

Knowledge, Attitudes and Practices towards Dengue Fever and Dengue Hemorrhagic Fever among Pharmacy Students in University of Cyberjaya

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ABSTRACT

Introduction: Dengue is one of the leading public health concerns in Malaysia which could lead to health complications and fatalities. Selangor has had the highest cases of dengue for the past few years. Up until June 2022, Sepang was reported as the district with 5th highest dengue cases in Selangor.

Objective(s): This cross-sectional survey aimed to identify the knowledge, practice and attitude (KAP) on dengue fever among pharmacy students at University of Cyberjaya, Sepang, Selangor.

Methodologies: Questionnaire were distributed to 274 students who have consented to participate in this study.

Results: The study found an overall good knowledge among the students (mean score 11.7 ± 1.25). Most of the respondents (63%) did not get involved in any health promotion activities on dengue. Other than that, 96% of the respondents indicated that they received the information about dengue fever and from the internet. Analysis using one-way ANOVA between respondents from all years of study found that there was a statistically significant difference in knowledge scores ($p < 0.001$). The study also found a statistically significant difference in both knowledge scores ($p < 0.001$) and attitudes ($p=0.039$) between students in clinical and non-clinical years. There was no statistically significant difference between females and males with regards the knowledge and attitude ($p > 0.05$).

Conclusion: This study concluded that the respondents had good knowledge, positive attitude and moderately good practice about dengue fever.

Keywords: Dengue fever; public health; KAP; students

INTRODUCTION

Dengue is a mosquito-borne infection that had become a major public health concern. It is a disease found in most tropical and subtropical areas of the world and had become the most arboviral (arthropod-borne) disease of human (Ibrahim et. Al., 2009). Dengue fever (DF) and dengue haemorrhagic fever (DHF) are viral disease transmitted by *Aedes* mosquitoes, usually *Aedes aegypti*. Dengue should be suspected when a high fever (40°C) is accompanied by 2 of the following symptoms severe headache, pain behind the eyes, muscle and joint pains, nausea, vomiting, swollen glands or rash (WHO, 2009).

A few studies have shown that the continuous process of urbanization has resulted in increased incidence of

dengue in Malaysia (Hairi et al., 2002). Selangor has recorded the highest number of dengue cases from 29 December 2019 until 27 September 2022, with 25, 448 cases and almost 40 fatalities between 2020-2021 (National Crisis Preparedness and Response Centre (CPRC), Ministry of Health Malaysia (MOH)). A cross-sectional study involving 135 students at International Islamic University Malaysia (IIUM) showed a very good level of KAP towards dengue prevention, symptoms, and transmission, especially among medical students (Zamri et al., 2020). People with knowledge of dengue, has been reported having significantly higher use of prevention measures than people without knowledge of dengue (Bota et al., 2014). This showed that correct knowledge is important to prevent dengue fever. Another cross-sectional study involving staff and students at a public university in Malaysia concluded that dengue preventive

strategies should focus on maintaining good dengue-related preventive practices (Lugova & Wallis, 2017).

METHODOLOGIES

This cross-sectional study was conducted among all pharmacy students (Year 1 to Year 4) studying in University of Cyberjaya (UOC), Cyberjaya, Malaysia. Convenient sampling method was used to select the participants. The minimum required sample size for this study was found to be 191 participants. However, the total number of participants consented to this study was 274. Prior to the actual data collection, a pilot study was conducted in 30 participants. The purpose of this pilot study was to verify the applicability of the data collection form and the validated questionnaire to ensure their comprehensiveness.

The data collection process was carried out during the period of September 2015 until October 2015. The questionnaire divided into 5 parts; Part A until Part E. Part A involves the demographic data for the participants, include gender, race, marital status, current year of study and residents' area of participants. Part B involves the source of information in which they receive regarding DF and DHF. Part C involves the knowledge of DF which included signs and symptoms, transmission, treatment and prevention. Part D involves the attitude of the participants towards DF. Finally, Part E involves the practice of the participants towards DF in the aspect of prevention.

Independent t-test was conducted to compare the mean difference in knowledge and attitude between females and males. It was also used to compare the mean difference in knowledge and attitudes between participants in clinical years (Year 3 & 4) and non-clinical years (Year 1 & 2). The test was also used to compare the mean difference in knowledge and attitude between participants residential area, either hostel or others. One-way ANOVA test was used to compare the mean difference in knowledge and attitudes between the year of study. Post-hoc analysis was conducted accordingly.

Pearson's correlation test was used to identify the correlation between knowledge and attitude scores. Pearson's correlation coefficient, r , is a measure of strength of a relationship and it has a value between -1 (perfect negative correlation) and +1 (perfect positive correlation). Positive correlation means one variable increases as the other increases. On the contrary, negative correlation means one variable increases as the other decreases.

RESULTS

A total of 274 pharmacy students responded and completed the questionnaire. The demographics of the respondents are as shown in Table 1.

Table 1: Demographic characteristic of study population (N = 274)

Demographic variables	Frequency (n = 274)
Current year of study	
Year 1	79 (28%)
Year 2	85 (31%)
Year 3	52 (19%)
Year 4	62 (22%)
Gender	
Male	43 (15.7%)
Female	231 (84.3%)
Ethnicity	
Malay	225 (82%)
Chinese	28 (10%)
Indian	16 (6%)
Other	5 (2%)
Resident area	
University hostel	184 (67%)
Others	90 (33%)

Majority of the respondents were female students (> 80%). The result is similar to most of studied in which more females are more likely to participate in a survey compared to male (Smith WG, 2008). However, it could also be due to higher distribution of female students studying pharmacy at UOC. This study also found that most of the respondents were single. One of the possible reasons could be the fact that the respondents were concerned about the influence of marriage on their academic performance. A study investigating the academic performance of married women students in Nigerian higher education. It showed that more than 60.0% of single women respondents performed better academically compared to respondents who were married (Potokri, 2012).

This study found that 46% of respondents had high knowledge, 41% had moderate knowledge while 13% had low knowledge on DF and DHF. Majority of students answered correctly on fever as one of the symptoms. Most of the students, however, incorrectly answered pain behind the eyes and rashes as DF presenting symptoms. This could be due to confusion with similar symptoms in other common viral infections like flu and measles. In this study, comparisons on mean knowledge scores among respondents were done between year of study, between clinical and non-clinical years and between genders.

This study showed that there were statistically significant differences in the mean knowledge score between respondents from all years ($p < 0.001$). Post-hoc analyses showed that Year 4 respondents had statistically greater knowledge compared to Year 1 respondents [mean (\pm SD): 14.58 (± 1.12) versus 9.62 (± 1.26), $p < 0.001$, 95% CI

0.83 - 1.91], Year 2 respondents [mean (± SD): 14.58 (±1.12) versus 10.12 (±1.20), $p < 0.001$, 95% CI 0.52 - 1.64], Year 3 respondents [mean (± SD): 14.58 (±1.12) versus 12.53 (±1.41), $p < 0.001$, 95% CI 0.21 - 1.26]. The mean (±SD) DF and DHF knowledge scores for clinical and non-clinical year respondents were 13.55 (± 1.27) and 9.87 (±1.23) respectively. The difference in mean knowledge scores between the 2 groups was statistically significant ($p < 0.001$, 95% CI -1.34 to -0.62). One of the reasons could be because clinical year students (Year 3 & 4) have undergone clinical pharmacy courses and joined some educational programs. The mean (± SD) knowledge scores on DF and DHF between females and males showed 12.56 (± 1.23) and 12.97 (± 1.23) respectively. The difference in mean knowledge scores between males and females was not statistically significant ($p > 0.05$, 95% CI -0.31 to -0.57). The result reflected that health care professional play an important role in public health care based on their knowledge regardless of their gender (Matta et. al., 2006).

This study found that respondents from all years of study had an overall positive attitude. Table 2 below shows the distribution of respondents' attitude towards DF and DHF.

Table 2: Distribution of respondents' attitude towards DF and DHF (n =274)

Statement	No. of respondents (%)	
	Agree	Disagree
I am afraid of dengue fever	256 (93.4)*	18 (6.6)
Dengue is serious illness	267 (97.4)*	7 (2.6)
Dengue cannot be prevented	12 (4.4)	262 (95.6)*
I am at risk of getting dengue	156 (56.9)*	118 (43.1)
Fogging is not essential for prevention	220 (80.3)*	54 (19.7)
Elimination of larvae breeding is a complete waste of time	10 (3.7)	264 (96.3)*
Public has important role in dengue control	242 (88.3)	32 (11.7)

*indicates a correct answer

Comparisons on mean attitude scores among respondents were done according to year of study, clinical and non-clinical and females and males. It was found that there were no statistically significant differences in the mean attitude score between respondents from all years and between males and females ($p > 0.05$ for both). However, the difference in mean attitude scores between clinical and non-clinical years respondents were statistically significant ($p = 0.039$).

This study found an overall moderate practice among the respondents, indicated by the total mean attitude scores 23.12 (± 5.32). Year 4 respondents have higher positive practice level towards DF and DHF. The mean scores (± SD) for Year 1, 2, 3 and 4 respondents were 22.45 (± 5.66); 25.61 (± 5.78); 21.15 (± 4.45); 23.25 (± 4.95), respectively. Table 3 shows the distribution of respondents' practice towards DF and DHF.

Table 3: Distribution of respondents' practice towards DF and DHF (n =274)

Statement	No. of respondents (%)				
	VNC	NC	MC	C	VC
I can change the water in the plant pot tray every week.	12(4.1)	22(8.0)	158 (57.7)	69(25.2)	13(5.0)
I can clean the drain from blockage every week	12(4.1)	48(17.5)	139 (50.7)	58(21.1)	17(6.6)
I can always cover tightly all water containers	7(2.6)	26(9.5)	45(16.4)	153 (55.8)	43(15.7)
I can convince my family/ friends to always put all garbage into closed bin	31(11.3)	98(35.8)	95(34.6)	32(11.7)	18(6.6)
I can change water container under the fridge every week	29(10.6)	53(19.3)	167 (60.9)	15(5.5)	10(3.7)
I can allow health authority to fog and inspect my house at anytime	127 (46.3)	67(24.4)	39(14.2)	30(10.9)	11(4.2)
I can always put larvacide in all water container at my house	23(8.3)	45(16.4)	86(31.4)	98(35.7)	22(8.2)

Note: VNC = Not confident at all; NC = Not confident; MC= moderately confident; C= Confident; VC= Very confident

Pearson's correlation test showed statistically significant positive correlation between knowledge and attitude among all respondents ($r = 0.135$, $p = 0.048$). This means that respondents with the higher knowledge will display more positive attitudes towards DF and DHF.

This study showed that 63.0% of the students did not involve in any health promotion activities on dengue. The

remaining percentage of students who did get involve in the health promotion activities, indicated that they joined public lectures and public awareness programs such as health promotion campaigns and public awareness program.

This study found that among 96% of respondents who have received information regarding DF and DHF, almost 50% of them received the information from the internet. Other sources of DF and DHF information obtained by the respondents include television and radio (21.3%), public announcement (9.8%) and printed media (6.8%).

CONCLUSION

This study has showed that pharmacy student at UOC had overall good knowledge about DF and DHF. However, there was a lack of concern about the importance of dengue control and the impact of dengue outbreak in the community. It is shown by their poor practice on dengue prevention. More practical health education programmes should be organized. It will give more benefits and exposure about the effect of good practice towards DF prevention. The knowledge is crucial for these future pharmacists to prepare them in facing the real practice or work.

According to The American Society of Health-System Pharmacists (ASHP), pharmacist's role is expanding beyond the traditional product-oriented functions of dispensing and distributing medicines and health supplies. The pharmacist's services of today include more patient-oriented, administrative and public health functions. Knowledge and attitude of a pharmacist can significantly influence the effectiveness of the care or service given to the public.

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