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SLEEPING SPACE AND SLEEPING PATTERN AS FACTORS ASSOCIATING BED NET UTILIZATION AMONG KAREN POPULATION ALONG THE THAI-MYANMAR BORDER: MIXED-METHODS APPROACH

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BACKGROND

- Malaria remained one of the public health concerns in Thailand.[1]
- The western border with Myanmar has had the highest burden of malaria in Thailand.[2]
- The use of long-lasting insecticidal nets is the key prevention & control strategy for reducing malaria transmission risk.

AIM

- To investigate bed net use in different sleeping spaces & sleeping pattern arrangements, misuse of bed net, & bed net maintenance among population at risk of malaria among population living along Thai-Myanmar border in Tak province.

METHODS

- This study used a mixed-method approach with a cross-sectional study design.
- The study setting was in 5 hamlets under ICEMR projects.
- Out of a total of 918 households, 331 were selected using an online statisticalcalculator[3].
- Questionnaire and inspection form was administered with heads of household.
- 22 potential participants including a community leaders & heads of households participated in semi-structured interview.
- Chi-square test was used to test the association of variables & thematic analysis was used to explain the utilization of bed nets.

RESULTS

Household head characteristics

Most head of households were Karen (95.2%), female (63.2%), 35 years or older (69.2%), illiterate (77.6%), family income ≤2,000 Bath/month (55.0%).

Folk way of Karen culture in sleeping space arrangement & their sleeping patterns

- Sleeping spaces were located in both hallway and bed room (Figure 1).

RESULTS

- Of a total of 1,423 household members, 56.6% shared a sleeping space with ≥3 people; 31.1% shared with 1 people; 12.4% slept alone

Bed net use in different sleeping spaces & sleeping pattern arrangements

- Sharing a sleeping space with ≥2 persons was more likely to use bed net (*P*-value=0.002) (Table 1).

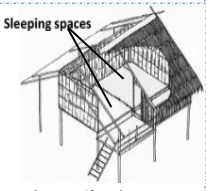

Figure 1 Sleeping space position in house

Table 1 Sleeping space covered by bed net among different location & number of persons sharing a sleeping space (n = 618)

	Without bed net		With bed net		χ^2 value	*P*-value
Location of sleeping space						
Bedroom (270, 43.69%)	16	5.9	254	94.1	3.852	0.050
Hallway (348, 56.31%)	36	10.3	312	89.7		
Number of persons sharing a sleeping space						
≤2 (397, 64.24%)	45	11.3	352	88.7	12.751	0.002*
3-4 (189, 30.58%)	5	2.7	184	97.4		
≥5 (32, 5.18%)	2	6.3	30	93.8		

*P-value<0.05

- Sleeping pattern based on gender and age were associated with bed net use (*P*-value= <0.001) (Table 2).

Table 2 Daily bed net use among different sleeping pattern (n=1,423)

	Not use bed net		Use bed nets		χ^2 value	*P*-value
	n	%	n	%		
Sleeping pattern based on gender						
Male alone (n= 99)	38	38.4	61	61.6	86.426	<0.001*
Female alone (n= 77)	14	18.2	63	81.8		
Male with female (spouse) (n= 162)	58	35.8	104	64.2		
Male with male (≥2 person) (n= 57)	14	24.6	43	75.4		
Male with female (not spouse) (≥2 person) (n= 827)	140	16.9	687	83.1		
Female with female (≥2 person) (n= 201)	8	4.0	193	96.0		
Sleeping pattern based on age (≤10 year)						
With child ≤10 year or child alone (n= 887)	130	14.7	757	85.3	30.275	<0.001*
Not with child ≤10 year (n= 536)	142	26.5	394	73.5		
Sleeping pattern based on age (≥60 year)						
With elder or elder alone (n= 194)	47	24.2	147	75.8	3.797	0.051
Not with elder (n= 1,229)	225	18.3	1,004	81.7		

*P-value<0.05

RESULTS

- Females were more likely to use bed net when compared with males. Most children (≤10 year) and pregnant woman used bed net every day.
- Changing sleeping locations such as sleeping in the forest or during the mobility was less likely to use bed net.

Misuse of bed net & bed net maintenance

- No report of misuse of the valid LLINs.
- If there were small holes, most people would repair by sewing/ tying off with twine/ rubber bands.

DISCUSSION

- Sharing a sleeping space with ≥2 persons had higher risk of exposure to mosquito bite because too crowd in on bed net.[4,5] LLINs & impregnating bed nets with insecticide should be more promoted.
- The size of LLINs to be suitable for entire family should be considered.
- Bed net use should be promoted with people who slept alone (especially male).
- Education needed to be tailored to engage men in participating in consistent & better personal protection such as the application of repellents (soaps or lotions) or burning mosquito coils in combination with bed net use if appropriate.

CONCLUSION

- The Sleeping space and sleeping pattern were factors associated with bed net use among Karen population.
- Interventions need to be refocused on increasing utilization of bed net among non-user.

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