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DEFENDING AGAINST DENGUE: A PILOT STUDY OF KNOWLEDGE, ATTITUDE, AND PRACTICE (KAP) OF DENGUE FEVER AMONG RESIDENTS IN SS 3 PETALING JAYA

Nilam J.[a], Nik Noorul Shakira M. S.[a, b*], Maya J.[a], Asyraf S.[a], Dhinesh M.[a], Adlina S.[c], Mohammad Wisman A. H.[a], Nadiah R. A.[a]

[a] Faculty of Medicine and Defence Health, National Defence University of Malaysia, Sg. Besi Camp, 57000 Kuala Lumpur, Malaysia
[b] Centre of Tropicalization, National Defence University of Malaysia, Sg. Besi Camp, 57000 Kuala Lumpur, Malaysia
[c] School of Medicine, International Medical University (IMU), Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

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ABSTRACT

Dengue fever is the most common vector-borne disease and a major concern in Malaysia. Thus, the present study aimed to evaluate factors influencing knowledge, attitude, and practice of dengue fever among residents in Taman Subang, SS 3 Petaling Jaya. A total of 81 residents were incorporated into a descriptive, public-based cross-sectional study. The questionnaires were formulated to include questions on demographic data, knowledge, attitude, and practice concerning dengue fever. Most of the respondents were in the age range of 39-58 (35.8%). Most participants were Malay (61.7%), with tertiary level being the highest education level (70.4%), and most of the residents were aware of dengue fever. Television and radio were voted as the most frequent sources of information (97.3%). For socio-demographic characters, there was a significant correlation between attitude and practice score. Good practice towards dengue fever is associated with good knowledge and attitude. Actions to raise the awareness of the population about dengue fever, such as health campaigns and health education at the community level, are important. These initiatives will aid in cultivating better knowledge, attitudes and practices towards dengue fever and thus reduce its incidence in Malaysia.

1.0 INTRODUCTION

Dengue fever is a mosquito-borne viral disease caused by a flavivirus. The dengue virus has four unique serotypes: DEN-1, 2, 3, and 4 [1]. Over the past 50 years, dengue has evolved from a sporadic and relatively rare disease into a global public health problem. It is the most important mosquito-borne viral disease in Southeast Asia [2-3]. According to the Global Burden of Illness report, the prevalence of dengue increased by six times between 1990 and 2013, with 52% of the disease burden coming from Southeast Asia [4]. From 2001 to 2010, the region lost 214,000 disability-adjusted life years and US$ 950 million a year due to dengue; the dengue burden is higher than that of upper respiratory infections and many other conditions [5-6]. In Malaysia, the incidence of dengue has risen dramatically over the past few decades, accounting for 31.6 cases per 100,000 populations in 2000 and peaking at 361.4 per 100,000 populations in 2014, the highest ever reported incidence of dengue. In Malaysia, behind tuberculosis and HIV/AIDS, dengue is the infectious disease with the third-highest fatality rate [7].

From January 1st to March 7th, 2019, 28,580 cases of viral disease were reported nationwide, compared to 11,146 cases in the same period in the previous year, an increase of 156.4 percent. A total of 49 people died from dengue, compared to 26 fatalities in the same period in 2018 – an increase of 88.5 percent. According to the previous Malaysia Health Minister, Datuk Seri Dr Dzulkefly Ahmad, despite

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my

government's efforts, the state of Selangor had the highest number of dengue cases in the same period, with 16,534 cases [8]. Most of the dengue KAP studies in Malaysia have been conducted in residential settings [9-12]. Residential settings have the potential to become disease hotspots with active transmission of agents and have a negative impact on larger communities due to the close environmental contact and divergent behaviour of household members. Establishing the level of dengue KAP especially among the urban community and its findings should be taken seriously as the number of dengue cases is still on a great rise [13].

Adequate knowledge, positive attitude and correct practice for dengue control are crucial to eradicate the disease. The aim of this study is to assess the factors that influence KAP on dengue fever in residents of Taman Subang, SS 3 Petaling Jaya.

2.0 METHODOLOGY

This study was carried out in Taman Subang, SS 3 Petaling Jaya, because it is in the most populated and rapidly developing area, which is highly affected by dengue [14]. To describe the level of knowledge, attitude, and practice (KAP) on dengue fever among residents in Taman Subang, SS 3 Petaling Jaya, sample size calculation was done using http://www.surveysystem.com with a confidence level of 95%, confidence interval of 10 on 400 household heads, giving a sample size of 78. This cross-sectional study was conducted from August 3-4, 2019, using systematic sampling. A questionnaire set was designed based on a previous study [15]. The questionnaires were discussed in a focus group that consisted of microbiologists and public health experts. The questionnaire reliability was determined using Cronbach's alpha value [16-17]. The questionnaires were distributed to those who had given informed consent. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) software (SPSS version 20). The Chi-square test and descriptive statistical data analysis parameters were used. Statistical value $p<0.05$ was considered as significant.

3.0 RESULTS

3.1 Demographic Characteristics

A total of 81 residents participated in this study. The Cronbach Alpha reliability of the questionnaire was 0.7. The most common age group of respondents was between 39 to 58 years old (35.8%), and the least common age group was 79 years old and above (1.2%). The mean age of the respondents was 48.8 ± SD 17.2. Most of the respondents were men, making up 54.3% of the total respondents. Furthermore, most respondents (61.7%) were Malays, followed by Chinese (23.5%) and Indians (16%). Most of the respondents have a tertiary level of education (70.4%), which also portrayed that they were highly educated. However, most of the respondents (42%) were unemployed, and only 8.6% of them were housewives. There was a significant correlation between attitude and practice score ($p<0.05$). Table 1 presents the socio-demographic characteristics of the respondents in this study.

Table 1. Socio-demographic characteristics of the respondents

Description		Count (n)	Percentage (%)
Gender	Male	44	54.3
	Female	37	45.7
Age (years old)	19 – 38	25	30.9
(Mean ± SD: 48.8 ± 17.2)	39 – 58	29	35.8
	59 – 78	26	32.1
	79 & above	1	1.2
Race	Malay	50	61.7
	Chinese	19	23.5
	Indian	13	16.0
Education level	Primary	0	0
	Secondary	24	29.6
	Tertiary	57	70.4
Occupation	Professionals	4	4.9
	Managerial	6	7.4
	Technical / Clerk	3	3.7
	Housewife	7	8.6

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my

Description		Count (n)	Percentage (%)
	Retired	16	19.8
	None	34	42.0
	Others	11	13.6

3.2 Assessment On Knowledge, Attitude, And Practice On Dengue Fever

Participants' knowledge of dengue fever, including symptoms, methods of control, and mode of transmission, was assessed (Figure 1, 2, and 3). Most participants recognised fever (97.5%) and muscle or joint pain (88.8%) as two of the symptoms, respectively. Only 43.6% of them recognised pain in the back of the eyes and gum bleeding (43.6%) as among the symptoms. Meanwhile, more than half of them knew other symptoms of dengue, including dizziness (66.3%), rashes (69.6%), nausea and vomiting (61.7%), stomach-aches (52.5%), and diarrhoea (61.7%). Most of them (95.1%) agreed that avoiding outdoor activities during dawn and dusk as well as draining stagnant water (93.8%) were effective methods to control dengue. More than half of respondents disagreed that using mosquito net and taking medicine can prevent dengue (64.2%). Some of them (13.6%) did not know about taking medicine to prevent dengue, while 22.2% of them thought that they should take medicine. Less than half of them (44.4% and 43.2%, respectively) were aware that dengue cannot be transmitted through blood transfusions or dirty fishponds. However, some of the respondents did not know whether blood transfusion was one of the modes of transmission of dengue or not (34.6%). Almost all the participants knew that dengue can be transmitted by mosquito bite (95.1%) and acquired from mosquitoes that breed in stagnant water (70.4%).

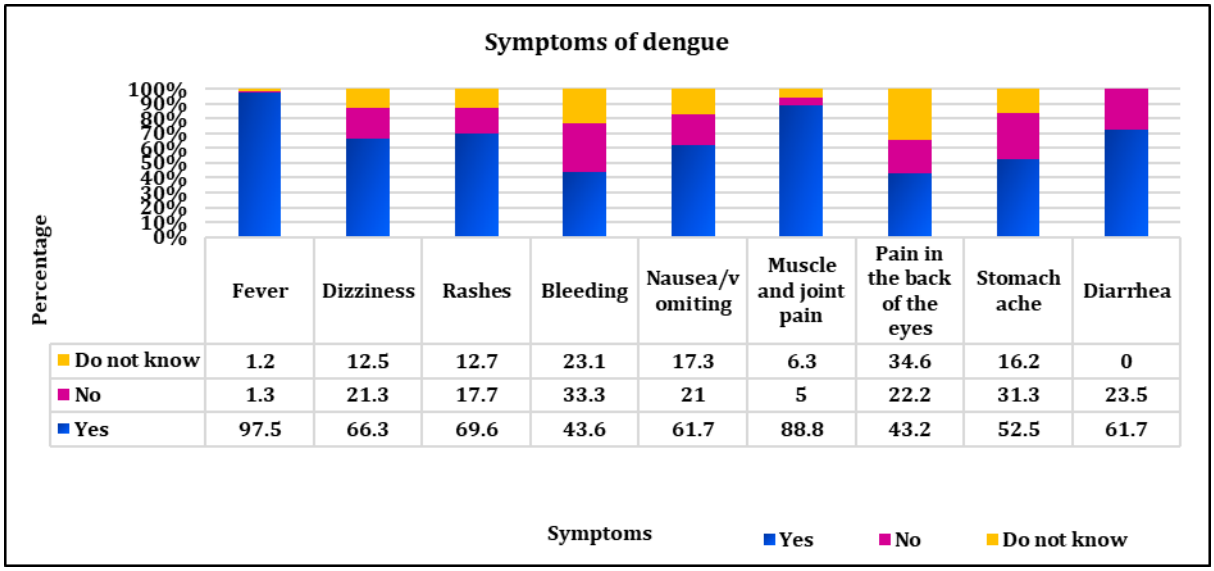
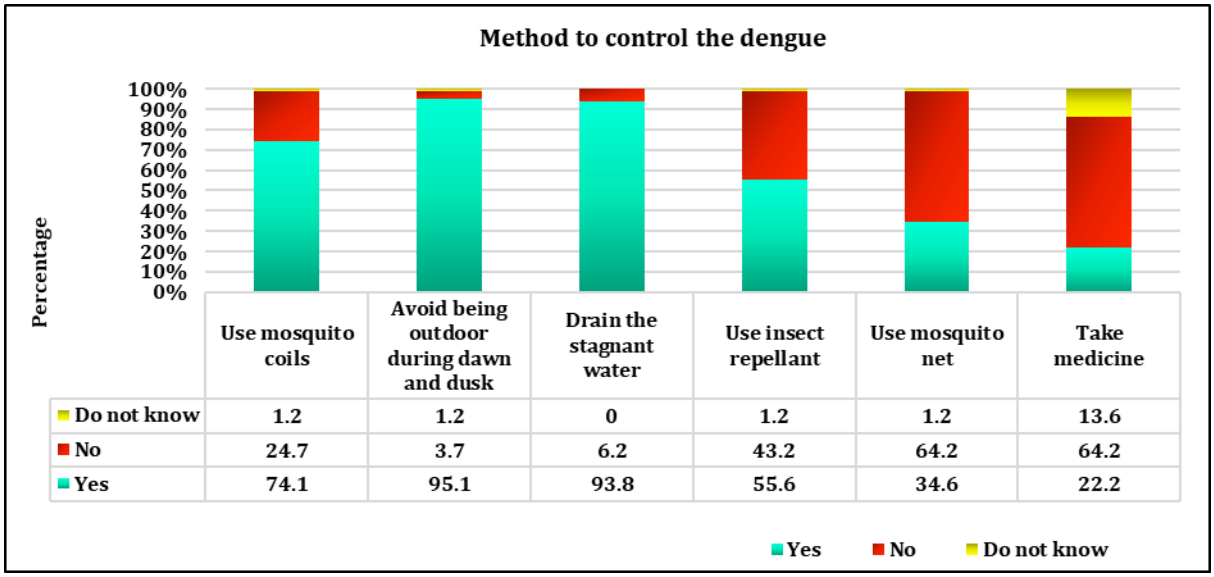


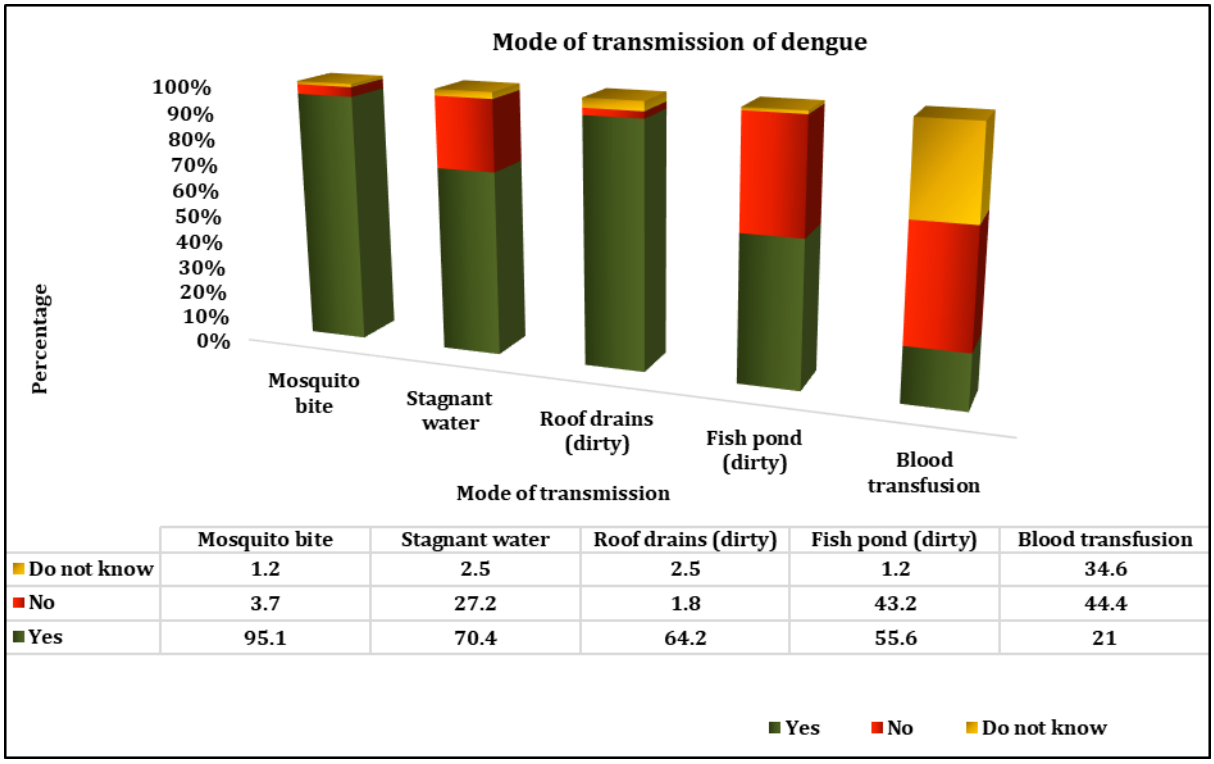
Figure 1. Participants' knowledge of dengue

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my



	Use mosquito coils	Avoid being outdoor during dawn and dusk	Drain the stagnant water	Use insect repellant	Use mosquito net	Take medicine
Do not know	1.2	1.2	0	1.2	1.2	13.6
No	24.7	3.7	6.2	43.2	64.2	64.2
Yes	74.1	95.1	93.8	55.6	34.6	22.2

Figure 2. Participants' knowledge of method to control dengue

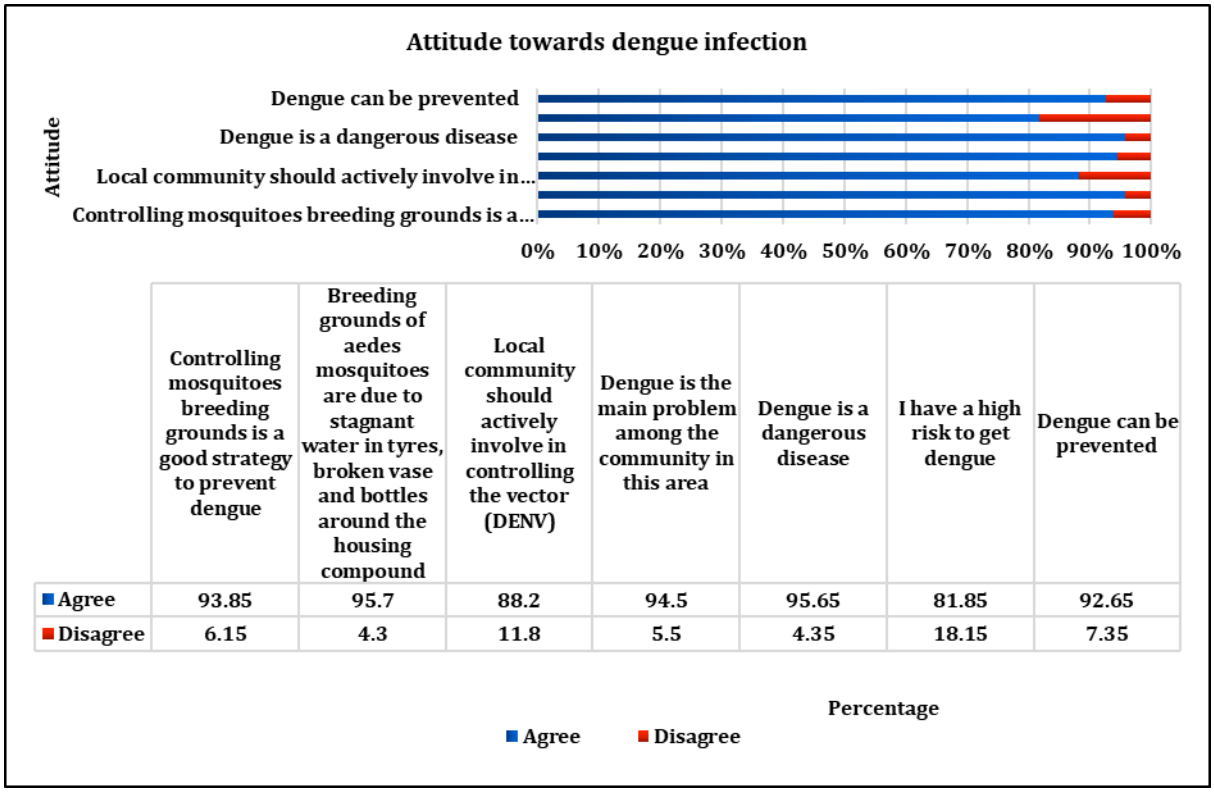


	Mosquito bite	Stagnant water	Roof drains (dirty)	Fish pond (dirty)	Blood transfusion
Do not know	1.2	2.5	2.5	1.2	34.6
No	3.7	27.2	1.8	43.2	44.4
Yes	95.1	70.4	64.2	55.6	21

Figure 3. Participants' knowledge of dengue mode of transmission

To assess the attitude of participants towards dengue, seven questions were asked to the participants. Most of the residents agreed that dengue is preventable (92.7%), a dangerous disease (95.7%), and one of the main problems in the community (94.5%). However, most of them disagreed with the statement that they have a high risk of getting dengue (81.9%). Nearly all the respondents agreed that breeding grounds for *Aedes* mosquitoes are due to stagnant water, broken vases, and bottles (95.7%). Only a small number of respondents disagreed that controlling mosquito breeding grounds is a good strategy to prevent dengue (6.2%). The participants' attitude towards dengue and the mean values of the variables are presented in Figure 4 and Table 4, respectively.

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my



	Controlling mosquitoes breeding grounds is a good strategy to prevent dengue	Breeding grounds of aedes mosquitoes are due to stagnant water in tyres, broken vase and bottles around the housing compound	Local community should actively involve in controlling the vector (DENV)	Dengue is the main problem among the community in this area	Dengue is a dangerous disease	I have a high risk to get dengue	Dengue can be prevented
Agree	93.85	95.7	88.2	94.5	95.65	81.85	92.65
Disagree	6.15	4.3	11.8	5.5	4.35	18.15	7.35

Figure 4. Participants' attitude towards dengue

Table 2. Mean of the variables (participants' attitude towards dengue)

Variable	Mean
Dengue is a dangerous disease Dengue is a dangerous disease	4.63
I have a high risk to get dengue	3.89
Dengue can be prevented	4.48
Controlling mosquitoes breeding grounds is a good strategy to prevent dengue	4.53
Breeding grounds of Aedes mosquitoes are due to stagnant water in the tires, broken vase and bottles around the housing compound	4.51
Local community should actively involve in controlling the vector (DENV)	4.37
Dengue is the main problem among the community in this area	4.56

Most of the residents took appropriate preventive measures for dengue, such as always cleaning stagnant water in used tyres, broken vases, and bottles around their houses (96.3%), using mosquito coils every night (66.3%), and using aerosol repellent to get rid of mosquitoes (60.5%). Almost all of them also supported fogging activities in their residential areas (98.4%). However, only a small number of them (11.1%) used a mosquito net to prevent dengue. Less than half of the respondents (43.4%) consumed medicine if they were suspected to have dengue. The details on the participants' practices towards dengue are presented in Figure 5.

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my

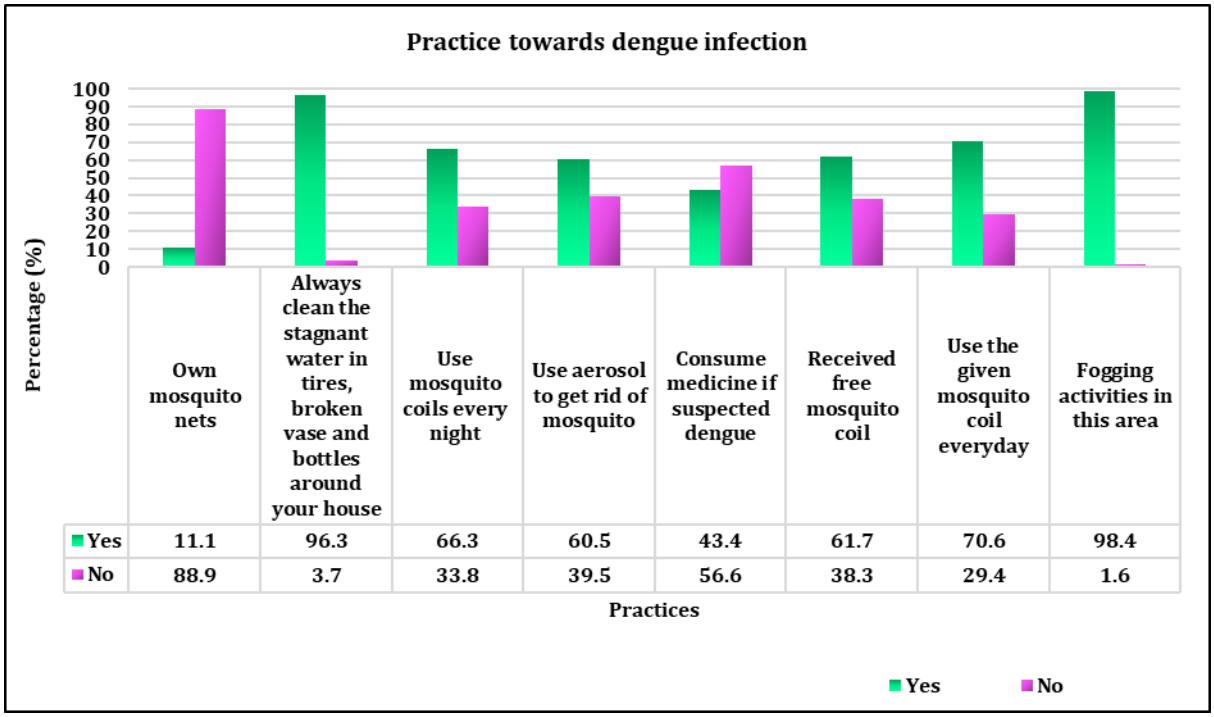


Figure 5. Participants' practices towards dengue

4.0 DISCUSSION

We discovered a good level of knowledge about dengue fever among our participants, which is consistent with the previous finding of the Malaysian community-based investigation [15]. This could be due to the respondents' high educational background. Our participants were also aware of the symptoms of dengue fever. Similar findings were noted in a study by Al-Dubai et al., [18], where most residents recognised the main symptoms of dengue. This reflects adequate health promotion, specifically for dengue, provided by the Malaysian government. It is important because, especially for dengue, a person must be able to recognise the disease and seek appropriate medical attention as soon as possible [19]. Our study found that most of the residents were aware that they had the risk of getting dengue and recognized dengue as a serious concern. This could be due to either they or their families or friends may have been exposed to previous dengue fever situations due to living in an area highly affected by dengue, as reported by Zaki et al., [14]. On further verbal discussion, the residents who strongly disagreed that they had the risk of getting dengue were those who had a lack of knowledge about the disease. They assumed that they could prevent dengue by locking the doors during the evening and turning on the air conditioners. They were advised to get accurate information, for example, by referring to the Ministry of Health website, available at https://www.infosihat.gov.my/demam-denggi.html.

Interestingly, most of the subjects in this study have a good attitude towards dengue prevention. This is very important to combat dengue. Given that dengue vectors are dependent on the human environment for feeding and reproduction, it is known that human activities have a considerable impact on the persistence of dengue vectors and the spread of the virus [20]. Most of them believed that combating the breeding of mosquitoes was a good strategy to prevent dengue. Only a few of the respondents did not agree. Similar findings were noted in a previous study by Al-Dubai et al., [18]. Some of their respondents thought that the elimination of larvae breeding was a complete waste of time. Meanwhile, a small number of our participants use mosquito nets for dengue prevention. This could be due to the location of the study site; most of them practice an urban lifestyle. Mosquito-net usage is scarce among urban citizens. However, most residents agreed that stagnant water in tyres, broken vases, and bottles around the house encourages the breeding of Aedes mosquitoes, so eliminating it is a good dengue prevention strategy. In terms of practice towards dengue prevention, almost all residents said they gave their cooperation and support for the fogging activities and frequently cleaned mosquito breeding areas around their housing compound. This could be due to the educational backgrounds of our subjects. Most of them have a high educational background. Thus, they could possibly be more compliant with government policies about infectious disease prevention and control than those of a lower educational background. Our findings

*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my

contrasted with the previous community-based research in Malaysia that reported insufficient dengue control practices among their study populations [9, 12].

5.0 CONCLUSION

The increasing prevalence of dengue in Malaysia annually prompted the need to investigate community health behaviour to comprehend knowledge, attitude, and practise (KAP) on dengue fever and associated vector. Most of the residents are knowledgeable and possess a good attitude towards preventing dengue fever in Taman Subang SS 3. They have taken many preventive measures with the support of the local community. Only a few of the residents have a poor attitude towards dengue. Health programs and promotions are important to cultivate good knowledge, attitude and practice towards dengue fever and thus bring down its incidence in Malaysia.

6.0 ACKNOWLEDGEMENT

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*Corresponding Author | Noorul Shakira, M. S. | shakira@upnm.edu.my