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Myanmar Migrant Woman Caretakers on Prevention of Dengue fever: A Study on Knowledge, Attitude and Practices in Tak Province, Thailand

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Abstract

A cross-sectional survey was conducted to assess the knowledge, attitudes about, and practices to prevent, dengue fever among Myanmar migrant woman caretakers in Mae Sot District, Tak Province, Thailand during January 2004. In total, 307 households out of 1,014 Myanmar migrant households in Mae Sot District were selected using systematic random sampling. One woman caretaker per household was interviewed using a structured questionnaire. Descriptive statistics and Chi-square testing were used to analyze the data. It was found that the respondents had a moderate level of knowledge about dengue fever (mean=5.94, SD=2.24). The main sources of information about dengue was family, friends and neighbors. Significant associations were found between respondents' duration of stay in Mae Sot District and knowledge (p=0.04); knowledge and attitude (p=0.002); and attitude and preventive practices on dengue fever (p<0.001). The findings of the study indicate that if migrant women are supplied with correct knowledge through appropriate channels, they may change their attitudes and, ultimately, their practices. However, the survey data also show that knowledge is not the only factor which gives rise to preventive practices. Further study of the other dynamics would, therefore, be useful.

Keywords: *Misconceptions, migrants, dengue, prevention, survey, women.*

Introduction

Mae Sot district is a dengue endemic area in which outbreaks occurs periodically every 2-3 years. During 2003, the Dengue Hemorrhagic Fever (DHF) morbidity rate in the district was the highest in Tak Province (MOPH 2004). In Mae Sot, Myanmar migrants live in overcrowded housing with grossly inadequate water supply (Beyrer 1999). Water storage practices, as a result of inadequate water supply, encourage the breeding of *Aedes* mosquitoes, and overcrowded living conditions favor the transmission of dengue fever (Bohra and Andrianasolo 2001). The reason for choosing woman migrants in this study was that they are caretakers of the family and are more likely to stay at home and undertake preventive practices than men.

Methods

A descriptive cross-sectional survey design was applied using a structured questionnaire. The sample population was migrant women from Myanmar aged 15-60 years and living in Mae Sot District, Tak Province, Thailand. The sample size was calculated using Daniel's (1987) formula. When adding 10% of the 279 samples for dropouts, the sample size became 279 + 28 = 307.

Systematic random sampling method was used to select 307 households out of 1,014 Myanmar households in Mae Sot District. First, a migrant house was randomly selected. Starting from the randomly selected house, every third house was selected. One woman caretaker per household was interviewed according to the inclusion criteria. Face-to-face

interviews were conducted using a pre-tested structured questionnaire. Face and content validity were tested and reliability testing resulted in a Cronbach's Alpha of 0.78. Informed consent was taken from all respondents prior to the survey. Data collection was carried out during January 2004. A descriptive statistical analysis was applied using frequencies, proportions, mean, and standard deviations. The Chi-square test was used to identify associations between variables.

Results

Demographic Characteristics

Out of the 307 respondents, the majority were 21 to 30 years old (43.3%), followed in a descending order by those between 31 and 40 years old (24.8%), 41 and 50 years old (16%), 15 and 20 years old (10.7%), and those between 51 and 60 years of age (5.2%).

Nearly 80% of the respondents had received some formal education, with 45.6% having primary school education.

Among the migrants, 0.5% has attended middle school, 9.1% high school, and 2% college or university education. Of these, 72.6% of the respondents were housewives while the rest worked as street venders and workers. As many as 84.7% of the respondents were married, while only 7.8% were single, and 7.5% were divorced or widow.

Around 80% of the respondents had a monthly family income of less than Baht 3,000 while almost all of the remainder had monthly family incomes from 3,000 to 5,000 baht. About 70% of the respondents said that their duration of stay in Mae Sot was more than three years while the remainders had stayed there for less than three years.

Table 1. Distribution of frequencies and proportions of respondents' information on dengue fever by source

Dengue Information	Number	Percentage
Received information on dengue fever		
Yes	272	88.6
No	35	11.4
Main source of information		
Family/friends/neighbors	91	33.5
Thai television	42	15.4
Myanmar television	42	15.4
Pamphlet	36	13.2
Hospital/Clinic	27	9.9
Myanmar newspaper	15	5.5
Mynamar magazine	8	2.9
Myanmar radio	7	2.6
School	4	1.5

Source of Information about Dengue fever

Almost 90% of the respondents had received some information regarding dengue fever. One third of the respondents (33.5%) received information from family, friends or neighbors. The remaining two thirds of the respondents received dengue information from television, pamphlet, hospital/clinic, newspaper, magazine, radio and school in a descending order of frequency as shown in Table 1.

Knowledge on Dengue Fever

Nearly 75% of the respondents knew the common name (in Myanmar language) of the *Aedes* mosquito. More than half (56.7%) of the respondents knew that the dengue transmitter mosquito bites during the day time. Seventy percent of the respondents said that without mosquitoes, dengue fever cannot spread directly from person to person. Nearly 80% of the respondents wrongly answered that the dengue-transmitter mosquito lays its eggs in dirty sewage water. Seventy-one percent of the respondents knew the symptoms of dengue fever. Regarding treatment, only 40% claimed that there is no specific medication for dengue fever. More than half (53.8%) said that the mosquito prefers living in human dwellings. About 60% of the respondents correctly answered that the mosquito lays its eggs in clean and clear water stored in water containers.

Around 75% of the respondents knew that discarded bottles, old tires, and coconut shells outside the house can be breeding places for

mosquitoes. Regarding preventive measures, 83 % said that elimination of the places where the mosquito lays her eggs is the best preventive measure.

The respondents who could correctly answer seven questions and above (≥70%) out of the ten questions were considered to have high knowledge, those who could give 4 to 6 correct answers (40-60%) were considered to have moderate knowledge, and those who could give 0 to 3 correct answers (<40%) were considered to have low knowledge. 44% of the respondents had high knowledge, 42% had moderate knowledge, and 14% had low knowledge.

Attitude towards Dengue Fever

More than two-thirds (71.7%) of the respondents thought that anyone can get dengue fever. Around 80% of the respondents said that they were afraid of getting dengue fever if one of their family members had it, whereas the remainders said they were not afraid of getting it.

About 80% of the respondents thought that dengue infection can be fatal. Nearly 85% of the respondents thought that a strong and healthy child is less likely to suffer from DHF than a weak and low immune child. Two-thirds (66.8%) of the respondents thought that dengue fever can be spread from person to person like common cold spreads.

Nearly 43% of the respondents believed that after a dengue-fever patient has recovered from his/her illness, he/she will not get dengue fever again, while 56% believed that a person can get dengue fever more than one time. Around 6% of the respondents thought that one can recover from DHF spontaneously without any treatment.

The attitude level of respondents regarding dengue fever was classified as good (≥70%), moderate (40-60%), and poor (<40%). 30% of the respondents had a good attitude, 53% had a moderate attitude, and 17% had a poor attitude (Mean = 4.77, SD = 1.31).

Preventive Practices on Dengue Fever

Out of 307 respondents, 20.2 % had wild grasses/bushes around their houses, of which only 16.1% got rid of them at least once a week. Sixty percent of the 307 respondents covered water containers in their houses while the rest did not. Only 8.8 % of the 307 respondents put abate sand into water containers in their houses. Among those who put abate sand, around half (51.9%) put once every six weeks, nearly 30% put once every two months and 18.5% put once every three months. Almost all respondents (98.7%) cleaned and changed water containers in their houses. However, only 71% of them did it at least once a week. Only 8.8% of the respondents had ant traps in their houses and 59% of those put nothing except water into the ant traps. Nearly one-third (30.9%) of the respondents had fresh flower vases in their houses and 100% of them cleaned and changed water in flower vases at least once a week (Table 2).

As shown in Table 3, about 41% of the respondents protected themselves from mosquito bites during day time. The most popular preventive method was using mosquito coils (56.7%). 23% of the households did not protect adults from mosquito bites; they protected only their children by using bed nets. 15% of the respondents used mosquito coils for adults and bed nets for the protection of children. Other methods that were rarely used included mosquito repellants (3.1%) and screening the house (2.4%).

The dengue fever preventive practices of the respondents were classified as good (≥70%), moderate (40-60%), and poor (<40%). 29% of them had good practices, nearly 48.5% had moderate practices, and 22% had poor practices. (Mean = 4.9, SD = 1.39).

Relationships between Independent and Dependent Variables

There was no significant association between demographic characteristics and attitude; and source of information and attitude. However, there was a highly significant association between knowledge and attitude ($p = .002$) as presented in Table 4. The association between attitude and practices was also highly significant ($p<0.001$) (Table 5).

There was a significant association between duration of stay in Mae Sot and knowledge of respondents. Those who lived in Mae Sot for more than three years had better knowledge of dengue fever than those who lived there for less than three years (Table 6).

Table 2. Distribution of frequencies and proportions on environmental protective practices of the respondents

Environmental Protective Practices	Number	Percentage
(1)Respondents having wild grasses/bushes around their houses		
Yes	62	20.2
No	245	79.8
How often do they get rid of them?		
Once a week	10	16.1
Once every two weeks	4	6.5
Once every three weeks	6	9.7
Once a month	17	27.4
Once a year	1	1.6
Never	24	38.7
(2) Respondents who cover water containers		
Yes	185	60.3
No	122	39.7
(3) Respondents who put abate sand into water containers		
Yes	27	8.8
No	280	91.2
How often do they put abate sand?		
Once every six weeks	14	51.9
Once every two months	8	29.6
Once every three months	5	18.5
(4) Respondents who clean and change water containers		
Yes	303	98.7
No	4	1.3
How often?		
Once a week	216	71.3
Once every two weeks	51	16.8
Once every three weeks	9	3.0
Once a month	27	8.9
(5) Respondents who have ant traps in their houses		
Yes	27	8.8
No	280	91.2
Methods used to prevent mosquito breeding in ant traps		
Put oil	2	7.4
Put salt water	5	18.5
Put detergent	2	7.4
Put abate sand	2	7.4
Put nothing except water	16	59.3
(6) Respondents who have flower vases in their houses		
Yes	95	30.9
No	212	69.1
How often do they clean and change water?		
At least once a week	95	100.0

Table 3. Distribution of frequencies and proportions of respondents' mosquito bite protection practices during day time by method

Protection Practices	Number	Percentage
Respondents who protect themselves and their family from mosquito bite during day time		
Yes	127	41.4
No	180	58.6
Methods used		
Mosquito repellant	4	3.1
Mosquito coil	72	56.7
Screen the house	3	2.4
Bed net	29	22.8
Mosquito coil and bed net	19	15.0

Table 4. Association between knowledge and attitude regarding dengue fever

Knowledge	Attitude n(%)			Total	Chi-	p
	Good	Moderate	Poor	n (%)	Square	Value
High	49 (36.3)	71 (52.6)	15 (11.1)	135 (100)		
Moderate	37 (28.7)	70 (54.3)	22 (17.1)	129 (100)	16.508	0.002
Low	6 (13.9)	22 (51.2)	15 (34.9)	43 (100)		

Table 5. Association between attitude and practices regarding dengue fever prevention

Attitude	Practice n(%)			Total	Chi-	p
	Good	Moderate	Poor	n (%)	Square	Value
Good	39 (42.4)	46 (50.0)	7 (7.6)	92 (100)		
Moderate	46 (28.2)	84 (51.5)	33 (20.3)	163 (100)	46.836	<0.001
Poor	5 (9.6)	19 (36.5)	28 (53.8)	52 (100)		

Table 6. Association between duration of stay in Mae Sot and knowledge regarding dengue fever

Duration of stay	Knowledge n (%)			Total	Chi-	p
	Good	Moderate	Poor	n (%)	square	value
3 years and below	30(32.9)	45(49.5)	16(17.6)	91(100)		
>3 years	105(48.6)	84(38.9)	27(12.5)	216(100)	6.444	0.04

Discussion

Most of the respondents in this study had lived in Mae Sot for more than three years. It was found that majority of the respondents had received information on dengue fever up to some extent. The main source of information was from family, friends or neighbors. This differs from a previous 'KAP' study conducted in Mae Sot with Thai people in which the main source of dengue information was from health personnel (Swaddiwudhipong, *et al.* 1992).

Overall, the respondents had a moderate level of knowledge on dengue fever. Health

education programs are, therefore, necessary to help them improve their knowledge. Nearly half of them did not know the biting time of dengue mosquitoes. To know the biting time of dengue mosquitoes is quite important because most people tend to protect from mosquito bites only at night and fail to protect themselves during the day, which raises the risk of dengue infection. Around one-third of the respondents answered that dengue mosquitoes prefer living in the forests; therefore, they might not worry about the biting of 'dengue mosquitoes' living in and around their houses. More than one-third of the respondents did not know that dengue mosquitoes usually lay eggs in clean and clear water stored in water containers in the house; therefore they might not take action against the mosquito breeding in water containers in their houses. Future health education efforts for Myanmar migrants in Mae Sot should emphasize on those points.

Regarding beliefs on susceptibility of dengue fever, nearly 85% of the respondents believed that a strong and healthy child is less likely to suffer from DHF than a weak and low immune child. This implies that they may not worry about their child's getting dengue fever if he/she is healthy. More than 40% of the respondents believed that after a dengue patient had recovered from his/her illness, he/she would not get dengue fever again. This perception is quite worrisome because in spite of taking more care to children after recovering from dengue fever, the respondents may take less care of the children and there is a greater chance of getting the severe form of the disease, i.e., DHF/DSS (Dengue Shock Syndrome).

Regard dengue fever preventive practices, only 41% of the respondents protected themselves from mosquito bite during day time although nearly 57% of them knew the biting habit of dengue mosquitoes. This result indicates that knowledge is not totally followed-up by preventive behaviors. In addition to health education, additional approaches to change the behaviors will be necessary.

No significant association was found between demographic characteristics and attitude of the respondents. A similar result was found in a 'KAP' study conducted in Malaysia in which no significant association was found between demographic characteristics and attitude regarding dengue fever (Hairi, *et al.* 2003).

There was a significant association between knowledge and attitude towards Dengue fever. This result is consistent with the result of a 'KAP' study on dengue in Malaysia by Hairi, *et al.* (2003). However, it is contrary to the findings in Brazil by Donalisio (2001) in which there was no association between knowledge and attitude. The authors agree with Brown's (1999) argument that a possible explanation is that different questions are used in different studies to determine the same beliefs. Consequently, it is difficult both to design appropriate tests of the Health Belief Model and to compare results across studies.

There was also a significant association between attitude and practices regarding dengue fever prevention. This result is consistent with the findings of studies in Vietnam which found a significant association between attitude and preventive practices on dengue fever (Huu 1998; Quan 2001). However, it contradicts the results of a KAP study in Malaysia by Hairi, *et al.* (2003) in which no association was found between attitude and preventive practices of dengue fever. According to Brown (1999), the reason why research does not always support the Health Belief Model is that factors other than health beliefs also heavily influence health behavior practices. These factors may include: special influences, cultural factors, socio-economic status, and previous experiences.

A significant association was found between duration of stay of respondents in Mae Sot and their knowledge on dengue fever. Those who lived in Mae Sot for more than three years had a better knowledge on dengue than those who lived there for less than three years. The former, due to their longer duration of stay, usually were more proficient in Thai language than the latter, and therefore, were more likely to get access to dengue information in Thai language.

The sufficiently large sample size and the probability sampling design assure the generalizability of findings. Nevertheless, the study sample is the representative of the

Myanmar migrant community in Mae Sot District only and does not represent the whole migrant population in Mae Sot District. Because of the cross-sectional survey design, the authors acknowledge that the study could not examine practices regarding dengue fever prevention over time. Nevertheless, the results are expected to be useful as a baseline data in future health promotion intervention programs including health education efforts for Myanmar migrants in Mae Sot District.

Conclusions and Recommendations

The significant associations between knowledge and attitudes; and attitudes and preventive practices of dengue fever in this study indicate that if the migrants are supplied with correct knowledge through appropriate channels, it may lead to changes in their attitudes and ultimately practices. Health education efforts focusing on the biting time and breeding habits of *Aedes* mosquitoes, as well as on the susceptibility and severity of dengue fever, will be beneficial.

The health education efforts should be targeted at women who are the main caretakers of the house. They ought to be supplied with knowledge and preventive methods on dengue fever and also with enforcing factors such as peer support. Surveys among Myanmar migrant women in Mae Sot District should be carried out over time to evaluate the effectiveness of these health education efforts.

The findings of the study indicate that if migrant women are supplied with correct knowledge through appropriate channels, they may change their attitudes and, ultimately, their practices. However, the survey data also show that knowledge is not the only factor which gives rise to preventive practices. Further study of the other dynamics would, therefore, be useful.

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