TEST Engineering & Management

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

Understanding Social Distancing Intention among University Students during Covid-19 Outbreak: An Application of Protection Motivation Theory

Ahasanul Haque*[1], Wasiul Karim[2], SMH Kabir[3] and Arun Kumar Tarofder[4]
Department of Business Administration[1]
International Islamic University Malaysia, Box No. 10 5.728, Kuala Lumpur Malaysia
Post Graduate Research Fellow[2&3]
Department of Business Administration[1]
International Islamic University Malaysia, Box No. 10 5.728, Kuala Lumpur Malaysia
Faculty of Business and Professional Studies[4]
Management and Science University Malaysia

Article Info
Volume 83
Page Number: 16360 – 16377
Publication Issue:
May - June 2020

Article History
Article Received*: 1May 2020*
Revised*: 11 May 2020*
Accepted*: 20 May 2020*
Publication*: 24May 2020*

Abstract:

The Covid-19 outbreak has clearly pierced the life of humankinds in almost all countries and all members of the society. Understanding and practicing measures for self-protection and maintaining social distance for prevention of transmission of infection are the new guidelines. This study examined decision factors such as perceived severity, susceptibility, response efficacy, self-efficacy and social distancing intention for students in Malaysia in response to the pandemic. The study was conducted following a quantitative research approach. Primary data were collected through Google form and online social media from 256 students studying in International Islamic University Malaysia. For the purpose of the study, Exploratory Factor Analysis and Structural Equation Modeling techniques were performed. The analyses revealed that two variables (response efficacy and self-efficacy) of the protection motivation theory were significant predictors of social distancing intention during the ongoing Covid-19 pandemic crisis. However, perceived severity and perceived susceptibility were not significant predictors of intention to engage in social distancing behaviour. The findings demonstrated that PMT was a constructive framework for understanding intention to engage in social distancing behaviour during a pandemic. The findings may help in filling the intention-behavioral gap in relation to social distancing.

Keywords: Social Distancing, Students, Covid-19, PMT

Introduction

The recent COVID-19 has widely been spread from Wuhan city of china and remains undetected as of now. The World Health Organization (WHO) proclaimed this virus as a pandemic which is further identified as undiscovered disease(Cucinotta & Vanelli, 2020). Globally, the transmission of the novel COVID-19 coronavirus diffusion has been very fast. Quarantine, town "lockdowns," full childcare, college, university and work closures and the discontinuance of large gatherings/events have such a major economic and social impact. The community transmission however

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

identified as crucial factor that may affects person-to-person through gathering or any activities related to physical interactions(Dalton, Corbett, & Katelaris, 2020). Physical and social distancing steps focus at reducing disease propagation by disrupting the COVID-19 transmission chains and preventing the appearance of new ones. Such initiatives ensure physical distance between people (at least one meter) and minimize interaction with polluted surfaces while promoting and sustaining virtual social relations within families and communities(World Health Organization, 2020).

Since the death toll are increasing in numbers through the community transmission worldwide, government of several countries have imposed lockdown to control this pandemic disease. Government of UK estimated that the death rates can grow fast and to prevent that social distancing is must to adhere(Mahase, 2020). Malaysia is one of the countries where government has imposed movement control order (MCO)since 18th march in order to prevent the spread from spreading widely(Arumugam, 2020). The government of Malaysia also announced to avoid the unnecessary public gatherings including sports, social, cultural, religious events and keep social distancing from others. Social distance however, signifies the physical distance from others where avoiding public places like supermarkets, bazars and malls are highlighted mostly(FMT, 2020). Social distancing is a public health technique that helps communities slow down the spread and transmission of infectious diseases like coronavirus.

Due to the implementation of social distancing, universities in Malaysia have begun online classes to avoid face-to-face interactions. Students from the university can have access of online materials and classes outside campus and their hometown. Few universities like International Islamic university Malaysia (IIUM) postponed all the classes and activities from 18th march and urged students and their staffs to stay at home and avoid unnecessary movement within the campus. No dine-in activities are involved inside the campus because the authority gave a mandate to allow students take the food away. However, the Friday congregational prayers are discouraged to perform as the mass gatherings from the mosque may transmit that disease rapidly(Lim , 2020).

The risk and severity of COVID-19 transmission is vaguely recognized to university students residing in the campus. To potentially minimize future COVID-19 outbreaks on universitycampuses, it is imperative that a constructive strategy for increasing the willingness of students to pursue mitigation methods should be emerged. In Malaysia, students have been asked to stay inside the campus dormitory to avoid unbearable circumstances by abiding social distance. To know the social distancing intention among university students, it is important to know the factors that let them decide to constrain given action.

The primary objective of this study is to investigate the factors that influence university students' social distancing intention during COVID-19 pandemic. The specific objective of this study is to employ threat appraisal and copping appraisal to examine social distancing intention among university students in Malaysia. Threat appraisal consists of two variables (e.g. perceived threat severity and perceived threat susceptibility) and copping appraisal also represents two variables (e.g. response-efficacy social distancing and self-efficacy social distancing).

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

Literature Review

Protection Motivation Theory

Protection motivation theory (PMT) was first developed as a framework by Rogers (1975) to understand the impact of fear appeals. To investigate the underlying factors which influence individuals' behavior patterns, the PMT is an advantageous model.The theory of PMT extended further by Rogers (1983) to provide more specification to the impact of persuasive communication. Later research on PMT has generally considered two forms: first, the use of PMT as a framework to designing and evaluating persuasive communications; and second, the use of PMT as a model of social cognition to predict health behavior. PMT believes that the decision of individuals to take part in risk mitigation activities is based on their desire to defend themselves against threats such as natural catastrophes, global climate change and massive explosion. People weigh the various risks and possible benefits. The decision shall be taken on the basis of the findings of the threat appraisal and coping appraisal(Rogers, 1983). Threat appraisal is a cognitive process which is used by individuals to measure threat rates. It comprises two essential elements: evaluation of perceived threat severity and perceived likelihood of experiencing adverse threat impacts (vulnerability). Perceived severity of the threat means the degree of seriousness of the potential harms that an individual perceives. The perceived vulnerability represents the perception by an individual of their susceptibility to harm. Apart from threat appraisal, coping appraisal, which relates to the evaluation of an individual's ability to perform risk prevention behaviors, often affects the motivation for protection. The coping appraisal comprises of response efficacyandself-efficacy where, response efficiency eludes the effectiveness of recommended risk preventative behaviors and self-efficacy is the perception by an individual of their ability to perform the behaviors.

PMT is mainly used to describe people's choices about taking part in activities to reduce health risks(Kelly & Barker, 2016), natural catastrophe prevention(Bubeck, Botzen, & Aerts, 2012), prevention of skin cancer(Babazadeh, Nadrian, Banayejeddi, & Rezapour, 2017), vaccination for seasonal influenza(Ling, Kothe & Mullan, 2019). PMT is also used to predict pro-environmental behaviors where PMT found to be useful framework for intention to climate change(Kim, Jeong, & Hwang, 2013). The PMT model has widely been applied in various health aspects to populations of adults, teenagers and children including, although not limited to, HIV, myopia, coronary heart disease and obesity(Fisher, Almanza, Behnke, Nelson, & Neal, 2018; Lwin & Saw, 2007; Lwin, Stanaland& Chan, 2010; Wong, Gaston, DeJesus & Prapavessis, 2016). All of which showed that PMT is an important indicator of health safety behaviors. The PMT model is effective in describing the underlying cognitive and psychological mechanisms that inspire people to adopt different health-protective behaviors.

Social Distancing Intention

Previously intention was highlighted as a course of action that an individual's aims to achieve(Zhao & Othman, 2010). Behavioral Intention has widely being exercised in many health careliteratures(Choi, Cho, Lee, Lee, & Kim, 2004; Ford, Vernon, Havstad, Thomas, & Davis, 2006; Park, 2011; Ramez, 2012) but limited research has been paid attention towards social distancing intention.Social distancing defines as a physical distance between one person and another. Social distancing "has the ability to save millions of lives during the COVID-19 pandemic and reduce social contacts with others(Greenstone & Nigam,

2020). This is an essential preventive measure for COVID-19 disease, as it can be transmitted from person to person through near personal(World Health Organization, 2020).

López-Cervantes, Venado, Moreno, Pacheco-Domínguez & Ortega-Pierres (2009) studied the spread of novel influenza A and proclaimed that control measures such as social distancing was one of the proven essential method which reduced the new cases of the virus. Blair et al.(2017) defines that Government-mandated social distancing was a prerequisite of slowing down the spread of Ebola virus. As a preventative measure, social distancing is also effective to restrain diseases like Corona virus. A study of (Bonifait , et al., 2015) revealed that the outbreak of the Corona virus was fatal in nature because multiple sources such as direct contact with an infected individual were highly probable to spreading it widely. Due to the amount of particulates in the air, sharing space with others who is infected may have high probability to be affected by the Corona virus. As seen in the past literature (Lwin, Stanaland, & Chan, 2010; MacDonell, et al., 2013)Protection motivation theory (PMT) might be a valuable aid in evaluating motivational factors for healthy or preventive behavior among groups of people.

Due to the recent outbreak of COVID-19, social distancing is highly recommended by world health organization (WHO) in order to prevent the spreading. WHO has highlighted few obstacles during the crisis of COVID-19 and one of those are physical distancing. The distance should at least be one metre or three feet shown in Figure 1 as per suggestions of WHO. To avoid the contaminated surface WHO has encouraged performing social connection with family and community virtually, flexible working arrangement through teleworking and reduce crowing places if not necessary. Apart from those, few more proposition such as local and national movement control, action toward staying at home, taking precaution for proactive measures are advised by WHO (World Health Organization, 2020).

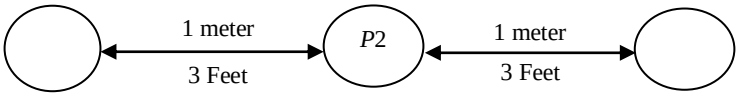

Figure 1. Social Distancing (*p*= person)

Perceived Severity

Perceived severity defines an individuals' seriousness regarding the threat he/she perceives in their own life(Rogers, 1975).

It was also described as a subjective opinion regarding how serious the condition and its consequence would be. Emotion plays a significant role for influencing the perception of severity and also thought of being affected by the disease provokes an individual to perceive the conformity and perception of difficulty will resulted in infliction of the disease(Rosenstock, 1974). Iriyama, Nakahara, Jimba, Ichikawa, & Wakai (2007) studied AIDS health beliefs and abstinence intention towards unhealthy sexual behaviors and found that perceived severity have strong relationship with an intention to abstinence. Previously (Omodior, Luetke, & Nelson, 2018) examined the personal protective behavior to prevent malaria, dengue, zika, chikungunya and west nile disease where, study found high perceived-severity among all the respondents who were

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

conscious about these five deadly epidemic.

However, the relation could be varied based on the situational factors. Wong et al. (2017) studied the perceived severity among respondents towards Zika virus and dengue fever in Malaysia; found the respondents' moderate attitude onto ZIKV. The study proclaimed that, the outbreak of ZIKV was almost unknown to Malaysian public because no cases or reports have been identified. The majority cannot regard the outbreak as severe because ZIKV did not affect Malaysia much except dengue fever. (Gregorio Jr, et al., 2019) studied knowledge, attitude and practices on Zika virus crisis, the result shows a low perceived severity among secondary school teachers. The result further revealed that this may possibly be related to the absence of a real experience with a Zika patient and the small number of cases reported in the Philippines.

Perceived Susceptibility

Perceived susceptibilitydescribes an individuals' opinion regarding the risk that he/she might perceive in their own life. Wide ranges of option about personal susceptibility to a disease are designated. The range comprises of the denial of the possibility to contract a condition, admit the possibility of the disease which may occur, but not to them, and to admit the belief of actual danger(Rosenstock, 1974). Both perceived susceptibility and severity are representing threat appraisal. Huang, Kuo, Wang, Wang, & Tsai (2016) studied behavioral intention towards health examination by employing perceived susceptibility, found that perceived susceptibility have positive influence on behavioral intention for health examination. Perceived severity and susceptibility are the two negative components of risk behavior. An action which may lead to a negative outcome and great loss are well defined as risk behavior(Van der Pligt, 1996). The position of susceptibility perception should be considered when attempting to understand human decision-making.Researchers have discovered that perceived severity, susceptibility and adverse effects serve a major role in the communication process in relation to emerging infectious diseases(Johnson, 2017). Based on the survey results, it appears that Zika is widely viewed by the American public as a significant danger but unlikely to harm them directly. The participants were more likely to perceive that they had no possibility to get infected by zika virus(Lu & Schuldt, 2018). Same study shows the high perceived severity among Americans but comparatively low risk susceptibility. However, lower perception of risk susceptibility may lead inhabit intentions for taking protective actions against virus outbreak, that could have been a major repercussion for other populations. Guvenc et al. (2016) have examined human papilloma virus (HPV) and to vaccinate the college students; found an important relationship existed between the participants' health beliefs sub dimensions and information scores and their plan to undergo vaccination. Participants intending to receive HPV vaccination demonstrated higher perceived severity, perceived susceptibility and perceived benefits, and lower perceived barriers and higher scores of awareness (Guvenc, Seven, & Akyuz, 2016).

Self-Efficacy

Self-efficacy refers to the willingness or belief that a behavior or action can be carried out(Maddux & Rogers, 1983). It is believed to be a concept of an individual's capability to exercise control over their own functionality which may have negative impact on their lifestyles(Bandura, 1991). A greater perceived control and capabilities are truly depending on higher level of self-efficacy. Prior research indicates that people with high expectations of self-efficacy are more

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

likely to concentrate on the task. When people feel confident to carry out certain behaviors, they experience gratification form judgment of self-competence and Promoting engagement to new acts and behaviors(De Young, 2000). Self-efficacy has been examined in many literatures to identify the relationship with behavioral intention. Huang et al.(2016) examined the behavioral intention for health examination; result indicates the greatest influence of self-efficacy on behavioral intention. High self-efficacy is therefore likely to elicit personal interest in the altruistic activity itself and maximize the willingness to perform the behaviors(Kim & Jang , 2018). According to the study of Desalegn et al. (2019), more than half of the respondents were highlyperceive the efficacy to prevent HIV/AIDS. The study further signifies that the practice of abstinence was substantially predicted by perceived self and response efficacy of abstinence. Desalegn et al. (2019) applied this study to university students and suggested that HIV/AIDS could only be preventative if the protection is used properly.

Response Efficacy

Efficacy of response is functional by relating consequences to recommended behavior, As well as whether the person found the implications of the prescribed behavior to be probable. Response efficacy also defined as the expectation that several course of action will reduce the threat or prevent the threat (Maddux & Rogers, 1983). Response efficacy in prior study found to have positive and significant effect on behavioral intention(Yoon & Kim, 2016). A study of(Sharifirad, Yarmohammadi, Sharifabad, & Rahaei, 2014) on preventive behavior on Influenza A/H1N1 virus; found that, high schools students were motivated to protect themselves by understanding response efficacy. But response efficacy from PMT was used to determine the usage of condoms among men in order to protect themselves from HIV/AIDS; found no positive and significant association with an intention for using condoms(Lwin, Stanaland, & Chan, 2010). Response efficacy also used to inspect the prevention of Chikungunya disease(Omodior, Pennington-Gray, & Thapa, 2017). With an above discussion, both the response and self-efficacy represents copping appraisal of PMT.

Conceptual Framework

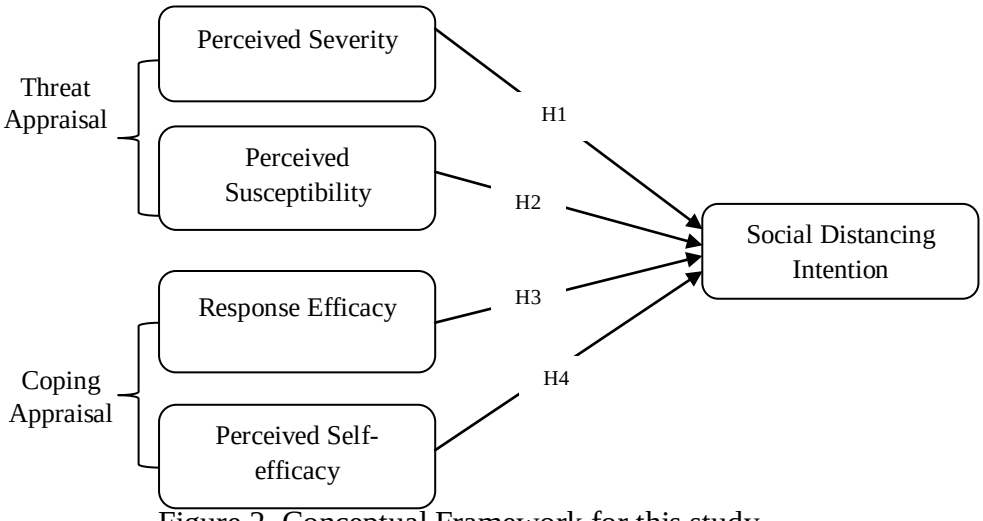

Figure 2. Conceptual Framework for this study

Hypotheses Development

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

Based on the above conceptual framework the following hypotheses are developed by author for this study:

H1: Perceived severity will have positive influence on social distancing intention.
H2: Perceived susceptibility will have positive influence on social distancing intention.
H3: Response efficacy will have positive influence on social distancing intention.
H4: Perceived self-efficacy will have positive influence on social distancing intention.

Research Methodology

Construct Measurement

The deductive approach was selected for this study which focused on hypotheses development based on existing theory. This was followed by the appropriate research strategy which was selected to test the hypotheses(Bryman, 2008). To test the hypotheses five constructs were assessed including; perceived severity, perceived susceptibility, response efficacy, perceived self-efficacy and behavioral intention. Twenty-five items of the variables were mainly adapted from (Lwin & Saw, 2007) and (Lwin, Stanaland & Chan, 2010) and measured on a five-point Likert scale (e.g. 1= strongly disagree to 5= strongly agree) to express the statement of an agreement. Each items of the questionnaire were developed using English language. With an aim of getting comments and feedback from the respondents, thirty set of questionnaire gave out for pilot testing (*N*= 30). The questionnaire then modified in order to bring the clarity and improve the understandability.

Data Collection

Data was collected by using Google link and social media (e.g. Facebook and WhatsApp) only. Due to the movement control order (MCO) imposed by Malaysian government, data collection through face-to-face distribution were discarded. Target population for this study was university students whereas, accessible population was students from Klang Valley area of Malaysia on which researchers had access to study. Total of 256 responses were collected from which 219 found to be analyzable. Data was collected throughout the month of March-April, 2020.

Analysis and Findings

IBM SPSS (ver 25) and SmartPLS (ver 3) has been used to analyze the data. Table 1 represents the demographic profile of the respondents which gives a balanced proportionate of participating students from different categorical nature of gender, age group and education level.

Table 1. Demographic profile

Measure	Items	Frequency	%
Gender	Male	117	52.7
	Female	102	45.9
Age	18-25	64	28.8
	26-35	88	39.6
	36-45	58	26.1
	46-55	7	3.2
	56-65	2	0.9
Education Level	Bachelor	53	23.9
	Masters	130	58.6
	PhD	36	16.2

Exploratory Factor Analysis (EFA)

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

In SPSS, Cronbach's Alpha is generally used to measure the internal consistency of questionnaires. Reliability of 0.7 or higher is required for the study instruments to continue with this research. After transforming the responses into constructs in SPSS and running the test, it is found that the Cronbach's Alpha value is greater than 0.8(Table 2) which means that all the instruments used in this research are reliable enough. Then, factor analysis was performed in order to derive the number of dimensions or in other words, factors that can appropriately explain the variables that are identified for this respective research. The KMO value of 0.793 was derived. This value is deemed to be acceptable at it is greater than the cutoff value of (0.50)as recommended by Wang, Chen & Jiang(2009).

Table 2 Reliability Statistics

Variables	Cronbach's Alpha	N of Items
Perceived severity	0.884	5
Susceptibility	0.754	5
Response efficacy	0.799	5
Self-efficacy	0.946	5
Social distancing intention	0.843	5
Total	0.82	25

From Bartlett's Test of Sphericity, we can see that there is at least 1 significant correlation between 2 of the items somewhere. From the data extracted for Communalities, there is no value which is less than 0.3, means we can keep all variables. From the Total Variance Extraction table, we can see that there are 5 components which are having Eigen values greater than 1 and the rest components are having Eigen value of less than 1. After running the data again in SPSS through fixed number of Factors (5) and setting Coefficient value less than 0.5, we can see that the Component Correlation Matrix is orthogonal. Again, we checked the Varimax option in SPSS for analyzing orthogonal matrix. From the Rotated Component Matrix, which can see items related to factors (Table 3).

Table 3. Rotated Component Matrix[a]

Variables	Component				
	1	2	3	4	5
REF2	0.785				
REF3	0.775				
REF4	0.827				
REF5	0.769				
SDI1		0.807			
SDI2		0.758			
SDI3		0.749			
SEF1			0.689		
SEF3			0.795		
SEF4			0.811		
SEF5			0.796		
SEV1				0.694	
SEV2				0.811	
SEV3				0.863	

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

SEV4	0.781	
SUS2		0.635
SUS3		0.721
SUS4		0.824
SUS5		0.812

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Confirmatory Factor Analysis (CFA)

To establish CFA, smart PLS (partial least square) structural equation modelling technique has been used. The PLS-SEM approach is useful when it comes to predictions and explanations of target constructs (Hair et al. 2017). Smart PLS is a non-parametric distribution assumption. After running the PLS algorithm, the standardized regression weights of the effects among SEV, SUS, REF, SUS and SDI are found. The factor loadings and R^2 (% variance explained by the explanatory variables) are also located. To identify if the regression weights found in the model are significant or not, bootstrapping algorithm is applied. PLS-SEM relies on a nonparametric bootstrap procedure (Efron and Tibshirani, 1986; Davison and Hinkley, 1997) to test the significance of various results such as path coefficients and R^2 values. T-statistics are indication of significance in the bootstrapping method (anything above 1.96 is significant at $p \leq 0.05$ level). Figure 3 represents the PLS structural equation modelling technique. The model fit was adequate based on SRMR and Ch-Square values (Table 4), only NFI value was below standard threshold level. The hypothesized path coefficients are presented in Table 5.

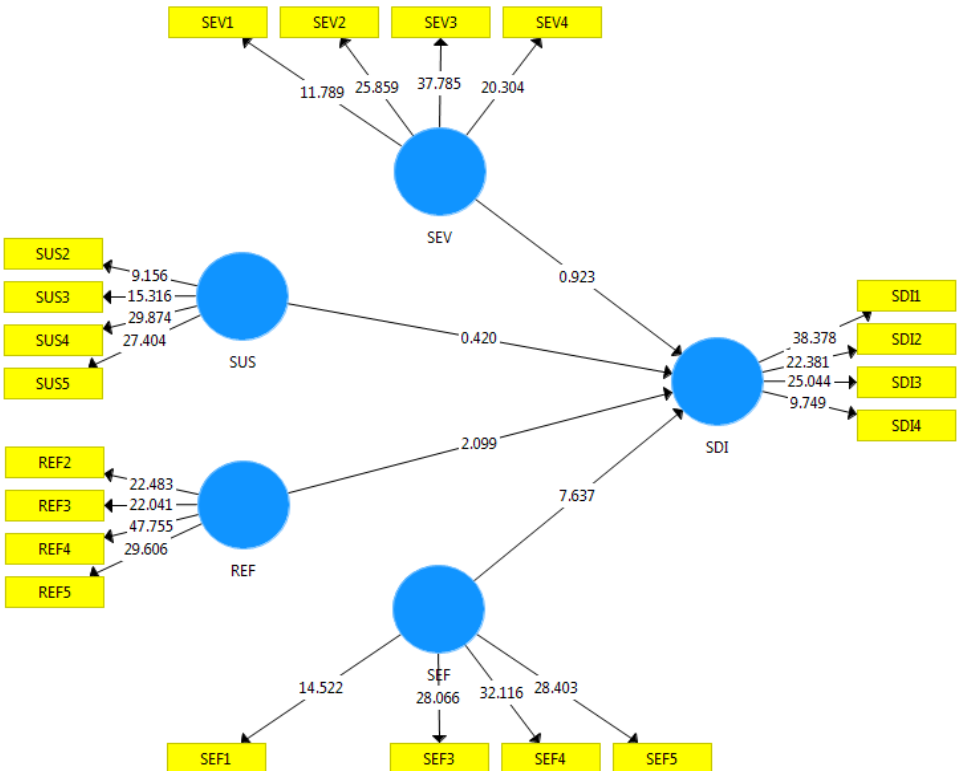

Figure 3 PLS – SEM structured model

Table 4 Model Fit

Fit Indices	Estimated Model	Ideal Threshold
SRMR	0.074	< 0.08
Chi-Square	502.497	Upper is better
NFI	0.763	> 0.9

Table 5 Hypothesized Path Coefficient

Path	T Statistics	P Values
SEV -> SDI	0.923	0.357
SUS -> SDI	0.420	0.674
REF -> SDI	2.099	0.036
SEF -> SDI	7.637	0.000

Discussion

The objective of this research is to investigate the factors that influence university students' social distancing intention during COVID-19 pandemic. The researchers employed threat appraisal and copping appraisal to examine social distancing intention among university students in Malaysia. Threat appraisal consists of two variables (perceived threat severity and perceived threat susceptibility which were not supported in this investigation) and copping appraisal also represents two variables (response-efficacy social distancing and self-efficacy social distancing which were supported). Table 5 illustrates the *t*-statistics and *p*-value of each hypothesis. H1 shows thatthere is no positive and significant relationship between perceived severity and social distancing intention, thus H_1 (t= 0.923, p> 0.357) is rejected. H2 also found to be insignificant relationship between perceived susceptibility and social distancing intention, hence H_2 (t= 0.420, p> 0.674) is rejected. The result indicates the perception of students toward threat appraisal is low because the MCO was imposed and students were asked to stay at their respective campus hostels to alleviate the COVID-19 situation. On the other hand, the relationship between response efficacy and perceived self-efficacy found to be positive and significant relationship with social distance intention, thus H_3 (t= 2.099, p> 0.036) and H4 (t= 7.637, p> 0.000) is supported. Table 6presented below summarizes the results of hypotheses testing.

Table 6 Summary of Hypotheses test results

Hypotheses	Findings
H1: Perceived severity will have positive influence on social distancing intention.	Not supported
H2: Perceived susceptibility will have positive influence on social distancing intention.	Not supported
H3: Response efficacy will have positive influence on social distancing intention.	Supported
H4: Perceived self-efficacy will have positive influence on social distancing intention.	Supported

The researchers studied the value of protection motivation theory (PMT) as a helpful theory in understanding the intention of social distancing, acknowledging the value of behavioral measures of the students living on campus

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

such as staying alone in the room, ordering food instead of dining in the common area, avoiding common restroom to protect themselves against contracting an infectious disease. For students, interacting within a crowded cafeteria, shopping mall, fitness centre, visiting library or laboratory contributes to a rewarding social life. But, maintaining a social distance is difficult for students to carry out, even in response to the possibility of infection which can cause severe health problem. At the beginning of this current pandemic, students were susceptible by knowing the small number of infected people, but when the situation got worst and seeing an exponential rise of infected people, student's susceptibility replaced by predictive action. Therefore, appraisal to threat is reduced by copping with it.

Conclusionand Implication

This research studied social distancing intention of Malaysian students in response to the ongoing Covid-19 outbreak. Social distancing is easier to say, but it is hard to maintain. Social distancing is not social isolation. Isolation of certain time of period can be followed, but following the guidelines for social distancing, for example, in a classroom for longer period is difficult to manage by the educational institutions if seats are limited. Usually, students hang out with a crowd, shook hands with their friends collectively and enjoy live interactions during classroom lessons. Although, social distancing has been interchangeably referred to isolation and quarantine, there is a big difference among these definitions. Social distancing is required to slow down the Covid-19 outbreak; it means to reduce the number of infected people and keeping it low so that scientists can come out with a proven medication for treatment. Therefore, social distancing is very crucial for everyone to understand properly for better preparation of managing the ongoing pandemic or any upcoming disease outbreak.

This study hypothesized the effectiveness of protection motivation theory (PMT) to predict the university students' perception towards social distancing intention throughout the COVID-19 crisis. This study is adding to the research insights about the phenomenon that is happening recently and an understanding regarding social distancing intention of university students in Malaysia. Furthermore, the findings of this study imply the reliability and validity of protection motivation in measuring the students' motivation and its relationship with behavioral intention to keep social distancing. Additionally, this study contributes to the theory of protection motivation by supporting it in the Malaysian context. The study also supports the conceptual framework of this study and provides the evidence for the relationships between protection motivation factors and behavioral intention for social distancing among the university students in the Malaysian context. The result of this study could further benefit the government, university authority, students and researchers. The government may apply more precaution in order to prevent the spread of the virus. University authority on the other hand could provide sustainable accommodation and hygienic food supplement, also routine checkup is recommended to avoid unbearable circumstances. Furthermore,university management could provide suitable guidelines to follow the social distancing.

Limitation

This study has its limitations. First of all due to the implementation of movement control order (MCO) in Malaysia researcher gain no access to visit other universities in the Klang Valley area of Malaysia to conduct this study physically.

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

However, it is estimated that the outcome could have different if the study would be conducted throughout the all university. Secondly, researchers collected the data through online platform where Google form link was sent to the students of the university and collected from several electronic sources (e.g. WhatsApp and Facebook) where questions may not seem understandable to students;thereforeface-to-face distribution is required.

Reference

1. Ahmad, M. B., Ali, H. F., Malik, M. S., Humayun, A. A., & Ahmad, S. (2019). Factors Affecting Impulsive Buying Behavior with mediating role of Positive Mood: An Empirical Study. *European Online Journal of Natural and Social Sciences, 8*(1), 17-35.
2. Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of retailing, 79*(2), 77-95.
3. Arumugam, T. (2020, April 4). *MCO-linked domestic violence rises*. Retrieved April 13, 2020, from New Straits Times: https://www.nst.com.my/news/exclusive/2020/04/581233/mco-linked-domestic-violence-rises
4. Babazadeh, T., Nadrian, H., Banayejeddi, M., & Rezapour, B. (2017). Determinants of skin cancer preventive behaviors among rural farmers in Iran: an application of protection motivation theory. *Journal of Cancer Education, 32*(3), 604-612.
5. Badgaiyan, A. J., & Verma, A. (2014). Intrinsic factors affecting impulsive buying behaviour—Evidence from India. *Journal of Retailing and consumer services, 21*(4), 537-549.
6. Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational behavior and human decision processes, 50*(2), 248-287.
7. Beatty , S. E., & Ferrell, M. E. (1998). Impulse buying: modeling its precursors. *J. Retail. 74*, 169-191.
8. Bharathi, K., & Sudha, S. (2017). Store Ambiance Influence on Consumer Impulsive Buying Behavior towards Apparel: SOR Model. *Indian Journal of Public Health Research & Development, 8*(4), 140-144.
9. Bhatti, K. L., & Latif, S. (2014). The impact of visual merchandising on consumer impulse buying behavior. *Eurasian Journal of Business and Management, 2(1)*, 24-35.
10. Blair, R. A., Morse, B. S., & Tsai, L. L. (2017). Public health and public trust: Survey evidence from the Ebola Virus Disease epidemic in Liberia. *Social Science & Medicine, 172*, 89-97.
11. Bong, S. (2016). The influence of impulse buying toward consumer store loyalty at hypermarket in Jakarta. *Business and Entrepreneurial Review, 10*(1), 25-44.
12. Bonifait , L., Charlebois, R., Vimont, A., Turgeon, N., Veillette, M., Longtin, Y., et al. (2015). Detection and quantification of airborne norovirus during outbreaks in healthcare facilities. *Clinical infectious diseases, 61*(3), 299-304.
13. Bryman , A. (2008). *Social research methods.* Oxford: Oxford University Press .
14. Bubeck, P., Botzen, W. J., & Aerts, J. C. (2012). A review of risk perceptions and other factors that influence flood mitigation behavior. *Risk Analysis: An International Journal, 32*(9), 1481-1495.
15. Buckley, P. G. (1991). An SOR model of the purchase of an item in a store. *Advances in Consumer Research, 18*(1), 491-500.

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

16. Chang, H. J., Eckman, M., & Yan, R. N. (2011). Application of the Stimulus-Organism-Response model to the retail environment: the role of hedonic motivation in impulse buying behavior. *The International Review of Retail, Distribution and Consumer Research, 21*(3), 233-249.
17. Chin , W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research, 295*(2), 295-336.
18. Chin, W. W. (2010). How to write up and report PLS analyses. In *In Handbook of partial least squares* (pp. pp. 655-690). Springer, Berlin, Heidelberg.
19. Choi, K. S., Cho, W. H., Lee, S., Lee, H., & Kim, C. (2004). The relationships among quality, value, satisfaction and behavioral intention in health care provider choice: A South Korean study. *Journal of Business Research, 57*(8), 913-921.
20. Cox, A. D., Cox, D., & Anderson, R. D. (2005). Reassessing the pleasures of store shopping. *Journal of Business research, 58*(3), 250-259.
21. Crowley, A. E. (1993). The two-dimensional impact of color on shopping. *Marketing letters, 4*(1), 59-69.
22. Cucinotta, D., & Vanelli, M. (2020). WHO Declares COVID-19 a Pandemic. *Acta bio-medica: Atenei Parmensis, 91*(1), 157.
23. Dalton, C. B., Corbett, S. J., & Katelaris, A. L. (2020). Pre-emptive low cost social distancing and enhanced hygiene implemented before local COVID-19 transmission could decrease the number and severity of cases. *The Medical Journal of Australia, 212*(10), 1-10.
24. Dash, M., & Akshaya, L. (2016). A study on the impact of visual merchandising on impulse purchase in apparel retail stores. *International Journal of Marketing and Business Communication, 5*(2), 37-44.
25. De Young, R. (2000). New ways to promote proenvironmental behavior: Expanding and evaluating motives for environmentally responsible behavior. *Journal of social issues, 56*(3), 509-526.
26. Desalegn, Z., Godesso, A., & Abebe, L. (2019). Factors Predicting Responses to HIV/AIDS Prevention Messages among Wollega University Students, Oromia, Ethiopia. *Ethiopian Journal of Health Sciences, 29*(4), 453-460.
27. Donovan, R. J., Rossiter, J. R., Marcoolyn, G., & Nesdale, A. (1994). Store atmosphere and purchasing behavior. *Journal of retailing, 70*(3), 283-294.
28. Efron, B., & Tibshirani, R. J. (1993). *An introduction to the bootstrap.* Chapman and Hall: London, UK, 1993.
29. Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric qualities of online retailing: A conceptual model and implications. *Journal of Business research, 54*(2), 177-184.
30. Fisher, J. J., Almanza, B. A., Behnke, C., Nelson, D. C., & Neal, J. (2018). Norovirus on cruise ships: Motivation for handwashing? *International Journal of Hospitality Management, 75*, 10-17.
31. FMT. (2020, March 26). *Social distancing: How to do it right*. Retrieved April 13, 2020, from Free Malaysia Today : https://www.freemalaysiatoday.com/category/leisure/2020/03/26/social-distancing-how-to-do-it-right/
32. Ford, M. E., Vernon, S. W., Havstad, S. L., Thomas, S. A., & Davis, S. D. (2006). Factors influencing behavioral intention regarding prostate cancer screening among older African-American men. *Journal of the*

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

National Medical Association, 98(4), 505-514.
33. Goldsmith, R. E., Kim, D., Flynn, L. R., & Kim, W. M. (2005). Price sensitivity and innovativeness for fashion among Korean consumers. *The Journal of social psychology, 145*(5), 501-508.
34. Goyal, B. B., & Mittal , A. (2007). Gender influence on shopping enjoyment—an empirical study. *Indian Management Studies Journal, 11*(2), 103-116.
35. Graa, A., & Dani, E. (2012). Application of stimulus & response model to impulse buying behavior of Algerian consumers. *Serbian Journal of Management, 7*(1), 53-64.
36. Greenstone, M., & Nigam, V. (2020). Does Social Distancing Matter? *University of Chicago, Becker Friedman Institute for Economics Working Paper*, (2020-26).
37. Gregorio Jr, E. R., Medina, J. C., Lomboy, M. T., Talaga, A. P., Hernandez, P. R., Kodama, M., et al. (2019). Knowledge, attitudes, and practices of public secondary school teachers on Zika Virus Disease: A basis for the development of evidence-based Zika educational materials for schools in the Philippines. *PloS one, 14*(3), 1-19.
38. Guvenc, G., Seven, M., & Akyuz, A. (2016). Health belief model scale for human papilloma virus and its vaccination: adaptation and psychometric testing. *Journal of pediatric and adolescent gynecology, 29*(3), 252-258.
39. Han, S., Gupta, S., & Lehmann, D. R. (2001). Consumer price sensitivity and price thresholds. *Journal of Retailing, 77*(4), 435-456.
40. Hashmi, H., Attiq, S., & Rasheed, F. (2019). Factors Affecting Online Impulsive Buying Behavior: A Stimulus Organism Response Model Approach. *Market Forces, 14*(1), 19-42.
41. Huang, H. T., Kuo, Y. M., Wang, S. R., Wang, C. F., & Tsai, C. H. (2016). Structural factors affecting health examination behavioral intention. *International journal of environmental research and public health, 13*(4), 395.
42. Hultén, P., & Vanyushyn, V. (2014). Promotion and shoppers' impulse purchases: the example of clothes. *Journal of Consumer Marketing, 31*(2), 94-102.
43. Irani, N., & Hanzaee, K. H. (2011). The effects of variety-seeking buying tendency and price sensitivity on utilitarian and hedonic value in apparel shopping satisfaction. *International Journal of Marketing Studies, 3*(3), 89-103.
44. Iriyama, S., Nakahara, S., Jimba, M., Ichikawa, M., & Wakai, S. (2007). AIDS health beliefs and intention for sexual abstinence among male adolescent students in Kathmandu, Nepal: A test of perceived severity and susceptibility. *Public health, 121*(1), 64-72.
45. Jang, S. H., & Yoon, E. (2016). Effect of Protection Motivation Factors on Behavioral Intention to Reduce Sodium Intake among University Students in Gyeongnam and Busan. *The Korean Journal of Food And Nutrition, 29*(1), 104-114.
46. Jin , B., & Kim , J. O. (2003). A typology of Korean discount shoppers: shopping motives, store attributes, and outcomes. *International journal of service Industry Management, 14(4)*, 396-419.
47. Johnson, B. B. (2017). Explaining Americans' responses to dread epidemics: An illustration with Ebola in late 2014. *Journal of Risk Research, 20*(10), 1338-1357.

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

48. Kang , C. (2013). The Effects of Information Searching and Information Symmetry on Impulse Buying Decision. *Journal of Global Business Management, 9*(1), 196-203.
49. Kang, J., & Park-Poaps, H. (2010). Hedonic and utilitarian shopping motivations of fashion leadership. *Journal of Fashion Marketing and Management, 14*(2), 312-328.
50. Kaur, A. (2013). Effect of Visual Merchandising on Buying Behavior of Customers in Chandigarh. *International Journal of Engineering Science and Innovative Technology, 2*(3), 247-251.
51. Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult? *Public health, 136*, 109-116.
52. Kim, H. J., & Jang , J. M. (2018). The easier the better: How processing fluency influences self-efficacy and behavioral intention in pro-social campaign advertising. *Sustainability, 10*(12), 4777.
53. Kim, S., Jeong, S. H., & Hwang, Y. (2013). Predictors of pro-environmental behaviors of American and Korean students: The application of the theory of reasoned action and protection motivation theory. *Science Communication, 35*(2), 168-188.
54. Kouchekian, M., & Gharibpoor, M. (2012). Investigation the relationship between visual merchandising and customer buying decision case study: Isfahan hypermarkets. *International Journal of Academic Research in Economics and Management Sciences, 1*(2), 268-279.
55. Lim , I. (2020, March 16). *Covid-19: Universiti Sains Malaysia to go into lockdown for three weeks at all campuses*. Retrieved April 13, 2020, from Malaymail : https://www.malaymail.com/news/malaysia/2020/03/16/covid-19-universiti-sains-malaysia-to-go-into-lockdown-for-three-weeks-at-a/1847113
56. Ling, M., Kothe , E. J., & Mullan, B. A. (2019). Predicting intention to receive a seasonal influenza vaccination using Protection Motivation Theory. *Social Science & Medicine, 233*, 87-92.
57. López-Cervantes, M., Venado, A., Moreno, A., Pacheco-Domínguez, R. L., & Ortega-Pierres, G. (2009). On the spread of the novel influenza A (H1N1) virus in Mexico. *The Journal of Infection in Developing Countries, 3*(05), 327-330.
58. Lu, H., & Schuldt, J. P. (2018). Communicating Zika risk: Using metaphor to increase perceived risk susceptibility. *Risk Analysis, 38*(12), 2525-2534.
59. Lwin , M. O., & Saw, S. M. (2007). Protecting children from myopia: a PMT perspective for improving health marketing communications. *Journal of health communication, 12(3)*, 251-268.
60. Lwin , M. O., Stanaland, A. J., & Chan, D. (2010). Using protection motivation theory to predict condom usage and assess HIV health communication efficacy in Singapore. *Health Communication, 25*(1), 69-79.
61. Lwin , M. O., Stanaland, A. J., & Chan, D. (2010). Using protection motivation theory to predict condom usage and assess HIV health communication efficacy in Singapore. *Health Communication, 25*(1), 69-79.
62. Lwin, M. O., & Saw, S. M. (2007). Protecting children from myopia: a PMT perspective for improving health marketing communications. *Journal of health communication, 12*(3), 251-268.
63. Lwin, M. O., Stanaland, A. J., & Chan, D. (2010). Using protection motivation theory to predict condom usage and assess HIV health

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

communication efficacy in Singapore. *Health Communication, 25*(1), 69-79.
64. Lwin, M. O., Stanaland, A. J., & Chan, D. (2010). Using protection motivation theory to predict condom usage and assess HIV health communication efficacy in Singapore. *Health Communication, 25*(1), 69-79.
65. MacDonell, K., Chen, X., Yan, Y., Li, F., Gong , J., Sun , H., et al. (2013). A protection motivation theory-based scale for tobacco research among Chinese youth. *Journal of addiction research & therapy, 4*, 154.
66. Maddux, J. E., & Rogers, R. W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of experimental social psychology, 19*(5), 469-479.
67. Mahase, E. (2020). Covid-19: UK starts social distancing after new model points to 260 000 potential deaths.
68. Mangleburg, T. F., Doney , P. M., & Bristol , T. (2004). Shopping with friends and teens' susceptibility to peer influence. *Journal of retailing, 80*(2), 101-116.
69. Maulana, A., & Novalia, N. (2019). The Effect of Shopping Life Style and Positive Emotion on Buying Impulse (Case Study of the Palembang City Hypermarket). *Information Management and Business Review, 11*(1), 17-23.
70. Mehrabian , A., & Russell, J. A. (1974). *An approach to environmental psychology*. the MIT Press.
71. Mehta, N., & Chugan, P. K. (2013). The impact of visual merchandising on impulse buying behavior of consumer: A case from Central Mall of Ahmedabad India. *Universal Journal of Management, 1*(2), 76-82.
72. Mihić, M., & Kursan Milaković, I. (2017). Examining shopping enjoyment: personal factors, word of mouth and moderating effects of demographics. *Economic research-Ekonomska istraživanja, 30*(1), 1300-1317.
73. Mohan, G., Sivakumaran, B., & Sharma, P. (2013). Impact of store environment on impulse buying behavior. *European Journal of marketing, 47*(10), 1711-1732.
74. Mowen , J., & Minor, M. (1998). *Consumer behavior(5thed.)*. New Jersey: Prentice-Hall.
75. Muruganantham, G., & Bhakat, R. S. (2013). A review of impulse buying behavior. *International Journal of Marketing Studies, 5*(3), 149-160.
76. Nagadeepa, C., Selvi, T., & Pushpa, A. (2015). Impact of sale promotıon techniques on consumers' impulse buyıng behavıour towards apparels at Bangalore. *Asian Journal of Management Sciences & Education, 4*(1), 116-124.
77. Omodior, O., Luetke, M. C., & Nelson, E. J. (2018). Mosquito-borne infectious disease, risk-perceptions, and personal protective behavior among US international travelers. *Preventive medicine reports, 12*, 336-342.
78. Omodior, O., Pennington-Gray, L., & Thapa, B. (2017). Modeling insect-repellent use for chikungunya disease prevention among US-Caribbean travelers. *International Journal of Travel Medicine and Global Health, 5*(4), 125-134.
79. Park , D. Y. (2011). Utilizing the Health Belief Model to predicting female middle school students' behavioral intention of weight reduction by weight status. *Nutrition research and practice, 5*(4), 337-348.
80. Park, E. J., Kim, E. Y., Funches, V. M., & Foxx, W. (2012). Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *Journal of Business Research, 65*(11), 1583-1589.

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

81. Pradhan , V. (2016). Study on Impulsive Buying Behavior among Consumers in Supermarket in Kathmandu Valley. *Journal of Business and Social Sciences Research, 1*(2), 215-233.
82. Ramez, W. S. (2012). Patients' perception of health care quality, satisfaction and behavioral intention: an empirical study in Bahrain. *International Journal of Business and Social Science, 3*(18), 131-141.
83. Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change1. *The journal of psychology, 91*(1), 93-114.
84. Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of. *Social Psychophysiology: A Sourcebook*, Cacioppo, B.L., Petty, R.E., Eds.; Guilford, Press: London, UK.
85. Rook , D. W. (1987). The buying impulse. *Journal of consumer research, 14(2)*, 189-199.
86. Rook , D. W., & Fisher, R. J. (1995). Normative influences on impulsive buying behavior. *Journal of consumer research, 22*(3), 305-313.
87. Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health education monographs, 2*(4), 328-335.
88. Saad, M., & Metawie, M. (2015). Store environment, personality factors and impulse buying behavior in Egypt: The mediating roles of shop enjoyment and impulse buying tendencies. *Journal of Business and Management Sciences, 3*(2), 69-77.
89. Schindler, R. M. (1989). The excitement of getting a bargain: some hypotheses concerning the origins and effects of smart-shopper feelings. *Advances in Consumer Research, 16*(1), 447-453.
90. Setyawati, S. M., Sumarsono, S., & Praditya, I. (2018). The influence of fashion involvement, hedonic consumption, and visual merchandising on impulse buying with positive emotion as mediation variables. *Journal of Accounting Management and Economics, 20*(1), 37-47.
91. Sharifirad, G., Yarmohammadi, P., Sharifabad, M. M., & Rahaei, Z. (2014). Determination of preventive behaviors for pandemic influenza A/H1N1 based on protection motivation theory among female high school students in Isfahan, Iran. *Journal of education and health promotion, 3*(7), 36-41.
92. Sobel , M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology, 13*, 290-312.
93. Stern , H. (1962). The significance of impulse buying today. *Journal of marketing, 26*(2), 59-62.
94. Suhud, U., & Herstanti, G. (2017). Investigating the impulse buying of young online shoppers. *Advanced Science Letters, 23*(1), 660-664.
95. Sultan, S., Jan, F. A., Basit , A., & Rafiq, A. (2018). Impact of environmental factors on impulse buying: Mediating role of consumers positive emotions. *Contemporary Issues in Business & Economics (ICCIBE)*, 528-535.
96. Tauber, E. M. (1972). Marketing Notes and communications: why do people shop? *Journal of marketing, 36*(4), 46-49.
97. Van der Pligt, J. (1996). Risk perception and self-protective behavior. *European Psychologist, 1*(1), 34-43.
98. Wakefield, K. L., & Blodgett, J. G. (1996). The effect of the servicescape on customers' behavioral intentions in leisure service settings. *Journal of services marketing, 10*(6), 45-61.

May – June 2020
ISSN: 0193-4120 Page No. 16360 - 16377

99. Wang, C. C., Chen, C. A., & Jiang, J. C. (2009). The Impact of Knowledge and Trust on E-Consumers' Online Shopping Activities: An Empirical Study. *JCP, 4*(1), 11-18.
100. Wong, L. P., Alias , H., Aghamohammadi, N., Sam , I. C., & AbuBakar, S. (2017). Differences in perceived severity of Zika virus infection and dengue fever and its influence on mosquito control practices in Malaysia. *Journal of community health, 42*(5), 854-864.
101. Wong, T. S., Gaston, A., DeJesus, S., & Prapavessis, H. (2016). The utility of a protection motivation theory framework for understanding sedentary behavior. *Health Psychology and Behavioral Medicine, 4*(1), 29-48.
102. World Health Organization. (2020). Coronavirus disease 2019 (COVID-19): situation report, 72.
103. World Health Organization. (2020). Coronavirus disease 2019 (COVID-19): situation report, 72. 1-13.
104. Xu, Y., & Huang, J. S. (2014). Effects of price discounts and bonus packs on online impulse buying. *Social Behavior and Personality: an international journal, 42*(8), 1293-1302.
105. Yoon, H. J., & Kim, Y. J. (2016). Understanding green advertising attitude and behavioral intention: An application of the health belief model. *Journal of promotion management, 22*(1), 49-70.
106. Zeb , A. (2016). Comparative study of traditional and online impulse buying in Pakistan. *City University Research Journal, 6*(1), 137-143.
107. Zhao , W., & Othman , M. N. (2010). Predicting and Explaining Complaint Intention and Behaviorof Malaysian Consumers: An Application of The Planned Behavior Theory. *Advances in International Marketing, 9*(1), 229-252.