</b>	<b>0.80</b>
Context/ Situation	<b>2.72</b>	<b>3.00</b>	<b>0.83</b>
Communicator	<b>2.44</b>	<b>3.00</b>	<b>0.96</b>

Note: 0 = not applicable, 1= strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree  
Health information obtained through the Internet can also be stored and browsed whenever needed, and these features are not available on other mass media. In contrast, the lowest average is on the communicator's self-factor, which shows that respondents do not have a

good self-ability in finding health information. They can still not treat the disease themselves and have to rely on doctors or health providers for treatment or advice on health.

### Factors Influencing Health Behaviour Change

The following discussion is the analysis to determine the factors influencing health information-seeking behaviour through the Internet. The five factors studied are technology, information, goals, context/ situation, and the communicator himself.

Table 4.0 displays the results of the ANOVA test for Regression analysis showing a significant relationship between two independent and dependent variables at 0.05 significance level. The analysis shows that the goal factor (Model 1) contributes significant results with a value of  $F = 37.468$ ,  $p < 0.05$ , as well as the combination of the goal factor with the context factor ( $F = 21.584$ ,  $p < 0.05$ )

Table 3.0

#### *Variance Analysis for Health Information Seeking Factors through the Internet*

Model	Sum of Squares	Df	Mean Square	F	Sig. Value
1.					
Regression	5106.74	1	5106.74	37.468	0.00
Residual	35296.072	259	136.278		
Total	40402.146	260			
2.					
Regression	5791.128	2	2895.564	21.584	0.00
Residual	34611.017	258	134.151		
Total	40402.146	260			

While multiple regression tests showed (Table 5.0), goal factors significantly contributed 12.6% of the variance to health behaviour change ( $R^2 = 0.126$ ) for 261 students. This finding shows that the goal factor is the main predictor that causes students to change their health behaviours.

However, with a combination of goal factor predictors and context factors, the value of variance contribution to health behaviour change increased to 14.3%. The increase was 1.7% (14.3% - 12.6%). While the factors that do not contribute to health behaviour change are information factors, communicator self-factors, and technological factors.

Table 4.0

*Regression Analysis for Dependent and Independent Variable*

Model		B	Beta	T	Sig. Value
1	(Constant)	24.958	.356	7.782	0.000
	Goal Factor	.872		6.121	0.000
	(Constant)	21.954			0.000
	Goal Factor	.502	.201	2.318	0.021
	Context/ Situational Factor	.583	.258	2.260	0.025
		R	R Square	Adjusted Square	R
1		.356 <sup>a</sup>	.126	.123	
2		.379 <sup>b</sup>	.143	.137	

Based on the above discussion, the results of this study can be concluded as shown in Figure 1.0:

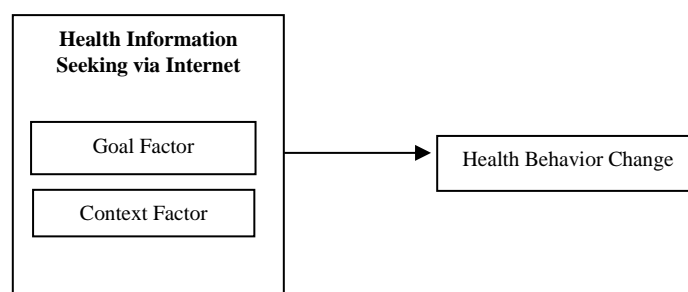


Figure 1.0: Model of Health Behavior Change among Students

**Conclusion**

Overall, this research found that students search for health information on the Internet for specific health-related reasons and goals that indirectly motivate them to engage in active information search strategies (Ramirez et al., 2002). This strategy allows information seekers to obtain information from various sources without requiring direct interaction or face-to-face communication. Thus, this activity will indirectly influence them to change health behaviours.

This study illustrates that these changes in health behaviours also depend on the context and situation of the respondents themselves. They spend less time seeking health information if they do not have health problems and only get information when faced with a situation that requires it (Rees and Bath, 2001). In addition, health information-seeking activity occurs when individuals face urgent situations and direct them to focus on solving those problems. So the search for health information has to some extent, eased the stress on the medical issues they face.

The study was conducted on respondents regardless of their disease background or family members. However, it is recommended that future studies can be conducted on respondents or family members of respondents who have the same experience with specific diseases such as cancer, diabetes, high blood pressure, Alzheimer's, and so on. Researchers need to identify the sources for obtaining health information and the factors of using those sources. In addition, future research should also study the patterns of health information sharing to see the frequency of sharing health information with family members, friends, doctors, or other family members who have similar problems.



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