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EC NURSING AND HEALTHCARE
Research Article

Knowledge, Attitude and Practice of Cambodian Parents toward Dengue Fever Prevention in Cambodia

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Received: March 28, 2021; **Published:** May 31, 2021

Abstract

Background: Based on the scientist around the planet present that dengue is the highest growing disease. Dengue turned into growth for 30-fold in international occurrence during the last 50 years as a minimum 500,000 dengue cases and 22,000 deaths, in generally among kid each year.

Objective: To recognize the level of knowledge, attitude and practice of Cambodian parents toward dengue fever prevention in Cambodia.

Methodology: A cross-sectional study was conducted from 2019 to 2020 among Cambodian parents. 181 parents were a total of participated and self-administered survey is utilized in data collection. The collected data was coded, numbered, entered and analyzed using SPSS version 25. Finally, the result of the study was presented by using the table and chart.

Result: The result revealed that 79.6% of respondent were female. 64.6% were > 40 year old, 59.1% completed at primary school and 74% of respondents had family members between 2 - 5. Out of 78.5% of respondents had adequate knowledge on dengue fever and 98.3% of respondents had adequate attitude of dengue fever and 72.4% of the respondents had adequate preventive practices. The predominant information source of dengue fever was Television. The significant correlation was found between knowledge and attitude, attitude and preventive practice. In contrast, between knowledge and preventive practice was not significant relationship.

Conclusion: To sum up, this study showed that the level of knowledge, attitude and practice of dengue fever around participated were good. But there were also respondents still lacking knowledge and prevention practices about dengue fever. The study highlights the need for an education, information, training and verbal exchange substances perhaps offer in place like college and medical institution mainly in network with family to make an extra on hand for the citizens to obtain.

Keywords: *Dengue; Aedes; Knowledge; Attitude; Parents*

Introduction

Dengue is a mosquito-borne infection of the quick spreading disease around the planet [1].

The main determinant of dengue virus is referring to a group of Flaviviridae and genus Flavivirus.

Dengue has four types such as dengue virus type 1, type 2, type 3 and dengue virus type 4 [2].

Dengue is a disease that focus on clinical sign and symptom and can divide between moderate to serious by abnormal temperature, dengue fever, dengue hemorrhagic fever, dengue shock syndrome and extended dengue syndrome. Dengue fever (DF) is a severe disease but normally, it is not often seen death. DF is also like the influenza that causing extreme discomfort of the babies, young children and adults as well. The people who infected by dengue usually get high temperature around 40°C with many signs such as severe headache, muscle pain, joint pain, bone pain, eyes pain, rash, nausea and vomiting.

Generally, after mosquito bite for 4 - 10 days, the infection will be arise in second day to seventh day. However, dengue hemorrhagic fever and dengue shock syndrome are extra excessive and possibly lethal forms with signs and symptoms like plasma leaking, breathing distress, excessive belly pain, fluid accumulation, excessive bleeding or organ injury [3]. According to World Health Organization estimated that there were 390 million cases of dengue each year and 2,5 billion people at risk from the disease [1]. Furthermore, dengue was increased for 30-fold in global incidence over the past 50 years [4] at least 500,000 dengue cases and 22,000 deaths, mostly among children every year [5].

Recently, dengue is spreading in over a hundred counties such as in the America, Africa, South East Asia, the eastern Mediterranean and the western pacific. The most seriously affected of dengue were in America, South East Asia and Western Mediterranean. Recently, there was increasingly dengue fever instances detected predominantly in city and countryside areas [6].

As a result, is was a main international concern in public health and it is also a causing of children and adults in morbidity and mortality in Asian. As a report in Vietnam at the beginning in 2019 by Department of Medicine revealed that there were 43 deaths among 241,863 dengue cases [7,8].

According to a reported in August, dengue raised one hundred thousandth cases and if we compare the spreading of dengue in 2018, the cases are developed more 3.1-fold with 78,649 patients and eleven deaths. In Philippines Dengue cases had seen dramatic increases in 2019. Based on Department of Health on 16 Nov 2019 was reported that there were 402,694 dengue cases and 92 percent of dengue was increased while 209,335 cases in 2018. Furthermore, there were 1502 patients died be dengue and there were also 1,075 deaths last year [9].

Recently, in Thailand revealed that there were 119,046 cases among 77 provinces on November 25. Moreover, there were 126 deaths was said. In Thailand, during 2018 had 88,005 patients and 115 cases had died [10].

In Cambodia, the most season that connect to dengue spreading is in rainy during May to October and it epidemic every 4 to 5 year [11,12]. In this case, Cambodia had the biggest outbreak of dengue 3 times ago, firstly is in 1998 had 16,260 dengue cases and 475 deaths [13,14], secondly is in 2007, dengue had occurred 39 851 cases and 407 deaths [14] and third epidemic is in 2012 that had reported 42,362 cases and 189 deaths [15]. In 2017, during the first six month (January to June) there were 1,580 cases and one death of dengue fever. The reported by Dr. Huy Rekol in 2018, a total of 5,284 dengue fever and 10 died in the same period in 2017. Then, the 2019 reported that there were 24 deaths among 13,000 cases of dengue fever from January to June 24.

The resulting in death was happened by the parents whose children had infected dengue already and they did not bring their children to hospital on time. Those reason revealed about parent's knowledge, attitude to prevent their children [16]. According to WHO reported in 2019, dengue infection was increased and spread in many countries in the Western Pacific region, including Cambodia as well [17]. Moreover, if we compared the outbreak of dengue infection in 2018 and 2019, it increased extra 8-fold of Cambodian who has risked dengue at the same time [18]. Therefore, it is essential to recognize the level of knowledge, attitude, and practice of Cambodian parents toward dengue fever prevention in Cambodia.

Materials and Methods

Study design

A cross-sectional, descriptive study was conducted.

Setting

This study was conducted at province in Cambodia.

Study population

Target population were parents who stayed at province in Cambodia. The study was proceeded from November 2019-November 2020.

Sample size and sampling techniques

A total of 181 parents who available during data collection was selected as the participants and convenient sampling methods was followed.

Inclusion criteria:

- The respondents who stay in their home during the data collection.
- The respondents who are willing to participate.
- The participants who have children.

Exclusion criteria:

- The participants who were not allow to survey.
- Those who did not permanently in the study.
- New or old couple married who have not got a child yet.

Data collection tools

A self-administered questionnaire used to collect data. The questionnaire was translated into Khmer language by our research team and back translation was done by an independent qualification to check the accuracy of translation. In addition, our team was done a pilot study with 33 participants to valid the questions.

Instrument

Questionnaires was conducted for 24 items and setup into 5 part. The first part consists of 5 questions regarding to demographic data, such as age, sex, marital status, education, and family member. The second part is including 20 questions on awareness of dengue fever, such as signs, symptoms, transmission of dengue fever. The third part, there are 6 questions to explore attitude on DF. The fourth part has 10 questions to identify preventive practice on dengue fever. The last part, there was 1 question which was used to identify information source of dengue.

In first part is about knowledge. For the correct answer was given 1 score and wrong answer or do not know was given 0 score.

Second part is about attitude, the participants who had positive attitude or answer strongly agree/agree was given 1 score. However, for negative attitude (Disagree/not sure) was given 0 score. In Practice part, each appropriate response (Yes) was score as 1, while (No

and do not know) were given 0 score. The total score of knowledge is 20 points, attitude is 6 points and preventive practice is 10 points. The parents who participated in this study were reflect on good knowledge, attitude and practice of dengue fever if they could reach score equal or more than 60 percent [19]. The questionnaire adapted 42 from 58 questions by Longitudinal Study in Central Nepal [20]. In addition, the alpha coefficient for the 20 items of knowledge is .718 that is relatively reliability coefficient. In contrast, the alpha coefficient of attitude with 6 items and practice with 10 items is relatively small due to the alpha was low than 0.5. A low value of alpha could be due to a low number of questions or poor inter-relatedness between items of each variables, but to keep the data property, the standard questionnaires was adopted.

Data collection procedure

The data collection allowed by Speu Koeut Village's head.

The participants were answered by themselves and could ask research team for any help as needed.

The goal of this study was explained to the participants before they were willing to answer the questions.

If the participant feels uncomfortable which questions, they have right to refuse answer without the penalty. It was taken approximately 15 - 20 minutes in this survey.

Data entry and analysis

Data statistics was coded with number in each question and analyzed by using SPSS version 25. In addition, we had done data entry and analysis by using two computers (double check) to valid data statistics. Then the data was summarized and described by using descriptive statistic. Correlations between knowledge score, attitude score and practice score were assessed by calculating Pearson's correlation coefficients.

Significance of the study

This study was importance to identify knowledge, attitude and practice of Cambodian parents toward dengue fever at Speu Koeut Village, Kampong Cham Province. On the other hand, the study was providing the reader to understand the risk factor of dengue fever. Moreover, the benefits of this study were able to be a part for contribution towards reducing mortality and morbidity of dengue according to the global strategy for dengue prevention and control 2012 - 2020.

Ethical consideration

The study was supported by the Rector of University of Health Science with letter number 1550 and permission letter was approved by Ministry of Health with letter number 251 addressed to Kompong Cham Provincial Governor for approval and facilitated to the data collection side proved by the village head approved handwriting letter before data collection has been done. All participants have obviously informed about the study and consent form before signed off to prove their agreement to involved with the study. They also have right to refuse answering any uncomfortable questions without penalty.

Result

General information of participants

Sex and age of participations

A total 181 respondents participated in this study. 79.6% of respondents were female and 20.4% were male. Majority of participants were ≥ 40 year old (64.6%) and 14.9% respondents belonged to 35 - 39 years old group, 9.9% of respondents belonged to 30 - 34 years old group, 6.6% of respondents belonged to 25 - 29 years old group and 3.9% of respondents belonged to 20 - 24 years old group.

Marital status, education status and family members

Most, 91.7% of respondent got married, 2.2% of the participants got divorced and 6.1% were widow/widower. About 59.1% completed primary school, 29.8% completed with secondary school, 7.7% of respondent completed intermediate and 3.3% respondents graduated.

In this research, 74% of respondents had family member 2 - 5, 24.3% of respondents had family members between 6 - 10 and 1.7% of the respondents were having family member >10.

Summarized levels of knowledge, attitude and preventive practices of the respondents

Out of a total 181 respondents, 78.5% were adequate knowledge of dengue fever, 98.3% have good attitude of dengue fever and 72.4% of the respondents were good practice of dengue fever. In contrast, there were 21.5% of participant had inadequate knowledge of dengue fever, 1.7% were lack of attitude on dengue fever and 27.6% were not good practice of dengue fever.

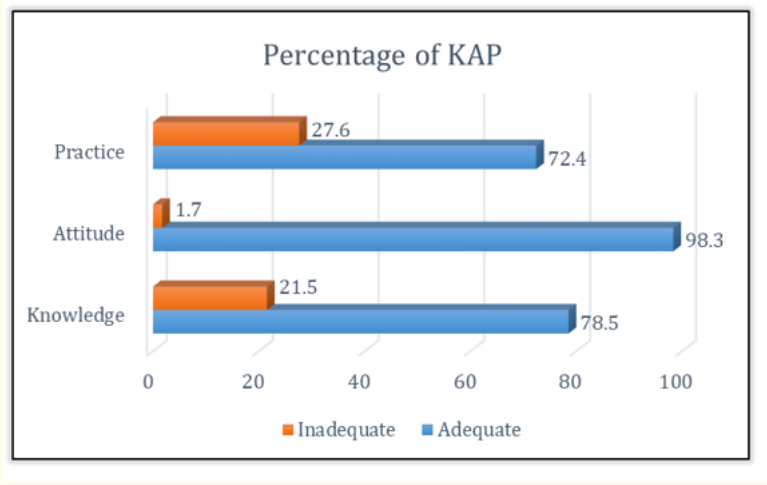

Figure 1: *Summarized percentage levels of knowledge, attitude, and preventive practices of the respondents (N = 181). "KAP": Knowledge, Attitude and Practice.*

Knowledge of transmission

The finding revealed that 35.4% of the respondents awarded not all of mosquitoes can transmitted dengue virus and 84% recognized *Aedes* mosquitoes transmitted dengue virus.

Furthermore, over a half of respondents (66.3%) were aware of the fact that flies do not transmit DENV. There were 99.4% of respondents knew that mosquitoes bleed in standing water and 69.6% of respondents were able to correctly identify the mosquitoes likely bite during daytime.

Most of participants knew that screening window, using coil and mosquito repellent (Spray and Cream) can prevent mosquito (93.4% and 90.1% respectively). Majority, 99.4% of participants felt it was necessary to remove standing water, disposing water holing containers such as tires, parts of automobile, plastic bottle, crack pots can reduced and prevent mosquitoes.

Knowledge of signs and symptoms

Among the participants, there were 35.4% of them that qualified to identifies truly about typical symptoms of dengue fever such as stomach pain, diarrhea (42.5%), hypotension (51.4%) and joint pain (51.9%). Moreover, most of participants were aware that fever and skin rash (88.4%), fatigue and headache are symptoms of dengue fever (68.5% and 65.2% respectively). Furthermore, 78.5% of respondent had adequate knowledge.

Variables	Total n (%)
Knowledge of transmission	
Do all types of mosquitoes transmit Dengue Fever?	
Yes	117 (64.6%)
No	64 (35.4%)
Does the *Aedes* mosquito transmit Dengue Fever?	
Yes	152 (84.0%)
No	29 (16.0%)
Do flies transmit dengue fever?	
Yes	61 (33.7%)
No	120 (66.3%)
Mosquitoes breed in standing water.	
Yes	180 (99.4%)
No	1 (0.6%)
The dengue mosquitoes likely feed/bite during day time.	
Yes	126 (69.6%)
No	55 (30.4%)
Mosquitoes coil reduce mosquitoes	
Yes	173 (95.6%)
No	8 (4.4%)
Window screen and bed nets reduce mosquito	
Yes	169 (93.4%)
No	12 (6.6%)
Mosquito repellents prevent mosquitoes (spray and cream)	
Yes	163 (90.1%)
No	18 (9.9%)
Removal of stagnant water can prevent mosquitoes breeding	
Yes	180 (99.4%)
No	1 (0.6%)
Disposing water holing containers such as tires, parts of automobile, plastic bottle, crack pots reduce dengue.	
Yes	180 (99.4%)
No	1 (0.6%)

Table 1: *Knowledge of transmission of dengue fever.*
The bold answer is a true.

Variables	Total n (%)
Knowledge of Signs and Symptoms	
Is fever a symptom of dengue?	
Yes	160 (88.4%)
No	21 (11.6%)
Is joint pain a symptom of dengue fever?	
Yes	94 (51.9%)
No	87 (48.1%)
Is headache a symptom of dengue fever?	
Yes	118 (65.2%)
No	63 (34.8%)
Are skin rashes symptoms of dengue fever?	
Yes	160 (88.4%)
No	21 (11.6%)
Are nausea/vomiting symptoms of dengue fever?	
Yes	107 (59.1%)
No	74 (40.9%)
Is fatigue a symptom of dengue fever?	
Yes	124 (68.5%)
No	57 (31.5%)
Is stomach pain a symptom of dengue fever?	
Yes	64 (35.4%)
No	117 (64.6%)
Is diarrhea a symptom of dengue fever?	
Yes	77 (42.5%)
No	104 (57.5%)
Is bleeding a symptom of dengue fever?	
Yes	107 (59.1%)
No	74 (40.9%)
Is hypotension a sign of dengue fever?	
Yes	93 (51.4%)
No	88 (48.6%)

Table 2: *Knowledge of sign and symptoms of dengue fever.*
The bold answer is a true.

Attitude of dengue fever

Participants' attitude regarding to dengue fever. There were (98.9%) of the participants answer agree and strongly agree about thoughtful disease of dengue fever and had worthwhile attitude regarding consultative with doctor for dengue information. Moreover, 97.2% of respondents had worthwhile attitude that they could contribute individually to preventing and controlling dengue. Thus, 98.3% of respondents had good attitude of dengue fever.

Variables	Total n (%)
Attitude of dengue fever	
Is Dengue fever a serious illness?	
Strongly agree/ Agree	179 (98.9%)
Disagree/Not sure	2 (1.1%)
Are you at risk of getting dengue fever?	
Strongly agree/ Agree	155 (85.6%)
Disagree/Not sure	26 (14.4%)
Should you consult a doctor for dengue fever?	
Strongly agree/ Agree	179 (98.9%)
Disagree/Not sure	2 (1.1%)
Is dengue preventable?	
Strongly agree/ Agree	160 (88.4%)
Disagree/Not sure	21 (11.6%)
Is it government's responsibility to prevent dengue?	
Strongly agree/ Agree	162 (89.5%)
Disagree/Not sure	19 (10.5%)
Can we individually contribute to prevent dengue?	
Strongly agree/ Agree	176 (97.2%)
Disagree/Not sure	5 (2.8%)

Table 3: *Attitude of dengue fever.*

Preventive practice regarding dengue fever

The preventive practice of dengue fever had separated procedure adopted by respondents to prevent themselves from DF.

There were 86% of respondents had used mosquito coil or repellent electrical supply in their house. Furthermore, 97.2% of the participants dispose water holding container properly and 96.1% of participant cleaned garbage/trash at home. In consume, 72.4% of respondents had good prevention practice of dengue fever.

Based on the survey, most of parents said that they got the information related to dengue fever through the television (61.33%). Participants also obtained information from Health Professional (33.15%), Radio (25.7%) and Neighbors (14.9%).

Variables	Total n (%)
Prevention practice of dengue fever	
Use mosquito repellents equipment (electric, coil, spray, cream etc.)	
Yes	152 (84.0%)
No	29 (16.0%)
Use bed nets	
Yes	135 (74.6%)
No	46 (25.4%)

Use window screens	
Yes	6 (3.3%)
No	175 (96.7%)
Use fan to drive away mosquitoes	
Yes	179 (98.7%)
No	2 (1.3%)
Use smoke to drive away mosquitoes	
Yes	51 (28.2%)
No	130 (71.8%)
Covering body with clothes	
Yes	152 (84.0%)
No	29 (16.0%)
Cleaning of garbage/trash	
Yes	174 (96.1%)
No	7 (3.9%)
Disposing water holing containers (cup, boxes, bottles, etc)	
Yes	176 (97.2%)
No	5 (2.8%)
Use Abate or mosquitoes eating fish to reduce mosquitoes.	
Yes	14 (7.7%)
No	167 (92.3%)
Cover water containers at home	
Yes	59 (32.6%)
No	122 (67.4%)

Table 4: *Prevention practice regarding dengue fever.*

Source's information of dengue fever	Percent
Radio	25.70
Television	61.33
Health Professional	33.15
Mike	15.45
Neighbors	14.90
Teacher	5.0

Table 5: *Source of information regarding dengue.*

The Pearson correlation coefficient of KAP of dengue fever were evaluated and summarized in table 6.

Variable	Knowledge Sig.(2-tailed)	Attitude Sig.(2-tailed)	Practice Sig.(2-tailed)
Knowledge	1	.243**(.001)	.114 (.126)
Attitude	.243** (.001)	1	.181* (.015)
Practice	.114 (.126)	.181* (.015)	1

Table 6: *Pearson correlation of Knowledge, attitude and preventive practice.*

***: Correlation is significant at the 0.01 level (2-tailed).*

**: Correlation is significant at the 0.05 level (2-tailed).*

Based on the result revealed that between knowledge, attitude and preventive practice of dengue fever was no strong relationship. However, the Pearson correlation of knowledge and attitude was R = 0.243 (P = 0.001) with the result of statistic correlation was significant at the 0.01 level (2-tailed). Attitude and Practice was R = 0.181 (P = 0.015) with the statistic correlation is significant at the 0.05 level (2tailed).

In contrast, the statistics correlation is not significant of the Pearson correlation between knowledge and preventive practice that R was 0.114 with P= 0.126.

Discussion

The result of this study had demonstrated that 78.5% of respondents were adequate knowledge of the concept of dengue. If we compare with one study conducted in Thailand with 406 participants revealed 50.5% of participants have the level of knowledge regarding dengue fever is highly [21]. In contrary, one study conducted in Vietnam found that 38% of participants had good knowledge of dengue fever [22]. Moreover, another previous study conducted in Laos revealed that most of participants lack depth of knowledge on dengue [23].

It is very important to identify that the participants were informed of the cause, sign, symptoms and preventive practice of dengue fever but the participants did not inform correctly about dengue transmission. For example, many respondents were known that *Aedes* mosquito transmit dengue and we can notify that people were infected dengue by having some symptoms such as fever, rash, headache and nausea or vomiting. Moreover, 64.6% of respondents misunderstood that all types of mosquito transmit dengue fever and 66.3% aware that flies were not transmitted dengue. Surprisingly, 30.4% of the participants understood that *Aedes* mosquitoes' bites during daytime. A previous study in Philippines revealed that 30.18% of their participants also did not know about the mosquitoes' bite time [24].

Based on WHO reported that *Aedes* mosquitoes bite at the daytime [7]. In addition, less of participants were unaware that mosquito repellent, bet net and window screen reduce mosquito. Interestingly, 88.4% of participants correctly identified that fever is main symptom of dengue fever that it is in keeping with the result obtained in Cambodia, Laos and Malaysia reported by 92.1%, 80.9% and 88.8% of respondents respectively [1,23,25]. Adequate knowledge about transmission, signs and symptoms of dengue fever is importance to notify the disease in hiring early and use medical treatment to recovery.

To fill this lacking, knowledge is essential to build the activities and designs planning to give education in community for preventing dengue. The main sources of information related to dengue in this study came from television (61.33%). It involves the public providing education in community by the government on the general citizenry. The television was a main function for making more knowledge in the public. Another studied conducted in Vietnam and Laos also found that their information source was television (82.3% for male, 87.9% for female and 56.9% respectively) [22,23]. In opposite way, less percentage of participants got information about DF through

health care professional. The result showed that health care professionals in community is not enough to provide educational program to each area people.

This may involve the essential of targeting further knowledge program to change behavior of people and gain the possible knowledge, attitude, and practice.

Another importance of this study revealed that 98.3% of participants had adequate attitude regarding dengue fever. There were 98.9% of respondents believed that dengue was a serious illness and need for medical help. This result is similar with a study in Vietnam in 2018 and 2017 revealed that participants believing dengue fever is a serious illness (93% and 91.1% respectively) [22,26]. Even though, the result of their attitude was high, 14.4% out of the overall respondents was not suppose that they have been susceptible to get dengue infection. It is consistent with a previous study in Cambodia in 2018 that they found few respondents were lacking this point [25].

This finding also indicates that 72.4% of respondents had good preventive practice of dengue fever. Another importance of this study was high utilization of dengue preventive measure such as use fan, bed nets, mosquito repellents (electric, coil, spray, cream etc.) and other control measure.

In addition, there was a small percentage of the participants used screen windows and Abate or mosquito eating fish, cover the water storage to decrease mosquito spreading and also prevent a dengue case. It is consistent with previous studied conducted in Vietnam and one study conducted in Cambodia revealed that few of participants put small fish in the water jar as way to reduce mosquito (3.1% and 22.2% respectively) [25,26]. Our study was found that there was a significant positive correlation between knowledge and attitude of dengue which is consistence with a study in Thailand 2015 [21]. A research was done in Indonesia occurred that there was a significant positive relationship between knowledge and attitude. Moreover, the aggregate of higher get entry to statistics approximately dengue fever and better schooling ranges would possibly guarantee a higher knowledge and comprehension of records on dengue fever while accessed, therefore, good knowledge regarding dengue fever might be achieved [27]. This study also found that there was significant positive relationship between attitude and preventive practice of dengue fever, which is consistent one study conducted in Indonesia, indicated that the translation of attitude into practice was good. Therefore, suitable prevention program ought to be designed to growth not most effective to knowledge of human, but additionally to enhance their attitude concerning of dengue fever. In contrary, the study revealed that knowledge and preventive practice was not significant relationship. The result of this study found that it was consistent with a study conducted in Philippines, indicate that it will not inevitably manage to better practice despite they have adequate knowledge. So, only knowledge cannot predict to good practice [24].

Study Limitation

The simple size was small and will not constitute the entire population. The exclusion criteria were new or old husband and wife who have not had a child yet. It is possible that parents were not include in this will have different knowledge, attitude and practice about dengue fever to study participants. So, the resolution gave the positive benefit and awareness that provide from government official in preparing to create the primary program and practice related to dengue prevention due to solve the happening issue ever had on dengue fever.

Conclusion

To sum up, this study showed that the level of knowledge, attitude and practice of dengue fever around participated parents are good. But there were many respondents still lacking knowledge and prevention practices about dengue fever. On the other hand, there were small positive correlation between KAP dengue fever in this study. In contrast, between knowledge and preventive practice was not significant relationship.

Recommendation

According to the result, the government agencies and non-government organization would approve the agenda of highly education to improve the knowledge and preventive practice on dengue fever. Information, training and verbal exchange substances perhaps offer in place like college and medical institution mainly in network with family to make an extra on hand for the citizens to obtain. Reorientation education of network medical examiners have to be performed to enhance their technical abilities and capability, and capacity to oversee the prevention and manipulate activity. Moreover, to complete the gap of knowledge and practice of mosquitoes eradicate. The ministry of health should add more broadcast through the media and directly to community of dengue fever. Village fitness volunteer have to exhibit to nearby villagers the six practice of mosquitoes get rid of are maintain water covered storage, change water in discover storage every week, positioned abate or many small fish in uncover containers, keep cleaning environment around the home, follow the above step regularly and frequency, scrub containers each week before using water to reduce mosquitoes and prevent dengue disease.

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