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Original Research Article

Knowledge, Attitude, Practices about Malaria in a Rural Endemic Area of Kolar, India

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ABSTRACT

Background: Malaria preventive measures are related to knowledge and beliefs of people. The poor and vulnerable populations are disproportionately affected by malaria and the severe consequences of malaria are borne more by the poorest. Hence this study was undertaken to study the Knowledge, attitude and practice of malaria and to conduct larva survey to identify the breeding sites of mosquito.

Materials and Methods: A Cross-sectional study was conducted on 371 subjects aged >18 years in the endemic villages of Kolar for a period of two months. Data was collected by questionnaire method. Larva survey was done to identify the breeding sites. Frequencies, proportions and chi-square test are the test of significance.

Results: Among the 371 subjects interviewed 78% (i.e. 290) knew about malaria. The most common source of information among the subjects was from doctors 34%. 76.2% and 85% said that malaria is a communicable disease and transmitted from mosquito bite. 93.4% and 53.4% had an attitude that malaria could be cured and malaria causes death respectively. 92% and 47.9% felt that malaria can be prevented and more than one method can be used to control mosquitoes respectively. 40.6% were practicing more than one method to protect from mosquito bite.

Conclusions: Behaviour change communication has to be strengthened by involving the panchayat members to adopt personal protective measures and also integrated vector control measures to be undertaken to control malaria.

Key Words: KAP, Malaria, Larva survey, Endemic.

INTRODUCTION

Malaria is a major public health problem in India and one which contributes significantly to the overall malaria burden in South-East Asia. The National Vector Borne Disease Control Program of India reported 1.6 million cases and 1100 malaria deaths in 2009, in most parts of India the API was <2,

whereas 2-5 API was in scattered regions, while regions with >5 API were scattered in the states like Rajasthan, Gujarat, Karnataka, Goa, southern Madhya Pradesh, Chhattisgarh, Jharkhand and Orissa, and in the northeastern states.^[1] Information, Education and Communication (IEC) has been an integral part of all the approaches to

control malaria.^[2] The focus on malaria control today is a comprehensive or an integrated approach using early diagnosis and prompt treatment, personal protection measures to avoid mosquito bites, control of mosquito breeding through larvivorous fishes and killing mosquitoes through insecticide treated bet nets or spraying.^[3,4]

Malaria preventive measures are related to knowledge and beliefs of people.^[5] The poor and vulnerable populations are disproportionately affected by malaria and the severe consequences of malaria are borne more by the poorest.^[6] Studies on knowledge, attitudes and practices are becoming more important to design and improve malaria control activities, to establish epidemiological and behavioral baselines and to identify indicators for monitoring programs.^[7] Prevention of the disease through better knowledge and awareness is the appropriate way to keep disease away and remain healthy as illness confusion and health-seeking behavior may enhance or interfere with the effectiveness of control measures.^[8] Malaria is an endemic disease in our rural field practice area covering 19 villages with Annual Parasite Incidence (API) of 2.9 for the year 2012. Hence this area is categorized as high risk area. This area has reported malaria cases every year and has become a point of discussion in state and district level meets. Though the cases have reduced significantly by sustained effort of health workers with integrated approach to control the vector and by improving the awareness by health education during anti - malaria month programs. Even with sustained effort it has not been able to control the disease. Hence this study has been undertaken to find out whether the people of this community have sufficient knowledge regarding malaria, its causation, treatment and control.

MATERIALS AND METHODS

A Cross-sectional study was carried out among the adults (>18yrs) in the villages which reported malaria cases in rural field practice area of our medical college during the year 2013 for a period of two months after obtaining the institutional ethical clearance. For a population size of 11,000 with 50% hypothesized frequency (p) and confidence limits as % of 100 (d) sample size 371 was obtained and data was collected by using a pretested and structured questionnaire after obtaining the oral informed consent.

Statistical Methods: The data was compiled in Microsoft excel and EPI info 7 software was used to analyze the data. Descriptive statistics like proportions and confidence intervals was computed. Chi-square test is the test of significance for qualitative data and a p value of <0.05 was considered as statistically significant.

RESULTS

In the study it was observed that majority 196 (52.8%) were in the age group of 20 to 39yrs. 194 (52.2%) were illiterates and most of them were engaged in Unskilled profession 58.2% and 38% belonged to poor socio- economic status. There was significant difference between males and females with respect to occupation and educational status [Table 1].

Among the 371 subjects interviewed 78% (i.e. 290) knew about malaria and were assessed for Knowledge, attitude and practices regarding malaria. The most common source of information among the subjects was from Doctors 34% (i.e. 100). 76.2% (i.e. 221) said that malaria is a communicable disease, 85% (i.e. 247) said that malaria is transmitted from mosquito bite. 62.7% (i.e. 182) said that Fever with chills was the common symptom of malaria. 32.7% said that the most common site of mosquito breeding was stagnant water and

56.5% said that the mosquito bite is common during night. There was significant difference in knowledge between males and

females with respect to source of information and mosquito breeding sites [Table 2].

Table 1: Socio-Demographic Profile of Subjects.

		Female (n= 216)	Male (n=155)	Total (n=371)	p value
Age	20 to 39 Yrs	122	74	196	0.08
	40 to 59 Yrs	73	70	143	
	> 60 Yrs	21	11	32	
Education	Illiterate	99	50	149	0.02**
	Primary	58	58	116	
	Secondary and Above	59	47	106	
Occupation	Semi Professional	10	23	33	0.0001***
	Skilled Profession	3	10	13	
	Semi-Skilled Profession	44	65	109	
	Unskilled and others	159	57	216	
Socio-Economic Status	>5156	13	13	26	0.075
	2578-5155	15	16	31	
	1547-2577	59	37	96	
	773-1546	92	49	141	
	<773	37	40	77	

Table 2: Knowledge about Malaria.

		Female (n= 216)	Male (n=155)	Total (n=371)	p value
Know about Malaria	Yes	163	127	290	0.137
	No	53	28	81	
Source of Information		Female (n=163)	Male (n=127)	Total (n=290)	0.013**
	Doctor	48	52	100	
	Mass media	11	17	28	
	Health workers	31	20	51	
	Friend/Relatives	36	13	49	
Malaria communicability	More than one source	37	25	62	0.828
	Yes	125	96	221	
	No	38	31	69	
Malaria transmission	Mosquito bite	138	109	247	0.384
	Other Sources	20	11	31	
	More than one source	5	7	12	
Symptoms	Fever with chills	101	81	182	0.411
	Other Symptoms	19	9	28	
	More than one symptom	43	37	80	
Mosquito breeding	Stagnant Water	55	40	95	0.011**
	Other Sources	77	44	87	
	More than one site	31	43	74	
Time of mosquito bite	Night	83	81	164	0.09
	Other Times	47	27	74	
	More than one time	33	19	52	

Majority 93.4% (i.e. 271) had an attitude that malaria could be cured and 53.4% felt that malaria causes death. 92% (i.e. 267) felt that malaria can be prevented and 47.9% felt that more than one method can be used to control mosquitoes. 40.6% (i.e. 118) were practicing more than one method to protect from mosquito bite. Only 7.2% of the family

members suffered from malaria in past 6 months. There was significant difference in attitude between males and females with respect to curability and prevention of malaria. There was significant difference in practices between males and females with respect to protection from mosquito bite. 5.35% of fresh water bodies and irrigated

streams showed positive for mosquito larva in these endemic villages and 2.5% of

cement tank/drums/tyres were positive for larva [Table 3].

Table 3: Attitude, Practices of Subjects towards Malaria and Larva survey.

Attitude		Female (n=163)	Male (n=127)	Total (n=290)	p value
Malaria Curable	Yes	146	125	271	0.002**
	No	17	2	19	
Malaria causes death	Yes	93	62	155	0.163
	No	70	65	135	
Is malaria preventable disease	Yes	144	123	267	0.008**
	No	19	4	23	
Can you Control mosquitoes	Mosquito nets/ Screening	40	27	67	0.791
	Other Methods	47	37	84	
	More than one method	76	63	139	
Practices					
Protection from Mosquito bite	Mosquito net	59	29	88	0.047*
	Other Measures	44	40	84	
	Multiple	60	58	118	
Practicing environmental measures to control malaria	Yes	10	6	16	0.601
	No	153	121	274	
Larva survey		No of Sites Positive	No of sites negative	Total sites Examined	
Fresh Water bodies/ Irrigated streams		3	50	56	
Cement Tank/Drums Tyres/Pots/Others		15	572	587	

DISCUSSION

The present study was conducted in malaria endemic area to assess knowledge, attitude and practices about the cause, prevention and treatment of malaria and their bearing on the control of the disease. It was observed that majority were in age group 20 to 39yrs i.e. 52.8%. 58.2% were females, 40.2% were illiterates, unskilled occupation was found in majority i.e. 58.2% and 58.7% belonged to low socio economic status. There was significant association between males and females with respect to education and occupation.

May O. Lwin et al in their study in observed that among 242 subjects 50% were males and 50% females, mean age was 36 years, 53% completed secondary school and 34% completed primary education. [9] Similar observations were made by Humphrey D.Mazigo et al., in Nigeria 57.9% were females, 60.1% were in the age group 20 to 39years, 29.2% were illiterates, 57.4% had primary education and 89.3%

were engaged in unskilled occupation like farming. [10] Were as Singh RK et al., majority of the subjects were females i.e. 61.4% and 38.6 %were males, Illiteracy – 37.2% and Primary level education – 26.1%, Low economic group – 72.4%, Unemployed – 53.1. [11]

The awareness about malaria was high in this endemic area which can be due to occurrence of malaria every year and awareness programs conducted by health team. Doctors and health workers were the most common source for information in 52%. 76.2% (i.e. 221) knew that malaria is a communicable disease, 85% (i.e. 247) knew that malaria is transmitted from mosquito bite. 62.7% (i.e. 182) knew that Fever with chills was the common symptom of malaria. 32.7% knew that stagnant water was the most common site of mosquito breeding was and 56.5% knew that the mosquito bite is common during night. The awareness was slightly higher in males because most of the females in village would stay at home and

hence could be less aware. There was significant difference in knowledge between males and females with respect to source of information and mosquito breeding sites. Males were informed by doctors and mass media whereas females were informed by health workers and friend/relatives. Females were more aware that mosquito breeding was more common in stagnant water.

Singh RK et al., observed that 92.5% were aware of malaria, 74.4% knew about common symptoms of malaria, 82.4% respondents reported fever, shivering as common symptoms. 66.67% reported that malaria is transmitted by mosquito bite, 26.53% reported mosquitoes, breed in clean water and 54.5 in polluted water. There was significant difference in the awareness between male and female, illiterate and literate and low and high income group population. ^[11] Similarly Pandit N et al., observed that 98.7% were aware of mosquito breeding sites, garbage is the mosquito breeding site in 19.3%, 71% reported malaria is caused by mosquito bite. In 77.5% television was the source of information. ^[12]

Majority 93.4% opined that malaria could be cured and 53.4% felt that malaria causes death. 92% reported that malaria can be prevented and 47.9% opined that more than one method should be used to control mosquitoes. All the respondents were using one or other method to protect themselves. 40.6% were practicing more than one method to protect from mosquito bite. Hence majority of the respondents had positive attitude towards malaria control and prevention. The attitude was statistically significant between males and females with respect to curability, prevention and protection from mosquito bite.

In Tanzania Mazigo HD et al. observed that 90% of subjects were using one or other protective measures among them majority i.e. 63.9 were using

insecticide treated bed nets. ^[10] Singh RK et al., observed that 79.6% reported malaria can be prevented. Only one third (32.6%) respondents were taking control measures. ^[11] Pandit N et al., 97% of study participants were using one or other personal protective measures against mosquito Bites. ^[12]

Malaria mosquito usually breed in fresh water bodies such as ground pools, small streams, irrigated lands, freshwater marshes, forest pools, and any other place with clean, slow-moving water. In the study 5.35% of fresh water bodies and irrigated streams showed positive for mosquito larva in these endemic villages and 2.5% of cement tank/drums/tyres were positive for larva. In spite of repeated fogging and use of larvivorous fishes there were few water bodies which were larva positive. This is due to resistance by community at few places towards fogging and larvivorous fishes as it would contaminate the water and makes it unfit for domestic purposes.

The main reasons for the endemicity in this area according to healthworkers were, there are construction sites where in workers tend to migrate from various parts of the country who can act as a reservoir and transmit infection. Along with it migrated people also live in poor housing conditions without sanitary facilities, inadequate space, and crowded spaces. The other reasons were people were not considerate to keep their surroundings clean with minor environmental modifications to avoid water collections. They were of the opinion that it's the responsibility of gram panchayat and health workers. Use of Insecticide treated nets was not extensive as they were not provided to the community free of cost.

CONCLUSIONS

The study revealed that knowledge, attitude and practices about malaria was not satisfactory and there was varied perception about causes, spread of disease, and source

of infection and prevention of disease. It can be one of the important factors responsible for the persistence of malaria in endemic areas. Health personnel were the major source of knowledge in this the population. Low education status is one of the major drawbacks for effective control and intervention measures. Though majority of the subjects were practicing one or other protective measures the use of bed nets must be widespread for malaria control. BCC activities must be improved to create awareness and integrated vector measures must be adopted to control the disease in this endemic area. Public and private sector collaboration must be encouraged in control activities against malaria. Further studies are required to identify the cause for persistence of malaria and adopt a suitable method to control the vector.

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