Students' Knowledge and Attitude on Preventive Behaviour of Zika Disease

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ABSTRACT

Objective – The purpose of this paper is to identify knowledge and attitude on preventive behaviour of the Zika disease. Using the Social Learning Theory, the present study aims: (1) to evaluate levels of knowledge, attitude and preventive behaviour on Zika disease; (2) to examine the relationship between knowledge and attitude with preventive behaviour; and (3) to determine the best predictor for Zika preventive behaviour.

Methodology/Technique – This study employs the quantitative research design using the survey method. Data are collected using the self-administered questionnaire. A total of 207 students from a public university participated in the study.

Findings – The levels of knowledge, attitude and preventive behaviour are high. There are positive correlations among knowledge, attitude and preventive behaviour. Attitude is the best predictor for preventive behaviour. With knowledge and positive attitude towards the disease, the preventive behaviours are practiced.

Novelty – Very limited studies have been done in Malaysia regarding the Zika disease. This study provides valuable insights of knowledge and attitude that influence prevention behaviour of the disease especially among university students.

Type of Paper: Empirical

Keywords: Malaysia; Mosquito-borne Disease; Social Learning Theory; Students; Zika.

JEL Classification: I12, I21.

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1. Introduction

   Malaysia first reported the case of the Zika disease in 2016. The victim was believed to have caught the disease from a neighbouring country (The Star, 2016). Since then, there are a number of reported cases of Zika disease. Although the disease does not cause fatality, researchers have associated it with the cause of microcephaly, Gullain-Barres syndrome and neurological disorders (Focosi, Maggi, & Pistello, 2016). Since the disease has no particular vaccine against it, ensuring the public to practice preventive behaviour is the defence against the disease. Thus, the purpose of this paper is to identify factors influencing preventive behaviour on Zika disease. Specifically, the study tries: to evaluate the levels of knowledge, attitude and

preventive behaviour; to examine the relationship between knowledge and attitude with preventive behaviour; and lastly to determine the best predictor for preventive behaviour.

In order to conduct an effective public health prevention programme against the Zika disease, research on knowledge, attitude and preventive behaviour towards the disease is necessary. In fact, a few research in Malaysia finds that sound knowledge about dengue is associated with involvement in dengue prevention (Wong, Mohamad Shakir, Atefi, & AbuBakar, 2015), and that poor knowledge on dengue is associated with a low level of willingness to practice dengue prevention (Chandren, Wong, & AbuBakar, 2015). Thus, this study can provide insights to narrow the gap in understanding the knowledge and attitude that influence preventive behaviour against Zika disease.

2. Literature Review

2.1 Zika in Malaysia

The Zika disease outbreak, which started in Brazil has been reported in various countries including Malaysia. Worrying that the disease is spreading far and fast, the World Health Organization (WHO) declared it a Public Health Emergency of International Concern before it was lifted in November 2016 (BBC, 2016). The disease, which can be infected through mosquito bites and sexual intercourse, has similar symptoms to dengue infection and is linked to congenital brain abnormalities, Gullain-Barre syndrome and a range of neurological disorders (World Health Organization, 2016).

Malaysia has always been struggling with mosquito-borne diseases like dengue and chikungunya. In Kuala Lumpur alone, there was a 1% increase in dengue cases from 8,057 in 2015 to 8,140 in 2016 (Nathan, 2016). This increase is caused by human and environmental factors. Human factors like travelling via air and sea lead to a global spread of mosquito-borne disease (Tatem, Huang, Das, Qi, & Roth, 2012). Mohd-Zaki, Brett, Ismail and L'Azou (2014) identified increasing levels of rainfall, humidity, temperature and urbanization as factors contributing to the outbreak of dengue. But the factors should not be limited to just that, public responsibility should be taken into account as well. Public participation in minimizing the transmission of the disease is necessary. This is because vector control does not last for long since it requires a tremendous amount of effort and money (Benitez, 2009). That is why health education and literacy are important in Malaysia. Nevertheless, Packierisamy et al. (2015) report that only 15% of the total costs of the national program is spent on health education and promotion efforts, when actually it costs three times less than the use of insecticides. Rather than the conventional vector control like fogging, intensive efforts should be made in communicating educational messages on mosquito-borne disease prevention. Past researches show that human knowledge, attitude and behaviour are important in reducing the transmission of infectious diseases (Jones & Salathe, 2009; Li, Zhang, Mao, Zhao, & Stanton, 2011).

Prevention of diseases is the responsibility of the government and the public. Now, with the emergence of the Zika disease, the Health Ministry and the public need to work hand-in-hand to combat the disease from becoming an epidemic, and one way to do it is by encouraging preventive behaviours such as using insect repellent and cleaning the house compound.

2.2 Theoretical framework

This study examines the preventive behaviour of the Zika disease from the perspective of the Social Learning Theory. The theory posits that knowledge and beliefs serve as the guide and motivator to produce desired changes in one's actions (Bandura, 2004). Thus, when individuals obtain knowledge and believe that they can produce a desired effect of their actions, they have the incentive to perform certain behaviours.

The knowledge, attitude and practice (KAP) survey are widely used in health promotion and disease prevention because it is believed that an individual's knowledge and attitude regulate human motivation and behaviour (Thompson & Caltabiano, 2010). Many research finds that there is a significant positive correlation

between knowledge, attitude and preventive practices of mosquito-borne diseases (Dhimal, et al., 2014; Farizah, et al., 2003; Fritzell, et al., 2016; Liu, et al., 2014; van Benthem, et al., 2002). Dhimal, et al. (2014) for instance, proved that a high level of mosquito-related knowledge and a positive attitude are associated with satisfactory mosquito control and prevention practices. In addition, Alobuia, Missikpode, Aung and Jolly (2015) find that knowledge and attitude are significant predictors of precautionary measure of vector borne diseases in Western Jamaica, which suggest that those with better knowledge and attitude are more likely to take precautionary measures from being infected by the vectors.

Based on the discussion above, the following hypotheses are formulated;

Hypothesis 1: Knowledge is positively correlated with attitude.

Hypothesis 2: Knowledge is positively correlated with preventive behaviour.

Hypothesis 3: Attitude is positively correlated with preventive behaviour.

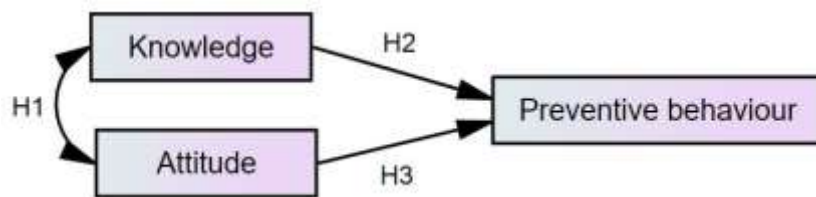Hypothesis 4: Attitude is the best predictor of preventive behaviour.

Figure 1. Theoretical framework of knowledge, attitude and preventive behavior of Zika disease

3. Research Methodology

This study employs a quantitative research design using the survey method. Students from a faculty in a public university are selected. Out of 224 returned questionnaires, only 207 are valid cases for the study. Data are collected using the self-administered questionnaire. The distribution of the questionnaire starts from November 21, 2016 to December 2, 2016. The items for knowledge, attitude and practice (KAP) are adapted from WHO (World Health Organization, 2016). The knowledge section has 20 items such as 'Zika is transmitted from a pregnant woman to her foetus', measured using dichotomous rating of 1=correct and 0=wrong answer. The total is calculated to form a scale where 1=poor, 2-weak, 3=good, 4=very good and 5=excellent. The multiplying factor is 0.25 in order to come out with the 5 point Likert-like scale. Attitude and preventive behaviour consist of 10 items each measured using the 5-point Likert scale of agreement ranging from 1=strongly disagree to 5=strongly agree. Attitude is assessed based on a statement like 'I am concerned about being bitten by mosquitoes carrying the Zika virus in my living area'. Preventive behaviour is assessed through a statement like 'I clean my living area to avoid mosquito breeding places'. Both attitude and preventive behaviour are found to be reliable with α=.854 and α=.855 respectively.

4. Results

The respondents are mainly Malaysian students (78.0%) while the rest are international students (22.1%). A majority of the students are undergraduates (80.2%) with postgraduates (19.8%). More than 2/3 of the student population are females (69.2%) while the rest are males (30.8%).

Table 1 shows a one-sample t-test to identify the levels of knowledge, attitude and preventive behaviour with a test value of 3. The students have a high level of knowledge (M=3.427, SD=.821; t(210)=7.545, p=.000). Results for attitude (M=4.081 SD=.659; t(210)=23.832, p=.000) and preventive behaviour (M=3.529 SD=.758; t(210)=10.149, p=.000) are also high. This means that the students have good knowledge, a positive attitude and they practice preventive behaviour towards Zika.

Table 1. One sample t-test knowledge, attitude and preventive behaviour of Zika disease

Construct	M*	SD	t**	df	p
Knowledge	3.427**	.821	7.545	210	.000
Attitude	4.081***	.659	23.823	210	.000
Preventive Behavior	3.529***	.758	10.149	210	.000

** On 5-point Likert scale: 1=poor, 2=weak, 3= good, 4=very good, 5= excellent.

***On 5-point Likert scale: 1=strongly disagree, 2=disagree, 3= slightly agree, 4=agree, 5=strongly agree.

*test value of 3

Table 2 presents Pearson's correlations among knowledge, attitude and preventive behaviour. It is found that the relationship between knowledge and attitude (r=.239, p=.000) and knowledge and preventive behaviour (r=.283, p=.000) are weakly positive. However, the relationship between attitude and preventive behaviour is strong (r=.630, p=.000). The results support H1, H2 and H3 of this study.

Table 2. Correlation between preventive behaviour of Zika disease with knowledge and attitude

Variable	Mean	SD	Knowledge	Attitude	Preventive behaviour
Knowledge	3.427	0.821			
Attitude	4.081	0.659	.239		
Preventive Behavior	3.529	0.758	.283	.630	

*p<01.

Table 3 is a standard multiple regression to predict preventive behaviour based on knowledge and attitude. A significant regression equation is found with $F_{(2, 208)}$ =73.933, P<.000), with an R2 of .416, explaining 41.6% variance. Attitude makes the largest contribution (β=.596) although knowledge makes a significant contribution as well (β=.141). This implies that attitude is the best predictor of preventive behaviour.

Table 3. Regression for preventive behaviour on Zika disease with knowledge and attitude

Variable	B	Std. Error	Beta	t	p
(Constant)	.284	.276		1.029	.305
Knowledge	.130	.050	.141	2.581	.011
Attitude	.686	.063	.596	10.924	.000

F=73.933, df=2.208, p=.000, R=.645, R^2=.416

5. Discussion

The findings of the study show that most respondents have a high level of knowledge, positive attitude towards the disease and do adopt preventive behaviours. All hypotheses are supported. The relationships between knowledge and attitude, and knowledge and preventive behaviour are statistically significant but weak. The relationship between attitude-preventive behaviour is significantly stronger. This implies that a high level of knowledge of the Zika disease influences the students' positive attitude which together affect

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preventive behaviour. The results of this study are consistent with Dhimal et al. (2014) and Farizah et al. (2003).

Attitude predicts better than knowledge, for the preventive behaviour of Zika disease. Alobuia, Missikpode, Aung and Jolly's study (2015) also predict that knowledge and attitude influence preventive behaviour. This indicates that those with positive attitudes on issues related to the Zika disease have the tendency to adopt preventive behaviour such as cleaning the house compound, using insect repellent and travelling less to Zika prone areas.

6. Conclusion

The findings of this study support all hypotheses and this demonstrates that with knowledge of the Zika disease and a positive attitude, preventive behaviour is practiced. The study supports the Social Learning Theory whereby knowledge of the Zika disease and attitude towards it motivates individuals to practice preventive behaviour. This implies that educational programmes and disease prevention campaigns in Malaysia should focus on enhancing knowledge and cultivating a positive attitude to encourage preventive behaviour especially among young students.

Despite that, this study has certain limitations. It is conducted only in one faculty. Although it has the largest number of students, it does not represent the opinions of all the students in the university. Future studies should have a more effective sampling strategy so that the whole population of the university can be sampled to represent the population.

References

Alobuia, W. M., Missikpode, C., Aung, M., & Jolly, P. E. (2015). Knowledge, attitude and practices regarding vector-borne diseases in Western Jamaica. *Annals of Global Health, 81*(5), 654-663.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behaviour, 31*(2), 143-164.

BBC. (2016, August 31). Zika outbreak: What you need to know. Retrieved from http://www.bbc.com/

Benitez, M. A. (2009). Climate change could affect mosquito-borne disease in Asia. *The Lancet, 373*(9669), 1070.

Chandren, J., Wong, L., & AbuBakar, S. (2015). Practices of dengue fever prevention and the associated factors among the Orang Asli in Peninsular Malaysia. *PLoS Neglected Tropical Diseases, 9*(8), 1-17.

Dhimal, M., Aryal, K. K., Dhimal, M. L., Gautam, I., Singh, S. P., Bhusal, C. L., & Kuch, U. (2014). Knowledge, attitude and practice regarding dengue fever among the healthy population of Highland and Lowland Communities in Central Nepal. *PLOS ONE, 9*(7), 1-15.

Farizah, H., Ong, C. H., Anwar, S., Tsung, T. W., Mohd Azhar, A., Sundaraj, C., & Soe, M. M. (2003). A knowledge, attitude and pratice (KAP) study on dengue among selected rural communities in the Kuala Kangsar district. *Asia-Pacific Journal of Public Health, 15*(1), 37-43.

Focosi, D., Maggi, F., & Pistello, M. (2016). Zika virus: Implications for public health. *Clinical Infectious Disease, 63*(2), 227-233.

Fritzell, C., Raude, J., Adde, A., Dusfour, I., Quenel, P., & Flamand, C. (2016). Knowledge, attitude and practices of vector-borne disease prevention during the emergence of a new arbovirus: Implications for the control of Chikungunya virus in French Guiana. *PLoS Neglected Tropical Diseases, 10*(11), 1-18.

Jones, J. H., & Salathe, M. (2009). Early assessment of anxiety and behavioral responses to novel swine-origin influenza A (H1N1). *PLoS ONE, 4*(12), 1-8.

Li, X., Zhang, L., Mao, R., Zhao, Q., & Stanton, B. (2011). Effect of social cognitive theory-based HIV education prevention program among high school students in Nanjing, China. *Health Educ Res, 26*(3), 419-431.

Liu, X., Wan, F., Cirenduzhu, Cirenwangla, Bai, L., Pengcuociren, . . . Qiyong, L. (2014). Community knowledge and experience of mosquitoes and personal prevention and control practice in Lhasa, Tibet. *International Journal of Enviromental Research and Public Health, 11*, 9919-9937.

Mohd-Zaki, A. H., Brett, J., Ismail, E., & L'Azou, M. (2014). Epidemiology of dengue disease in Malaysia (2000-2012): A systematic literature review. *PLoS Neglected Tropical Diseases, 8*(11), 1-9.

Nathan, Y. T. (2016, February 2). Public apathy main hurdle in war on dengue. Retrieved from http://www.thestar.com.my/

Packierisamy, P. R., Ng, C. W., Dahlui, M., Inbaraj, J., Balan, V. K., Halasa, Y. A., & Shepard, D. S. (2015). Cost of dengue vector control activities in Malaysia. *The American Journal of Tropical Medicine and Hygiene, 93*(5), 1020-1027.

Tatem, A. J., Huang, Z., Das, A., Qi, Q., & Roth, J. (2012). Air travel and vector-borne disease movement. *Parasitology, 139*(14), 1816-1830.

The Star. (2016, August 27). Malaysia woman first case of locally transmitted Zika virus infection. Retrieved from http://www.thestar.com.my/

Thompson, F., & Caltabiano, M. L. (2010). The health belief model and dengue fever preventative behaviours: A pilot programme. *International Journal of Health Promotion and Education, 48*(1), 9-19.

van Benthem, B., Khantikul, N., Panart, K., Kessels, P. J., Somboon, P., & Oskam, L. (2002). Knowledge and use of prevention measures related to dengue in Northern Thailand. *Tropical Medicine and International Health, 7*(11), 993-1000.

Wong, L. P., Mohamad Shakir, S., Atefi, N., & AbuBakar, S. (2015). Factors affecting dengue prevention practices: Nationwide survey of the Malaysian public. *PLoS One, 10*(4), 1-16.

World Health Organization. (2016). *Knowledge, attitudes and practice survey Zika virus disease and potential complications.* Geneva, Switzerland: World Health Organization.

World Health Organization. (2016, September 6). Zika virus. Retrieved from http://www.who.int/mediacentre/factsheets/zika/en/