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Knowledge, Attitude and Practice of Dengue Fever Prevention Among the Villagers of Moo 1 Baan Klongsai, Nhongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand

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Abstract

This research aims to identify the relationship between knowledge, attitude and practice of Dengue Fever (DF) prevention among the villagers of Moo 1 Baan Klongsai, Nongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand. One hundred and ninety eight respondents were purposely selected from 406 villagers with the mean age of 49 years. Three questionnaires were used for data collection and descriptive statistics, %, $\bar{x}$, S.D. and r were employed for data analysis. The results showed that 50.5% of respondents had a high level of knowledge regarding DF, 55.6% understood the cause of DF, 47.5% could relate the life cycle of the AE mosquito and 68.2% to the transmission risk of DF. This study also revealed that the knowledge of DF prevention of the respondents was at a moderate level, though 82.8% had a good level of attitude about DF. Both knowledge and attitude of the respondents were positively related and statistical significant to practice for DF prevention with the level of 0.05 ($r = 0.283$, $p = <0.001$, $r = 0.160$, $p = 0.025$, respectively). The findings indicated that if people are supplied with precise knowledge, they may have good practice in preventing the DF.

Keywords: Dengue fever, public health, knowledge and prevention

Introduction

Dengue Fever (DF) is a viral infection carried by Aedes aegypti and constitutes a national health problem. It is an emerging disease, episodic in nature and occurring yearly. The disease was first reported in Thailand in 1949 and in 1958 there was a large outbreak in Bangkok with 2,706 cases and resulting in 296 deaths. Since then DF has spread to every province of Thailand. The spread is attributed to population congestion and improvements in the national transportation system which has allowed the vector to migrate. The epidemiology report from the Infection Control Center, Ministry of Public Health revealed that the number of patients with DF, Dengue Shock Syndrome (DSS), and Dengue Haemorrhagic Fever (DHF) were 2.4 times higher than five years ago, and epidemic levels occurred one month earlier than in previous years. The number of patients had clearly increased in the middle of March rather than in the middle of April as expected. A morbidity rate of 239.51 per 100,000 population was the highest rate in the past 10 years. There were 136 deaths for a case fatality rate of 0.09%. The dengue fever outbreak from October to December 2012 had an effect on the outbreaks in early year of 2013. Other supportive evidence of a country-wide outbreak in 2013 was the dominance of dengue serotype 3 for which there is less protecstion against this serotype among Thais (Bureau of Epidemiology, Infectious Control Department, Ministry of Public Health, 2013).

Five hundred forty-three cases of DHF were reported in Saraburi province with 88.70% morbidity rate per 100,000 people and a mortality rate of 0.36% with two deaths occurred. Compared to the DHF morbidity rate in Thailand, Saraburi province was ranked 58th among the 77 provinces and ranked 2nd within the Health Sevies Network Area 4. Further, Muak Lek district has the most DF incidents followed by other district in Saraburi province such as Pra Phuthabaht, Chalermprakiet, Banmhoa, Muang, Nhongdon, Nhongsang, Donphut, Wangmuang, Saohai, Kangkoy, and Wiharndang (Bureau of Epidemiology, Infectious Control

Department, Ministry of Public Health, 2013). No previous research has been done in this geographic area to ascertain knowledge, attitude and practice (KAP) baseline from the villagers. The study results will be used 1) to plan for further DF interventions with the long term goal of providing a plan to control and shorten the DF epidemic peak time, 2) to develop guidelines to support the villager's KAP and to prevent DF occurrences in the future, 3) to guide public health staffs in develop and control DF eruption in their area and 4) to properly and effectively educate the people some DF KAP of DF prevention now and in future.

Objectives

The objectives of this research were to study:

Knowledge, attitude, and practice of DF prevention among the villagers in Moo 1 Baan Klongsai, Nhongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand.

The relationship between knowledge, attitude, and practice of DF prevention among the villagers in Moo 1 Baan Klongsai, Nhongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand.

Operational Definition

Aedes aegypti - Common house mosquito is a mosquito in *Aedes aegypti specy* which is a carrier of Dengue Fever. The characteristic of it has white and black strips on the body.

The larva of the common house mosquito – is the larva and pupae of an *Aedes aegypti* common house mosquito that lives inside and outside a house.

DF (Dengue Fever) is a mosquito-borne tropical disease caused by the dengue virus.

The Knowledge of Dengue Fever is the community's capability to explain, memorize, and understand the cause of DF; common house mosquito life cycle; the transmission mode, prevention and control of DF, which is measured by the questionnaire that was conducted by researchers.

The attitude of DF is the concept and feeling of the villagers towards DF.

Practice of Dengue Fever prevention is activities and behaviors that intercept or resist the sickness from the disease among themselves and family members.

Tested Hypothesis

Knowledge, attitude and practice of DF prevention among the villagers in Moo 1 Baan Klongsai, Nhongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand are at a good level.

The relationship between the knowledge, attitude, and practice of DF prevention among the villagers in Moo 1 Baan Klongsai, Nhongyangsuea Subdistrict, Muaklek District, Saraburi Province, Thailand is positive.

Table 1. Variables of this research

Independent Variables		**Dependent Variable**
1. Knowledge of DF 2. Attitude of DF	→	Practice of DF prevention

Population and Sample

The village population was made up of 406 individuals who were 15 years old and above. Yamane's formula was used to determine the sample size with a margin of error of less thasn 0.05 (1973) and it gave 198 respondents (83 male and 115 female) which was based on a purposive sampling method.

Instrument

Self-developed questionnaire testing of knowledge, attitude, and practice of DF prevention was used for the survey. The questionnaire was divided into 4 parts:

Part 1: General demographic information such as gender, age, marital status, education level, occupation and family income.

Part 2: The questionnaire is a 10 item test about knowledge of DF with 3 choices. Each correct answer carries one (1) point and incorrect answer carries zero (0) point. Further, the DF knowledge level is divided into three levels: a) high level – the average score = 0.67-1.00, b) moderate level – the average score = 0.34-0.66 and c) low level – the average score = 0.00-0.33

Part 3: Attitudes of DF are divided into 3 Likert scale responses, the attitude of DF level is divided into three levels: a) good attitude- the average score = 2.36-3.00, b) fair attitude- the average score = 1.68-2.35, and c) bad attitude- the average score = 1.00-1.67

Part 4: Practice of DF prevention is divided into 3 Likert scale responses, the DF prevention practice level is divided into three levels: a) good level- the average score = 2.36-3.00, b) Moderate level- the average score = 1.68-2.35, and c) Not good level- the average score = 1.00-1.67

Validity of Instrument

Three questionnaires were created by the researchers and the content validity was ensured by 3 experts and tested on 30 the villagers at Moo 14 Panghauchang village, Nhongyangsuea sub-district, Muaklek district, Saraburi.

Reliability

The Kruder-Richardson 20 formula was used to measure the reliability of the knowledge of DF questionnaire with the result of 0.73 and Cornbach Alpha Coefficient formula to analyze the attitude and practice toward DF with the results of 0.79 and 0.75 respectively.

Results

General information

The statistical data of the respondents include 58.1% female with an average age of 49 years ($\bar{x}$ = 48.5, S.D. = 16.4, Min = 15, Max = 84). 80.8% were married, 56.1%, completed elementary school, 43.4% farmers and had an average income of 58,288 Baht/month (Table 2).

Table 2. Number and percentage of people at Moo 1, Ban Panghuachang, Nongyangsua Subdistrict, Muaklek District, Saraburi Province (n=198).

Variable	Number	Percentage
Gender		
Male	83	41.9
Female	115	58.1
Age		
≤ 30 year old	30	15.2
31-40	39	19.7
41-50	38	19.1
≥ 51 year old	91	46.0
Married status		
Single	18	9.1
Married	160	80.8
Widow	14	7.1
Divorce /separate	6	3.0
Education level		
No formal education	7	3.5
Elementary school (G.1-G.6)	111	56.1
Secondary school (G.7-G.9)	21	10.6

Variable	Number	Percentage
Education level		
Secondary school (G.10-G.12)/ vocational certificate	42	21.2
Diploma /high vocational certificate	4	2.0
Bachelor's degree	12	6.1
≥ Bachelor's degree	1	0.5
Occupation		
Employee	37	18.7
Government service / State Enterprises	6	3.0
Business/Sale	18	9.1
Agriculture	86	43.4
Housework	19	9.6
Others	32	16.2
The family's income. (Baht/month)		
≤ 10,000	88	44.5
10,001-50,000	62	31.3
50,001-100,000	22	11.1
≥100,001	26	13.1

Knowledge, attitude, and practice of DF prevention

Table 3 shows that 50.5% of the respondents ($\bar{x}$ = 0.66, S.D. = 0.17) had high level of knowledge of DF. With this, 55.6% ($\bar{x}$ = 0.61, S.D. = 0.29) were aware of the cause of DF, 47.5% ($\bar{x}$ = 0.71, S.D. = 0.30) understood the life cycle of Aedes Egypti and 68.2% ($\bar{x}$ = 0.83, S.D. = 0.26) understood the transmission of DF. However, they had moderate level of knowledge in prevention and protection of DF with only 37.9% ($\bar{x}$ = 0.51, S.D. = 0.27) , though, 82.8% had good attitude of DF. Of this group, 95.5% ($\bar{x}$ = 2.72, S.D. = 0.24) and 75.3% ($\bar{x}$ = 2.59, S.D. = 0.35) had good attitude about the concept of DF prevention and practice of DF prevention, respectively. The respondents' practice of DF prevention was at good level (59.1%) ($\bar{x}$ = 2.42, S.D. = 0.33).

Table 3. Number and percentage of knowledge, attitude, and practice of the DF prevention (n = 198)

	Level			Average	Standard Deviation
Variable	**Low Amount (Percentage) (Percentage)**	**Moderate Amount (Percentage)**	**High Amount**		
Knowledge	4(2.0)	94(47.5)	100(50.5)	0.66	0.17
- Cause of DF	8(4.0)	80(40.4)	110(55.6)	0.76	0.29
- Life cycle of *Aedes Egypti*	12(6.1)	92(46.5)	94(47.5)	0.71	0.30
- Transmission of DF	5(2.5)	58(29.3)	135(68.2)	0.83	0.26
- prevention and protection of DF	57(28.2)	75(37.9)	66(33.3)	0.51	0.27
Attitude	0(0.0)	34(17.2)	164(82.8)	2.65	0.26
- the concept of DF prevention	0(0.0)	9(4.5)	189(95.5)	2.72	0.24
- practice of DF prevention	1(0.5)	48(24.2)	149(75.3)	2.59	0.35
practice of DF prevention	5(2.5)	76(38.4)	117(59.1)	2.42	0.33

Relationship between knowledge, attitude, and practice of DF prevention

Table 4 shows that there's a positive relationship between knowledge and attitude of correspondents and statistical significant to practice for DF disease prevention with the level of 0.05 (r = 0.283, p = <0.001, r = 0.160, p = 0.025 respectively).

Table 4. Relationship between knowledge, attitude, and practice of DF disease prevention by using Pearson's chi-square (n = 198)

Variable	Practice of DF disease prevention	
	r	p - value
Knowledge	0.283	< 0.001
Attitude	0.160	0.025

Discussion

Knowledge of DF

50.5% of the respondents have a high level of knowledge of DF (Table 3); however, knowledge of DF prevention is at the medium level. The findings of this study are consistent with those of Sophachan (2007) and Sompim (2008), where 55.7 % of household in Ban Tar Muang Si Bun Rueang, Chonnabot District, Khon Kan Province and 87.6% of participants in Ban Tor Pradoo Moo 6 Kranuan Khon Kaen Province have a high knowledge level of DF. Moreover, a similar study by Sombutsawad et al. (2012) in Phimai district, Nakhon Ratchasima Province revealed that 58.84% from a non DF outbreak village had a high level of knowledge of DF.

Attitude of DF

This study has found that most of the respondents (82.8%) had a good level of attitude which is in agreement with Tosati (2009). In Tosati's study of village health volunteers in Chang Thun sub-district, Bo Rai district, Trat Province found that most of the village health volunteers had the highest level of attitude (52.7%)

Practice of DF Prevention

The results showed (Table 3) that the respondent's practice is at good level (59.1%) which is consistent with the Tosati (2009) as well. In Tosati's study the village health volunteers had the higher level of preventative behavior (73.7%).

Knowledge, Attitude and Practice of DF Prevention Correlation

This study has shown that both knowledge and attitude of the respondents were positively related and statistical significant to practice of DF prevention with the level of 0.05 (r= 0.283, p=<0.001, r=0.160, p=0.025, respectively) (table 4), which is consistent with Tosati (2009) who has studied about the knowledge attitude and DF preventive behavior and control of the village health volunteers in Chang Thun sub-district, Bo Rai district, Trat Province which found that the correlation of DF knowledge, attitude and practice is significantly statistic at 0.05. Similarly, Chokchaichamnankit (2004) studied the topic of knowledge, attitude and practice to prevent and control of dengue hemorrhagic fever in community at Amphoe Phra Pradaeng, Samutprakan province. The Chokchaichamnankit's study showed that there was a relationship between knowledge, attitude and practice with statistical significance (p<0.01).

From the study, the authors found that the knowledge about DF prevention is at a high level but the knowledge about DF prevention and control is at the medium level. Also, the authors found that DF attitude is at a good level. It shows that firstly, DF prevention and control by destroying mosquito breeding need to be done by every household. Secondly, the people must be willing to eradicate mosquito breeding in every household and in the community. The study revealed that DF preventive behavior of the people is at a high level, for example, most of them sleep in a room that has a mosquitoe net to protect them from mosquitoes bites. Furthermore, the people have to always close their water containers – both drinking and cleaning water. House environment need to be renovated to have enough light and good ventilation because the people in Moo 1 Baan Khong Sai, Nongyangsuea sub-district, Muak Lek district Saraburi province are farmer.

From the area survey, the authors found the staff of Khongsai Health Promotion Hospital always used voice broadcasting and car broadcasting to provide knowledge to the community.

Therefore, it should be a process to prevent and control DF by constantly educating the people with

proper knowledge attitude and practice of DF prevention in many ways before rainy season starts till the end of winter. The important proceed to control DF is to focus on prevention and control the mosquito larvae (aegypti) – reduce as much as possible and try the best to shorten eruption period. The sufficient promoting in knowledge and attitude toward DF in community effects positive practice of DF prevention.

Conclusions

1. Knowledge of DF as reported by the respondents was high.
2. Respondents' knowledge of DF prevention and protection was moderate.
3. Attitude of DF as reported by the respondents was at good level.
4. Practice of DF prevention as reported by the respondents was at high level.
5. There was statistical significant between the knowledge and attitude of the respondents and practice of DF prevention.

Based on the findings, the authors recommend that more studies are needed concerning the following:
1. Replicate this study in other villages and other DHF outbreak areas.
2. Identify strategies that will lead to cooperation among community ineffective DHF prevention.
3. Compare effectiveness of health promotion program to prevent DHF in difference formats and in different communities.

Recommendation on closing the gap between Knowledge and the application and practice of mosquito eradication. We suggest to perform the following:

1. Broadcast through the media outbreaks of DHF
2. Village health volunteers demonstrate to local villagers the six practices of mosquito eradication:
   - 2.1 Keep water containers covered.
   - 2.2 Change water in uncovered containers each week.
   - 2.3 Put small fish in uncover containers.
   - 2.4 Keep a clean environment around the home.
   - 2.5 Follow the steps regularly and frequently.
   - 2.6 Scrub containers each week before using for water.

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