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The Effects of Perceived Threats and Social Media Exposure about COVID-19 on Mental Health in Malaysia

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ABSTRACT

The objective of this study is to examine the effects of perceived threats and social media exposure of COVID-19 on mental health. For this cross-sectional design survey-based study, a sample of 315 university students in Malaysia, aged between 19 to 35 years (Mean age = 23.31, SD = 2.808), were recruited by cluster sampling. Sociodemographic variables, perception of threat level of COVID-19, social media exposure level of COVID-19 and mental health of individuals was measured through a collection of online self-reported data. Standard multiple regression and hierarchical multiple regression analysis was conducted. Results showed that individuals with higher levels of social media exposure had lower levels of mental health problems, whereas individuals with a higher level of perception of threat had more mental health problems. Findings of this study has great implementations in research as it shows that the pandemic-related perception of threat generates mental health problems. As such, for the purpose of strengthening mental health services, campaigns and interventions should be introduced by policy makers, the government and mental health practitioners.

Keywords: *perceived threat, social media, mental health, COVID-19*

INTRODUCTION

Since 31 December 2019, the outbreak of Coronavirus disease which is known as COVID-19 by World Health Organisation (2020), started to pose a threat to the world with many morbidity and mortality cases. It was identified first in Wuhan, China, in shops selling local fresh seafood and exotic animals' (Ji, Wang, Zhao, Zai & Li, 2020). The strains of COVID-19 with severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) were found to be genetically related, especially to SARS-CoV whereby it showed a 75-80% similarity in features as COVID-19 (Kannan, Ali, Sheeza & Hemalatha, 2020; Zhou et al., 2020). Also, all of those three outbreaks have been known to cause human respiratory diseases (Huang et al., 2020; Perlman, 2020). At the time of writing this paper (2020, March 31), globally, there were 750.890 total confirmed cases with 57.610 new cases in the last 24 hours, in which 36.405 people died because of COVID-19 in total, while 3301 people died just recently, and it is still spreading (World Health Organization, 2020).

Threats of COVID-19 instil substantial fear in people (Paek & Starr, 2020). Such fear creates fear and worry in people's daily lives, even among those who have never been directly impacted by the COVID-19 virus. The reason for this is because it increases the perceived likelihood of future harm to themselves or their loved ones. For example, there was a recent case of an Indian father who committed suicide because of fear of COVID-19 (Apparasu, 2020). The recognition that future COVID-19 threats are a concrete reality negatively affects people's psychological functioning and daily life routines, and it also undermines their mental health (Everett, Colombatto, Chituc, Brady & Crockett, 2020; Kachanoff, Bigman, Kapsaskis & Gray, 2020; Van Bavel et al., 2020). Thus, COVID-19 is not just a threat to people's physical health, but it is also a threat to people's mental health.

A person's interpretation of an incident is very influential on his or her perception of an event. One of the examples about the interesting aspect of the strength of an individual's perception is on how patients with the same disease may have very different perceptions of their situations and these

perceptions may lead the same patients along very different trajectories of their illness (Grayson et al., 2013). Another research also shows that negative perceptions of illness are correlated with lower recovery irrespective of objective measures taken to treat the severity of the illness (Petrie & Weinman, 2006). However, the perceptions an individual has of a disease can be altered and modified, providing significant potential in the future to increase the adjustment of patients to the disease and decrease anxiety levels in them (Broadbent, Ellis, Thomas, Gamble & Petrie, 2009). As such, knowing and being aware of society's degree of perception of threat about COVID-19 has vital importance.

It was also found that the perception of risks may have a direct or indirect impact on an individual's behaviour. This can be seen from the health belief model which reflects on the direct impact or through the theory of planned behaviour which indicates the indirect impact via attitudes (Akompab et al., 2013; Montano & Kasprzyk, 2015). However, based on Lazarus' cognitive-mediational theory (Lazarus, 1991), when an individual is faced with a stressor, if that stressor is perceived as a threat and there are few or no effective coping options found by the individual, it may result in a high threat appraisal consequently leading to psychological distress such as depressive and post-traumatic stress symptoms (Matheson, Foster, Bombay, McQuaid & Anisman, 2019). Thus, higher perception of threat about COVID-19 could increase the susceptibility of mental health illness in individuals with a higher perception threat than others. Hence, the present study seeks to investigate the effects of perceived threat of COVID-19 on the mental health of young adults.

On the other hand, while the need for information increases with the outbreak, the main channels of information obtaining tools are internet news platforms, television news, and newspapers (Li et al., 2014). Media acts as a significant medium in influencing awareness and understanding among the public regarding any feedback or measures taken by the government in response to society's health problems (Matenge, Freeman, Quinn & Gupta, 2017). For example, traditional news media provides crucial information with the aim of providing to one-way communication through television, radio, etc. which is strictly monitoring by the government (Cildan, Ertemiz, Tumuçin, Küçük & Albayrak, 2012; Hooker, Leask & King, 2012).

Further, social media has been found to have a lot of significant differences as compared to traditional media. For example, it transforms the transmission of information to its audience from a passive exchange of information to a more active approach Apuke, 2016). Thus, with the spreading of the virus, there was a large amount of news both real and fake news which enveloped the mainstream social media which pose a danger to the mental health of the public due to its lack of control in its features whereby everyone is free to create and spread viral content (Baccarella, Wagner, Kietzmann & McCarthy, 2018; Shao, Ciampaglia, Varol, Flammini & Menczer, 2017).

Furthermore, statistics have shown that 84% of outbreak reports have been propagated and spread via social media by tweets and retweets containing misinformation and have a far greater capacity than accurate knowledge throughout the outbreak (Gu et al., 2014; Oyeyemi, Gabarron & Wynn, 2014). On the other hand, traditional media transmits information regarding risk about health issues with the purpose of enhancing decision-making and encouraging healthy behaviours among the public. For example, one of the online newspapers announced that "The elderly needs more attention during the Covid-19 pandemic". This can be useful in creating awareness among society. However, news delivered through social media platforms may be disseminating misinformation to society which has been shown to cause a high incidence of mental health disorders such as anxiety and depression. These mental health disorders have been known to have a positively correlation with increased social media exposure, especially in China (Agency, 2020; Gao et al., 2020; Roth & Brönnimann, 2013). As such, the effect of social media has been found to have a strong relationship with mental health issues (Davey, 2016; Primack et al., 2017). However, there is insufficient research about how the effect of social media exposure on COVID-19 might increase the susceptibility of individuals having mental illness, particularly among young adult university students in Malaysia from various countries. This is of concern because there is an increasing number of individuals in Malaysia who have been known to use social media as it was reported recently to amount to 24.6 million users in 2018. Furthermore, the age group with the longest duration of daily use of social media has been found

to be those in young adulthood (Malaysian Communications and Multimedia Commissions, 2018). Therefore, the current study investigates the effects of social media exposure about COVID-19 on depression, anxiety and stress among young adult university students in Malaysia from various countries.

Based on one of the theories of emotion called the Lazarus' Cognitive-Mediational Theory and Diener and Lucas' Evaluation Theory (2000) proposed in the present study, a new understanding on society's mental health during the COVID-19 outbreak was investigated as a theoretical significance. From the viewpoint of practical significance, this study can provide psychoeducation on the effects of the perception of threat and social media while also providing awareness on the need for emotion and cognitive regulation intervention strategies with the aim of decreasing anxiety levels and other mental health issues among society. This would also help create awareness of social media exposure effects and decrease the incidence of xenophobia (fear of other ethnic groups) which can prevent discrimination between ethnicities.

Threat perception is defined as an individual's level of belief on life's challenges, personal vulnerability and self-interpreted effect of events' magnitude based on the study by Mott, Graham and Teng (2012) and Cornelius et al., (2018). The term social media has been beautifully described by Davis, Deil-Amen, Rios-Aguilar and González Canché, (2015) that "social media technology refers to web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated (e.g., personal photos, videos, writing) or existing (e.g., news, radio, television) content in digital environments through multiway communication." (p. 1). Also, exposure is simply defined as "the act of subjecting someone to an influencing experience, the condition of being exposed, uncovered or unprotected." (p. 10) by Ganiyu and Sarafadeen, (2019). Mental health problems are identified in the current research as depression, anxiety and stress across a wide range of cultures in community, academic and clinical settings (Scholten, Velten, Bieda, Zhang and Margraf, 2017). Therefore, the current study was measured by associating mental health of young adults with depression, anxiety, and stress. Thus, the objective of this study is to examine the effects of perceived threats and social media exposure about COVID-19 on mental health among young adult undergraduate students.

Influences of Perception of Threat

It is important to know that being aware about effects of perception of threat on people during the pandemic (Balicer et al., 2010). Prior studies of Marshall et al., (2012) and Wheaton, Abramowitz, Berman, Fabricant and Olatunji (2012) showed that perceived threat from a pandemic of infectious disease is positively correlated with fear and anxiety feelings. Also, persistent cognitions of the threat of contagious disease infection significantly associated with depression and anxiety, regardless of the actual risk behaviour indicated by Golub, Lelutiu-Weinberger and Brill, (2016). Interestingly, a study by Jalloh et al., (2018) demonstrated that disease (Ebola) experience and perceived threat of disease was found to be independently associated with anxiety, depression and post-traumatic stress disorder symptoms, which means that people who have a perceived threat of disease could have mental illness even without any actual experiences of the disease. Moreover, a research by Shigemura, Ursano, Morganstein, Kurosawa and Benedek (2020) was conducted whereby on community reactions towards COVID-19 in Japan by investigating its impacts on mental health. Shigemura et al., (2020) highlighted the importance of fear and a distorted perception of risk which can cause negative societal behaviours. This was found to cause individuals to be prone to develop distress reactions (insomnia, anger, extreme fear of illness even in those not exposed), health risk behaviors (increased use of alcohol and tobacco, social isolation), mental health disorders (post-traumatic stress disorder, anxiety disorders, depression, somatization), and a lowered perceived health. The study of Williams, Regagliolo and Rasmussen, (2012) suggested that understanding the perceptions of an individual about a pandemic seems crucial in understanding their psychological responses.

Additionally, Heir, Blix and Knatten, (2016) found that perceived threat may pose as the main contributor for the development and maintenance of Post-Traumatic Stress Disorder (PTSD) for people who are directly or indirectly exposed to traumatic events. It was also characterized as a predictor for

PTSD in a systematic review by Heron-Delaney, Kenardy, Charlton and Matsuoka, (2013). Likewise, a study found that perceived threat during life-threatening events is prevalent and is independently linked with developing symptoms of PTSD (Moss et al., 2020).

Influences of Social Media

On the other hand, it is also needed to illuminate that whether social media feeds the public's fears or spread false information that worsens the threat of a disease outbreak (Chou, Oh & Klein, 2018; Oberst, Wegmann, Stodt, Brand & Chamarro, 2017; Schmidt, 2012). Many of the studies have investigated already that when people spend a great deal of time on social media, they have developed depression or showed triggers of depression (Davey, 2016; Primack et al., 2017). Also, social media users were even found to express more negative words in the course of MERS epidemic period about an infectious disease such as anxiety, fear, uncertainty, risk and suspicion (as cited in Choi, Yoo, Noh & Park, 2017). Another evidence has shown that increased media exposure to a disease outbreak is associated with increased psychological distress and worry according to Thompson, Garfin, Holman and Silver (2017).

In light of all this information, it can be seen that individuals with a high perception of threat level about COVID-19 and high exposure from social media may be more prone to mental health issues during the outbreak. This was seen in a research in China whereby it was found that a high incidence of mental health issues has been positively linked with regular access to social media during COVID-19 outbreak (Gao et al., 2020). Also, in another study, which was conducted by Sussman, Szekely, Hajcak and Mohanty, (2016) helped to explain how anxiety, perceived threat, and threat-based frameworks contribute to the development of perceptual biases and eventually the development of mental health disorders. Additionally, this research demonstrated the significant role of perception of threat as a risk factor for the occurrence of symptoms of depression and post-traumatic stress disorder (Lancaster, Cobb, Lee & Telch, 2016).

Theoretical and Conceptual Framework

Based on Lazarus' cognitive-mediational theory (Lazarus, 1991) which is one of the theories of emotion, when faced with a stress, an individual evaluates the potential threat and then determines whether there are effective options to manage the condition. Stress is likely to occur if a stressor is perceived as threatening and there are few or no effective coping options. On the other hand, traumatic events have the role as stressors and on affecting threat appraisal, which predicts psychological distress such as depressive and post-traumatic stress symptoms (Matheson et al., 2019).

Given the importance of perception, in the current study, Lazarus' threat appraisals model in cognitive-mediational theory was used as a conceptual framework. Also, it was used to determine if the role of social media exposure about COVID-19 is a stressor of traumatic events which can result in depression, anxiety and stress among university students in the light of the model in Matheson et al.'s study, (2019).

Hypotheses

H1: High perception of threat about COVID-19 will be positively related to depression, anxiety and stress.

H2: Social media exposure about COVID-19 will be positively related to depression, anxiety and stress.

H3: If the positive effect of traditional media exposure, age, gender and region were controlled, the perception of threat and social media exposure about COVID-19 will have a statistically significant relationship in predicting depression, anxiety and stress among individuals.

Operational Definitions

The subscale of the Risk Behaviour Diagnosis scale (RBD) (Witte, 1996) with 7-point Likert scale was used for operationally defined perceived threat of COVID-19. Scores was done by combining information from two variables which are perceived susceptibility and perceived severity with 3

questions each. It was used to determine whether the participants have low or high perceived threat (Cronbach's alpha = .93) (Zhang & Zhou, 2019).

Social media exposure was operationally defined by asking how often respondents during the past month were exposed to news and information about COVID-19 on social media, such as Facebook, Twitter, and etc. with 5-point Likert scale ranging from "never" to "very often" (*M* = 3.13, *SD* = 1.20) (adapted from Choi et al., 2017).

Mental health was operationally defined using Depression, Anxiety and Stress Scale-21 Items (DASS-21) (Antony, Bieling, Cox, Enns & Swinson, 1998). It has been extensively used to measure mental health problems (Scholten et al., 2017). Cronbach's alpha found .81 for depression, .89 for anxiety and .78 for stress (Coker, Coker & Sanni, 2018).

METHOD

Participants

The study was conducted between 18-30 March 2020 during the COVID-19 first movement control order period in Malaysia (Shamsudin, 2020). The sample comprised 315 university students both undergraduates and postgraduates (275 undergraduates with 87.3%, 40 postgraduates with 12.7%) was set with geographical population-based probability sample with a clear target population which is cluster sampling because, focusing on just clustered selection is less costly and sensitive than simple random sampling (Etikan & Bala, 2017). The number of participants was chosen based on the research of Bujang, Sa'at & Bakar, (2017). The age range of participants was 19 - 35 (*M* = 23.31, *SD* = 2.808), (Adulthood, 2020). Out of these 315 participants, 245 (77.8%) were female and 70 (22.2%) were male, from middle east (11.7%), south eastern Asia (78.7%) and south-central Asia (9.5%) (Middle East Countries Population, 2020; South Central Asia Population, 2020; South Eastern Asia Population, 2020). (see Table 1).

Table 1: *Sociodemographic Characteristics of Participants*

Variables	n	%
Gender		
Female	245	77.8
Male	70	22.2
Region		
Middle East	37	11.7
South Eastern Asia	248	78.7
South Central Asia	30	9.5
Level		
Undergraduate	275	87.3
Postgraduate	40	12.7

Note. *N* = 315. Participants were on average 23 years old (*SD* = 2.808).

Design

For this cross-sectional design survey-based study, a representative sample of university students in Malaysia was obtained. There were two independent variables which are perception of threat about COVID-19 and social media exposure about COVID-19; one dependent variable which is mental health with three sub variables (depression, anxiety and stress).

Instruments

Sociodemographic questions: Information pertaining participants' gender (1 = female, 2 = male), age, region (1 = Middle east, 2 = South eastern Asia, 3 = South central Asia) and level of education (1 = UG, 2 = PG) was asked. Also, traditional media influencing was controlled by asking how often an individual during the past month were exposed to news and information about COVID-19 on the traditional mass media, such as newspapers and television, and on the Internet (*M* = 4.27, *SD* = .972) was asked with 5-point Likert scale ranging from "never" to "very often" (adapted from Choi et al., 2017).

Perception of threat: The Risk Behaviour Diagnosis scale (RBD) with 7-point Likert scale was used for measuring perceived threat by Witte (1996). Scores was done by combining information from two variables which are perceived susceptibility (M = 8.83, SD = 2.656) and perceived severity (M = 13.55, SD = 1.774) with 3 questions each. The scale was found to be significantly reliable in the current study with .813 and .717 Cronbach's alphas for perceived susceptibility and for perceived severity respectively (see Table 2), which is consistent with a previous study by Zhang and Zhou (2019).

Table 2: Reliability Statistics

Scales	Cronbach's Alpha	N of Items
Perceived	.813	3
susceptibility	.717	3
Perceived severity	.857	7
Depression	.779	7
Anxiety	.809	7
Stress		

Social media exposure: It was measured by asking how often an individual used social media during the past month by measuring their level of exposure to news and information about COVID-19 on social media, such as Facebook, Twitter, and etc. (M = 4.65, SD = .662) with 5-point Likert scale ranging from "never" to "very often" (adapted from Choi et al., 2017).

Mental health: It was measured using the Depression, Anxiety and Stress Scale-21 items (DASS-21) (Antony et al., 1998). Cronbach's alpha values were .81 for depression, .89 for anxiety and .78 for stress in previous study (Coker et al., 2018). The scale was found to be statistically reliable for the current study with .855, .779 and .808 Cronbach's alphas for depression, anxiety and stress respectively (see Table 1) (M = 10.27, SD = 8.863 for depression; M = 9.52, SD = 7.643 for anxiety; M = 11.50, SD = 8.179 for stress).

Procedures

The participants were recruited and completed online self-report questionnaires which was done through a link of a google document survey that was distributed via WhatsApp. Prior to answering the survey, an information sheet and informed consent form was provided on the first page of the survey stating that participants were given a choice to continue to the next page or to withdraw from answering the survey. The second part of the survey included participants' demographic information. Following that, there were questions regarding social media exposure, traditional media exposure, RBT and DASS-21. All data obtained was entered into the statistical package for the social sciences IBM SPSS software. Correlations means and standard deviations for all variables were computed. Standard multiple regression and a series of hierarchical multiple regression analyses were used to evaluate the hypothesis, which is frequently used for measuring its effects (Choi et al., 2017; Zhang & Zhou, 2019).

Ethical consideration and the confidentiality of the data including respondents' information and informed consent was provided and fulfilled. The study assumed that participants responded truthfully, accurately and with honesty to ensure the validity of the results.

FINDINGS

There was a small statistically significance and positive correlation between perception of threat and depression, anxiety and stress, r = .182, .229, .172 respectively, n = 315, p < .005, with high levels of perceived threat associated with higher levels of depression, anxiety and stress. However, there was no statistical significance in correlation between social media exposure and depression, anxiety and stress although the direction of correlation was found to be positive (r = .051, .012, .044 respectively) (p > .005). Moreover, the direction of relationship was found to be negative between traditional media exposure and depression, anxiety and stress (r = -.037, -.009, -.045 respectively) (p > .005). With regards to the medium, a positive correlation was found between social media exposure and traditional media exposure (r = .307, p < .005).

Table 3: Correlations of Variables

Measure	1	2	3	4	5	6	7	8	9
1.Social media exposure	-								
2.Perceived threat	.105	-							
3.Depression	.051	.182	-						
4.Anxiety	.012	.229	-	-					
5.Stress	.044	.172	-		-				
6.Traditional media exposure	.307	.038	-.037	-.009	-.045	-			
7.Age	-.080	.050	-.098	-.146	-.077	.024	-		
8.Region	-.046	.058	-.056	-.045	-.037	.092	-.282	-	
9.Gender	-.006	-.027	.055	-.031	-.048	.094	.248	-.123	-

The tolerance value for each independent variable is .989 which is not less than .10; thus, the current study has not violated the multicollinearity assumption. This is also supported by the VIF value, which is 1.011, which is well below the cut-off of 10. These findings are not unexpected which the Coefficient of Pearson Correlation between these two independent variables was just .105.

The outliers were detected by boxplot based on an examination of 3.0 inter-quartile range because based on past research, it was indicated that the 1.5 multiplier was inaccurate approximately 50% of the time (Hoaglin and Iglewicz, 1987). Even so, in the present study, Cook's Distance waschecked on output concerning a few unusual cases to ascertain whether this strange case has any undue influence on the results for the model as a whole. According to Tabachnick and Fidell (2013, p.75), cases with values larger than 1 are a potential problem. In the current study, the Maximum value for Cook's Distance is .072, suggests no major problems.

The presented model (which includes perception of threat and social media exposure) explains 3.4, 5.3 and 3 percent of the variance in the depression, anxiety and stress, respectively. This means that perception of threat and social media exposure explain an additional 3 percent of the variance in depression. The results of the ANOVA table show the statistical significance of the findings obtained. This checks the null hypothesis, that in the population multiple R is equal to 0. The ANOVA table indicates that the model in this study reaches statistically significant for anxiety (Sig. = .000), whereas it does not reach statistical significance for depression and stress (Sig. = .005 and .008).

The study also intends to compare the contribution of each independent variable. In this study the larger beta coefficients are .178, .230 and .170 for model in depression, anxiety and stress respectively, which are for perception of threat. This means that perception of threat makes the strongest unique contribution to explaining the dependent variable, when the variance explained. The Beta value for social media exposure was quite lower with .032, -.012 and .026 for model in depression, anxiety and stress respectively, indicating that it made less of a unique contribution. In brief, perception of threat made a statistically significant unique contribution to the prediction of the dependent variables with $p < .005$, $p < .001$ and $p < .005$ for depression, anxiety and stress respectively, while social media exposure is not making a statistically significant unique contribution to the prediction of the dependent variable with $p = 568.$, $p = .832$ and $p = .640$ for depression, anxiety and stress respectively.

Table 4: Predictors of Mental Health

	Depression		Anxiety		Stress	
Variable	β	p	β	p	β	p
Social media	.032	.568	-.012	.832	.026	.640
Perception of threat	.178	.005	.230	.000	.170	.008
R^2	.034		.053		.030	
F	5.491		8.651		4.893	

A standard multiple regression was conducted to predict depression, anxiety and stress based on individuals' perception of threat and social media exposure levels. For perception of threat, a significant regression equation was not found for depression (F(2, 312) = 5.491, p = .005), with an R^2 of .034; it was found for anxiety (F(2, 312) = 8.651, p < .001), with an R^2 of .053; it was not found for stress (F(2, 312) = 4.893, p = .008), with an R^2 of .030. The model, which includes perception of threat and social media exposure explains 3.4, 5.3 and 3 percent of the variance in the depression, anxiety and stress. Of these two variables, perception of threat makes the largest unique contribution, although social media exposure has not shown a statistically significant contribution.

Table 5: Hierarchical Regression

	Depression	Anxiety	Stress
Predictor	β	β	β
Step 1: Control variables			
Traditional media exposure	-.033	.004	-.035
Age	-.141	-.172*	-.086
Gender	.083	.000	-.031
Region	-.083	-.093	-.062
Incremental R^2 (%)	2.4	2.9	1.2
Step 2:			
Perception of threat	.196*	.249*	.180*
Social media exposure	.029	-.037	.029
Incremental R^2 (%)	4	6.1	3.4
Total R^2 (%)	6.4	9	4.6

*p < .005

Additionally, hierarchical multiple regression was used to assess the ability of predictor variables (perception of threat and social media exposure) to predict levels of depression, anxiety and stress, after controlling for the influence of traditional media exposure, age, gender and region. Preliminary analysis was performed to ensure that the assumptions of normality, linearity, multicollinearity and homoscedasticity were not violated. Traditional media exposure, age, gender and region were entered at step 1, explaining 2.4, 2.9 and 1.2 percent of the variance in depression, anxiety and stress respectively. After entry of the perception of threat and social media exposure at step 2, the total variance explained by the model as a whole were 6.4, 9 and 4.6 percent respectively for depression F (6, 308) = 3.513, p < .005; anxiety F (6, 308) = 5.077, p < .001; and stress F (6, 308) = 2.461, p =.024. The predictor variables explained an additional 4, 6.1, and 3.4 percent of the variances in depression (R squared change = .040; F change (1, 308) = 6.575, p < .005), anxiety (R squared change = .061; F change (1, 308) = 10.291, p < .001) and stress (R squared change = .032; F change (1, 308) = 5.455, p = .005), after controlling for traditional media exposure, age, gender and region. In the final model, only the one predictor variable which is perception of threat was statistically significant, with the depression, anxiety and stress scale recording a higher beta value (*beta* = .196 for depression; .249 for anxiety; and .180 for stress, p < .005, p < .001, p = .005 respectively) than the other variables.

DISCUSSION

The present study was conducted to examine the effects of perceived threats and social media exposure about COVID-19 on mental health. Firstly, the results showed that the perception of threat about COVID-19 may lead to serious mental health issues which is in line with several other research findings (Everett et al., 2020; Kachanoff et al., 2020; Van Bavel et al., 2020). The significance of results is that a high perception of threat about COVID-19 has an influence on university students' mental health and this may contribute directly or indirectly to both their physiological and psychological health. This is because, individuals' response to COVID-19 is dependent on their perception of their capability in dealing with its threat. For example, if an individual has a high level of self-efficacy about reducing the risk of being infected then this individual will tend to behave in a socially beneficial manner (Gaube, Lermer & Fischer, 2019). Also, when a high threat content exists independently, without any indication of efficacy in an individual, this will only help to increase the perception of susceptibility and severity

by the receivers (Gore & Bracken, 2005). Thus, individuals who believe that a pandemic would have serious consequences and who perceive that they completely have no personal control over it, will result in a greater perceived threat of the virus.

Secondly, it was hypothesized that social media exposure about COVID-19 will be positively related to depression, anxiety and stress. A standard multiple regression was conducted that yielded a result in line with the present study's hypothesis. The results of this study are in line with a study by Jelenchick, Eickhoff & Moreno, (2013) whereby social media does not have a direct effect on mental health. It might be explained by the impersonal-impact hypothesis which proposed that mass media affected the perception of risk at the societal level while it has little effect on the perception of risk at the personal level (Tyler & Cook, 1984). Another study found that frequency of exposure of media which generated susceptibility raises concerns about risk at the personal level, whereas media exposure extensity causes people to determine the overall health emergency situation, which concerns the risks at the societal level (Li, 2018). Those findings may even lead coping strategies and preventive behaviors which social media exposure found an effective on them in earlier research (Yoo, Choi & Park, 2016). The significance of the results, merely the social media exposure about COVID-19 shows that social media has not influencing individual's mental health directly, which due to higher media literacy among the young adults.

Since the current study's population is young adult's university students, which the statistics shows that who has associates or higher degree found with higher level of media literacy than who has less educational attainment, and younger adults who's aged 16-34 found with higher rate of digital literacy when study compared with other groups of adults (Mamedova, Pawlowski & Hudson, 2018). In context with Mamedova et al.`s (2018) findings, the current study was not found on social media exposure effective for university students and the reason might be that the participants have higher level of media literacy. Thus, it can be suggested for future studies that to compare participants education level and media literacy level in Malaysia, as well as other age groups could be taken into comparison.

As it could be seen that with the nature of the study designed for measuring same individuals' perception of threat of COVID-19 level, social media exposure level of COVID-19 and their mental health. Results could be allowed to summarize that it is not necessary to be affected by social media exposure about COVID-19 to have mental health problems if individual have perceived less threat of COVID-19. Whereas, it is more probably to get mental health problems if individual have high concern, high perceived threat about COVID-19 independently with their level of social media exposure about COVID-19. It is also shown that social media exposure is not the cause of mental illness alone, unlike early researches indicated by Roth and Brönnimann, (2013) and Gao et al., (2020).

The current results also could be shown that the government, educator and psychologist in Malaysia have worked well at the first stage of covid-19 pandemic with facilitating the development of more effective, informative and clear media messages about COVID-19 and have good control on audit the messages released in social media that the community's mental health, even for different ethnicity, did not affect negatively by social media. For the future study, it can be suggested that to compare government, educators and psychologist actions taken in the social media during the pandemic with community's level of mental health between countries, because on the contrary, early study shown in China found the opposite results than current finding (Gao et al., 2020).

However, in addition to the measures to be taken against the virus, governments and psychologists should be aware and supportive for society's mental health with educating people psychological defence, effective dealing with excessive perception of threat, anxiety, worry and all negative sentiments, because based on current results, community still shown high perception of threat against COVID-19. When people have limited reference and high uncertainty about the disease risk, one's optimism, does not affect their preventive or avoidance behaviors (Rudisill, 2013), which leads unwanted consequences like, the spread of the epidemic to more people. Health campaigns aimed at improving public perceptions of illness in times of infectious disease can be useful for altering

psychological reactions and eventually influencing behaviour (Williams et al., 2012). However, it should not be forgotten that tranquillity should not be confused with over-confidence that led people to take low vaccine uptake and less preventative behaviour worldwide during the 2009 influenza virus (H1N1) shown by research of Marshall et al., (2012).

Nevertheless, another point that should not be ignored, correlation results demonstrated that direction between traditional media exposure about COVID-19 and mental health found negative, while direction between social media exposure about COVID-19 and mental health found positive which in line with early findings (Davey, 2016; Hooker et al., 2012; Matenge et al., 2017; Primack et al., 2017). Future work needs to examine on the role of social media information in risk communication contexts as regards sources and types of information.

Also, in terms of sociodemographic structure of current study demonstrated that there is sex gap within the participants like there were more women than man. However, it was an expected and anticipated outcome due to the previous research already showed that women have overtaken males in higher education and creating a gender gap in Malaysia (Wan, 2018). Thus, for the generalizability and comparability to other countries, future study needs to account the male dominant countries too.

Few limiting factors might be also occurred when investigating this research, like study was target to a specific sample of age group that is young adults (Adulthood, 2020), which cannot be generalized to other age groups. Future studies may take into account different age groups to compare. Additionally, many of the unknown features about COVID-19 may have impacted on the perceptions of the participants. The current research, which was the newly that epidemic period in Malaysia, was implemented during 18–30 March 2020. Our findings may have been different if the analysis had been performed later in the year, when there was probably greater concern and received prominent media exposure.

CONCLUSION

In conclusion, the current study has added several keyways to the literature on the society's response to COVID-19. First, the findings showed that respondents had high levels of perceived threats towards COVID-19 which resulted in them developing some significant levels of depression, anxiety and stress. It can be inferred that people could have mental illness with their high level of threat perception about outbreak while they even have no sign of physical symptoms of COVID-19. This shows an important role of perceptions in predicting psychological responses during the times of an infectious disease outbreak. It is suggested that mental health campaigns be aimed at targeting people's perception of threats during outbreaks of infectious disease as they can be useful in decreasing mental health issues among individuals. Secondly, a high level of social media exposure about the outbreak was found to be not significant in causing mental health issues among young adults. For future research, it is important for this to be ascertained among a different cohort and to be done longitudinally.

The current research’s findings have showed that the perception of threat among physically healthy young educated adults can cause mental health issues on the person who has not been affected physically by COVID-19. These findings suggest possible implementations that the policy makers, the government and mental health practitioners should take into account that mental health services should be provided and made accessible to everyone, regardless of whether an individual physically infected by the disease or not.

In order to provide effective mental health interventions during the outbreak, it is important to understand the effect of the outbreak on an individual’s mental health (Giallonardo et al., 2020). The future implications of this study in research are that the present study has added several keyways to the literature on perception of threats of COVID-19 among vulnerable particularly those with mental health issues such as stress, anxiety and depression. Also, there is a need for more research on future possible mental health treatments and clinical practice on individuals during the COVID-19 pandemic in order to the lower negative psychological consequences of this outbreak on individuals.

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