ORIGINAL ARTICLE

Behaviour Response Among Educated Young Adults Towards COVID-19 Pandemic in Malaysia

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ABSTRACT

Introduction: The new norm of the COVID-19 pandemic may alter the behaviour of an individual either in a positive or negative health-seeking behaviour. The higher education institution may be fully operating someday and students need to practice positive health-seeking behaviour to prevent transmission of the COVID-19 virus. This study aims to identify the behavioural responses of educated young adults towards their health during COVID-19. This study also aims to determine the relationship between health-seeking behaviour and perceived risk towards COVID-19 infection in the future and to determine the association between educational background and health-seeking behaviour during the COVID-19 pandemic. **Methods:** A cross-sectional study was conducted by distributing the online survey questionnaire adapted from a previous study in 2012 by Masuri et al. that assessed behaviour response towards H1N1 pandemic. 369 participants were included in this study. The data was analysed statistically by using SPSS version 26. **Results:** The majority of young educated adults (90.8%) showed positive health-seeking behaviour. The result showed no significant differences ($p > 0.05$) in health-seeking behaviours and perceived risk towards COVID-19 infection. A significant association was found between educational background; educational level ($p= 0.015$) and courses ($p= 0.002$) with health-seeking behaviour. **Conclusion:** This study shows that government and schools/universities/institutions need to provide effective health promotion programs for educated young adults.
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INTRODUCTION

In Malaysia, most schools and universities have stopped the operation during movement control order (MCO) which affected about 4.9 million school students and 1.2 million students in higher education institutions consist of public and private universities, community colleges, and polytechnics, including about 130,000 international students (1). Most of the educated young adults have postponed their learning in higher education institutions during the mid-semester of undergraduate programs and the second semester of pre-university programs (2). For reopening the higher education institutions, educated young adults should follow the standards of operating procedures (SOP) and guidelines from the Ministry of Health (MOH) to avoid the risk of COVID-19 transmission by practicing social distancing, monitor body temperature daily, ensure public areas are being cleaned and sanitized regularly (3). The lifestyle changes may lead to health behaviour practice among educated young adults.

The changes of individual behaviour to obey the public health advice is very important as the COVID-19 virus can be spread easily from one person to another through infected droplets either from a person or an object surface and it has a high risk of virus transmission in high population density (4). Individual behaviour is the effective method to prevent or slowing down the spreading of the COVID-19 virus while the vaccine is still in development and knowledge about the virus may lead to an emotional response in changing the appropriate behaviour when people learn about the virus information thoroughly (5). The new norm of the COVID-19 pandemic may alter the behaviour of an individual either in a positive or negative health-seeking behaviour.

Malaysia had experience in handling the past outbreak that leads to behavioural changes to overcome the pandemic. A study in 2012 by Masuri et al. has

conducted a survey related to behaviour response towards the H1N1 pandemic among educated young adults consist of Health Sciences students shows that the result of H1N1 is not strong enough to change the participants' health behaviour (6). There are no studies yet that investigate the behaviour response towards the COVID-19 pandemic among educated young adults in Malaysia. Based on the experience, is it possible for an individual to improve the health behaviour instinctively to protect themselves and the people surrounding them from the COVID-19 virus? The higher education institution may be fully operating someday and students need to follow the SOP to prevent the infection of COVID-19 active cases. Thus, it is crucial to measure the behaviour response of educated young adults to acknowledge the changes in their health behaviour during the COVID-19 pandemic.

Conner and Norman emphasized cognitive factors determined health behaviours practice in an individual and it may elaborate ways of other factors that affected behaviour with the variables stated in the previous study that consists of perceptions of health risk, control over the performance of the behaviour, social pressures to perform the behaviour and efficacy of behaviours in influencing this risk (7). Cognitive and problem-solving skills, personal control traits, and learned effectiveness can be developed through education as education improve health knowledge, then alters health behaviour by making a correct decision towards positive health outcomes (7, 8). Knowledge related to health may transform an individual's belief that influences health behaviours then modifying the attitude for practicing healthy behaviours, thus eventually increasing the degree of practicing health behaviours (9).

Risk perception is related to the Protection Motivation Theory (PMT) which comprises a consequence of risk or threat assessment and coping appraisal (10). Slovic and Peters, 2006 categorized risk perception into two types: first is affective responses which portray the emotional responses towards risk; second is cognitive responses which comprise of perceived severity of the threat and a person's perceived coping efficacy (11). Perceived risk of infection influenced the adherence to protective behaviour where individuals with high-risk perception tend to perform protective behaviour but individuals with low-risk perception tend to perform risk behaviours or reduce protective behaviours (12, 13). High-risk perception increases fear and anxiety as COVID-19 gained attention from media widely which may exaggerate the true risk but this triggers individuals to perform protective behaviour that decreases the possibility of the infection (14-16).

MATERTIALS AND METHODS

Sample and data collection

A cross-sectional study was conducted by using convenience sampling targeting students from higher education institutions in Malaysia. The data was collected by online survey (google form) due to physical distancing of COVID-19 pandemic. The data collection started from 17th January 2021 until 6th June 2021. A total of 383 participants answered the questionnaire. However, 14 participants were excluded and only 369 participants were eligible to be involved in this study as the participants were filtered based on inclusion and exclusion criteria. The inclusion criteria were the age of participants between 18 and 25 years old and currently studying in a higher education institution while the exclusion criteria were young adults studying overseas and difficulties to understand English.

Instruments

A self-administered questionnaire used is adapted from a previous study in 2012 by Masuri et al. that assessed behaviour response towards H1N1 pandemic. The questionnaire is divided into seven sections as follows: demographic data; knowledge, misconceptions, and beliefs on COVID-19 (11 questions); health-seeking behaviour during COVID-19 pandemic (8 questions); social burden caused by COVID-19 (6 questions); source of COVID-19 information (7 questions); stress level during COVID-19 pandemic (1 question) and perceived risk towards COVID-19 infection in the future (1 question).

In the first section, participants were required to state demographic data such as age, gender, education level, and courses. Second section, the previous questionnaires related to knowledge, misconception, and beliefs on H1N1 were modified to fit with the COVID-19 pandemic. The answers provided were 'Yes', 'No' and 'Not sure'. Third section, the answers provided for health-seeking behaviour questions were 'Yes', and 'No Change'. The participant who scored five and above out of eight 'Yes' answers were considered as practicing a 'positive health behaviour' towards COVID-19. Vice versa, the participant who scored four or less out of eight 'Yes' answers were considered as experiencing a 'negative health behaviour' towards COVID-19. Fourth section, participants rated social burden by five choices of 'Strongly agree', 'Agree', 'Disagree', 'Strongly disagree' and 'Not sure'. Fifth section, participants answered 'Yes' or 'No' to the sources mentioned in the questions. Sixth section, the stress level was divided into five levels which are 'No stress at all' to 'Very stress'. Seventh section, the response of the questionnaire for the perceived risk of getting COVID-19 in the future was divided into four categories: 'No chance at all', 'Most likely', 'Likely' and 'Not sure'. All participants who answered 'No chance at all' and 'Not sure' were then considered as 'Low tendency' perceived risk towards COVID-19 infection in the future. Meanwhile, the participants who answered 'Likely' and 'Most likely' were considered as 'High tendency' perceived risk towards COVID-19 infection in the future.

Data analysis

The data collected were statistically analyzed using Statistical Package for the Social Sciences (SPSS) Version 26 software. The hypothesis testing was conducted to test the correlation between health-seeking behaviour with student perception on the possibility of getting COVID-19 in the future, and education background with health-seeking behaviour during the COVID-19 pandemic. Hypothesis testing was completed either using Chi-square or Fisher Exact test for categorical data to compare the significant differences in proportion. All the parameters in this study were analysed by setting the significance level of $p < 0.05$.

Ethical consideration

This study has obtained ethics approval from the Universiti Teknologi MARA (UiTM) research ethics committee before initiate the data collection. The approval code for this study is REC/12/2020 (UG/MR/249). The participants in this study answered the questionnaire voluntarily where they were given full decision whether to be involved or not in this study. Before proceeding to answer the questionnaire, participants were informed that all collected data will be used for study purposes only and their expressed willingness by marking the consent form. Participants were reassured that their information privacy was anonymous and all the information will be kept confidential.

Table I: Descriptive statistic of participants' demographic characteristics

Demographic Characteristics	Frequency	%	Mean ± SD
Gender			
Male	54	14.6	
Female	315	85.4	
Age			23 ± 1
Education Level			
Foundation studies	10	2.7	
Matriculation	10	2.7	
Diploma	29	7.9	
Undergraduate	306	82.9	
Postgraduate	8	2.2	
ACCA	6	1.6	
Courses			
Accounting & Business	45	12.2	
Arts & Communication	8	2.2	
Education & Languages	17	4.6	
Engineering & Architecture	51	13.8	
Environmental & Marine	1	.3	
Hospitality & Tourism	5	1.4	
Law & Humanities	24	6.5	
Maths, Sciences & Technology	50	13.6	
Medicine & Health Sciences	148	40.1	
Pre-University	20	5.4	

RESULTS

Descriptive statistics of demographic characteristics

A total of 369 students from higher education institutions in Malaysia have participated in this study. Table I displayed the data regarding the age range distribution of the participants which ranged between 18 to 25 years old with the average age of 23 years old, standard deviation (SD)= 1. The total involvements of male participants were 14.6% (n= 54) while female participants were 85.4% (n= 315). The majority of participants comprised of undergraduate students which indicated 82.9% (n= 306), and from Medicine and Health Science courses (40.1%, n=148).

Descriptive statistics of behaviour response towards COVID-19

i) Knowledge, misconceptions, and beliefs on COVID-19

Based on Table 2, 83.7% (n= 309) of the participants acknowledge that the COVID-19 is one type of respiratory disease. The prevalence of misconception related to transmission modes was low via eating well-cooked pork (2.7%, n= 10), via long-distance airborne aerosol (27.1%, n= 100), and via insect bites (1.1%, n= 4). Vice versa, a high prevalence of participants aware that the virus can be transmitted via droplet (80.5%, n= 297), via contact with affected persons (97%, n= 358), and contact with contaminated objects (74.8%, n= 276). There were more than half of the participants believed COVID-19 is treated using a vaccine (59.3%, n= 219) and currently there are no drugs to treat COVID-19 (62.1%, n= 229). Most of the participants (48%, n= 180) reported they did not receive enough information from school, university or institution. Meanwhile, the majority of the participants reported (52.3%, n= 193) they gained enough information from the government.

ii) Health-seeking behaviour during COVID-19 pandemic

In reference to Table II, the majority of the participants reported they are improving their personal hygiene (98.6%, n= 364), wash hands more frequently (98.6%, n= 364) and almost all of them wearing the mask as a precaution (99.2%, n= 366). Overall, Figure 1 shows most of the participants (90.8%, n= 335) reported positive changes in health-seeking behaviour.

iii) Social burden caused by COVID-19

Table II presented the majority of participants (96.8%, n= 357) agree that COVID-19 is a public burden. Most of the participants (93.5%, n= 345) also agree that they miss the things they like to do most. Meanwhile, the majority of participants (61.8%, n= 228) disagree and are not sure that COVID-19 makes them more dependent on others.

iv) Source of information regarding COVID-19

As shown in Table II, the majority of the participants (98.9%, n= 365) chose on-line information as the

Table II: Descriptive statistic of participants' behaviour response towards COVID-19 pandemic

	Frequency	%
i) Knowledge, misconceptions, and beliefs on COVID-19		
COVID-19 is one type of respiratory disease		
Yes	309	83.7
No	30	8.1
Not Sure	30	8.1
COVID-19 is transmitted via eating well cooked meat		
Yes	10	2.7
No	330	89.4
Not Sure	29	7.9
COVID-19 is transmitted via long distance air-borne aerosol		
Yes	100	27.1
No	194	52.6
Not Sure	75	20.3
COVID-19 is transmitted via insect bites		
Yes	4	1.1
No	338	91.6
Not Sure	27	7.3
COVID-19 is transmitted via droplet		
Yes	297	80.5
No	40	10.8
Not Sure	32	8.7
COVID-19 is transmitted via contact with affected person		
Yes	358	97.0
No	7	1.9
Not Sure	4	1.1
COVID-19 is transmitted via contact with contaminated object		
Yes	276	74.8
No	38	10.3
Not Sure	55	14.9
COVID-19 is treated using vaccine		
Yes	219	59.3
No	110	29.8
Not Sure	40	10.8
Currently there are no drugs to treat COVID-19		
Yes	229	62.1
No	77	20.9
Not Sure	63	17.1
The information from school/ university/ institution is enough		
Yes	112	30.4
No	180	48.8
Not Sure	77	20.9
The information from government is enough		
Yes	193	52.3
No	120	32.5
Not Sure	56	15.2
ii) Health-seeking behaviour during COVID-19 pandemic		
Improve personal hygiene		
Yes	364	98.6
No	5	1.4
Wearing mask as a precaution		
Yes	366	99.2
No	3	.8
Wash hand more frequently		
Yes	364	98.6
No	5	1.4
Spending more money on health		
Yes	274	74.3
No	95	25.7
Getting enough sleep		
Yes	283	76.7
No	86	23.3
Increase time on exercise		
Yes	263	71.3
No	106	28.7
Control body weight		
Yes	285	77.2
No	84	22.8

Table II: Descriptive statistic of participants' behaviour response towards COVID-19 pandemic (Continued.....)

	Frequency	%
Actively searching information on COVID-19		
Yes	297	80.5
No	72	19.5
iii) Social burden caused by COVID-19		
I miss the things I like to do most		
Strongly agree	233	63.1
Agree	112	30.4
Disagree	11	3.0
Strongly disagree	4	1.1
Not sure	9	2.4
COVID-19 burden to me		
Strongly agree	118	32.0
Agree	197	53.4
Disagree	30	8.1
Strongly disagree	8	2.2
Not sure	16	4.3
COVID-19 is burden for my family		
Strongly agree	112	30.4
Agree	187	50.7
Disagree	49	13.3
Strongly disagree	7	1.9
Not sure	14	3.8
COVID-19 is burden for my friend		
Strongly agree	152	41.2
Agree	184	49.9
Disagree	13	3.5
Strongly disagree	3	.8
Not sure	17	4.6
COVID-19 is a public burden		
Strongly agree	253	68.6
Agree	104	28.2
Disagree	6	1.6
Strongly disagree	3	.8
Not sure	3	.8
COVID-19 makes me more dependent on others		
Strongly agree	44	11.9
Agree	97	26.3
Disagree	155	42.0
Strongly disagree	31	8.4
Not sure	42	11.4
iv) Source of information regarding COVID-19		
Poster and pamphlet		
Yes	231	62.6
No	138	37.4
Radio and television		
Yes	358	97.0
No	11	3.0
Newspaper		
Yes	200	54.2
No	169	45.8
On-line information		
Yes	365	98.9
No	4	1.1
Magazine		
Yes	101	27.4
No	268	72.6
Word of mouth		
Yes	309	83.7
No	60	16.3
Others		
Yes	76	20.6
No	293	79.4
v) Perceived risk toward COVID-19 infection in the future		
No chance at all	32	8.7
Not sure	166	45.0
Likely	136	36.9
Most likely	35	9.5

Table II: Descriptive statistic of participants' behaviour response towards COVID-19 pandemic (Continued.....)

	Frequency	%
vi) Stress level during COVID-19 pandemic		
No stress at all	13	3.5
Mild	105	28.5
Moderate	186	50.4
Severe	54	14.6
Extreme	11	3.0

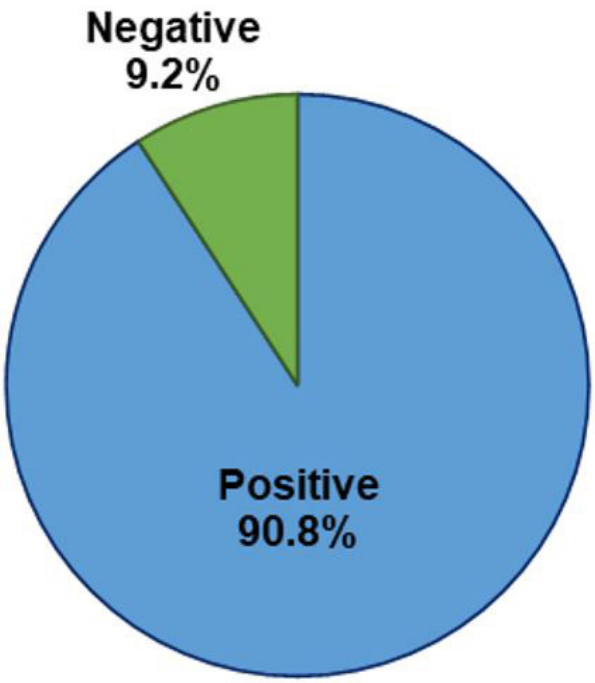

Figure 1: The pie chart of percentage participants' perceived risk toward COVID-19 infection in the future classification. Out of 369 participants, 90.8% (n= 335) reported positive changes in health-seeking behavior while 9.2% (n= 34) reported negative changes in health-seeking behavior.

most influential source to gain information regarding covid-19. Participants mentioned other resources such as social media (Instagram, Twitter, Facebook), survey, community health education, webinar, podcasts journals, articles, and MySejahtera Apps to the obtained latest information about COVID-19.

v) Perceived risk towards COVID-19 infection in the future

Table II described the most of the participants (45.0%, n= 166) were not sure about the future risk of COVID-19 while 8.7% (n= 32) of the participants believed that, there is no chance at all that they will be infected by COVID-19 in the future. The rest participants 36.9% (n= 136) perceived risk likely and 9.5% (n= 35) perceived risk most likely. The classification based on Figure 2 indicated participants have a low tendency of perceived risk toward COVID-19 infection in the future (53.7%, n= 198) were more than participants that have a high tendency of perceived risk (46.3%, n= 171).

vi) Stress level during COVID-19 pandemic

As displayed in Table II, the majority of participants experienced moderate stress level (50.4%, n= 186). In total, 96.5% (n= 356) of all participants experienced stress at various levels during COVID-19 pandemic.

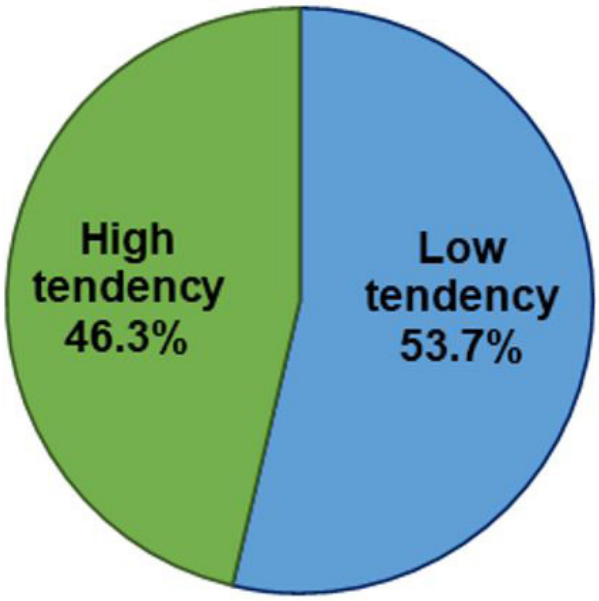

Figure 2: The pie chart of percentage participants' health-seeking behavior during COVID-19 pandemic classification. Out of 369 participants, 53.7% (n= 198) reported have low tendency of perceived risk COVID-19 infection in the future while 46.3% (n= 171) reported have high tendency of perceived risk COVID-19 infection in the future.

Inferential statistics of the relationship between health-seeking behaviours and perceived risk towards COVID-19 infection

As tabulated in Table III, hypothesis testing between the participants' health-seeking behaviour and perceived risk of COVID-19 showed no significant differences ($p > 0.05$) in health-seeking behaviours (based on item and classification) and perceived risk towards COVID-19 infection. Thus, participants' perceived risk not influenced either positive or negative health-seeking behaviour.

Inferential statistics of the relationship between educational background and health-seeking behaviour during COVID-19 pandemic

Based on hypothesis testing between demographic characteristics and health-seeking behaviour as shown in Table IV, educational level and courses were significantly associated ($p < 0.05$) with health-seeking behaviour. Thus, educational background influenced health-seeking behaviours. Overall, data statistically showed the majority of educated young adults practicing positive health-seeking behaviour as it above 60% based on each variable.

DISCUSSION

The result from this study shows educated young adult have high knowledge about COVID-19 and the questionnaire focus on the mode of transmission where

Table III: Inferential statistics of the relationship between participants' health-seeking behaviour and perceived risk towards COVID-19 infection

	n (%)				p-value
	Perceived Risk				
	Low Tendency		High Tendency		
Health Seeking Behaviour					
Improve personal hygiene					0.537
Yes	196	(53.8)	168	(46.2)	
No	2	(40.0)	3	(60.0)	
Wearing mask as a precaution					0.650
Yes	196	(53.6)	170	(46.4)	
No	2	(66.7)	1	(33.3)	
Wash hand more frequently					0.129
Yes	197	(17.9)	167	(82.1)	
No	1	(20.0)	4	(80.0)	
Spending more money on health					0.235
Yes	152	(55.5)	122	(44.5)	
No	46	(48.4)	49	(51.6)	
Getting enough sleep					0.777
Yes	153	(54.1)	130	(45.9)	
No	45	(52.3)	41	(47.7)	
Increase time on exercise					0.839
Yes	142	(54.0)	121	(46.0)	
No	56	(52.8)	50	(47.2)	
Control body weight					0.311
Yes	157	(55.1)	128	(44.9)	
No	41	(48.8)	43	(51.2)	
Actively searching information on COVID-19					0.488
Yes	162	(54.5)	135	(45.5)	
No	36	(50.0)	63	(50.0)	

Correlation analyzed using chi-square test where the significant p-value < 0.05

Table IV: Inferential statistics of the relationship between participants' educational background and health-seeking behaviour during COVID-19 pandemic

	n (%)				p-value
	Health Seeking Behaviour				
	Positive		Negative		
Gender					0.619
Male	50	(92.6)	4	(7.4)	
Female	285	(90.5)	30	(9.5)	
Education Level					0.015
Foundation studies	6	(60.0)	4	(40.0)	
Matriculation	8	(80.0)	2	(20.0)	
Diploma	27	(93.1)	2	(6.9)	
Undergraduate	281	(91.8)	25	(8.2)	
Postgraduate	7	(87.5)	1	(12.5)	
ACCA	6	(100.0)	0	(.0)	
Courses					0.002
Accounting & Business	45	(100.0)	0	(.0)	
Arts & Communication	6	(75.0)	2	(25.0)	
Education & Languages	15	(88.2)	2	(11.8)	
Engineering & Architecture	49	(96.1)	2	(3.9)	
Hospitality & Tourism	4	(80.0)	1	(20.0)	
Law & Humanities	21	(87.5)	3	(12.5)	
Maths, Sciences & Technology	41	(82.0)	9	(18.0)	
Medicine & Health Sciences	139	(93.9)	9	(6.1)	
Pre-University	14	(70.0)	6	(30.0)	
Environmental & Marine	1	(100.0)	0	(.0)	

Correlation analyzed using chi-square test where the significant p-value < 0.05

the percentage range of correct answers is 74.8% to 97.0%. Malaysian general population showed 81.9% to 97.9% of knowledge on the mode of transmission of COVID-19 (17, 18). Based on studies, most educated young adults and the public, aware COVID-19 can be transmitted via respiratory droplet by directly or indirectly contact with an infected person but fewer people knew COVID-19 also can be transmitted via contaminated objects as the virus from respiratory droplet can survive several hours to few days on inanimate surfaces such as plastics, metal, and glass if not cleaned properly (17-20). However, a study by Ngwewondo, et al. 2020 reported an increase in the knowledge of the mode of transmission as resulted in higher knowledge (88.3%) in Cameroonian compared to this study (74.8%) regarding COVID-19 can be transmitted via contaminated objects then touch nose, mouth or eyes (21). Knowledge of the mode of transmission of the infectious disease led individuals to exhibit protective behaviours and there was a positive relationship between knowledge and behaviour response (22, 23).

Besides, educated young adults are aware of the mode of transmission misconception with a percentage range of correct answers from 52.6% to 91.6%. The misconception of COVID-19 is transmitted via long-distance air-borne aerosol was the lowest awareness among three misconceptions in this study but higher awareness compared to the general population; 43.4% in Malaysia and 23.0% in Euthopia (17, 24). Another misconception that was reported in other studies; COVID-19 is transmitted via touching or eating wild animals also reported lower awareness in the general public; 35.7% in Malaysia, 20.2% in Euthopia, 27.9% in South Korea (17, 24). Thus, misconceptions of COVID-19 were high in this study and previous studies as resulted in low awareness of misconceptions of COVID-19. This may be due to the dissemination of inaccurate and false information that resulted in misconceptions that then lead to negative health behaviour (22).

This study shows more than half of educated young adults believe in the availability of vaccines and no drugs to treat COVID-19. The belief of COVID-19 is treated using the vaccine in Malaysian educated young adults is higher compared to the general population; 1% in Bangladesh and 31.2% in Thailand (25, 26). Research and development are still ongoing, to find effective treatment and vaccines against COVID-19. In Malaysia, the government had been induced the vaccination program since 24 February 2021. A study by Alwi, et al. 2021 showed 83.0% of the Malaysian acceptance rate of the COVID-19 vaccine (27). Information from the

government, internet, and social media influenced belief regarding COVID-19 as reliable beliefs may determine different health prevention behaviour and could vary in the population (25). This study believe more than half of the young educated students, the information from the government is enough. The previous study showed government platform was the most used source of information in Malaysia as the Malaysian government is proactive in disseminating reliable information but the government platform was the least used in Jordan as Jordan government contributions were not generally satisfied (22, 28).

This study shows educated young adults in Malaysia used online information (98.9%), radio and television (97.0%), and words of mouth (83.7%) as the source of information regarding COVID-19 compared to the H1N1 pandemic study by Masuri et al. 2012, the preferred source of information were poster/pamphlet (97.1%), radio and television (93.1%) and newspaper (90.2%) (6). This shows the evolvement of technologies on ways to disseminate information regarding pandemics with a decade gap. The data of 94.6% of Malaysian were using a smartphone since 2018 to access online opens a wide opportunity to disseminate information through online platforms and social media (18). The Malaysian government, MOH have done initiative to deliver accurate information and update COVID-19 case status through the official website, social media, short text messages signals (SMS), and My Sejahtera Apps. However, vulnerable populations especially in rural areas, the elderly, less educated people, and poverty neighbourhoods or communities will less be benefited because of limited access to the internet and digital health information sources (25, 29, 30). Many previous studies either in the student or public population, reported online information, social media, radio, and television were used to obtained COVID-19 information (22, 31-33). Besides, words of mouth are also reported high in Cameroonian for people who do not have access to these technologies (21). Too much information from different sources may causes confusion and difficulty to determine correct information (17). Thus, the most vital issue is monitoring and controlling the media to share reliable and accurate evidence-based information in the appropriate manner (34).

This study indicated positive health-seeking behaviour ranged between 71.3% to 99.2% for behaviour change in educated young adults. Wearing mask as a precaution (99.2%) were the highest health-seeking behaviour in this study. This showed an improvement as before MCO only 51.2% of the general population in Malaysia wearing the mask as a precaution (17). The behaviour change may due to government policy that mandated the public to wear the mask and those who were not compliant will be compound. Other highest health-seeking behaviour in this study improved personal hygiene (98.6%) and wash hands more frequently (98.6%). This indicated educated young adults in Malaysia, the upper-middle-class country have positive health-seeking behaviour. There was negative health-seeking behaviour in low- and middle-income countries such as sub-Saharan Africa (SSA) because of poor sanitation and often lack of clean water ready access to perform regular hand washing (35). In this study, increase time on exercise was the least behaviour change compared to other health-seeking behaviours. This may be due to the lockdown impact on the limited physical activity access with the closed of the recreational facilities such as gyms and parks and quarantine impact on mental health affected from loneliness and self-isolation that increase stress then decrease motivation to perform the exercise (36). Previous studies also reported a reduction in exercise during the COVID-19 pandemic (37, 38). Exercise should be implemented in the COVID-19 pandemic during the stay at home to ensure physical and mental health in a balanced state (39).

Most of the educated young adults in this study (45.0%) were not sure of the future risk of COVID-19. A previous study by Ding et al. 2019 showed higher education students in China have a high-risk perception of COVID-19 infection which is associated with high knowledge regarding COVID-19 (40). Lack of perceived risk toward COVID-19 infection in the future can lead to negative health-seeking behaviour as individuals may underestimate the severity of the situation then decrease fear and anxiety toward infection and reduce the protective behaviour. Nowadays, cases of death caused by COVID-19 increase across the world, so, individuals' risk perception of the infection plays the main role to evaluate in relation with the severity, characteristics, and management of COVID-19 (41). Educated young adults are encouraged to have a high perceived risk towards COVID-19 infection in the future.

Educated young adults in this study agree COVID-19 is a social burden especially for the public (96.8%) and restricts them from doing their favourite activities (93.5%). A previous study by Son et al. 2020 reported higher education students to have fear and worry regarding their health and their loved ones, difficulty to focus, sleeping problems, lack of social interactions because of physical distancing, and increased concerns regarding academic performance (42). Besides, the study also reported higher education students sought support from others to overcome the problem, contradict from this study that students disagree to depend on others, and they may not prefer to seek help. Educated young adults may experience significant social burdens, especially in the COVID-19 pandemic as they are in the phase of development to adulthood who have different roles to fulfil, pursue the exploration of their identity, and in preparation work toward independence (43). The social burden will influence psychological distress. Educated young adults without proper coping strategies may not capable to adapt the new norms in the COVID-19

pandemic.

Most of the educated young adults in this study (50.4%) reported moderate stress level. This correlated with a previous study in Saudi Arabia where the majority of higher education students reported moderate stress level (60.9%) and indicated higher stress level compared to intermediate and secondary school students (43). Furthermore, a previous study conducted in the United States reported higher education students had increased in stress level (71.0%) because of the COVID-19 pandemic (42). Stress levels can be the catalyst to other psychological issues such as anxiety and depression. Higher education students may experience high-stress level due to difficulty adapting to the changes in new learning styles which is online distance learning (ODL). However, continuous support from higher institutions are important which play a crucial role in making a better teaching and learning policy by considering students' psychological health.

This study shows no significant differences ($p > 0.05$) in health-seeking behaviours and perceived risk due to COVID-19. In relation to PMT, the positive health-seeking behaviour is significantly motivated by the high perceived risk towards COVID-19 (44). A previous study in Malaysia resulted in a high perceived risk towards COVID-19 infection in the future among healthcare workers (HCW) significantly corresponded with protective behaviour (positive health-seeking behaviour) and health anxiety traits (45). Risk perception can be determined based on experiences, beliefs, judgments, misconceptions, feelings, and attitudes of the individuals, social, cultural, and institutional factors (46). Thus, the risk perception of HCW is higher than educated young adults may due to more exposure to the infection as their work setting is in the hospital and they deal with the ill patient who tends to get infection easily. Improvement of risk perception can be gained through reliable and trusted health promotion programs that spread accurate health and risk communication among the public to improve compliance with policy changes by the government and recommendations from health authorities (44).

This study resulted that the health-seeking behaviour among educated young adults was significantly related to education background; education level and courses. This correlated with a previous study in Malaysia, that shows educated people had positive health-seeking behaviours and associate with good knowledge about the COVID-19 pandemic (22, 47). Educated individuals may be exposed to a lot of information and able to differentiate the accurate knowledge or misconception of COVID-19. A study by Steffen et al. 2021 stated medical students experienced significantly different alterations of health behaviour compared to non-medical students during the COVID-19 pandemic as they were more concerned about health-promoting behaviour even in crises (48). This may be due to they have more reliable knowledge about health as they learned it based on evidence-based practice. High knowledge may lead to high-risk perception and will determine an individual to perform the positive health-seeking behaviour. Thus, health promotion programs should be conducted by the government and health authorities more focus on the low educated population to ensure that accurate health information is disseminated for all Malaysian population.

CONCLUSION

Based on this study, educated young adults have high knowledge and awareness of misconception on COVID-19 except for the misconception COVID-19 is transmitted via long-distance air-borne aerosol that is only moderate. The belief of educated young adults also moderate as treatment of COVID-19 is still ongoing research and development. Only moderate educated young adults received enough information of COVID-19 received from the government and the majority reported information from school/university/institution was not enough. Online information, radio, and television are the most used to get information regarding COVID-19. The majority of educated young adults performed positive health-seeking behaviour during COVID-19 but most of them were not sure about the perceived risk towards COVID-19 infection in the future. Educated young adults agree COVID-19 is a social burden to themselves, their family, friends, and the public but COVID-19 does not make them more dependent on others. This may become one of the contributors of stress level as most of the educated young adults has moderate stress level during COVID-19. Based on health belief model (HBM) and PMT, perceived risk supposedly determined the health-seeking behaviour where high perceived risk will lead to positive health-seeking behaviour while low perceived risk will lead to negative health-seeking behaviour. However, in this study, the perceived risk and health-seeking behaviour were not associated with each other. Health-seeking behaviour among educated young adults was significantly associated with an educational background.

This study provided information that government and schools/universities/institutions must make sure to provide enough information for educated young adults. The health promotion program may be conducted online, on radio, and on television because the platforms are most preferred by educated young adults to get information regarding COVID-19. The health promotion program aims to increase the perceived risk of 49 COVID-19 infection in the future to ensure educated young adults performed positive health-seeking behaviour. Besides, health promotion programs must consider psychological issues in the COVID-19 pandemic as these issues may lead to death without virus infection of COVID-19. This is because most educated young adults experience the

new norm of ODL that may become a stress factor to them. The planning of reopening of higher education institutions should be prepared with strict SOP based on guidelines by the World Health Organization (WHO) to prevent the COVID-19 transmission. The SOP plan can be adapted from Debre Berhan University, the University of Minnesota, and Saudi Arabia as follows: in a classroom should not exceed 30 persons; class only be limited to 40 minutes per session and after the end of the session, the classroom must be ventilated for at least 15 minutes; the classroom needs to be disinfected and cleaned at least twice a day with minimum one-hour ventilation after disinfection; physical distancing must be practiced by students and staffs whether, in the classroom, laboratory, workshops, library or other educational settings; group activities such as team-based sports or games are prohibited; face masks should be worn properly by covering mouth and nose in public areas all the times; hand hygiene needs to be performed by washing hand frequently using soap and water or use hand sanitizer after touching any surfaces; individuals with COVID-19 symptoms must quarantine at their residence place, report and seek for medical attention (41). Thus, the educated young adults must practice positive health behaviour to prevent COVID-19 infection and maintain psychological health whether in physical learning or ODL.

Future studies should be conducted with a larger sample size and the questionnaire to evaluate the behavioural response in the future study should be validated and the item of the questionnaire should be more relatable with the COVID-19 pandemic such as the question about physical distancing and panic buying. Besides, the time frame to conduct the study should be specified because the longer the time duration to conduct the survey the more changes will occur as the preventive measure of COVID-19 should be taken rapidly. Overall, educated young adults demonstrated positive health-seeking behaviour during the COVID-19 pandemic. This study provided information that government and schools/universities/institutions must make sure to provide enough information for educated young adults. The planning of reopening of higher education institutions should be prepared with strict SOP based on guidelines by the WHO to prevent the COVID-19 transmission.

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