ORIGINAL ARTICLE

STUDY ON KNOWLEDGE, PRACTICE OF PREVENTIVE MEASURES AND ITS EFFECTIVENESS ON HEALTH PROMOTION ON DENGUE AMONG THE RESIDENTS OF A VILLAGE IN IPOH, PERAK.

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Abstract

Introduction: The incidence of dengue has risen dramatically high over the last few decades worldwide. Some three billion people are at risk of getting infected with dengue. In Malaysia the total number of dengue cases has been rising annually. In Perak, the number of cases for dengue fever and hemorrhagic dengue fever increased from 421 cases per 100000 population in 2012 to 1024 cases per 100000 in 2013 accounting for an increase of 143.2%. This study aimed to assess the knowledge, practice of preventive measures and effectiveness of health promotion related to dengue among residents of a village in Ipoh.
Methodology: This cross sectional study was conducted in 2015. Simple random sampling was applied to choose the samples.
Results and discussion: Out of a total of 408 respondents, 61.3% and 74% obtained good scores in knowledge and preventive practice measures respectively. The highest misconceptions occurred on behavior aspects of the Aedes mosquitoes (46.6%) and availability of vaccinations for dengue (40.7%) while 65% of respondents allow fogging activities to be conducted at 2pm (noon). Significant associations were shown between types of occupation and knowledge (p=0.017), level of education and practice (p=0.022), previous exposure among family members and practice (p=0.016), and between knowledge and practice (p=0.011). In conclusion, despite having good knowledge about dengue and potential breeding sites of the Aedes mosquito, the number of dengue cases rising could be due to a quarter of population having poor preventive practices.

Keywords: *Dengue, Knowledge, Practice, Health Promotion*

Introduction

Dengue fever, also known as breakbone fever, is a mosquito-borne tropical disease caused by the dengue virus. The symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash that is similar to measles. In a small proportion of cases, the disease develops into the life-threatening dengue hemorrhagic fever, resulting in bleeding, low levels of blood platelets and blood plasma leakage, or into dengue shock syndrome, where dangerously low blood pressure occurs [1].

Dengue fever is transmitted by the bite of an Aedes mosquito infected with any one of the four dengue viruses. Although most infections are self-limiting a proportion of cases develop severe complications such as dengue hemorrhagic fever which can carry a significant risk of death. The incidence of dengue is on a dramatic rise around the world in recent decades. As no vaccine is currently available, primary prevention is considered the most effective measure in controlling dengue. Each time an outbreak occurs, the local health authority will plan and carry out various types of promotional and educational activities that aim to increase knowledge of dengue and change dengue preventive behaviour among communities at the centre of the outbreak. According to The World Health Organization (WHO) dengue has been classified as a neglected tropical disease (NTD). However, the argument has always been that if dengue was, in first place, really neglected or not. It would be more important for the sake of prevention and control of dengue to recognize the advantage of including dengue in the list of NTDs[2]. One study (2013) estimate indicates that 390 million dengue infections occur every year (95% credible interval 284–528 million), of which 96 million (67–136 million) manifest clinically (with any severity of disease)[3]. Another (2012) study, of the prevalence of dengue, estimates that 3.9 billion people in 128 countries are at risk of infection with dengue viruses[4].

These promotional activities can be carried out through various methods such as individual home visits, or at the population level through the mass media. Health promotion and educational intervention like, 'search and destroy' activities, advice on the need to seek immediate medical attention in patients with fever, and proper disposal of rubbish are usually the focus of behavioral-change promotion activities. The promotional and educational messages are usually delivered using small group discussion, public lecture, live public announcement, demonstration, distributing printed materials, putting up posters, bunting and billboards, community source reduction and community dengue-cleanliness program and health exhibitions[5].

The current survey explores the knowledge, the practice of prevention and the effectiveness of health promotion related to dengue infection among residents of a village in Ipoh, Perak.

Materials and Methods

This cross sectional study among villagers was conducted in Kampung Sri Kinta, Ipoh Perak. The study was conducted from 8th until 24th June 2015. We calculated the sample size by using OpenEpi website Version 3.03a, setting an estimated prevalence of 50% with confidence level 95 %. Our calculated sample size was 252, however, in order to take account for the non-respondents, we decided to take extra 20% samples. Out of 300 houses selected for this study, only occupants from 259 houses agreed to participate. From those 259 houses, we managed to get 408 respondents. Our inclusion criteria were only limited to maximum four people above 15 years of age in any given house.

A simple random sampling method was followed to choose the houses. The questionnaire was designed by the research team in bilingual which were Bahasa Malaysia and English. The questionnaire was divided into four parts which were sociodemographic, knowledge, preventive practice and health promotion. The questionnaire

was pretested among 20 people to ensure that, the questions were easily understood.

Selected houses were approached and a set of self-administered questionnaires were given once they consented to participate in the study. A maximum number of four people aged 15 and above in any single house were able to participate in this study.

In the first part of the questionnaire, the questions were to obtain the villagers' sociodemographic information which was age, gender, race, education level, occupation, marital status and history of dengue. For the second part, the questions were designed to test the villagers' knowledge on dengue. They consisted of 15 multiple choice questions with one correct answer. One mark would be given for each correct answer and no mark would be given for a wrong answer. The median was used as a cut-off point, villagers who obtained 12 or more marks were considered as having "good knowledge".

For the third part of the questionnaire, it consisted of eight questions which aim to know the correct practice that they had done to prevent dengue as well as one descriptive question. One mark was given for each correct practice and no mark was given for the wrong practice. Those villagers who obtained a median score of 6 or more were considered to have good preventive practices.

The last part of the questionnaire enquired on whether the villagers had ever been involved in a health programme on dengue in the past six months. They were also asked if they understood the information provided in pamphlets from the Ministry of Health. Consent forms were obtained from respondents before they answered the questionnaire. All responses from the participants were kept confidential. Data was analyzed using SPSS version 17. The significance level was set at $P<0.05$.

Result

Selected socio-demographic characteristics of respondents were shown. The mean age of respondents was 42years with a standard deviation of 19.9. The respondents were divided into 6 age groups, and the highest percentage of respondents was from the age group of 13-22 years (30.1%). The respondents consist of 243 (59.6%) female and 165 (40.4%) male. All were Malay race. In reference to education, the highest percentage of respondents did have a secondary school education only (59.8%). When asked about their marital status 61% of respondents said they were still married. The respondents of this study have different occupation. However, most of them were housewives and students (29.7% and 20.8% respectively). When respondents were asked about any family history of dengue, only 20.3% of them said yes. (**Table 1**)

From the above diagram, we can see that 61.3% of the respondents from Kampung Sri Kinta have good knowledge on dengue fever whereas, 38.7% of the respondents were having poor knowledge on dengue fever. (**Figure 1**)

When, we carried out the survey on the practice of prevention steps on dengue, majority (74.0 %) of the respondents were practicing good preventive measures. Twenty six percent of the respondents had poor preventive practice. (**Figure 2**)

The association between knowledge and preventive practice was found to be significant. Among the respondents, 64.9% have good knowledge and good practice while 49.1% have bad knowledge and bad practice (**Table 2**).

Another significant association was found between understanding the health promotion pamphlet and knowledge. Of our respondents, 65.8% understood the pamphlet and had good knowledge scores while 61.6% of the respondents who did not understand the pamphlet had poor knowledge on dengue. We assumed that if they understood the pamphlet, it meant the message was effectively transferred from the pamphlet to the villagers. (**Table 3**).

Discussion

Dengue is one of the major public health problems, which can be controlled with active participation of the community. Thus, this study aimed to measure the knowledge about dengue, assess the practice in preventive measure and evaluate the effectiveness of health promotion in terms of understanding the health promotion pamphlet related to dengue.

Our study revealed that more than two thirds of the respondents were well equipped with the essential knowledge on dengue fever. Our finding is similar to one recent study which was conducted in a place not very far from our study`s place. Firdous et al (2017) found that majority of the people in Dewan Bandaraya Ipoh[6]. (61.6%) had a good knowledge on dengue infection.

Although we did not ask about the sources of knowledge on dengue from our respondents, we assumed that most of them would have got it either from TV or internet sources. Moreover, most of our study`s respondents had received printed media concerning dengue on few occasions, mostly through health campaigns. Of these, 85.8% found that the information was easy to understand.

In a study conducted in Westmoreland, Jamaica, it was found that media plays a very important role on the level of awareness among individuals Respondents indicated that Radio and Television were the predominant sources of information regarding dengue. Secondly, only about half of participants obtained information about dengue disease from health workers[7].

Our study showed that, almost 75% of the respondents had good practices in preventing dengue. The association between knowledge and practice, was found to be statistically significant. Thus, an increment of knowledge on dengue would and should result in a better practicing on preventing it. This finding is contrary to what researchers in Gujrat India, where a survey among University students showed that instead of having the knowledge people still not utilize the measure of door and windows net coverage, application of mosquito repellent oil& bed covering nets. These strategies may be considered costly and prime importance may be given by government to enhance the implementation of knowledge into practice through community mobilization[8]. In the same context, our study results are consistent with previous studies conducted in Pakistan[9] but inconsistent with findings of study in Philippines[10] Jamaica[7] and India[11].

Our study has also revealed that 26% of the respondents scored poorly in preventive practices. Most of those scoring poorly were those who had primary education or were uneducated. The higher the level of education a person receives is expected to promote better preventive practices. More over the study we conducted showed that, nature and type of occupation have no influence on the preventive practices.

Merely attending a health promotion program does not result in good preventive practices. There was no significant association between attendance to those kinds of programs and preventive practice. In any health promotion program, participants are only being educated theoretically. It has been suggested that the habit of preventive practices is influenced by self-motivation.

Conclusion

Knowledge about dengue infection is an essential element to keep the infection rate low. However, without good preventive practices among the population, it will be difficult to control the vectors. Knowledge among the respondents was good enough and preventive practices were good too yet, reported cases of dengue are on the rise. Strengthening the health campaigns and coming up with new technologies to target the recalcitrant population is important to overcome dengue.

Table 1. Selected Socio- demographic Characteristics of Respondents

| Age: Mean ± SD (years)	42.2 ±19.9	
	Frequency	**Percentage(%)**
Age groups		
13-22	123	30.1
23-42	72	17.6
43-52	67	16.4
53-62	47	11.5
63-72	78	19.1
Above 72	21	5.1
Gender		
Male	165	40.4
Female	243	59.6
Education		
None	9	2.2
Primary School	104	25.5
Secondary School	244	59.8
Tertiary	51	12.5
Marital Status		
Single	132	32.4
Married	249	61.0
Divorced	5	1.2
Others	22	5.4
Occupation		
Unemployed	187	45.8
Employed	136	33.4
Students	85	20.8
Family history of dengue		
No	325	79.7
Yes	83	20.3
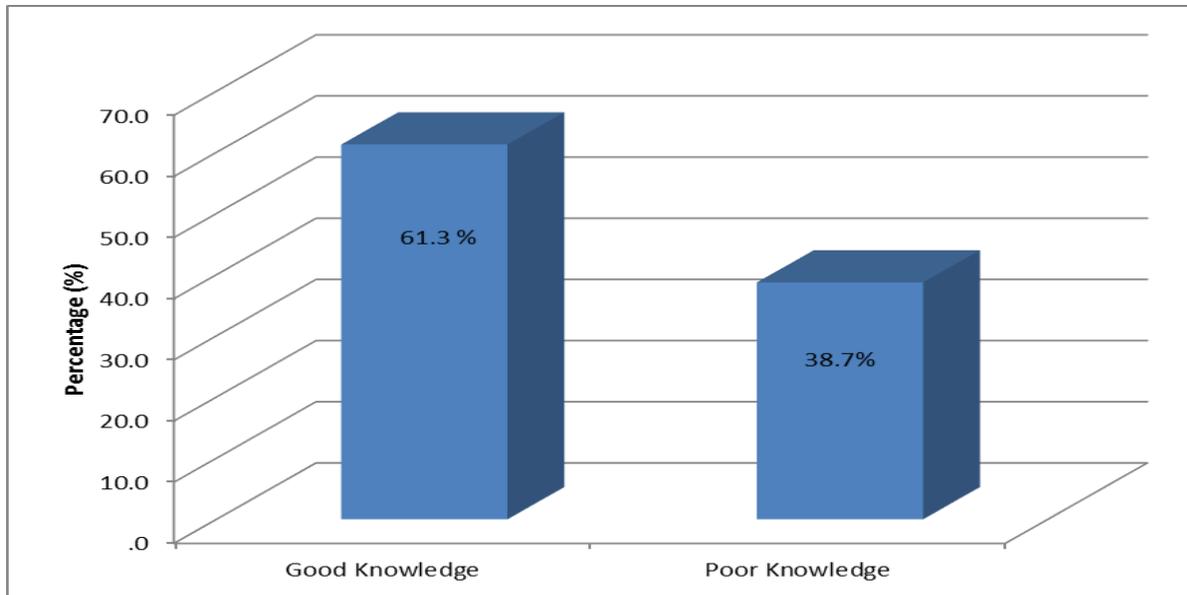
Figure 1. Percentage of knowledge on dengue fever in Kampung Sri Kinta
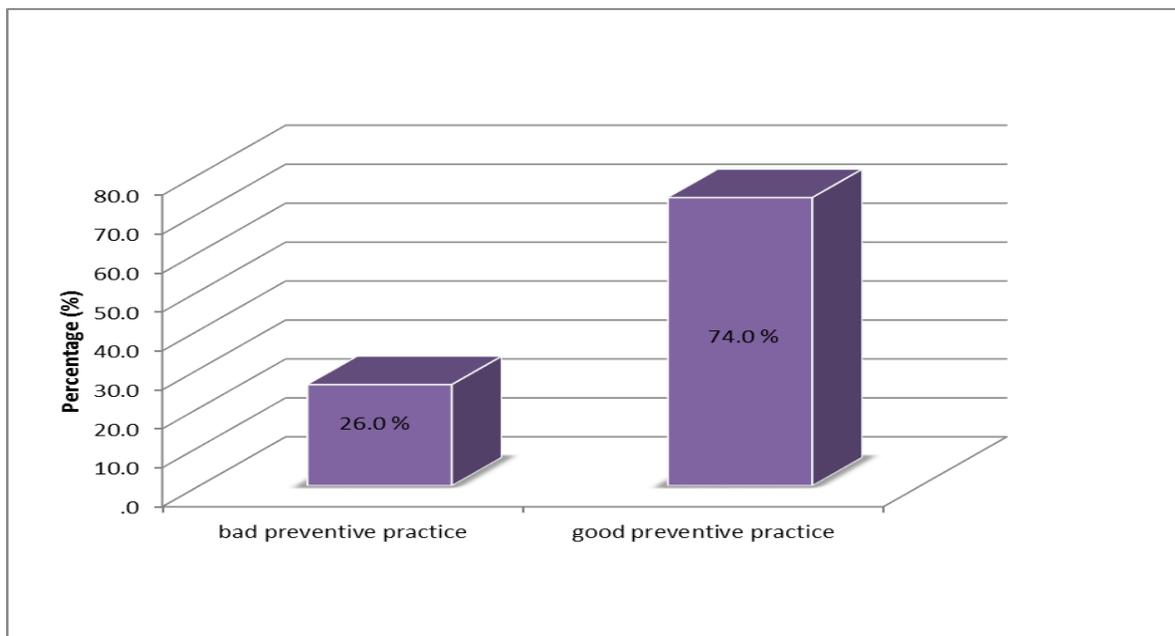

Figure 2. Percentage of villagers in Kampung Sri Kinta that practice prevention steps on dengue fever in Kampung Sri Kinta

Table 2. Association between knowledge and practice

Association between knowledge and preventive practices						
Knowledge						
	Good		Poor		Total		Statistical significance (p-value)
	Number	Percent (%)	Number	Percent (%)	Number (n=408)	Percent (%)	
Practice						
Good	196	64.9	106	35.1	302	100	0.011
Bad	54	50.9	52	49.1	106	100	
TOTAL	250	61.3	158	38.7	408	100	

Table 3. Association between knowledge scores and understanding health
        Promotion

Association between knowledge scores and understanding health promotion pamphlet						
Knowledge						
	Good		Poor		Total		Statistical significance (p-value)
	Number	Percent (%)	Number	Percent (%)	Number (n=408)	Percent (%)	
Understanding pamphlet						
Easy	210	65.8	109	34.2	319	100	0.00
ard	20	38.5	32	61.6	52	100	
TOTAL	230	62.0	141	38.0	371	100	

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