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COMMUNITY AWARENESS OF MALARIA IN RURAL PUNJAB: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: India has highest number of Malaria cases second only to African countries. Rural India which comprises of 80% of Indian population lives in malaria risk areas. Community participation is very important for the success of any program. Awareness and knowledge leads to participation.

Aim: The aim of our study was to find out the level of awareness about malaria and knowledge of preventive practices in villagers from Punjab and to spread the awareness in form of teaching the preventive measures to the survey respondents just before start of monsoon season which is malaria outbreak time and to provide information for malaria elimination in alignment to national mission 2016-2030.

Methods: A cross sectional study of two villages of Punjab was done. A structured questionnaire was used. Data was collected from all residents willing to participate. Through questionnaire information about socio-demographic profile, malaria awareness, practices and preventive measures was collected.

Results: Overall, respondents had awareness towards malaria and mosquito as the means of transmission of malaria, but few know about the treatment and preventive measures to be taken related to spreading of malaria disease. The awareness was created in form public meetings and the results of the survey were widespread by the respondents with help of community centers and volunteers.

Key words: Malaria, Knowledge, Prevention, Health, Rural

1. INTRODUCTION

India contributes 70% of malaria cases and 69% of malaria deaths in the South-East Asia Region. However, a WHO projection showed an impact in terms of a decrease of 50–75% in the number of malaria cases by 2015 in India (relative to 2000 baseline), which



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showed that the country has been on track to decrease case incidence 2000–2015. According to WHO malaria report 2015, it clearly states that to be able to eliminate Malaria efforts are on throughout the world for a long time. Year 2015 was not only the end of the era of *Millennium Development Goals* (MDGs) but also was the target year set by World Health Assembly for attaining malaria goals. WORLD Malaria report 2015 shows dramatic decline in Malaria. Fifty-Seven countries have been able to reduce their malaria burden by 75%. Also, World Health Organization (WHO) European region has reported zero indigenous malaria cases. World Health Assembly has approved Global Technical strategy for Malaria 2016-2030. The target of this is to reduce global malaria incidence and mortality by 90% by the year 2030. (1)

Though we have been able to achieve reasonable success a lot still needs to be done to reduce Malaria burden. Most often we fail to understand the role of community involvement in reducing malaria burden and hence underutilize it. Approximately 80% of India's population lives in malaria risk areas (3) In India, malaria control activities happen at both the national and local levels. The National Vector Borne Disease Control Programme (NVBDCP) is a programme Government of India runs for the prevention and control of all vector-borne diseases (5).

Key components of the NVBDCP are:

- Early case detection and prompt treatment;
- Integrated vector control with indoor residual spraying of insecticides, use of larvicides or larvivorous fish, and use of insecticide-treated bed nets; and,
- Education and communication to promote community participation (6).

Malaria Programs are mostly aimed at:

- Providing community vector control measures, for example, indoor spraying, bed nets free of charge.
- Spreading awareness at PHCs/Health centres or through media (radio, T.V., etc.) (4)

These services do not require any active participation from villagers. Hence a culture of dependency is developed. Villagers become totally dependent on control programs and expect all protection to be provided to them. They do not focus on actions which they can take as community members to help themselves and eventually add to overall success of Malaria Eradication Programs. (4)

When we visited these villages we found a lot of measures can be taken by local people themselves so as to reduce the incidence of Malaria. One example is water collection in coolers, ponds, puddles. It is a very simple and easy task to empty the utensils and fill the standing water bodies. by the villagers themselves, yet it is not done for lack of initiative. Another good example is non compliance to the instructions given by malaria team in terms of use of full sleeves clothes or bed nets. Just supplying bed nets will not make a difference till these are actually put to use.

Community involvement can only be achieved by providing them with knowledge about malaria vector habits, preventive measures they can take and symptoms of disease for early detection and treatment and motivating them to be a part of Army fighting against malaria.

Even after realizing the importance of community participation in malaria control efforts, we know little about the effectiveness of such awareness campaigns or knowledge of malaria in the country generally. A recent national study assessing knowledge about various aspects of malaria found significant variability across demographic and geographic groups in India (7).

A study was conducted in China in 2010 to find out the malaria awareness in elementary and high school students before the start of national malaria elimination Program. The study found that the students did not have adequate awareness about malaria, its symptoms, spread and pathogenicity. Hence it was felt that school health campaigns should help increase awareness on malaria among students. (9)

Another study was done in and around Mumbai at 4 places to check the knowledge of people about malaria and preventive measures taken by them. As the four areas of Mumbai differed in knowledge, prevention practices, and primary sources of information, so the strategy adopted in each area for malaria should be tailored according to environment, knowledge gaps and preferences. (8)

The aim of our study was to find out the level of awareness in villagers from Punjab and to provide information for malaria elimination. In this study a cross sectional investigation into basic knowledge of Malaria at villagers' level was carried out to understand the current status.

2. METHOD

2.1 Study design

A cross sectional study was conducted in July 2015 to know malaria awareness in two villages of Punjab. The reason behind choosing July as the time for survey was as it is the malaria outburst time due to monsoon season. The questionnaire based survey was conducted for the respondents belonging to the villages in Punjab. The survey was conducted by the students of Chitkara University.



2.2 Sample size and study setting

The study population was the residents of Jhansla and Kalumajra villages of Rajpura district of Punjab. Stratified random sampling of households was done. All members of each household were approached for participation. To be eligible to participate the member had to be a resident of village, be 18 years or more in age, and should be able to understand Punjabi, Hindi or English. Total 1000 households were included. Permission was sought from the Sarpanch (Head of the village) of all the villages.

2.3 Data collection

A structured interviewer administered questionnaire was used. The questionnaire was administered by students of Chitkara School of Health Sciences who were well versed with Malaria as a disease, clinical presentation and its prevention. It took approximately 20 minutes to complete each questionnaire. Through questionnaire information about socio-demographic profile, malaria awareness, practices and preventive measures was collected.

Each question was awarded one mark for correct answer, while each incorrect answer was given zero marks. The total marks of five questions were evaluated as follows: scores of five were considered “excellent”, while scores of three to four, one to two and zero were considered “good”, “poor” and “very poor”, respectively. The ranks of “excellent” and “good” were considered as “aware”, otherwise were “not aware”.

After 2 weeks of collecting the data all participants were gathered in a Gurudwara with prior announcement and briefed in detail about malaria symptoms, prevention, measures to be taken individually and collectively, diagnosis and treatment available.

2.4 Results & discussion

A total of 3612 questionnaires were effective while 612 were excluded because of incomplete survey responses in this cross-sectional study. The majority of the respondents of survey were (44.83%) adults aged from 30 to 50 years old. Only 21.87% respondents were of the age above 50 and the rest were below 30 years of age. The ratio of male to female was close to 1:3 since the survey respondents were mainly females of the households as the male members were out for performing their day to day tasks in agricultural fields or other activities of the employment. The majority of the population is uneducated hence the need of spreading awareness is clearly required only 12% were having education higher or equivalent to senior secondary rest 88% were uneducated or below senior secondary. The details from these questionnaires are presented in Table 1.

Table 1: Demographic characteristic of population of effective questionnaires (N=3000)

Characteristics	N	%
Age group, years		
< 30	999	33.30
30-50	1345	44.83
> 50	656	21.87
Gender		
Male	789	26.30
Female	2211	73.70
Education		
Uneducated	1022	34.06
< Matric	548	18.26
Matric	658	21.93
Senior Secondary	412	13.73
> Senior Secondary	360	12
Total Family Members		
<4	427	14.23
4-6	1646	54.86
>6	927	30.90
Occupation		



Daily Wage Worker	298	9.93
Housewife	1448	48.26
Self Employed	629	20.96
Farmer	267	8.90
Others	358	11.93

3. KNOWLEDGE OF MALARIA

All respondents' understanding of malaria knowledge was not the same. Among 3000 effective questionnaires, the percentage of correct responses to the questions about malaria causes, how it spreads and about the severity of the malaria was around 74%, 77% and 65% respectively but only 45% were aware of the treatment of malaria and 59% were aware of the preventive measures taken by government for malaria. So majority of the population i.e. 55% is still unaware of the treatment of malaria and also the preventive measure taken by the government are not reaching to the general public reflected by 40% respondents who have no idea about malaria prevention as shown in table 2.

Table: 2 Distribution of knowledge of malaria in rural population of Punjab (N=3000)

Items	N	%
Have you ever heard of malaria?		
Yes	3000	100
No	0	0
What causes malaria?		
Correct	2223	74.10
Incorrect	777	25.90
Can malaria spread from one person to another?		
Correct	2317	77.23
Incorrect	683	22.76
Is malaria a fatal disease?		
Correct	1971	65.70
Incorrect	1029	34.30
Are you aware about the treatment of malaria?		
Yes	1376	45.86
No	1624	54.13
Are you aware about the measures taken by government to prevent malaria?		
Yes	1773	59.10
No	1227	40.90



4. AWARENESS OF MALARIA

Among the effective questionnaires, only 759 respondents responded correctly to all five questions, and 467 respondents were unaware of malaria. Only 56.7% of respondents were aware of malaria; most were ranked as “good” grade. Furthermore, there were significant differences of awareness of malaria among three age groups were the respondents of age group above 50 were found least aware (58%).

Awareness of malaria was better in males than females. In addition, awareness of malaria in respondents less than 30 years of age was better than other respondents who were above 30 years of age. The details are presented in Table 3.

Table 3: Characteristics of awareness of malaria in rural population of Punjab

Characteristics	Aware (N= 1890)		Not-aware (N= 1130)	
	Excellent (N=759)	Good (N=1131)	Poor (N=643)	Very Poor (N=467)
Age group, years				
< 30	351 (35.13%)	409 (40.94%)	119 (11.91%)	120 (12.01%)
30-50	392 (29.14%)	621 (46.17%)	325 (24.16%)	107 (7.95%)
> 50	116 (17.68%)	101 (15.39%)	199 (30.33%)	240 (36.58%)
Gender				
Male	217 (27.50%)	380 (48.16%)	93 (11.78%)	99 (12.54%)
Female	542 (24.51%)	751 (33.96%)	550 (24.87%)	368 (16.64%)
Education				
Uneducated	98 (9.58%)	166 (16.24%)	429 (41.97%)	329 (32.19%)
< Matric	73 (13.32%)	308 (56.20%)	81 (14.78%)	86 (15.69%)
Matric	185 (28.11%)	346 (52.58%)	98 (14.89%)	29 (4.40%)
Senior Secondary	196 (47.57%)	194 (47.07%)	9 (2.18%)	13 (3.15%)
> Senior Secondary	207 (57.5%)	117 (32.5%)	26 (7.22%)	10 (2.77%)
Total Family Members				
<4	198 (46.37%)	69 (16.15%)	105 (24.59%)	55 (12.88%)
4-6	334 (20.29%)	782 (47.50%)	371 (22.53%)	159 (9.65%)
>6	227 (24.28%)	280 (30.20%)	167 (18.01%)	253 (27.29%)
Occupation				
Daily Wage Worker	83 (27.85%)	42 (14.09%)	39 (13.08%)	134 (44.96%)
Housewife	325 (22.44%)	687 (47.44%)	283 (19.54%)	153 (10.56%)
Self Employed	182 (28.93%)	294 (46.74%)	131 (20.82%)	22 (3.49%)
Farmer	74 (27.71%)	53 (19.85%)	93 (34.83%)	47 (17.60%)
Others	95 (26.53%)	55 (16.36%)	97 (27.09%)	111 (31%)

Also, it was found that almost 100% population was aware that fever and chills as the malaria symptoms but few knew about fatigue and nausea and only 25% of the population has complete awareness of the symptoms (figure 1).

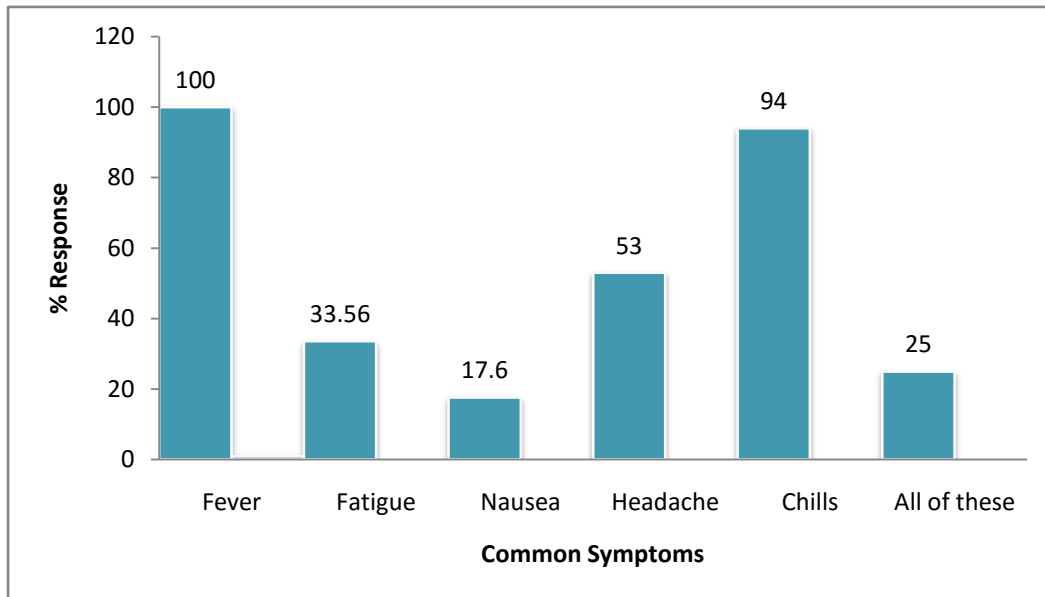


Figure 1- Assesment of awareness for symptoms of malaria in the rural population

Majority of the respondents were unaware that the standing clean water can also be the breeding site for malaria mosquitoes (Figure 2) and awareness related to the same was created in post survey session during the public meeting.

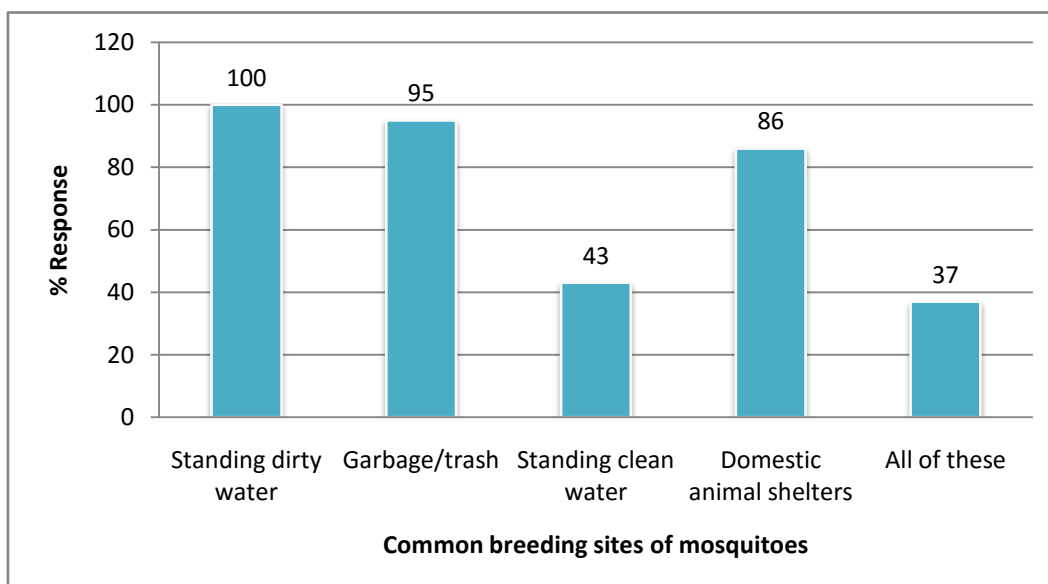


Figure 2- Assesment of awareness for Breeding sites of malaria mosquitoes

As evident from Figure 3, there was very less use of mosquito spray (DEET repellants) and covering of body parts as malaria prevention. Most of the respondents felt that mosquito mats and coils are 100% effective for prevention of the malaria.

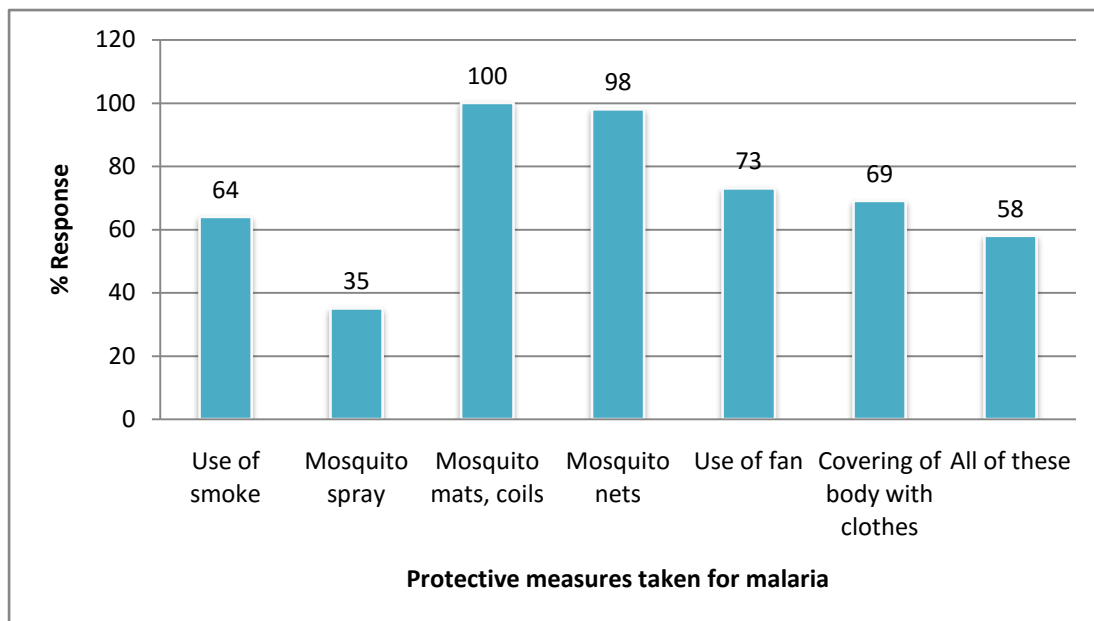


Figure 3- Assesment of awareness for Protective Measures for Malaria

5. CONCLUSION

A difference in malaria-related knowledge and prevention practices across the respondents is apparent. While most individuals are aware of the disease and know the means of transmission still there exists the ignorance towards the most common symptoms and some prevention strategies, there are also knowledge gaps that need to be filled and widespread misconceptions that need to be corrected. Education regarding malaria is especially needed in the villages, where a sizeable proportion of residents seem unaware of the disease, and where knowledge is also poorer. Malaria prevention campaigns should be tailored according to knowledge gaps, practices, environment, resources, and preferences. The campaigns in local language represented by some of the influential people in the local areas have widespread effect and the need of proper water disposal and cleanliness in the surrounding is required.

6. COMPETING INTERESTS

The authors declared that they have no competing interests.

7. AUTHORS' CONTRIBUTIONS

Dr Meenakshi Sood conceived the study, designed the questionnaire. She participated in data collection and drafted the manuscript.

Meenaxi Gautam Sharma compiled the data helped in drafting and later revised the manuscript.

Dr Sachin Ahuja helped in data analysis and concluding the study

All authors read and approved the final manuscript.

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