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The KAP Study on Dengue among Community in Taman Salak Baiduri, Sepang, Selangor

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ABSTRACT

Dengue is one of the most important arthropod-borne viral diseases in terms of human morbidity and mortality. Studies show that people with higher knowledge on dengue reported a significantly higher use of preventive measure. This study aims to assess the knowledge, attitude and practice of community in Sepang towards dengue prevention.

A cross sectional study was done by using universal and simple random sampling. The respondents that fulfilled the inclusion and exclusion criteria were interviewed with a structured questionnaire. The data was analysed using SPSS.

The knowledge on dengue was low (48%) but among those who were knowledgeable, 93% have good attitude towards dengue fever prevention. The prevalence of good practice towards dengue was only 54%.

In conclusion, dengue prevention campaigns should focus on the risk of contracting dengue and education to increase knowledge about dengue, as well as prevention.

Keyword: *knowledge, attitude, practice, dengue, Malaysia*

INTRODUCTION

Dengue, which is caused by any one of four related viruses transmitted by mosquitoes, is a leading cause of illness and death in the tropics and subtropics. As many as 400 million people are infected yearly. [1] The transmission of the endemic virus has been reported in more than 100 countries. Incidence rate has expanded by 500-fold, spreading from South-east Asia to Americans and Western Pacific merely within a-half century. [2]

In Malaysia, dengue is perceived as a highly contagious health threat with escalating trend of infection. The average number of dengue cases and death tolls had recorded a surge of 14% and 8%, respectively per annum, over the years of 2000–2010. [3] Within the first half of the year of 2015, a total number of 59 866 dengue cases and 165 deaths had been reported. [4]

Vaccines are not yet available to prevent infection with dengue virus and the most effective protective measures are those that avoid mosquito bites or eliminate breeding sites. [1] The World Health Organization and Centers for Disease Control and Prevention (CDCP) [5] recommends extensive community educational campaigns that emphasize reducing vector breeding sites as an effective way of dengue prevention. This recommendation is supported by various studies showing that community education can be more effective in reducing dengue vector breeding sites than chemicals alone [6] and better knowledge of dengue was one of the predictors of better practices of dengue prevention. [7]

Thus the aim of this study were to determine the knowledge, attitude and practice status towards dengue prevention, so that a plan to increase the awareness, strengthening the knowledge and improve the attitude and practice on dengue prevention in the community of Taman Salak Baiduri, Sepang, Selangor could be formulated.

MATERIALS AND METHODS

A cross-sectional study was carried out within two weeks in Taman Salak Baiduri, Sepang, Selangor. The population sample consisted of a total of 80 houses with 250 residents. Universal sampling was conducted to choose the respondents' house, followed by simple random sampling to select the respondent within the household. All residents aged 18 years and above, not mentally retarded, deaf and mute, from each house were selected. Respondents who refused to participate in the survey or were not there during the survey will be considered as non-respondents.

Data was collected through face to face interview using a set of validated questionnaire consisting of 16 questions for Knowledge (α=0.7), Attitude (α=0.82) and Practice (α=0.79). [7] Every correct answer will be awarded 1 point. A total score was then computed according to each domain, namely knowledge, attitude and practice, by summing up individual scores, before beingcategorized through median scoring.

Knowledge and practice domains were classified as good (total score within 7-10) and poor (total score within 0-6). Attitude domain was classified as good (total score within 3-6) and poor (total score within 0-2). Chi-square test was used to test the association between knowledge, attitude and practice. The level of significance was set at $p< 0.05$ and confidence level at 95%.

RESULT

A total of 148 respondents participated in this study giving a response rate of 92%.

The respondents were divided equally between male and female. Majority of the respondents were aged between 30-39 years old (54.1%), married (87.8%), have secondary education (67.6%), work in government sector (38.5%) and earned monthly income of RM 1000-4999. (67.6%).

Table 1: Socio-demographic characteristic of respondents

Socio-demography	n	%
Gender		
Male	74	50.0
Female	74	50.0
Age		
18 - 19	2	1.4
20 - 29	24	16.2
30 - 39	80	54.1
40 - 49	26	17.5
50 - 59	12	8.1
60 and above	4	2.7
Education		
Primary	8	5.4
Secondary	100	67.6
Tertiary	40	27.0
Marital Status		
Single	17	11.5
Married	130	87.8
Divorcee /Widow	1	0.7
Occupation		
Government Sector	57	38.5
Private Sector	39	26.4
Self-employed	15	10.1
Unemployed	22	14.9
Student	10	6.7
Pensioner	5	3.4
Monthly income		
<RM 1000	12	8.1
RM 1000-4999	100	67.6
>RM 5000	36	24.3
TOTAL	148	100

Knowledge

More than 50% of the respondents have poor knowledge on vector, transmission of the disease and clinical manifestations (Table 2).

Table 2: Knowledge status among respondents

Knowledge status	n	%
Good	71	48.0
Poor	77	52.0
Total	148	100

Table 3 showed majority of the respondents agreed that stagnant water is the main cause of mosquito breeding (97.9%), dengue fever affects all age groups (97.2%), dengue fever is caused by the *Aedes aegypti* (95.3%) and the life cycle of the *Aedes* mosquito is one week (70.9%),

Respondents also agreed that mosquitoes transmitting dengue infection bites only early in the morning (77.0%) and dengue's transmission cycle is "Man-Mosquito-Man" (66.2%). However 42.6% agreed that dengue can be transmitted by direct blood contact.

As for clinical symptoms 95.9% of the respondents knew the symptoms of

dengue are chills and high fever, intense headache, muscle and joint pains.

Table 3: Items on knowledge of Dengue (N=148)

Statements	Agree n (%)	Disagree n (%)
Stagnant water is the main source for mosquito breeding.	145 (97.9)	3 (2.1)
Dengue fever affects all age groups.	144 (97.2)	4 (2.8)
Dengue fever is caused by the mosquito; *Aedesaegypti*.	141 (95.3)	7 (4.7)
Life cycle of the *Aedes*mosquito is one week.	105 (70.9)	43 (29.1)
Dengue epidemics start during hot weather.	51 (34.6)	97 (65.4)
Mosquitoes transmitting dengue infection bites only early in the morning.	114 (77.0)	34 (23.0)
Transmission cycle is "Man-Mosquito-Man".	98 (66.2)	50 (33.8)
Dengue can be transmitted by direct blood contact.	63 (42.6)	84 (57.4)
Chills and high fever, intense headache, muscle and joint pains are the most common presentation of dengue fever.	142 (95.9)	6 (4.1)
Dengue is a flu-like illness.	61 (41.2)	87 (58.8)

Attitude

Table 4 shows that the majority of the respondents have good attitude towards dengue prevention. With regards to attitude towards dengue prevention as depicted in Table 5, most of the respondents disagreed that the elimination of larvae was a complete waste of time (91.2%). They also disagreed that the prevention of dengue is the responsibility of the public health staff and local government (83.1%) and fogging by the municipal council is essential enough for dengue prevention (68.2%)

Table 4: Attitude status among respondents

Attitude status	n	%
Good	134	90.5
Poor	14	9.5
Total	148	100

Table 5: Attitude towards Dengue prevention (N=148)

Statements	Agree n (%)	Disagree n (%)
Elimination of larvae breeding is a complete waste of time.	13 (8.8)	135 (91.2)
It is the responsibility of the public health staff and local government in the prevention of dengue	25 (16.9)	123 (83.1)
It is not necessary to seek immediate treatment for dengue fever as there is no cure for it.	31 (21.0)	117 (79.0)
Fogging by the municipal council is essential enough for prevention of dengue	47 (31.8)	101 (68.2)
The public has the most important role in dengue control.	145 (98.0)	3 (2.0)
I am afraid of dengue	144 (97.3)	4 (2.7)

Practice

As shown in Table 6, the prevalence of good practice among respondents in Taman Salak Baiduri was 54.0%.

Table 6: Practice status among respondents

Practice status	n	%
Good	80	54.0
Poor	68	46.0
Total	148	100

Table 7: Practices towards Dengue prevention (N=148)

Statements	Agree n (%)	Disagree n (%)
Cover water jars.	141 (95.3)	7 (4.7)
Drain water from flower pot.	135 (91.2)	13 (8.8)
Use mosquito repellent.	131 (88.5)	17 (11.5)
Examine any discarded material that holds water around your house.	127 (85.8)	21(14.2)
Examine mosquito larvae both indoor and outdoor pots.	125 (84.4)	23 (15.6)
Participate in community 'clean our surroundings' activities.	119 (80.4)	29 (19.6)
Inspect refrigerator tray.	106 (71.6)	42 (28.4)
Participate in community fogging.	80 (54.0)	68 (46.0)
Use mosquito net or mosquito coil.	77 (52.0)	71 (48.0)
Using temephos (*eg*, Abate®) for elimination of mosquito larvae.	69 (46.6)	79 (53.4)

Majority of them cover water jars (95.3%) and drain the water from their flower pots (91.2%) as method of prevention, besides being active with community participation (80.4%) as shown in table 7.

A higher percentage of respondents used mosquito repellent, compared to mosquito net or coil (88.5% and 52.0%

respectively). However, less than 50% of respondents used abate for elimination of mosquito larvae.

Table 8: Association between Knowledge and Attitude Status

Knowledge Status	Attitude Status		Total n (%)	P-value
	Good n (%)	Poor n (%)		
Good	66(93.0)	5 (7.0)	71 (100)	0.02
Poor	68 (88.3)	9 (11.7)	77 (100)	

Ninety three percent of respondents with good knowledge status also have good attitude towards dengue prevention and statistically it was significant ($p < 0.05$) (Table 8).

Table 9: Association between Attitude Status and Practice

Attitude Status	Practice Status		Total n (%)	P-value
	Good n (%)	Poor n (%)		
Good	74 (55.2)	60 (44.8)	134 (100)	0.38
Poor	6 (42.9)	8(57.1)	14 (100)	

Fifty five percent of the respondents with good attitude also have good practice status towards dengue prevention. However, statistically it was not significant ($p > 0.05$)(Table 9).

DISCUSSION

More than half of the respondents in Jamaica (54%) [8] and Philippines (61.45%) [9] have good knowledge on causes, signs and symptoms, mode of transmission, and preventive measures about dengue. However, more than half of our respondents (52%) have poor knowledge on dengue vector, transmission of the disease and clinical manifestations but they have positive attitude and good practice towards prevention of dengue. These findings were comparable to a study done in Nepal [10] which states despite low knowledge levels, 83% of the people had good attitude and 37% reported good practice.A reason for this may be that there have been no regular awareness programmes routinely done on this infection as was revealed in a study in Nepal. [11] However, in Jamaica, [8] radio and TV were the predominant sources of information about dengue fever, similar as in Jeddah [12] where more than 70% of the participants cited television as a source of their information and this may reflect the importance targeting future educational campaigns in these key sites in order to change behaviors earlier in life.

The majority (98%) of our respondents correctly answered that stagnant water is the main source of breeding site for *Aedes* mosquitoes, similar finding as a study done in Nepal. [10] This might be due to many breeding places such as discarded tyres and stagnant water are common in the area of residence where mosquitoes have been a nuisance for ages.

Higher percentages (95.3% and 77%) correctly identified dengue fever is caused by the *Aedes aegypti* and the mosquito bites early in the morning as a transmission route, respectively. These findings were quite similar as studies reported in Jeddah (91.3%) [12] and Hong Kong (95.8%). [13]

However, about 57.4% of respondents agreed that dengue can be transmitted by direct blood contact, almost similar as reported in Jamaica, where 45% of the participants thought the disease could be contracted through blood transfusion or needle stick injury. [8] Therefore, respondents needed to be educated appropriately in order to ensure that they have correct information. Bridging this gap in knowledge is important in planning and designing programs and activities to educate respondents on preventive measures towards dengue.

Studies in Colombia [14] and Cambodia [15] found that the majority of dengue infections were first treated at home. Whereas, study in Venezuela found that most individuals intended to look for medical help as their first action if they suspected a dengue infection while treating at home would be their first choice in case of fever only. [16] Contrariwise, when a dengue infection was suspected, the respondents would seek immediate medical attention as was reported in Thailand [17] and Malaysia. [18] Therefore, good knowledge of signs and symptoms of dengue fever is crucial to recognizing the disease and to

seeking appropriate health care as it could reduce the case fatality rate from 20% to 1% or less. [19] Our finding showed that majority (95.8%) of the residents of Taman Salak Baiduri correctly identified the symptoms of dengue and this was higher than a local study [20] where 78.2% of the respondents were able to identify at least one clinical sign of dengue.

Regarding attitude towards dengue control, the majority of respondents (90.5%) in our study were classified as having good attitude. This showed that the majority of people had perceived a risk of dengue and seemed supportive towards dengue control. Based on the Health Belief Model [21,22] people's health beliefs depend upon their perception of susceptibility to disease and their exposures to the related campaign. Therefore, although our respondents have lower percentage in knowledge but they have higher percentage of positive attitude towards dengue prevention. In fact, almost all respondents knew that dengue is a serious disease and all of them felt that treatment should be sought immediately, showed that their knowledge have influenced the attitude towards dengue control. This was also supported by studies in Nepal [10] and Malaysia, [23] where there is a statistically significant association between knowledge and attitude towards dengue fever.

The majority (97.7%) of respondents perceived the importance of public working together with municipal council to control dengue, similar as reported by Sami, which states 95.3% of respondent believed that the public has a primary role towards curbing the dengue epidemic. [24] That reflected the reason majority (80.4%) of our respondents participated in community cleanliness activity.

However, compared to community prevention, majority of respondents practice dengue prevention from home such as covering of water jars (95.3%) and draining the water from their flower pots (91.2%). Van Benthem [6] reported 70% of those who covered their water container were knowledgeable about dengue, and participants with a lower dengue knowledge score and high perceived barriers to prevent dengue were less likely to practice dengue prevention. [25] However, there was no significant relationship between attitude and practice in our study ($p>0.05$) and Hairi, [26] compared to knowledge and attitude. The traditional and culture in a community might influence their practice towards prevention dengue. A good example would be the practice of storing water. In Laos, despite of the knowledge that stagnant water is a breeding site for *Aedes* and availability of piped water has become more popular, most (85.2%) people store stagnant water. [27] This discrepancy between knowledge and practice implies that good knowledge does not necessarily lead to good practice.

CONCLUSION

Although the knowledge on dengue was quite low, the attitude and practice towards dengue prevention among respondents were good.

The differences among various studies in relation to the knowledge, attitudes and practices of surveyed communities could be attributed to several factors, including the socio-economic status, educational levels and cultural. Therefore, dengue prevention campaigns should focus on the risk of contracting dengue and education to increase knowledge about dengue, as well as prevention.

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