Children’s basic knowledge and activities for dengue problem solution: an islamic religious school, Southern Thailand

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1. Introduction

Dengue is one of the most important arthropod-borne viral infections affecting humans. Worldwide, an estimated 2.5 billion people are at risk of infection, approximately 975 million of whom live in urban and rural areas in tropical and sub-tropical countries [1]. In Thailand, dengue has been a significant public health problem for the past fifty years. Although the mortality rate has decreased in hospitals, the morbidity rate has unfortunately increased in all areas from 1998 to 2009. The southern area, especially, has higher dengue incidence than other areas, possibly due to factors such as a greater number of rainy days, more rainfall, higher relative humidity, and a warmer temperature [2]. Southern Thailand has a dengue problem because the high morbidity rate and high larval indices.

Nakhon Si Thammarat is one of the fourteen provinces in Southern Thailand with several high risk dengue communities. The Islamic community studied consisted of 128 households in 600 square meters. The locations of the houses in the community were semi-urban, closed households, low socioeconomics (mean 5 124.35 baht/month), and almost all were laborers and fisherman. The population in the community was 733, consisting of 357 males, 376 females which was divided into the following age groups: 0–5 years (36 people), 6–12 years (113 people), 15–20 years (73 people), 21–40 years (239 people), 41–60 years (192 people), and more than 60 years (80 people). Thus, most of the populations were children. In the past years, two children
had dengue, the morbidity rate of dengue in October, 2009 to 
September, 2010 was 638 per 100,000 people and higher than 
the Thai Ministry of Public Health’s disease standard (<20 
per 100,000 populations). Although, there were no instances 
of mortality during this time, the morbidity showed that the 
area was at risk of a dengue epidemic. Moreover, the larval 
indices (BI: 74, HI: 22, and CI: 12) of the community were 
higher than the standard (BI<50, HI<10, and CI<1). These 
indexes were strongly positively correlated with epidemic 
and transmission intensity[3, 4].

There were 80 children studying at the Islamic religious 
school in the community which opened every Saturday and 
Sunday and teaching Islamic ideals such as the Islamic 
legal code, role and function of the Muslim people, and 
the major activities of Muslims. Their age was 7–15 years. 
All stakeholders in the community and the children group 
leaders met and concluded that children’s activities were 
needed for solving the dengue problem because dengue 
morbidity was found for two children in the school. 
Previous studies have shown that school-based education 
and activities are an important compliment to increasing 
children’s knowledge of and participation in the dengue 
problem solution[5–8]. Thus, the present study aims to 
develop children’s basic knowledge and activities for 
addressing the dengue problem, and to evaluate the results 
from children activities.

2. Materials and methods

The study was a part of the eradication of Aedes aegypti 
 sources through dengue prevention and control in an Islamic 
community, in the southern region of Thailand. Participatory 
Action Research (PAR) was applied in this study. The study 
was received and forwarded to the International Review 
Board (IRB), the Ethical Review Committee for Research 
Subjects, the Health Science Group, Walailak University, 
Thailand.

2.1. Study area and participants

The study took place between November, 2010 and June, 
2011, in a Saturday and Sunday Islamic religious school, 
Southern region, Thailand. The school has a traditional 
Islamic education program for 80 children, three Islamic 
religious teachers and ten Muslim religious leaders. The 
participants of study for development of knowledge and 
activities were children and their households for larval 
indices survey.

2.2. Methods

Participatory Action Research (PAR) was applied to five 
steps: 1) preparation step; 2) assessment step; 3) developing 
strategies planning step; 4) implementation step; and 5) 
evaluation step.

2.2.1. Preparation step

The principle researcher discussed with representatives 
of all stakeholders the dengue problem in the Muslim 
community such as community leaders, Islamic religion 
teachers, religious leaders, the district administrative 
organization, primary health care station and the children’s 
parents. The meeting concluded that children in the school 
had a high dengue morbidity rate related to high levels of 
larval indices in the community and a high risk of dengue 
transmission[9].

2.2.2. Assessment step

The assessment step consisted of situation assessment and 
re-assessment of the children’s basic knowledge and the 
results of children’s activities. The situation assessment used 
qualitative methods by the researcher such as leader group 
discussions, and environmental surveys. This phase was 
selected in order to better understand the diversity of the 
dengue problem. Basic knowledge of dengue was assessed 
by researcher. The assessment consisted of: 1) leaders group 
discussions, volunteer children met to discuss at least once 
a month to assess, plan, implement and re-assess; 2) larval 
indices survey in children’s household community; and 3) 
dengue mortality and morbidity monitor from the primary 
health center. The researcher provided the objectives of 
the study, obtained informed consent, discussed the focus 
group process, and obtained permission to audio record 
the session. To foster a flexible climate for discussion, the 
conversations were held in the local language, and lasted 
between 30 to 45 min per meeting.

2.2.3. Developing children’s strategies planning step

This step followed the preparation and assessment steps. 
The researcher, supportive group, and the group leader of 
the children were discussing techniques and methods of 
analysis of the dengue problem to find solutions in school 
over a six month period.

2.2.4. Implement step

The basic strategies for dengue prevention and control 
were engaging together in activities within children, leader 
and non-leader groups. The study built abilities through 
training, group discussions and consensus, promotional 
campaigns, and operational meetings once a month. 
The large meetings of all the children were participatory 
and created several plans for dengue solutions from the 
beginning until the end of intervention.

2.2.5. Evaluate step

Leader and support groups presented the process and 
outcomes of the study for all children in the school. The 
process and outcomes would encourage routine activities 
for dengue prevention and control in an Islamic school. 
The main activities of the step were the re-assessment 
step centred on assessing the outcomes. The step was a 
feedback step for others steps such as the assessment, 
plan, implementation, and comparison before and after
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