ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING MALARIA PREVENTION TOWARDS KAREN ETHNIC GROUP IN UMPIEM MAI REFUGEE CAMP, PHOBPHRA DISTRICT, TAK PROVINCE

Wahwahpaw Phensaengngam[1] Pongchai Harnyuttanakorn[1,2] and Naowarat Kanchanakhan[1,*]

[1]College of Public Health Sciences, Chulalongkorn University, Bangkok 10330

[2]Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok 10330

ABSTRACT: A cross-sectional study was conducted on 17 - 28 March 2008 to assess the current state of knowledge, attitude, and practice (KAP) regarding malaria prevention towards Karen ethnic group in Umpiem Mai refugee camp, Phobphra District, Tak Province. Three hundred seventy nine subjects age 15-60 were recruited in this study and a structured questionnaire was used to gathers the data. Chi-square was used to analyze association between independent and dependent variables. The result shows that 61.7% of respondents had good knowledge, 40.1% had good attitude while only 1% had good practice regarding malaria prevention. The study reveals that education, total family income and receiving information about malaria are significant associate with knowledge ($p = 0.019$, $p = 0.021$ and $p = 0.005$ respectively), highly significant association between education and attitude ($p < 0.001$) and the association between total family income and history of malaria with practice ($p < 0.001$ and $p = 0.043$). In conclusion, health education program with community participation should be emphasized in order to improve the knowledge, attitude and practice regarding malaria prevention.

Keywords: knowledge, attitude, practice, malaria, Karen ethnic, refugee

INTRODUCTION: Despite decades of successful control programs, malaria is still a public health problem in Thailand. High malaria transmission and drug-resistant malaria were found along the international borders; especially, Thai-Myanmar and Thai-Cambodia border[1)]. The most affected populations are the ethnic minorities, displaced persons, and migrant workers. One of the highest incidence areas is in Tak Province bordering Myanmar[2)] where mass population displacements and resettlement of vulnerable refugees in camps or locations prone to vector breeding[3)]. Umpiem Mai camp is one of nine Karen refugee camp situated along Thai-Myanmar border. Karen ethnic is the majority ethnic residing in this refugee camp[4)]. A better understanding of the epidemiology of malaria infection patterns among the populations would certainly lead to proper solutions for malaria infection control. Therefore, the present study was undertaken to assess the knowledge, attitudes and practices of these people on malaria and the information generated in the current study would help in designing and evaluating malaria control strategies.

MATERIALS AND METHODS: A cross-sectional, descriptive study was conducted from 17– 28 March 2008 in Umpiem Mai camp, Phobphra District, Tak Province. Four sections which have a population and household registered number were selected from 11 sections by sample random sampling. There were 4,966 people and 923 households from these four sections. 380 respondents were selected proportional to the size from household of each section by using stratified sampling method; however only 379 questionnaires were completed. Structured questionnaire in Karen language was used to collect the data. The questionnaire was reviewed and amended by three experts for the content validity. Five research assistants were selected and trained about the purpose and objective of this study, content of questionnaire and data collection process. Knowledge, attitude and practice regarding malaria prevention were determined. All of data entry was done and analyzed by using SPSS program, windows version 16. Chi-square test with the *p* value of <0.05 was used to indicate statistical significance.

*To whom correspondence should be addressed.
E-mail: Naowarat.K@chula.ac.th, Tel. and Fax. 0 2218 5261

RESULTS: The study population included 379 respondents whose characteristics were summarized in Table 1. The level of respondents' knowledge, attitude and practice regarding malaria prevention were shown in Table 2. Respondents' knowledge, attitude and practice were classified in 3 levels, "good, moderate and poor". The cut-off point for "Good" is greater than 80% of total scores, "Moderate" is 60% to 80% of total scores and "Poor" is less than 60% of total scores. Although 61.7% of respondents had good knowledge and 40.1% had good attitude and among 199 respondents only 1% had good practice towards malaria. When looking in detail on malaria knowledge, one-fourth of them had poor knowledge on malaria vector. About 10% of the respondents had good knowledge on malaria transmission and symptoms. Regarding to practice, respondents had good practice related to bed net (85% always sleep in bed net and all family member sleep in bed net (80%). Concerning practices on mosquito repellent (coil, in-door/out-door spray) very few percentages of respondents (0.3%) practice regularly. Most of them (73.6%) always wear long-sleeve cloth when stay outside at night time. However, only 5.5% take bed net when they go to the forest (table 3).

Table 2 Level of Knowledge, attitude and practice on malaria prevention

Item	Percentage		
	Good	Moderate	Poor
Overall knowledge of malaria (n=379)	61.7	36.7	1.6
Level of attitude (n=379)	40.1	58.3	1.6
Level of practice (n=199)	1.0	12.6	86.4

Table 1 Characteristics of the respondents (n=379)

	Number	(%)
Age		
15 - 20	68	17.9
21 - 30	131	34.6
31 - 40	113	29.8
41 - 60	67	17.7
Mean = 30.6, SD = 9.2	Range = 15 - 57	
Gender		
Male	128	33.8
Female	251	66.2
Marital Status		
Single	95	25.1
Married	269	71.0
Divorced + Widowed	15	3.9
Education		
Never attend school	109	28.8
Primary school	102	26.9
Secondary school	73	19.3
High school + College/University	87	23.0
Other	8	2.1
Occupation		
Housewife	183	48.3
Teacher + Health personnel	51	13.4
Small shop owner + Vender	15	4.0
Plantation + Water supplier	4	1.0
Daily wages	60	15.8
Other	66	17.4
Monthly family income (Baht)		
<500	150	39.6
500 – 1000	177	46.7
1001 - 2000	40	10.6
2001 – 3000 + > 3000	12	3.2
Median = 500, Range = 0 – 5,500 Baht		
Duration stay in refugee camp		
<1 year	12	3.2
1 year - 5 years	18	4.7
> 5 years	349	92.1
Total family member		
1 – 2	24	6.3
3 – 5	193	50.9
6 - 8	138	36.4
9 – 14	24	6.3
Mean = 2.44, SD = 0.730		
Received information about malaria		
Yes	345	91.0
No	34	9.0
Source of Information**		
Hospital	112	32.5
Home (Family member)	35	10.1
Community health worker	306	88.7
Community head leader	6	1.7
Neighbor	30	8.7
Drug vender	2	0.5
Traditional healer	2	0.5
Other	14	4.05
Family members suffered from malaria		
Yes	53	14.0
No	326	86.0
Place of infected (n=53)		
Outside camp	39	73.6
Inside camp	14	26.4
Source of healthcare family seeking for treatment (n=53)		
Hospital	52	98.1
Other	1	1.9

** Multiple responses allowed

Table 3 Practice towards malaria prevention

Practice towards malaria prevention (n=379)	Always	Sometimes	Never	Non-applicable*
	N (%)	N (%)	N (%)	N (%)
Sleep in mosquito net	321 (84.7)	42 (11.1)	10 (2.6)	6 (1.6)
Check the hole on bed net	289 (76.3)	69 (18.2)	17 (4.5)	4 (1.1)
Immediately repair the net	255 (67.3)	94 (24.8)	26 (6.9)	4 (1.1)
Use impregnated bed net	94 (24.8)	42 (11.1)	233 (61.5)	10 (2.6)
All family members sleep in bet net	302 (79.7)	53 (14.0)	23 (6.1)	1 (0.3)
Use mosquito repellent coil at night time	1 (0.3)	25 (6.6)	275 (72.6)	78 (20.6)
Use repellent to prevent yourself from mosquito bite	1 (0.3)	17 (4.5)	282 (74.4)	79 (20.8)
Use indoor anti-mosquito spray in your house	1 (0.3)	10 (2.6)	289 (76.3)	79 (20.8)
Use outdoor anti-mosquito spray for your house	8 (2.1)	37 (9.8)	276 (72.8)	58 (15.3)
Wear long-sleeve cloth when stay outside at night time	279 (73.6)	96 (25.3)	4 (1.1)	0 (0)
Clean the bushes around your house	203 (53.6)	174 (45.9)	2 (0.5)	0 (0)
Clean the stagnant water near your house	183 (48.3)	175 (46.2)	20 (5.3)	1 (0.3)
Put oil in to the stagnant water	12 (3.2)	36 (9.5)	316 (83.4)	15 (4.0)
Clear the dark corner in your house	211 (58.3)	147 (38.8)	9 (2.4)	2 (0.5)
Take bed net when you go to the forest	21 (5.5)	11 (2.9)	236 (62.3)	111 (29.3)
Go to hospital when you think you have malaria	327 (86.3)	45 (11.9)	5 (1.3)	2 (0.5)

*Non-applicable means not available or inaccessible.

Table 4 Association between characteristics and attitude, knowledge and practice

Characteristics	N	Attitude N (%)	
		Good	Moderate & Poor
Education[a]			
Never attend school + Other	117	37 (31.6)	80 (68.4)
Primary school + Secondary school	175	63 (36.0)	112 (64.0)
High school + College/University	87	52 (59.8)	35 (40.2)
Characteristics	**N**	**Knowledge N (%)**	
		Good	**Moderate & Poor**
Education[b]			
Never attend school + Other	117	60 (51.3)	57 (48.7)
Primary school + Secondary school	175	115 (65.7)	60 (34.3)
High school + College/University	87	59 (67.8)	28 (32.2)
Total family income (Baht/month)[c]			
< 500	150	81 (54.0)	69 (46.0)
500 – 1000	177	122 (68.9)	55 (31.1)
> 1000	52	31(59.6)	21 (40.4)
Received and heard information about malaria[d]			
Yes	345	211 (64.1)	124 (35.9)
No	34	13 (38.2)	21 (61.8)
Characteristics	**N**	**Practice N (%)**	
		Good & Moderate	**Need for improvement**
Total family income (Baht/month)[a]			
< 500	92	14 (15.2)	78 (84.8)
500 – 1000	87	40 (46.0)	47 (54.0)
> 1000	20	12(60.0)	8 (40.0)
Have you ever suffered from malaria[e]			
Yes	31	8 (25.8)	23 (74.2)
No	168	19 (11.3)	149 (88.7)

[a] p=<.001, [b] p=.019, [c] p=.021, [d] p=.005 [e] p=.043

The proportion of good attitude was highest in the group with highest education level (p<0.001) than those who with lower education level. Respondents with higher education level had more good knowledge than those who never attend school (p=0.019). Of the respondents with family income greater than 500 baht per month, had more good knowledge than those who family earn less than 500 baht per month (p=0.021). Most of respondents had received information about malaria through community health worker. Those who

received information about malaria tend to have more knowledge than those who never heard the information (p=0.005). It was found that percentage of good and moderate practice was higher in respondent group with total family income greater than 1000 baht per month than who family earn less than 500 baht per month (p=<.001) and respondents who ever suffered from malaria had more percentage of good and moderate practice than who never had history of malaria infection (p=.043) (Table 4).

DISCUSSION: Concerning to overall knowledge on malaria prevention, 62% out of 379 subjects had good knowledge and it was similar to the study in Karbcheang District, Surin Province, Thailand (63.3%) [5)]. Regarding to respondents' attitudes towards malaria prevention, 40.1% of respondents had positive attitudes level and this was lower than the study in Surin province (61.3%)[5)] where malaria is not endemic. In relation to level of practice out of 199 respondents, only 1% had good practice, 13% had moderate practice while most of respondents (86%) had poor practice regarding malaria prevention. This result was consistency with a study conducted in Vietnam[6)]. In this study, the proportion of ethnic people with good knowledge and good attitude in some extent was high (61.7% and 40.1%) while the proportion of good practice was very low (1%). Therefore, there were factors other than knowledge and attitude that have an effect on malaria prevention. This study reveals that (i) most of respondents had good knowledge while only a few of them had good practice regarding malaria prevention, (ii) to encourage practice we must overcome economic condition and (iii) make available of bed net, repellent, and spray to promote practice and contributed to the challenges of malaria control.

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การประเมินความรู้ เจตคติ และการปฏิบัติในการป้องกันโรคมาลาเรียในกลุ่มชนชาวกะเหรี่ยงในค่ายผู้อพยพอุมเปี้ยมใหม่ ตำบลพบพระ จังหวัดตาก

วาวาพอ เพ็ญแสงงาม[1] พงชัย หาญยุทธนากร[1,2] และ เนาวรัตน์ กาญจนาคาร[1,]*

[1]วิทยาลัยวิทยาศาสตร์สาธารณสุข [2]ภาควิชาชีววิทยา คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย กรุงเทพมหานคร 10330

บทคัดย่อ: การวิจัยเชิงสำรวจเพื่อประเมินความรู้ เจตคติ และการปฏิบัติในการป้องกันโรคมาลาเรียในกลุ่มชนชาวกะเหรี่ยงในค่ายผู้อพยพอุมเปี้ยมใหม่ ตำบลพบพระ จังหวัดตาก ระยะเวลาที่ศึกษาอยู่ในช่วงวันที่ 17 ถึง 28 มีนาคม พ.ศ. 2551 ประชากรที่สำรวจมีจำนวนทั้งสิ้น 379 คน มีช่วงอายุระหว่าง 15 ถึง 60 ปี การสำรวจครั้งนี้ทำโดยการใช้แบบสอบถามและวิเคราะห์หาความสัมพันธ์ทางสถิติด้วย ไค-สแควร์ จากการศึกษาพบว่าประชากรร้อยละ 61.7 มีความรู้เกี่ยวกับโรคมาลาเรียอยู่ในระดับดี ร้อยละ 40.1 มีเจตคติที่ดี แต่มีประชากรที่มีการปฏิบัติในการป้องกันโรคมาลาเรียอยู่ในระดับดีเพียงร้อยละ 1 จากการศึกษาพบว่าระดับการศึกษา รายได้รวมของครอบครัว และการได้รับข้อมูลเกี่ยวกับโรคมาลาเรีย มีความสัมพันธ์อย่างมีนัยสำคัญกับความรู้เกี่ยวกับโรคมาลาเรีย (P=0.019, P=0.021 และ P=0.005 ตามลำดับ) นอกจากนี้ยังพบความสัมพันธ์อย่างมีนัยสำคัญระหว่างระดับการศึกษาและเจตคติ (P<0.001) รายได้ของครอบครัวกับการปฏิบัติในการป้องกันโรคมาลาเรีย (P<0.001) ประวัติการติดเชื้อมาลาเรียกับการปฏิบัติในการป้องกันโรคมาลาเรีย (P=0-043) การจัดโปรแกรมการให้ความรู้เกี่ยวกับสุขภาพโดยให้ชุมชนมีส่วนร่วมจะช่วยปรับระดับความรู้ความเข้าใจ เจตคติ และการปฏิบัติในการป้องกันโรคมาลาเรียให้ดียิ่งขึ้น

คำสำคัญ: โรคมาลาเรีย ความรู้ เจตคติ และการปฏิบัติ การป้องกันโรค กลุ่มชนชาวกะเหรี่ยง ผู้อพยพ

*ติดต่อได้ที่: Naowarat.K@chula.ac.th, โทรศัพท์ โทรสาร 0 2218 5261