

Knowledge, Attitude and Practice regarding Malaria Control among Suspected Cases at Selected Primary Health Care in Cox's Bazar

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Abstract

Background: As part of Sustainable Development Goal Malaria is aimed to zero indigenous transmission among country within 2030 and as part of this elimination from Cox's Bazar planned within 2025. This study aimed to assess Knowledge, Attitude and Care Seeking as well as reported cleanliness practice among suspected malaria patients to enhance chance from control to elimination phase.

Materials and methods: A cross sectional survey was conducted on 127 participants following convenient sampling who attended selected primary healthcare of endemic area during September to October 2023. A pretested semi structured questionnaire was used and data analysis done by excel following SPSS26.

Results: Age range between 18-80 years with a mean ($\pm$ SD) age of 35.95 ($\pm$ 14.32) years. 55.12% were male and 48.8% were poor. Though all participants had heard about malaria, 95.3% correctly answered that only mosquito bites transmit malaria, 92.1% could mention at least one malaria symptom but only 7.9% knew they need to test within first 48 hours. When 86.6% reported owning a bed net but 53.5% reported sleeping under a net. Out of 127 participants, 45.7% had good knowledge of malaria, 36.2% had good practice regarding malaria preventive measures, and 44.9% had a positive attitude regarding malaria.

Conclusions: Overall, the study found some evidence gap in Care seeking and reported cleanliness prevention practices although there is reasonable knowledge and positive attitude present.

Key words: Attitude; Elimination; Endemic; Knowledge; Malaria; Practice; Zero indigenous transmission

INTRODUCTION

Malaria, as a new and re-emerging disease, remains a severe global public health problem despite significant efforts to control the disease.¹ The number of malaria endemic countries in 2000 were 6 which increased to 28 in 2022.²

There has been a historic reduction in malaria (>93%) in Bangladesh from 2008-2020.^{3,4} But after Covid-19 Pandemic the situation changed. To achieve the targets National Malaria Elimination Program programmed phase wise elimination in different zones- Mymensingh, Sylhet, Chattogram and Cox's Bazar and aims to reduce the burden in three hill tract districts by 2025, which ultimately results in a complete interruption of local transmission nationwide by 2030.³⁻⁶

Ramu Upazila is under Cox's Bazar district sharing borders with Myanmar, Alikadam (Bandarban) and Chattogram highway so its endemic for malaria which mostly reflected on last 2 years from 265 in 2022 to 510 cases in 2023, more than half of malaria cases of district belong to this area.^{7,8} Given this shift in the malaria burden, it has become increasingly important to develop strategies. As appropriation of any control program by the population and their willingness to act is primarily influenced by their level of Knowledge, attitude and practicing behavior towards the

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disease and existing control measures. Considering this preconception, this study aimed to assess the knowledge, attitude and reported practices among suspected patients who attended primary health care for test and furthermore treatment.

MATERIALS AND METHODS

In this cross-sectional study following non probability sampling data collection took place from September to October 2023 where 127 included who were suspected malaria cases aging above 18 years and attended the Mukti kassapia malaria Laboratory and Garjania Sub center. The Ethical approval was obtained prior to the initiation of study from the Ethical Review of committee of Cox's bazar Civil Surgeon Office and Ramu Upazilla health authorities. Participants provided voluntary consent before enrollment of data collection and strict confidentiality maintained.

A semi structured pretested mixed type questionnaire is adopted from previous studies. Both questionnaire and consent form wrote on English and Bangla. Received responses were tabulated using Excel and analyzed using SPSS software version 26.

RESULTS

Results are analyzed from the mixed questionnaire which have four parts. First part contained demographic data. Second, third and fourth part are constructed to assess the knowledge, attitude and practice on malaria prevention respectively.

Table I Demographic profile of respondents

Variables	Percentage (%)
AGE	
<40 years	11.84
40-60 years	31.75
>60 years	12.7
POVERTY LEVEL	
<7,690 Tk	77.47
7,690-12,500 Tk	59.69
12,500-21,500 Tk	21.59
>21,500 Tk	2.54
EDUCATIONAL LEVEL	
Above primary level	8.7
Primary Level	57.48
Below primary level / no formal education	33.86

Out of total 127 responses from suspected malaria patients, mostly below 40 years with 57.48% primary level education, 45% were male and 77.47% were earned less than 7,690 taka which marked them as poor according to Gross National Income (GNI) which followed the Power Parity Poverty Line (PPP). This male population are involved with illegal/legal occupation that are related with deep forest or Myanmar border.

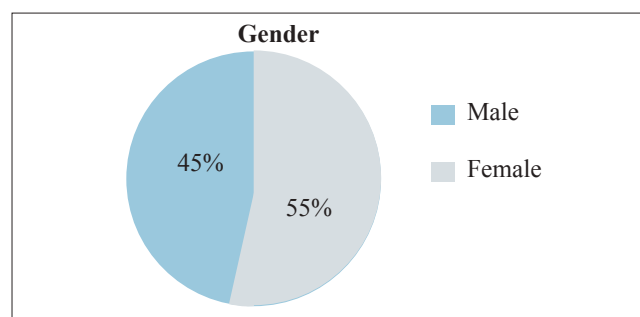


Figure 1 Gender distribution of the patients

Table II Participants' responds to the knowledge related questions

Knowledge related questions with Answer Variables	Percentage (%)
Have you heard about malaria?	
Yes	100.0
How is malaria spread?	
Sleep with a sick person	4.7
Mosquito bite	95.3
Malaria symptoms	
Fever/high grade temperature with chills	95.3
Convulsion	44.9
Headache	30.8
Vomiting	40.2
Body pain	10.2
Loss of Energy	10.5
Delirium	32.3
Malaria can be prevented by	
Mosquito net	99.2
Spray Insecticide	65.4
Mosquito Coils	59.8
Antimalarial Drugs	14.2
If you suspect Malaria or only feeling feverish with a history with transmission nearby or travel history to risk area where you will go	
GOB/GFTAM NGO setup	100.0
To seek help you will contact	
Within 48 hours	7.9
Within 48-72 hours	42.5
After 72 hours	49.6
Mosquito that causes malaria bites	
At night time	7.1
Any time of day	53.5
Don't know	39.4
Source of information about malaria	
Poster or community meeting	6.3
Media (Radio, Newspaper, Internet, TV)	17.3
Don't know	76.4

This whole table is counted as each answer containing score 1 except symptoms and preventive methods where more than one answerscored 2. Out of 10, total knowledge score ranged between 5-9 with the mean ($\pm$ SD) knowledge score was 7.24 ($\pm$ 1.01). Participants were categorized as having good knowledge with a knowledge score of >7, average 5-7 and poor <5.

Table III Knowledge Level of Participants

Knowledge level □	Percentage
Good□	45.7%
Average□	54.3%
Poor□	0%

Table IV Participants' responds to the attitude related statements

Attitude related statements	Totally agree□	Agree□	Neutral□	Disagree□	Totally disagree□
Everybody can have malaria□	41.7%	58.3%	0%	0%	0%
Malaria is deadly□	14.2%	69.3%	16.5%	0%	0%
Malaria can be cured without medical treatment□	0%	0%	15.0%	60.9%	24.4%
Malaria can be prevented□	21.3%	44.9%	25.2%	8.7%	0%
It is important to be tested before taking malaria treatment□	11.0%	40.9%	25.2%	22.0%	0.8%
It is necessary to finish malaria treatment □	15.7%	39.4%	44.1%	0.8%	0%

For each statement related to attitude: The responses, based on Likert's scaling technique, had five possible levels, ranging from strongly agree (Score 5) agree (Score 4) neutral (score 3) disagree (Score 2) to strongly disagree (Score 1). The scale was reversed for one item (Malaria can be cured without medical treatment. In this study attitude score range between 19-28 with the mean ($\pm$ SD) attitude score 23.37 ($\pm$ 1.91).

Table V Attitude Level of the participants

Attitude level□	Percentage
Positive □	44.9%
Negative □	55.1%

Table VI Reported practice of the participants

Malaria prevention related practices□	Percentage (%)
Household owns a bed net□	86.6
Use bed net every night □	53.5
There is hole in the net□	7.9
Used other measures for malaria prevention□	62.2
In addition to bed net took additional preventive measures for prevention□	100.0
Clean surrounding□	56.7
Contact with the local GOVT. to clean surrounding when mosquito is increased□	0.8
Local GOVT. clean surrounding or use any other measure to destroy breeding place for mosquitoes□	4.7
In case of any symptoms or any abnormality after visiting hill/forest seek help from the Primary Health Facilities□	78.8
Received LLIN from GOVT□	58.3
Household own a net for every two people□	62.2

Following same Likert scale scoring in 3 the practice level of participants calculated where mean ($\pm$ SD) practice score was 6.98 ($\pm$ 1.64). same as knowledge domain good, average and poor has defined.

Table VI Reported practice Level of the participants

Practice Level□	Percentage
Good□	36.2%
Average□	27.6%
Poor□	36.2%

Table V Factors associated malaria prevention practices among the participants (Comparison Done by Chi-Square Test)

Variables	Levels of practice				p value
	Good practice		Bad practice		
	n	%	n	%	
Age category					
<40 years	27	58.7%	55	67.9%	0.573 ^{NS}
40-60 years	15	32.6%	20	24.7%	
>60 years	4	8.7%	6	7.4%	
Gender					
Male	19	41.3%	51	63.0%	0.018 ^S
Female	27	58.7%	30	37.0%	
Poverty level					
Poor	20	43.5%	42	51.9%	0.364 ^{NS}
Non-poor	26	56.5%	39	48.1%	
Educational level					
No formal education	15	32.6%	28	34.6%	0.754 ^{NS}
Primary	28	60.9%	45	55.6%	
Above class 5	3	6.5%	8	9.9%	
Knowledge levels					
Good	19	41.3%	39	48.1%	0.457 ^{NS}
Poor	27	58.7%	42	51.9%	
Attitude levels					
Positive	20	43.5%	37	45.7%	0.811 ^{NS}
Negative	26	56.5%	44	54.3%	

p values were obtained from Chi-square test. NS:Statistically non-significant. S:Statistically significant. Here, degree of freedom (df)=1.

The association between age, gender, poverty level, educational level, knowledge level and attitude levels of the participants with prevention practices were assessed by Chi-square test for trend where $p < 0.05$ was considered as statistical significance, which depicts a significant association between gender and prevention practice levels. A significantly higher proportion of the male participants were engaged in bad malaria prevention practices (63% versus 37%, $p = 0.018$).

DISCUSSION

Malaria is an Anopheles mosquito borne infectious disease that spread by Plasmodium parasite mainly by P. Vivax and P. Falciparum⁸ and putting 2.5 billion people at risk⁹ P. Vivax is less susceptible to intervention.¹⁰ Despite successful

intervention like Long Lasting Insecticidal Net Distribution throughout the country Bangladesh is facing challenges to control the higher prevalence area as reason like underdeveloped referral system and lack of information like KAP Surveys which can ensure personal, familial and community-level acceptance and adherence.^{11,12} The sole rely on LLIN will not be fruitful and also there is gap between distribution as according to WHO guideline in area where in last 2 year no transmission there is no distribution also suboptimal distribution also responsible. This is evident by reported 58.3% participants who claimed they had yet to receive any form of bed net which result in those 53.5% people who reported to be not use bed net every day. These findings are supported by study like Ahmed SM et al. and Bashar et al.^{12,13}

For demographic profile this study is supported by previous study in our countries like Saha et al. and Faiz et al.¹⁵ also regarding knowledge there is similarities in both studies where 100% response is affirmative with the malaria concept which is also similar in study at Cambodia.¹⁴⁻¹⁶ However, this rate is different for countries like Saudi Arabia (South western part where 70.5% had heard but 23% of the respondents answered correctly about mosquitoes).¹⁷ Malaysia peninsular (86.2% in cities and 76% in rural areas knew about malaria) Nepal (50% aware of cause of malaria) and Senegal (81.1% of the participants had heard and 87.7% reported correctly about transmission).¹⁸⁻²⁰ However, by Tairou et al. 12.9% of the participants reported sleeping with a sick person as possible means of malaria transmission, which was 4.7% in the present study.²⁰

Recognition of the early symptoms of malaria is key to seeking early treatment. In the present study, the majority of the respondents were aware of the symptoms of malaria. 121 out of 127 were able to recognize 'Fever with chill' as the main symptom. In comparison the study of Bashar et al. this knowledge level was low only 25% but in Saha et al.^{13,14} 89% knew about vector with the 63% knowledge of symptoms. This improvement in knowledge domain was probably due to educational programs by GOVT. and NGO workers. 86% respondents from Saha et al. knew they need to seek help within first 48 hours but there is knowledge gap in present study only within 48 hours 7.9% and within 48-72 hours 42.5% knew they need to seek help after onset which also supported by study of Ahmed et al.^{13,21} There is also lack in knowledge regarding prevention which also found in Bashar et al.¹³ This information also evident in other study where malaria is prevalent and authors suggested the lack of knowledge likely stems from a lack of Information, Education and Communication (IEC).¹³⁻¹⁹

In present study with a 44.9% good attitude its evident people are changing which is also found in study like China and Srilanka which declared zero transmission area in last decade.^{22,23}

Practice of malaria prevention methods, such as the use of Insecticide-Treated Nets (ITNs) and seeking appropriate treatment, is influenced by the level of knowledge and attitude. Higher knowledge and positive attitudes are associated with better preventive practices.^{24,25,26} As for reported preventive practice there is evidence gap as only 36.2% showed good practice level where 27.6% average but 36.2% had reported bad practice which is not that different from other country like Senegal (32.8%) where malaria is prevalent.²⁰ This finding is also supported by the study of Ahmed et al.²¹

The association between age, gender, poverty level, knowledge level and attitude levels of participants were assessed by Chi square test however only gender mainly male shows largely bad practice. However, a significant association between positive attitude, education level & household wealth showed significant association by Tairou et al. and Ahmed et al.^{20,21}

Due to resource limitations (Small sample size, reported data regarding prevention practice may influenced to social desirability, fund crisis) this study done only in quantitative manner but qualitative data could make it more enriched and bias (ex. recall bias) free.

CONCLUSION

This study revealed attending primary health care of Cox's Bazar with relatively good knowledge, positive attitude suspected patients of malaria reportedly had bad practice regarding Malaria prevention which can delay the zero indigenous transmission.

RECOMMENDATIONS

Educational level and access to information are key factors that influence KAP levels. Higher education and exposure to health information lead to better knowledge, attitudes and practices. There is a need for targeted interventions to improve KAP levels among specific groups, like forest goers or illegal traders who cross the border at night time. Also policy regarding LLIN need a revise after pandemic.

DISCLOSURE

All the authors declared no competing interest.

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