***Original article*:**

Knowledge, Attitude, and Practice Regarding Dengue among Students in a Public University in Malaysia

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Abstract:

Background: Dengue has become an important public health problem in the world. It is an infectious disease caused by dengue virus and transmitted by Aedes mosquito. The understanding the knowledge, attitude and practice (KAP) of the general community on dengue prevention are helpful to give information for good strategic planning and engaged the community with dengue control. The knowledge on preventive measures in dengue is important to decrease the mortality rate, but the implementation of knowledge among individuals to reduce dengue is still an issue. ***Study Objectives****:* This study aims to examine the KAP regarding dengue among International Islamic University of Malaysia (IIUM) Kuantan students. Besides that, this study also aims to find the factors associated with KAP of dengue and to assess the relationship between KAPs regarding dengue among IIUM Kuantan students. ***Methods****:* This study used cross-sectional study, and 135 respondents were selected by using convenience sampling method. The questionnaire consists of 67 questions which were divided into four parts (socio-demographic characteristic, knowledge regarding dengue, the attitude of dengue and practice on prevention of dengue). In this study, to evaluate the KAP of dengue among students in IIUM Kuantan. Independent t-test, Kruskal-Wallis test, Mann-Whitney test, and Pearson test were used to find all related factors influencing KAP of dengue. ***Results***: This study shows that the level of KAP of dengue among students in IIUM Kuantan was relatively high. All the respondents have very good level of KAP towards dengue prevention, symptoms and transmission. There was a significant difference in attitude among marital statuses (p=0.004). The students from FOM had better knowledge (p=<0.001) as compared to FOD and better attitude scores than KOP (p=0.001). This study also depicted that dengue knowledge-attitude towards dengue prevention was significantly correlated (p=0.005*)*. ***Conclusion***: the KAP regarding dengue among IIUM Kuantan students was good.

Keywords: Knowledge; Attitude; Practice; Dengue; International Islamic University of Malaysia (IIUM); Kuantan, Students.

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Introduction

Dengue fever (DF) is considered as an acute infectious disease caused by dengue virus and transmitted by Aedes aegypti mosquito. Aedes aegypti mosquito equally responsible another global public misery viral disease Chikungunya.[1] DF usually presents with a severe headache, pain in the back of the eyes, high fever, backache, vomiting, muscle and joint pain as

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well as a rash. Dengue has become a life-threatening disease for nearly half of the global population. More than 100 countries show epidemic and endemic transmission of dengue virus particularly in Southeast Asia, the west Pacific Ocean regions, and southern Africa. It is also estimated that nearly 2.5 billion people worldwide are at risk and 50 million people have been transmitted by dengue virus each year. [2] Better understanding the KAP of the general community on dengue prevention is essential to give information for sound strategic planning and engaged the community with dengue control. [3] However, another research mentioned that knowledge on preventive measures on dengue is helpful to decrease the mortality rate, but the implementation of knowledge among individuals to eliminate dengue fever is still an issue. [4] Thus, proper control measures and correct behavior on health prevention of the disease is needed to endow the people with the readiness to deal with dengue fever epidemic. [5]

In Malaysia, dengue has become a significant public health problem. Statistically, the number of dengue cases increases from year to year which accounts for nearly 95% of all reported cases in Malaysia. The Ministry of Health Malaysia has conducted a vector control programs for prevention of dengue outbreaks. However, the prevention programs are more efficient when the knowledge and the vector control practices are realized and applied in their daily life. [6] Another study reported that KAP of dengue in an urban area of Kuala Lumpur must strengthen public health program to gain people knowledge that forms as the foundation for preventive practices of dengue virus control. [7] Other than media, the essential sources in spreading health messages to the public are through research and development of an educational plan to improve attitude and practice of effective control measures among population since their early ages. Therefore, this study was essential to know the KAP regarding dengue. The students in IIUM, Kuantan were the study subjects. This survey also provides information and overview on dengue disease or the factors that may be associated with KAP regarding dengue disease. The primary purpose of this study is to investigate the KAP regarding dengue among IIUM Kuantan students.

Conceptual framework

The possible factors comprise of socio-demographic characteristics (gender, marital status, studying faculty, age and year of study), the knowledge about dengue and attitudes towards dengue prevention and control. Several research studies reported that high knowledge about dengue among people leads to the better practice of prevention and control. [6, 8] Another study indicated that there was a significant association between knowledge of dengue and attitude towards Aedes control. [9] Multiple studies said that the socio-demographic characteristic of sex, education level, age group was significantly associated with the level of practice towards dengue prevention and control. [10-12]

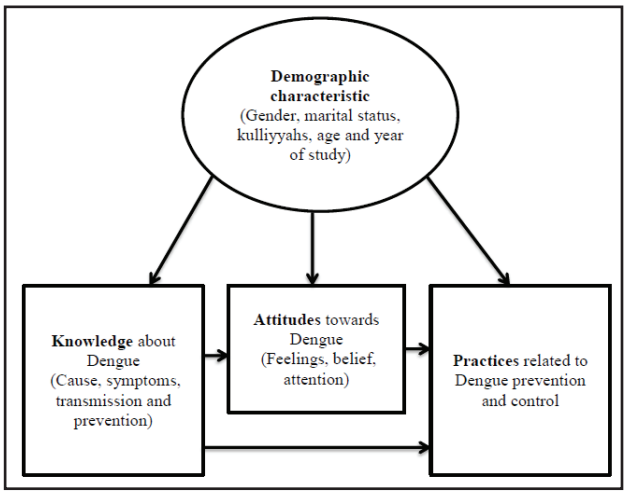

Figure 1: The Conceptual framework is indicating the relationships between socio-demographic, KAP of dengue.

Materials And Methods

Study Area: This study was conducted in International Islamic University Malaysia (IIUM), Kuantan, Pahang, Malaysia. Data were collected in six different faculties a self-administered questionnaire. **Study Population**: The source of population for this study was among IIUM Kuantan students from six different faculties which are of Allied Health Sciences, Science, Medicine, Nursing, Pharmacy, and Dentistry. There are about 8000 undergraduates students in IIUM Kuantan. IIUM Kuantan students were chosen because no study has been done among IIUM students. **Study Design**: This study used cross-sectional study method. This method allows determination of whether there was any association between the KAP regarding dengue among IIUM Kuantan students. Besides, this study also aims to identify the factors associated with the KAP of dengue. Lastly, this study aims to determine the relationship between KAP regarding dengue among students in IIUM Kuantan. **Sample Size**: The sample size (n) calculation was made using single proportion formula to determine the number of

respondents needed. Single proportion formula was used as the study was done in a single population which is among students in IIUM Kuantan. Below shows the sample size calculation for this study: $n = [Z \alpha/_2 \mid \Delta]^2 p (1-p)$. Where: $Z \alpha/_2 = 1.96$ (for 95% CI). $\Delta = 0.09$ (precision). p = proportion in population. $n = [Z \alpha/_2 \mid \Delta]^2 p (1-p) = [1.96 \mid 0.09]^2 0.64 (1-0.64) = 109$. = 109 + 10% non-response rate. n= 119 respondents. The calculation above uses a proportion of from a previous study. [5] The precision used was 0.09 and confidence interval was set at 95%. **Sampling Method**: The convenience sampling method was used to select the respondents from all faculties. They were 135 participants recruited for the study. The inclusion and exclusion criteria for study subjects: **i. Inclusion Criteria**: Undergraduate students in IIUM Kuantan, Male and Female students. **ii. Exclusion Criteria**: Postgraduate students, Staffs. **Data Collection**: the data collection took place from February to April 2015. The data was collected using self-administered questionnaire. The questionnaires were distributed to students who volunteer to participate and fit all inclusion and exclusion criteria. The questionnaire consists of 67 questions which were divided into four sections arranged as Part One, Part Two, Part Three and Part Four. For Part One, presents the details regarding socio-demographic status of the respondents which are gender (male and female), six different faculties, Year of study (I, II, III, IV, and V), age and marital status. Part Two concentrates on knowledge regarding dengue which covers the questions have they ever heard about dengue, the source of information and some questions about dengue knowledge including the symptoms, transmission, prevention, dengue occurrence and necessity dengue precaution. This part includes 31 questions with true/false/don't know options for each question. Then, Part Three assessed attitude regarding dengue transmission and the answers either 'strongly agree' to 'strongly disagree' options. The last part addressed practices towards prevention of dengue and the response option was 'never' to 'always.' The questionnaire was in the English Language since most of IIUM students prefer to answer in the English language. The pilot study was conducted before the actual study to test for the reliability and face validity of the research methods and questionnaires. The content validity was verified by an expert. **Data Analysis**: The collected data was analyzed using Statistical Package Software for Social Science (SPSS) version 21.0 software. All the data was checked at the beginning of analysis to avoid any wrong data entry. The statistical significance level was set at 0.05. In this study, for the first objective, to evaluate the KAP of dengue among students in IIUM Kuantan, the result was described by using a descriptive frequency table. Independent t-test, a non-parametric test (Kruskal-Wallis test and Mann-Whitney test) and correlation (Pearson) test were used to answer the second objective which is to find all related factors influencing KAP of dengue. Before proceeding with the Independent t-test, normality assumption for each group and equal variance assumption was checked. The mean and standard deviation was used when it is normally distributed. But, when normality assumption is not met, a non-parametric test was used, and the median and interquartile range was used to interpret the result. Then for the last objective, to find an association between KAP of dengue among IIUM Kuantan students correlation (Pearson) test was used. The assumption on linearity and normality, need to be checked before carrying out the correlation test. **Scoring**: To analyze the data, a scoring system was used after the data from the questionnaire were coded and entered into the SPSS software. For socio-demographic data, the frequencies and percentages were used. For the questions about knowledge of dengue, the score was two for the correct answer, one for don't know the answer and zero for the wrong answer. The total knowledge score was summed up and classified according to categories; poor: 1-20, moderate: 21-41 and good: 42-62. For attitude which consisted of nine items, with scored value for positive attitudes of one for 'strongly disagree,' two for 'disagree,' three for 'not sure,' four for 'agree' and five for 'strongly agree.' Lastly, for practices toward dengue prevention comprised of 13 items, with a scored value of one for 'never' option, two for 'seldom' option, three for 'often' option and four for 'always' option (Table 1).

Ethical Consideration and Approval of Study: This study obtained ethical and research approval Faculty of Allied Health Sciences Postgraduate and Research Committee [Memo No.: IIUM/310/g/13/4/4-171. Dated: 5th March 2015]. The objectives of the study were informed to the respondents and informed written consent obtained before data collection. The research participation was totally voluntary and strict confidentially maintained.

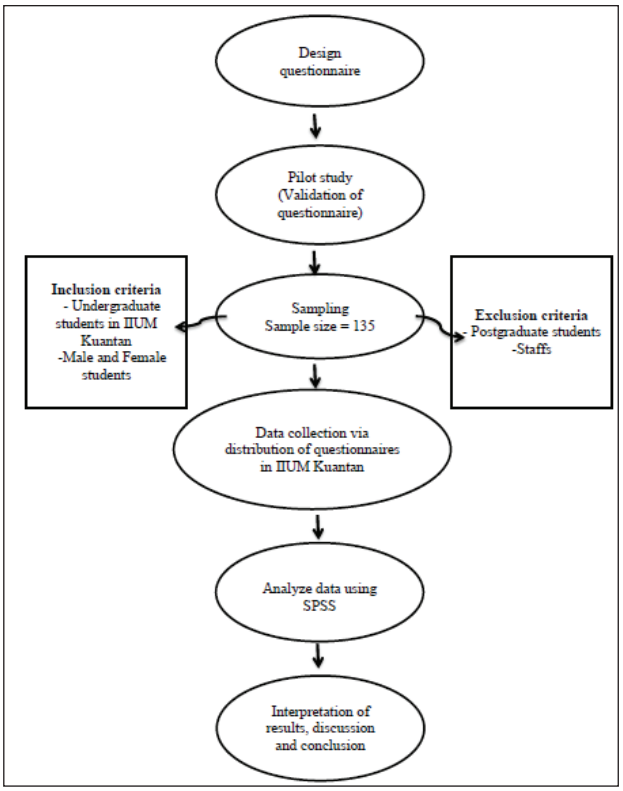

Figure 1: Flow Chart of the Methodology

Table 1: Scoring Analysis of KAP Regarding Dengue

Section	Score	
Knowledge	**Positive Statement**	**Negative Statement**
	0=No	0=Yes
	1=Do not Know	1=Do not Know
	2=Yes	2=No
Attitude	**Positive Statement**	**Negative Statement**
	1=Strongly Disagree	1=Strongly Agree
	2=Disagree	2=Agree
	3=Not Sure	3=Not Sure
	4=Agree	4=Disagree
	5=Strongly Agree	5=Strongly Disagree
Practice	**Positive Statement**	
	1=Never	
	2=Seldom	
	3=Often	
	4=Always	

Results and findings

Socio-Demographic Characteristics of the Respondents

There are five demographic variables in this study which includes gender, different faculties, year of study, age and marital status. The summary of variables and number of respondents involved describe in Table 2. The total number of respondents participated in this study is 135. Among the 135 respondents, there are 58 (43%) male and 77 (57%) female respondents. Most of the respondents are from FAHS which contribute to 28 (20.7%) respondents, KOM which also contribute to 28 (20.7%) respondents, followed by KOS and KON which contribute to 21 (15.6%) and 21 (15.6%) respondents respectively. The respondents from KOP and KOD are 20 (14.8%) and 17 (12.6%) respondents respectively. Besides, this study also records the respondent's year of study. There are 33 (24.4%) respondents from the first year, 30 (22.2%) respondents from the second year, 44 (32.6%) respondents from the third year, 24 (17.8%) respondents from the fourth year and 4 (3.0%) respondents from the fifth year. The mean age of the respondents is 22.42 years, and ages range from 20 to 25 years. The frequency of respondents aged 20 years old is 4 (3.0%), 21 years old is 34 (25.2%), 22 years old is 29 (21.5), 23 years old is 41 (30.4%), 24 years old is 23 (17.0%) and 25 years old is 4 (3.0%). Lastly, for marital status, there are 131 (97.0%) respondents who are single, and 4 (3.0%) respondents are married.

Table 2: Socio-Demographic Data among Respondents of IIUM Kuantan Students (n=135).

Characteristics		Number (%)
Gender	Male	58 (43)
	Female	77 (57)
Faculty	FAHS	28 (20.7)
	FOD	17 (12.6)
	FOM	28 (20.7)
	FOS	21 (15.6)
	FOP	20 (14.8)
	FON	21 (15.6)
Year of Study	Year-I	33 (24.4)
	Year-II	30 (22.2)
	Year-III	44 (32.6)
	Year-IV	24 (17.8)
	Year-V	4 (3)
Age (Years)	20	4 (3)
	21	34 (25.2)
	22	29 (21.5)
	23	41 (30.4)
	24	23 (17)
	25	4 (3)
Marital Status	Single	131 (97)
	Married	4 (3)

Note: FAHS: Faculty of Allied Health Sciences. FOS: Faculty of Science. FOP: Faculty of Pharmacy. FOD: Faculty of Dentistry. FON: Faculty of Nursing. FOM: Faculty of Medicine.

Knowledge Attitude and Practice Regarding Dengue

All the respondents had heard about dengue (100%). The sources of information regarding dengue were obtained from radio/television 116 (85.9%), newspaper 115 (85.2%) internet 107 (79.3%), family/ friends 95 (70.4%), school/ university 87 (64.4%), poster/brochure 85 (63.0%), doctor 71(52.6%) and magazine/ books 50 (37.0%). The respondent's score of knowledge on dengue are assessed by categorizing it into three levels of knowledge which are 'good' (42-62), 'moderate' (21-41) and 'poor' (1-20). Most (97.8%, 132) of the respondents have good knowledge regarding dengue. Rest possesses either average (2.2%, 3) level of knowledge and none was poor. On an average 60.1%, 73.4%, 60.56%, 87.7% and 90.54% respondents correctly answered regarding the symptoms of DF, dengue transmission, dengue mosquito biting time, prevention of mosquito bites, and prevention of mosquito breeding sites respectively.

The attitudes regarding dengue are assessed by providing the respondents with 5-point Likert-scale based answers with 'strongly disagree' to 'strongly agree' options. There were nine questions to assess attitude level of the study respondents. On an average 54.81%, respondents corrected answer. In summary, most of the respondents possess a good attitude towards dengue prevention. The practice towards dengue prevention was also assessed with 4-point Likert-scale based answers with 'never,' 'seldom,' 'often' and 'always' options. There were 2 sets of the question. Set **i**. had 5 questions regarding "I do the following methods to prevent mosquito bites," Set **ii**. Had 7 questions regarding "I do the following methods to eliminate mosquito breeding sites." On an average the study respondents 25.06% and 42.13% for set **i** and **ii** questions respectively. In short, all the respondents have a good practice of dengue prevention.

The Factors Associated with Knowledge, Attitude, and Practices of Dengue

Comparing knowledge between sexes, the p=0.956. There was no statistically significant difference in terms of knowledge regarding dengue between sexes of the study respondents utilizing Independent t-test. Furthermore, comparing knowledge between marital status p=0.524, there was no statistically significant difference in the knowledge level of dengue in marital status using Mann-Whitney test.

Comparing knowledge scores regarding dengue between different faculties utilizing Kruskal Wallis test, there was a statistically significant (p<0.001) difference in knowledge between at least one pair of faculties (Table 3). Thus, the Post-hoc test is used to determine which groups differ from each other. A Post-hoc analysis using Mann-Whitney test which concluded that a statistically significant difference between FOD and FOM (p=<0.001) and between FOM and FOS (p=<0.001). The p-value of the Post-hoc test is compared with 0.003 (0.05/ number of pairs or 15) following the concept of Bonferroni.

Table 3: Comparing Knowledge Scores Regarding Dengue between Different Faculties (n=135).

Faculty	N	Median (IQR)	p-value
FAHS	28	50 (7)	<0.001
FOD	17	48 (5)	
FOM	28	53 (6)	
FOS	21	48 (8)	
FOP	20	49 (8)	
FON	21	52 (11)	

Note: Kruskal Wallis Test

The relationship between knowledge with age and year of study. The relationships between knowledge and age (p=0.394), while for the knowledge with a year of study (p=0.181). Thereafter, there was no statistically significant correlation were found between knowledge with age and year of study.

The Factors Associated with Attitude Regarding Dengue

There was no statistically significant difference (p=0.452) in terms of attitude regarding dengue between sex of the current study respondents utilizing Independent t-test.

Comparing attitude level with marital status revealed a statistically significant (p=0.004) differences (Table 4). There was a statistically significant (p= 0.001) difference in attitude regarding dengue between at least one pair of faculties (Table 5). Thereafter, the Post-hoc analysis utilizing Mann-Whitney test revealed that a statistically significant (p=<0.001) difference between FOP and FOM. The p-value of the Post-hoc test is compared with 0.003 (0.05/ number of pairs or 15) following the concept of Bonferroni. The relationship between attitude regarding dengue with age (p=0.671) and Year of study (p=0.401) of the respondents no statistically significant correlation.

Table 4: Comparing attitude scores regarding dengue between single and married (n=135)

Variable	Single Median (IQR)	Married Median (IQR)	Z-statistics	P-Value
Attitude Scores	39 (5)	32 (5)	-2.884	0.004

Note: Mann-Whitney test

Table 5: Comparing attitude scores regarding dengue between different Faculties (n=135)

Faculty	N	Median (IQR)	p-value
FAHS	28	39 (5)	<0.001
FOD	17	40 (4)	
FOM	28	41 (2)	
FOS	21	39 (5)	
FOP	20	36 (6)	
FON	21	37 (6)	

Note: Kruskal Wallis test

The Factors Associated With Practice on Prevention of Dengue

This shows that there is no statistically significant (p=0.571) difference in practice on prevention of dengue between sexes of the current study respondents utilizing independent t-test. Comparing practice on prevention of dengue between marital statuses similarly revealed no statistically significant (p=0.682) difference using Mann-Whitney test. There was also no statistically significant (p=.063) difference in practice on prevention of dengue between different Faculties. Furthermore, the relationship between practice on prevention of dengue with age (p=0.070) and year of study (p=0.521) also revealed no statistically significant correlation utilizing Pearson correlation test.

The Relationship between Knowledge, Attitude, and Practice Regarding Dengue

The strength and direction of the relationship among KAP regarding dengue. Pearson correlation test is used to evaluate the possible association between knowledge-attitude, knowledge-practice, and attitudes-practice scores among the respondents. There was a statistically significant (p=0.005) correlation between knowledge-attitude regarding dengue utilizing Pearson correlation test. The r-value (0.240) interpret only little positive relationship. Nevertheless, there was no statistically significant correlation between attitude-practice (p=0.555), practice-knowledge (p=0.630).

Table 6: The relationship between Knowledge, Attitude, and Practices regarding dengue (n=135)

Items	r-value	p-value
Knowledge-Attitude	0.240	0.005
Attitude-Practice	0.051	0.555
Practice-Knowledge	0.042	0.630

Discussion

Socio-Demographic Characteristics of the Respondents

The current study participants were predominantly female which was somewhat different from KAP based Malaysian research. [13, 14]

Knowledge Attitude and Practice Regarding Dengue

In Malaysia, dengue is one of the most severe public health problems. Dengue is well-known by the majority of ordinary Malaysian people. The current study revealed that all (100%) of the study respondents heard about dengue. The result was similar to the previous research mentioned that all the respondents in Perak Tengah district were familiar with dengue. [4] This study also found that the most common source of dengue information was obtained from television and radio. The study result was consistent with previous studies [6, 8, 11, 15] where television is the most common source of information regarding dengue. This result was also supported by which shows that mass media is the right tool in bringing better awareness of dengue prevention and control. [16] The results of this study also depicted that knowledge of dengue among students in IIUM Kuantan was at a reasonable level. Majority of the respondents have proper knowledge regarding dengue. Furthermore, most of the respondents answer correctly on the statements about knowledge on dengue except on question regarding 'dengue mosquito only bites during the morning.' The results of this study are consistent with the previous study also reported that more than half of the respondents agreed that mosquitoes which transmit dengue only bite early in the morning. [6]

Most of the respondents have a positive attitude towards dengue prevention. More than half of the respondents strongly disagree that 'it is not necessary to seek immediate treatment for dengue fever as there is no cure for it.' This may be because all the respondents have high education background hence the education will make them more aware of their health and related health-seeking behaviors.

Furthermore, for the statements of 'the public has an important role in dengue control' and 'communities should actively participate in controlling the dengue virus transmission' nearly all of the respondents choose 'strongly agree' option. The possible reason might be that most of the respondents have right belief and behavior towards dengue prevention. As for the practice, most of the respondents have good practice regarding the dengue prevention. This study found that most of the students always used insecticide sprays, mosquito coil, bed net, fans and wear protective cloth with long sleeves to prevent mosquito bite. However, only a number of the respondents applied professional pest control and windows screen to prevent mosquito bite. This finding is supported by previous study [15] where a minority of the participants utilizes professional pest control and screens their window as the method to reduce mosquito bite and prevent dengue. Since all of the respondents were students with limited financial capabilities and mentioned methods are quite expensive. Subsequently, the current study respondents failed to adopt because of the high cost.

The Factors Associated With the Knowledge Attitude Practice of Dengue

The factors associated with the knowledge regarding dengue; there was no difference in term of knowledge regarding dengue between sexes of the respondents. This study shows a similar result with another study done where the mean scores of dengue knowledge among different sexes were not significantly different. [17] Furthermore, the knowledge of dengue between marital statuses of respondents also shows no difference. This was possible because the current study respondents acquire the same level of information regarding dengue since all of the respondents from the same university and the range age is between 20-25 years old which are not too far. Other than that, the findings show a significant difference in comparing knowledge between different faculties where the significant differences existed between FOD and FOM and between FOS and FOM. These findings were in the same line with the previous study where students with sciences majors had good knowledge as compared to others. [8] In addition, it is known that IIUM Kuantan is the campus for the medical science-based faculties. Another finding was the relationship between knowledge regarding dengue with ages and year of study where there was no significant correlation found. These findings were in contrast with earlier another study revealed that there was a relationship in terms of knowledge between different ages. [5] The result of this study shows no significant correlation between knowledge with age and year of study possibly because some older students were Year-I and some younger ones were already in Year-IV. Thus, this may affect the consistency of the results.

There was no difference between sexes of the female respondents. However, these findings opposed the result of research where the result shows that females have better attitude in preventing dengue as compared to males. [4] This study also found a significant difference in attitude regarding dengue between marital statuses of the respondents. The result proved that single student had better attitude as compared to those who are married. Nevertheless, this finding was different from another study where there were no correlation factors associated with marital status. [6] Meanwhile, in the comparison of the attitude between different faculties was a significant different in attitude towards dengue prevention between FOM and FOP. Significant different belonging to FOM and FOP may be because FOM students are more knowledgeable about the disease and have been exposed in treating dengue patients. Therefore, the attitude among the respondents is high as compared to other respondents. The relationship between attitude with age and year of study, no significant correlation was found. Furthermore, another study also found no significant association between attitude towards dengue prevention and age. [6] However, this finding opposed the result of another research reported that there was a significant correlation between attitudes towards dengue prevention with education level. [18] The study also found that older age and higher education level is related to better attitude. [11]

There was no difference in practice towards dengue prevention between sexes of the current study respondents. The study similar findings were reported multiple of the earlier studies where male and female had no relationship with preventive behavior of dengue. [11, 19, 20] The comparison of practice between marital statuses of the current study findings were in contrast as married couples have higher dengue prevention practice. [21] Another finding for the practice is between different faculties' shows no significant difference. This means respondents for each faculty had similar level of practice. Perhaps, because of majority of the respondents stays in university provided hostel. Thereafter, the way of practicing dengue prevention was similar. While, for the

relationship between practices of dengue prevention with age and year of study also shows no significant correlation. This findings were supported with an earlier study reported that age and educational level was not significantly associated with vector control practices. [22]

The Relationship between Knowledge Attitude and Practice Regarding Dengue

Then other findings which emerged from the current study was the significant correlation between knowledge and attitude regarding dengue among the respondents. It can be explained as good knowledge regarding dengue prevention has a high level of attitude towards dengue prevention. The previous and similar findings were also reported earlier that there was a significant association between knowledge of dengue and attitude towards Aedes mosquito control. [9] However, the result obtained for the relationship between knowledge-practice and attitude-practice towards dengue shows no significant correlation. These results were consistent with another earlier study [6] but in contrast with other research findings which noticed a significant association between knowledge-practice of dengue control. [11] Nevertheless, one more study revealed that persons with knowledge-practice of dengue significantly correlated. [8] On the other hand, the findings of this study are consistent with another study revealed that there was no significant association seen between attitude-practice on dengue. [9] This was a cross-sectional study with its' inherent limitation with a limited sample size. The data collected by using non-random sampling method may represent the view of the specific group and not the entire population. In this study, postgraduate's students are excluded. Thus, this has implications for the generalizability of our results to all students' population in IIUM Kuantan.

Conclusion

Study on KAP regarding dengue among IIUM Kuantan students revealed that all students in IIUM Kuantan have heard about dengue disease. Television and radio became the primary source of information about dengue among them. Moreover, this study revealed that more than half of students had a good knowledge of dengue. Furthermore, this study was illustrated that the result shows a significant difference in comparing knowledge and attitude of dengue between different faculties.

Conflict of interest

Authors possess no conflict of interest.

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Individual Contribution of the Authors:

Conceptual work: Haque M

Data collection: Zamri SNZBM, Rahman NAA, Haque M

Manuscript writing: Haque M

Editing of final manuscript: Zamri SNZBM, Rahman NAA, Haque M

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