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**EVALUATION OF KNOWLEDGE, ATTITUDE, AND PRACTICE
REGARDING DENGUE HAEMORRHAGIC FEVER IN RURAL
COMMUNITY OF THAILAND**

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ABSTRACT

Dengue haemorrhagic fever (DHF) is a serious health problem in tropical countries including Thailand. Recently, high cost is used for diagnosis and treatment. The community-based approach DHF prevention and control campaign have been challenged in rural community areas, therefore, this cross-sectional study aimed to evaluate the prevention and control for DHF in Nongsruang village, Kham Thalae So district, Nakhon Ratchasima Province, Thailand. The 199 represents were purposive selected during January and April 2015, and selected data with an interview questionnaire. The results revealed that the most of them was female (72%), age group 40-45 year old (28.10%), married (87.90%), primary school (31.70%), and agriculture (60.80%). Head of village (91.00%) and news station of village (78.00%) were the main information resources. The incident rate of DHF during 2012-2014 was 9.00, 8.58, and 2.04 per 1,000 populations. House index (HI) during 2012-2014 was 38.66, 44.85, and 9.80. Container index (CI) during 2012-2014 was 103.61, 150.52, and 7.32, respectively. 81.91% and 70.85% of represents had high knowledge and attitude on the prevention and control for DHF. 70.35% of represents had participated in the prevention and control campaign for DHF. Chi-square testing indicated that gender (female), education (primary school) and occupation (agriculture), were significantly associated with DHF prevention and control ($p\text{-value}<0.05$). This finding indicates a high knowledge and attitude on prevention and control for DHF, in addition, the incident rate of DHF, HI, and CI were decreased in this rural community. Therefore, prevention and campaign is useful tool for DHF prevention and control.

Key words: Dengue haemorrhagic fever, Prevention and control, Rural community, Thailand.

INTRODUCTION

Dengue haemorrhagic fever (DHF) is now one of the most important public health problems in tropical developing countries and also has major economic and societal consequences. In recent years, DHF has become a major international public health concern. Globally, 2.5 billion people live in areas where dengue haemorrhagic viruses can be transmitted. The geographical spread of both the mosquito vectors and the viruses has led to the global resurgence of epidemic dengue fever and emergence of dengue haemorrhagic fever (dengue/DHF) in the past 25

years with the development of hyperendemicity in many urban centres of the tropics. DHF was first recognized in the 1950s during the dengue epidemics in the Philippines and Thailand [1]. Since then increasing numbers of cases and geographical locations affected by DHF in Thailand have been reported, and intervention of prevention and control has been performed [2-6]. DHF is a mosquito-borne viral tropical disease caused by the dengue virus. Symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash that is similar to measles,

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bleeding, low levels of blood platelets and blood plasma leakage. DHF is transmitted by several species of mosquito within the genus *Aedes aegypti*, *A. albopictus*. Subsequent infection with a different dengue virus type increases the risk of severe complications. As there is no commercially available vaccine, prevention is sought by reducing the habitat and the number of mosquitoes and limiting exposure to bites [1]. Prevention thus depends on control of and protection from the bites of the mosquito that transmits it. The World Health Organization recommends an Integrated Vector Control program consisting of five elements: (1) advocacy, social mobilization and legislation to ensure that public health bodies and communities are strengthened; (2) collaboration between the health and other sectors (public and private); (3) an integrated approach to disease control to maximize use of resources; (4) evidence-based decision making to ensure any interventions are targeted appropriately; and (5) capacity-building to ensure an adequate response to the local situation [2].

Many of campaign had been used for prevention and control DHF in Thailand. Several years, the prevention and control campaign for DHF was started by Department of Disease Control, Ministry of Public health, Thailand. Also, this campaign has used for prevention and control in Nongsruang village among 2013 and 2014, therefore, this cross-sectional descriptive study aimed to assess the effectiveness of 6 step prevention and control for DHF in Nongsruang village, Kham Thalae So district, Nakhon Ratchasima Province, Thailand.

MATERIALS AND METHODS

Study areas and study design

This cross-sectional descriptive study was performed in Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand. It is locate in the northeast region where approximately 269 kilometres from Bangkok; capital of Thailand, and 34.9 km from Nakhon Ratchasima province. This village is covered 4.24 Km², 199 household, and has 979 population (Figure 1).

Population, sample size, and sampling

The 199 represents were purposive selected included head or represent of household, village, village health volunteer, the district health promotion hospital, and the sub-district Administrative Organization, during January and April 2015.

Intervention, measurement and data collection

The routine campaign for DHF prevention and control was started during 2012 and 2014 in this rural community. The campaign comprised 6 steps with (1) covered the open resources of water, (2) control the mosquitoes with biological control agents; fish, (3) changing a flower vase with clean water, (4) cleaning of

water reservoir; weekly, (5) household sanitation, and (6) continuously practicum of DHF prevention and control (Figure 2).

An interview questionnaire was utilized to collect the data from subjects who were represents of household, village, and related this community. The questionnaire was comprised 5 domain included (1) demographic data, (2) general information for DHF; resources, incident, mosquito larval indices, (3) knowledge, (4) attitude, and (5) participation. Reliability and validity of questionnaire was analysed, knowledge (Kruider-Richardson-20) = 0.85, attitude and practice (coefficient of Cronbach's alpha) = 0.92 and 0.76, respectively.

Statistical analysis

Descriptive statistical data were analysed with SPSS software. Chi-square testing was used to analyse the association between demographic data and DHF prevention and control.

RESULT

Demographic data

The results revealed that most of the represents, they were female (72.90%), 40-44 years old (28.10%), primary school (32.70%), married (87.90%), and worked in agriculture (60.80%). On average, they had worked for 10 years and family income ranged from 10,000 to 15,000 Baht per month (71.40%) (Table 1).

General information of DHF

The prevention and control campaign for DHF, was performed in this community at late of 2013 to year 2014. Head of village (91.00%) and news station of village (78.00%) were the information resources on the prevention and control campaign for DHF. The incident rate of DHF during 2012-2014 was 9.00, 8.58, and 2.04 per 1,000 populations (Figure 3). House index (HI) during 2012-2014 was 38.66, 44.85, and 9.80. Container index (CI) during 2012-2014 was 103.61, 150.52, and 7.32, respectively (Table 2).

Knowledge, attitude, and participation on the DHF prevention and control

Of 81.91% represents had high knowledge on prevention and control for DHF. The highest of score was found in the question of "changing a flower vase with clean water" (97.00%), and following "covered the open resources of water" (94.00%), and continuously practicum of DHF prevention and control (94.00%), respectively. Of 70.85% represents had high attitude on the prevention and control for DHF. The highest of score was found in the question of "all household should be sanitary" (Mean = 4.49, S.D.=0.86), following "should be changing a flower vase with clean water" (Mean = 4.47, S.D. = 0.83). Of 70.35% represents had high participated in the prevention and control for DHF. The highest of score was found in the

question of “Elimination of mosquito by repellent” (Mean = 4.38, S.D. = 0.98), following “covered the open resources of water” (Mean = 4.33, S.D. = 0.90), and “Household sanitation” (Mean = 4.11, S.D.= 0.71),

respectively. Chi-square testing indicated that gender (female), education (primary school) and occupation (agriculture), were significantly associated with DHF prevention and control ($p\text{-value}<0.05$). (Table 3)

Table 1. Demographic data of represents from Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand.

Demographic data	No. of represents (n = 199)	%
Gender		
Male	54	27.10
Female	145	72.90*
Age		
15-19 year old	1	0.50
20-24 year old	2	1.00
25-29 year old	17	8.50
30-34 year old	27	13.60
35-39 year old	30	15.10
40-44 year old	56	28.10
45-49 year old	34	17.10
>50 year old	32	16.10
Education		
Primary school	65	32.70*
Junior high school	63	31.70
Senior high school	48	24.10
High vocational certificate	7	3.50
Undergraduate	5	2.50
Graduate	5	1.00
Un-educate	9	4.50
Marital status		
Married	175	87.90
Single	9	4.50
Widow	10	5.00
Divorced	4	2.00
Other	1	0.50
Occupation		
Agriculture	121	60.80*
Employee	45	22.60
Housewife	12	6.00
Own business	9	4.50
Government officer	6	3.00
Liberty	3	1.50
Student	2	1.00
Other (Monk)	1	0.50

Table 2. House and container index of mosquito larva were collected from Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand during 2012-2014.

Index/year	%
House index	
2012	38.66
2013	44.85
2014	9.8
Container index	
2012	103.61
2013	150.52
2014	7.32

Table 3. Knowledge, attitude, and participatory level of represents on the prevention and control for dengue haemorrhagic fever in Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand.

Level	No. of represents (n = 199)	%
Knowledge		
High	163	81.91*
Moderate	36	18.09
Low	0	0.00
Attitude		
Good	141	70.85*
Fair	58	29.15
Poor	0	0.00
Participation		
Frequent	57	28.64*
Moderate	140	70.35
Few	2	1.01

* statistical significant *p*-value < 0.05

Figure 1. Map of Kham Thalae So district, Nakhon Ratchasima Province, Thailand. (Source of map: <http://www.novabizz.com/Map/img/map-36-Nakhonratchasima.gif> retrieve date 28 June 2015)

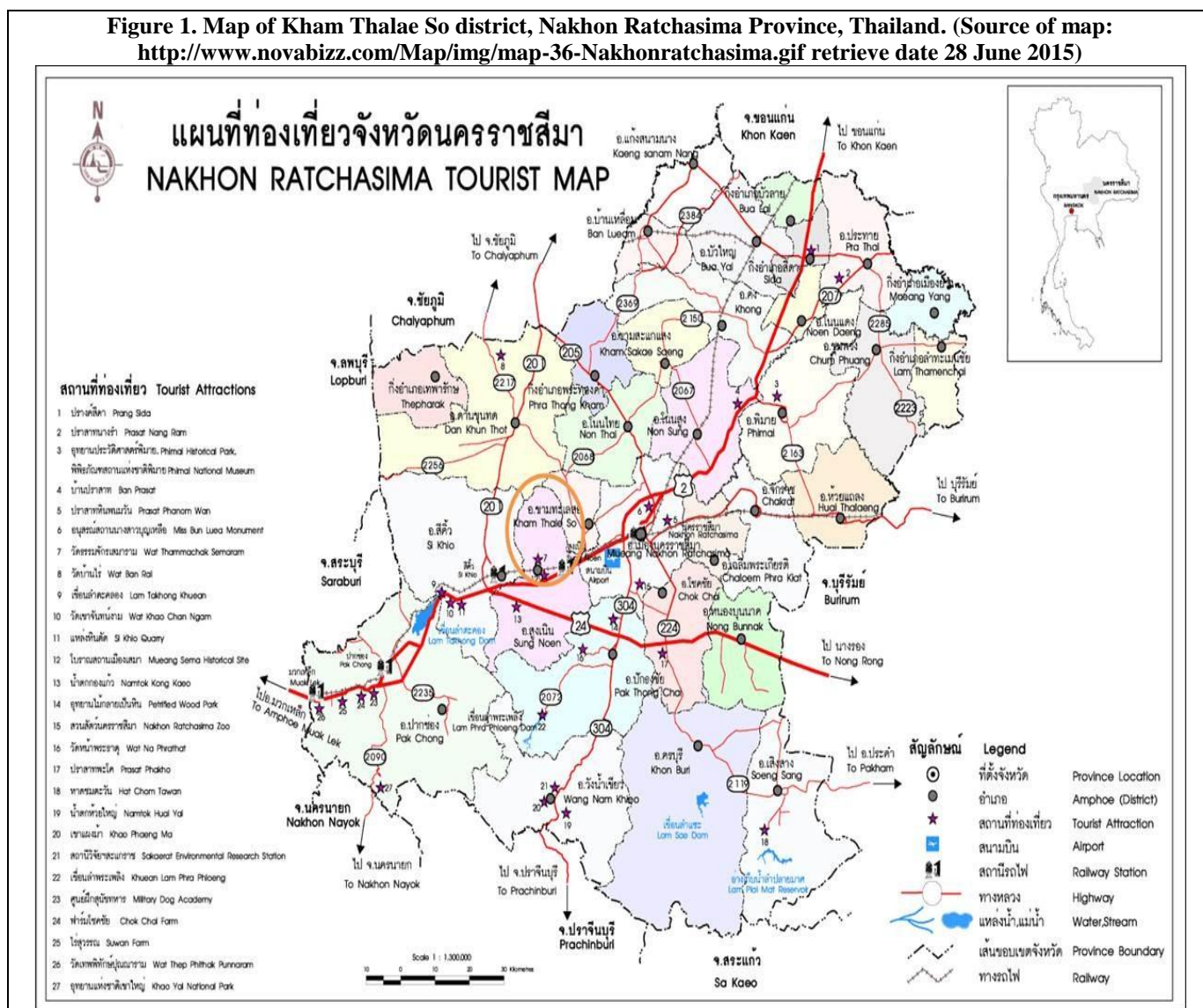


Figure 2. The 6 steps model of prevention and control for dengue haemorrhagic fever in Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand, year 2014, (left; in Thai language, right; English language).



Figure 3. The incident rate of dengue haemorrhagic fever in Nongsruang village, Nongsruang sub-district, Kham Thalae So district, Nakhon Ratchasima Province, Thailand, during 2012- 2014.

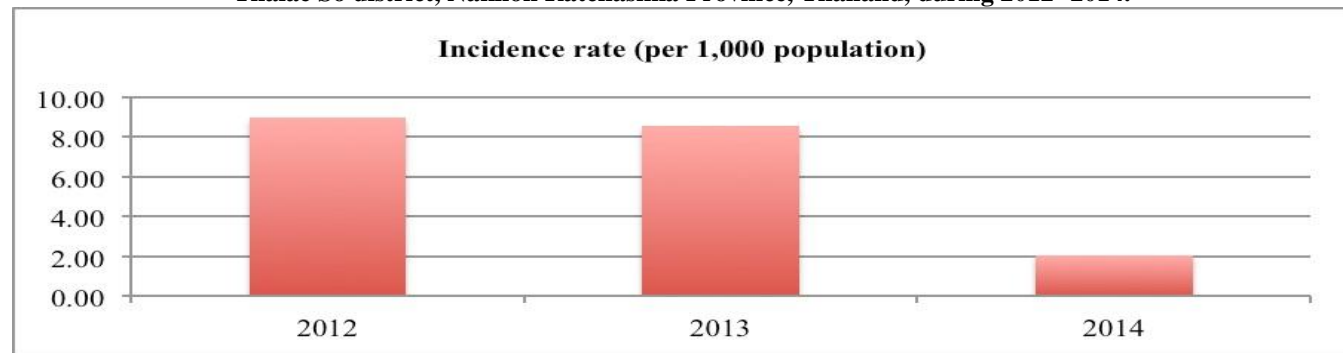


Figure 4. Rural villagers were participated the 6 steps model of prevention and control for dengue haemorrhagic fever.



DISCUSSION

DHF was first recognized in the 1950s during the dengue epidemics in the Philippines and Thailand [1]. Since then the World Health Organization recommends an integrated vector control program consisting of five elements to eliminate this serious disease [2]. In Thailand, many of campaign had been use, mainly the 6 steps model of prevention and control for DHF by Department of Disease Control, Ministry of Public health, Thailand. This studied was the first report for assessed the successful of the DHF prevention and control campaign in the rural community. The results revealed that most of the represents, they were 40-44 years old, female, primary school, married, and worked in agriculture. This figure indicates that this group is the main and highly potential for their member, moreover, head of village and news station of village were the information resources on the prevention and control for DHF.

Therefore, improvement of knowledge and attitude is need required. An action research design was conducted in two villages of Mueang District, Kanchanaburi Province to assess the effectiveness of a community-based approach program. Knowledge, perceived susceptibility, self-efficacy, and regular larval survey behaviour were measured for program outputs. CI, HI, and Breteau Index (BI) were used to confirm program outcomes. Key community stakeholders in the experimental village were identified and empowered through active learning in the village. The results from this study suggest that the DHF prevention and control program at the sub-district health level should be more proactive and emphasized at the village level. Monitoring the disease control program outputs and outcomes should be performed regularly during monthly meetings. Finally, local health officers need to be empowered for these matters [5,6].

General information of DHF, the prevention and control with 6 steps model was performed in this community at year 2014. The effectiveness of this campaign was found that the incident rate of DHF during 2012-2014 was decreased from 9.00 per 1,000 populations in year 2012 and 2.04 per 1,000 populations in 2014. In addition, HI and CI was similar to the trend of incident rate that there were decreased from 38.66 (HI) in year 2012 to 9.80 in year 2014, while CI was decreased from 103.61 in year 2012 to 7.32 in year 2014, respectively. A

community-based dengue vector control trial was conducted at transmission foci in Plaeng Yao District, Chachoengsao Province, eastern Thailand. Implementation was done by the local community in collaboration with local administration, public health, and school authorities. The success of this intervention was evidenced by the significant reduction of dengue vectors and DHF cases in treated areas compared with untreated areas [4].

The represents had a high knowledge, attitude level, and frequently participatory on the prevention and control campaign of DHF. This data indicates a high behaviour influent to decrease the DHF occurrence and vector-borne in the community, similar to previous study [2-6]. A cross-sectional study was carried out between July 1998 and June 1999 to identify dengue virus-infected patients under age 15 admitted to seven government hospitals in Ang Thong Province, a central region of Thailand, and to assess the knowledge, attitude, and practice (KAP) of their care takers. The majority of them were mothers with primary school education level. Half of the caretakers were workers. DHF knowledge of the caretakers of the dengue cases, non-cases, and healthy students was almost the same. However, the caretakers of dengue cases recognized petechiae as a danger sign, p-value of 0.006. They had a higher response in prevention, control and treatment of DHF than the other two groups after their children were admitted to hospital, p-value of 0.000. The results indicated that DHF remains a public health problem in this area and the people need more understanding of the disease. Continuous campaigns are required for community participation so as to prevent and control DHF successfully [3].

CONCLUSION

This finding shows a high knowledge, attitude, and perception on the prevention and control for DHF, in addition, the incident rate of DHF, HI, and CI are decreased in this rural community. Therefore, to enhance the sustainable and effectiveness of prevention and control campaign on DHF prevention and control, the provincial health office should encourage health centre personnel to continuously supervise, motivate and provide seminar workshops and village forums. Also, participatory management with a horizontal command structure must be employed.

REFERENCES

1. Normile D. Surprising new dengue virus throws a spanner in disease control efforts. *Science*, 342(6157), 2013, 415.
2. World Health Organization. Dengue guidelines for diagnosis, treatment, prevention and control. WHO press, Geneva, Switzerland, 2009, 59-137.
3. Kittigul L, Suankeow K, Sujirarat D, et al. Dengue hemorrhagic fever: knowledge, attitude and practice in Ang Thong Province, Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 34(2), 2003, 385-392.
4. Therawiwat M, Fungladda W, Kaewkungwal J, et al. Community-based approach for prevention and control of dengue hemorrhagic fever in Kanchanaburi Province, Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 36(6), 2005, 1439-1449.

5. Kittayapong P, Chansang U, Chansang C, et al. Community participation and appropriate technologies for dengue vector control at transmission foci in Thailand. *Journal of American Mosquito Control Association*, 22(3), 2006, 538-546.
6. Haldar A, Gupta UD, Majumdar KK, et al. Community perception of Dengue in slum areas of metropolitan city of West Bengal. *J Commun Dis*, 40(3), 2008, 205-210.