A Study on Knowledge, Attitude and Practices (KAP) for the Reduction in *Aedes aegypti* (L.1762) Breeding Intensity for Prevention of Dengue Haemorrhagic Fever (DHF) in MayangoneTownship

Nang Sanda Myint[1], Myint Oo[2],Myin Zu Minn[3]

Abstract

This preliminary study was carried out in Mayangone Township, Yangon Region, from December 2010 to November 2011. Firstly the name and addresses of DHF (Dengue Haemorrhagic Fever) proven cases were collected from Central Children Hospital (CCH) Yangon, Thiri Sanda Private Hospital and Mayangone Township's Health Department. Area surveys for mosquito breeding and resting sites were also recorded. Small scale health education programme (KAP) for the future reduction of mosquito breeding places was performed on 90 families living in risk areas of Mayangone Township.

Key words: *Aedes aegypti* breeding places, KAP, DHF

Introduction

Dengue fever (DF) is an acute febrile disease due to a viral infection and presents with severe headache, pain in the eyes, muscle and joint pain as well as rash. Dengue hemorrhagic fever (DHF) presents with dengue-like symptoms in addition to hemorrhagic manifestations; for example, petechial skin hemorrhage, hepatomegaly, and circulatory disturbances. Dengue is caused by the infection of dengue virus, a *flavivirus* in the family of Flaviviridae. There are four known virus serotypes (DEN 1, DEN 2, DEN 3, and DEN 4). The virus is transmitted by the *Aedes* mosquito, of which *Aedes aegypti* is the most important vector. The first reported epidemics of DF occurred in 1779–1780 in Asia, Africa, and North America. The near simultaneous occurrence of outbreaks on three continents indicates that these viruses and their mosquito vector have had a worldwide distribution in the tropics for more than 200 years(WHO,1998).

A pandemic of dengue began in Southeast Asia after World War II and has spread around the globe since then. The dengue virus infection is prevalent across the tropical belt in over 100 countries, with 2.5 billion people at risk of acquiring the infection and an estimated 50 million infections and 500,000 cases of DHF, which is the severer subtype cases occurring annually(WHO,2002). Global trends in urbanization, substandard housing, intentional or unintentional water storage patterns, and population growth have created environments that favor transmission of DF. The global dengue pandemic has intensified during the past two decades until it now affects all continents except Antarctica. Dengue epidemics are increasing in frequency as well as in the severity of illness they produce. Over the past 20 years, there has been a dramatic increase in the incidence and geographical distribution of DHF, and epidemics now occur each year in some Southeast Asian countries. Dengue virus infection causes significant morbidity and mortality worldwide. Although it is initially believed that an infection mainly afflicted the pediatric age group, this infection has been rapidly spreading across all age groups. In Southeast Asia, epidemic DHF first appeared in the 1950s, but by 1975 it had become a frequent cause of hospitalization and death among children in many countries in that region (CDC,2005).

Materials and Methods

Study sites

Case history was properly taken on children with DHF attending to Thiri Sanda Private Hospital and Central Children Hospital (CCH) Yangon for health education and control measures in the risk areas of Mayangone Township (Fig 1).

1.Lecturer(Zoology), Universities' Research Centre University of Yangon
2.Director (Retd), Dr, Department of Medical Research (lower Myanmar)
3.Professor (Head),Dr, Department of Zoology, University of Yangon

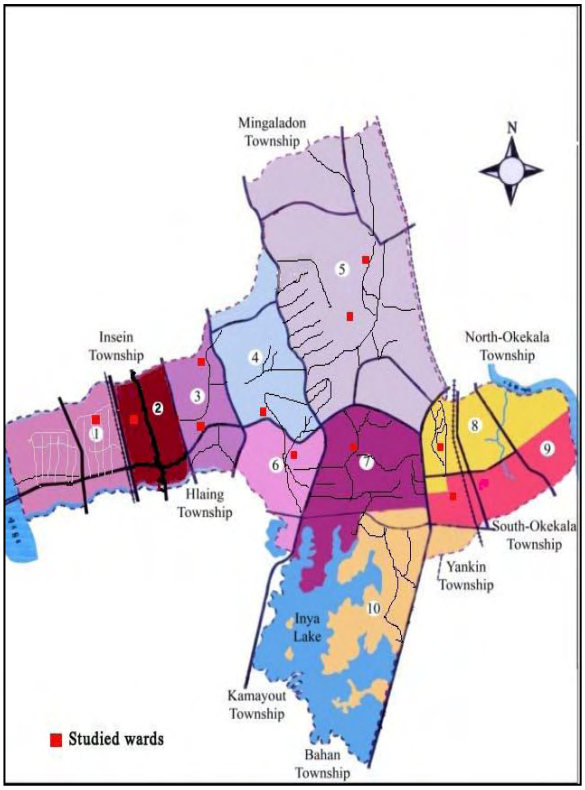

Fig 1. Map of Mayangone Township. (Source: Health Department, Mayangone Township,Yangon Region)

Study period

This study was conducted from December 2010 to November 2011

Materials

Map of Mayangone Township Health Department, unicef pamphlet, Sony cyber- shot DSC-T500 digital camera, Questionnaire Form, Unicef Pumphlet were used.

Methods

Randomised case control studied. The data were analysed according to Petrie and Sabin (2009). In DHF confirmed cases history and addresses were properly taken. Meeting with parents for Pre-KAP. Besides the identification of mosquito breeding sites were recorded. After KAP study and Health Education (Plate 1) meeting with parents for Post-KAP.

Plate 1 KAP studied and health education

Knowledge: The knowledge that the respondent have regarding the cause, transmission, clinical manifestation and prevention of dengue haemorrhagic fever.

Attitude: The feeling and belief of the respondents with regard to dengue haemorrhagic fever and its prevention.

Practice: The actions intended to do in order to prevent from dengue haemorrhagic fever (Ahmed, 2007).

Results

Follow-up environmental survey was carried out in Mayangone Township. The possible factors governing the breeding sites (Plate2 to4) and transmission of mosquito vectors (*Aedes aegypti*) were also observed in the above area.

Plate 2 water container with mosquito larvae near the house

Plate 3 Used coconut shell near the house

Plate 4 Disposable container near the house

A small scale health education programme was also carried out to reduce the vector breeding sites and early recognition of DHF. Pre-season health education was carried out on 90 families living in Mayangone Township.

Health education such as knowledge attitude and practices on DHF including cover, pour, change and filter of stored water containers were recorded.

Table 1. Symptoms and signs influencing on DHF knowledge

DHF knowledge	Pre KAP No. (%)	Post KAP No. (%)	Statistical analysis
Symptoms/Signs (n=90)			
Fever>2days	71 (78.9)	90 (100)	P<0.01

Petachia (red spots)	50(55.5)	90 (100)	P<0.01
Bleeding	42 (46.7)	86 (95.6)	P<0.01
Cold extremities	53 (58.9)	90 (100)	P<0.01
Abdominal pain	27 (30.00)	80 (88.8)	P<0.01
Lethargy	42(46.7)	81(90.0)	P<0.01
Severe vomiting	45(50.0)	85(94.4)	P<0.01
Others	29(32.2)	1(1.1)	P<0.01
Don't know	18(20.0)	4(4.4)	P<0.01

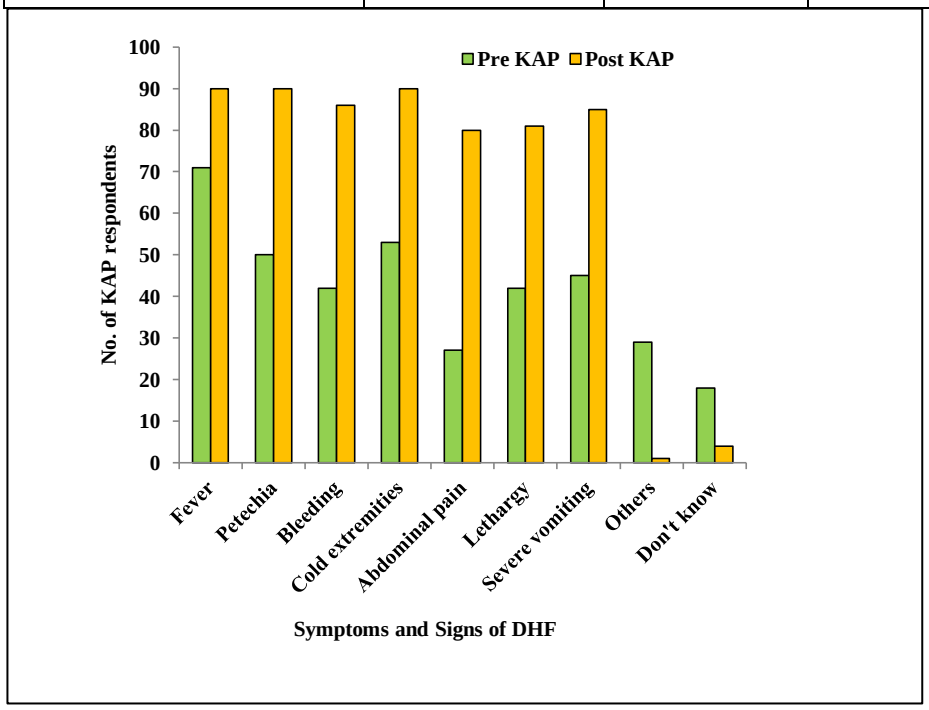

Fig. 2 Symptoms and signs influencing on DHF knowledge (Manyangone Township)

Table 2 Important factors in DHF knowledge

DHF knowledge	Pre KAP No. (%)	Post KAP No. (%)	Statistical analysis
Transmission (n=90)			
Mosquito bites	54 (60.0)	70(77.7)	P<0.01
Direct contact	8 (8.9)	6(6.6)	P>0.05 NS
Others	10 (11.1)	8 (8.8)	P>0.05 NS
Don't know	18 (20.0)	6 (6.6)	P<0.01
Biting time of the mosquito(n=90)			
Daytime	23 (25.6)	82 (91.1)	P<0.01
Night	25 (27.8)	5 (5.6)	P<0.01
Both day time and night	35(38.9)	2 (2.2)	P<0.01
Don't know	7(7.8)	1 (1.1)	P<0.01

Breeding places of mosquito (n=90)			
Water storage containers			
Cover, pour, change and filter	40 (44.4)	85 (94.4)	P<0.01
Without doing anything	45 (50.0)	2 (2.2)	P<0.01
Don't know	5 (5.6)	3 (3.3)	P>0.05 NS

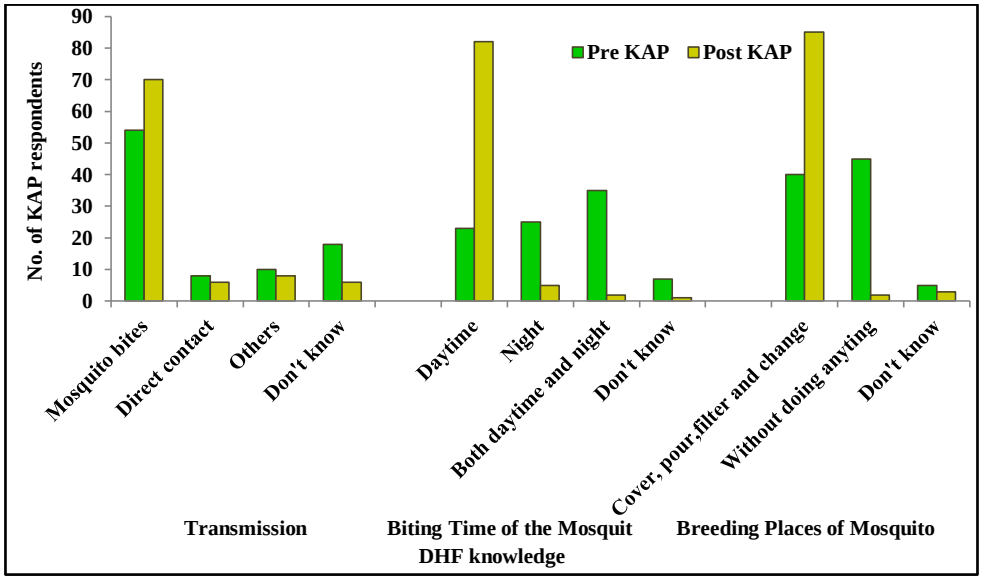

Fig. 3 Important factors in DHF knowledge (Mayangone Township)

Table 1 and 2 showen the proportion of the parents who received knowledge about DHF and its transmission. In Pre-KAP (Table1 and Figure2) the value of high fever and petachia which are the main symptom of DHF were found 78.9% and 55.5 %. After health education in Post-KAP the value of high fever and petachia were found to be 100%. Bleeding, cold extremities, abdominal pain and dangerous signs which are important signs and symptoms in the diagnosis were also shown in Table 1 respectively.

The proportion of the parents who knew that mosquitoes transmitted (Table2 and Figure3) DHF from mosquito bites and that mosquitoes attacked children during daytime increased significantly from 60.0% to 77.7% and from 25.6 % to 91.1% respectively after health education. Only 6.6 % and 1.1 % of the parents did not know about the transmission of DHF and biting time of mosquito after health education in comparison with 20.0 % and 7.8 % before health education. Water storage containers base on cover, pour, change and filter were found from 44.4% to 94.4% in Post- KAP.

Table 3. Pre and post KAP values on DHF depending various information sources

Sources	Pre KAP No. (%)	Post KAP No. (%)	Statistical analysis
Health personnel	43 (47.8)	90 (100)	P<0.01
Other people	41 (45.6)	75 (83.3)	P<0.01
Television	36 (40.0)	52 (57.8)	P<0.01
Radio	45 (50.0)	65 (72.2)	P<0.01
Newspaper	84 (93.3)	87 (96.7)	P>0.05 NS

Others	7 (7.8)	5 (5.6)	P>0.05 NS
Don't know	20 (22.2)	1 (1.1)	P<0.01

n=90

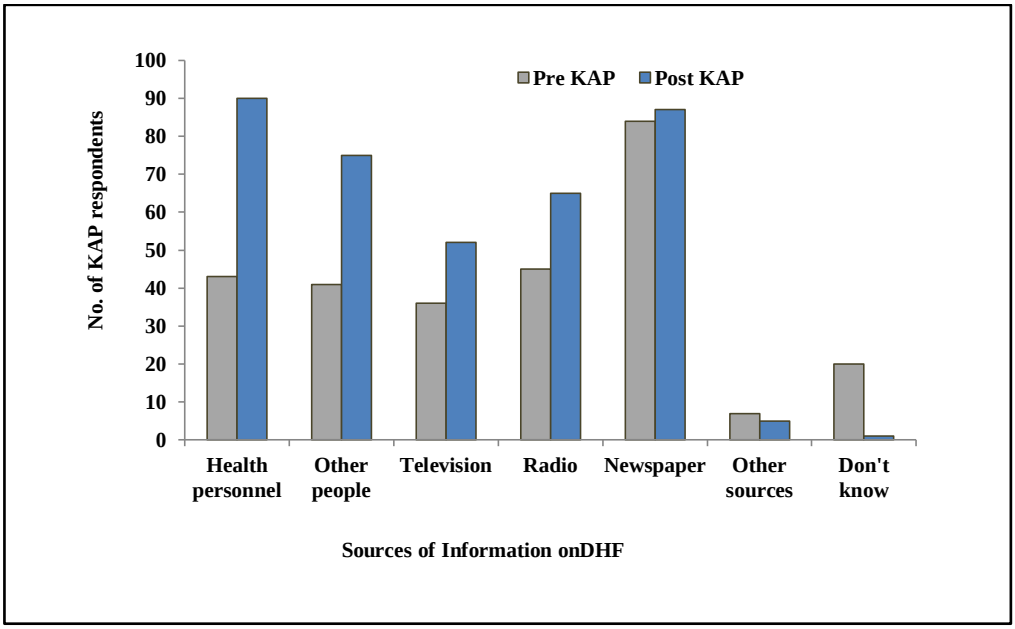

Fig.4Pre and post KAP value on DHF depending various information source (Mayangone Township)

Table 3 and Figure 4 describes the dominant sources from which the parents received health information on DHF in the Pre-KAP from health personnel (47.8%), other people (45.6 %), and television (40.0 %). In Post- KAP the effective proportion of parents who received information was found to be as follows: health personnel (100 %), other people (83.3%) television (57.8 %) and Radio (72.2%). Newspapers and other sources were found to be no significant. But the parents did not know the source of information on DHF proportion was brought down significantly from 22.2 % to 1.1 %. The data were analysed according to Tram *et. al.*, (2003).

Conclusion

The breeding sites and practices of the community for the reduction of *Aedes aegypti* (L.1762) breeding intensity in Mayangone Township, Yangon Region were surveyed from December 2010 to November 2011.

In order to reduce the breeding intensity of *Aedes aegypti* Pre- KAP and Post- KAP were systematically conducted. .

After Post- KAP symptoms/signs, transmission, biting time of mosquito, breeding places of mosquito and source of information were found to be significantly improved.Thus KAP studies was found to be preventive for DHF in Mayangone Township.

Discussion

Lloyd *et al* (1994) stated that the health education intervention proved overall to be successful in stimulation changes in knowledge. Present study from Pre - KAP to Post - KAP significant improvement was observed in the impact of health education on KAP of the parents.

Betay *et al* (2010) noted that prevention programs focus upon source reduction and environmental sanitation as noted above to attack the breeding sites of the vector. According to PAHO (1994), the physical removal of breeding sites and source reduction are reduced immature *Aedes aegypti* population to prevent DHF virus transmission, larval control and adult mosquitoes in and around premises with DHF infections. In this study from Pre - KAP to Post - KAP, significant observations occurred in breeding places of mosquito and source reduction were recorded.

Aung Than (2008) suggested that health education was essential for DHF regarding cover, pour, charge and filter to reduce mosquito density. Present study it achieved in health education such as KAP on cover, pour, change and filter practices in the defined community.

Knowledge Attitude and Practice should be effectively carried out through the whole period to minimize the danger of DHF.

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