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Original Research Article

Awareness on causes and transmission of malaria in rural Kolar of Southern India: a comparative study

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ABSTRACT

Background: Malaria is a major public health problem in several parts of country. Malaria beliefs and practices are often related to culture, and can influence the effectiveness of control strategies. This study was undertaken to assess the awareness of malaria in rural areas of Kolar with varying endemicity.
Methods: A cross sectional community based study was conducted. A sample of 207 Household respondents across the Kolar rural area were randomly selected and interviewed to collect information on awareness regarding Malaria. Two villages each were randomly selected from the two PHC areas in Mulbagal Taluk, Kolar District. PHC areas was taken based on annual parasite incidence more than 2 and less than 1 consistently in the past five years by using pre-tested structured proforma. Data analyzed by using epi info 2.5 version software.
Results: It was observed that appropriate knowledge regarding malaria transmission from person to person is more in Devarayasamudra Primary Health Center area (69.2%) where API>2 compared to Nangli Primary Health Center area (26.2%) where API<1 and the knowledge regarding causes of malaria is also more in Devarayasamudra PHC area compared to Nangli area. Majority (87%) of the respondents got information about malaria from the health workers at Devarayasamudra PHC area.
Conclusions: The Community knowledge on malaria, its transmission and its prevalence and control clearly depends on the endemicity of malaria. The communities studied under Devarayasamudra PHC area which is problematic for malaria had a better knowledge on malaria transmission and its prevention.

Keywords: Malaria, Transmission, Knowledge, Kolar

INTRODUCTION

In 2016, 91 countries reported a total of 216 million cases of malaria, an increase of 5 million cases over the previous year. The global tally of malaria deaths reached 445000 deaths, about the same number reported in 2015.[1]

Malaria is a major public health problem in several parts of India. About 95 % of the population in country resides in malaria endemic areas and 80 % of malaria reported in the country is confined to areas consisting 20% of population residing in hilly, tribal and inaccessible areas. Karnataka is one among the high burden states in India for malaria.[2]

The awareness about various aspects of malaria is very important in effective control of malaria. The respondents knowledge on mosquito bites and means of transmission of malaria is very important in malaria control. The respondents from the construction sites, city and village had good knowledge that malaria is transmitted from mosquito bites. But majority of the respondents from all

these sectors in correctly believed that malaria could be contracted by drinking contaminated water, eating contaminated food, or close contact with a malaria patient. Thus there is some discrepancy among the respondents about malaria transmission.[3]

Community participation and Community Knowledge is very important in implementing National malaria control programme.

In South India very few studies have been conducted though malaria is one of the public health problems hence the study undertaken

Objectives

The study was conducted for assessing the awareness on causes, transmission and symptoms of malaria in two areas of Kolar District, Karnataka..

METHODS

The study was undertaken in Mulbagal Taluk area, which is one of the five taluks in Kolar, located 25 kms from the district headquarters. Kolar district, Karnataka, India. There are 343 villages in Mulbagal Taluk covered by 17 PHC's for health care delivery. For the study purpose the PHC area was divided into two groups. One group of PHCs with API >2 and another with API <1, consistently in the last five years.[4]

Study design and data collection

The study is a community based cross-sectional study. The sampling was done at two stages. First, two PHC areas were selected randomly based on endemicity from Mulbagal rural area of Kolar district. Devarayasamudra from the group of PHCs with API>2 and Nangli PHC from API<1 group.[5] Second, two villages each were selected randomly from each of these PHC areas namely Bellamballi and Hoskere from Devarayasamudra PHC and Patrahalli and Seegehalli villages from Nangli PHC. A structured questionnaire was used to interview the respondent. The questionnaire was administered to 207 randomly selected households (103 households at Devarayasamudra PHC and 104 households at Nangli PHC). The survey, based on a 74-item structured questionnaire focusing on socio economic status, environment, education experiences and awareness against malaria, was conducted in the local vernacular (Kannada and Telugu).The survey was conducted by household visits between 8 am and 11 am and 6 pm and 8 pm.

The study was carried out during the period from December 2011 to May 2012.

Ethical Clearance

The study received approval by the research review board and the ethical review board of Sri Devaraj Urs Medical College, Kolar. Verbal informed consent was obtained from the participants or their guardians before proceeding with the survey activities. Anonymity of the respondents at all stages of data analysis was maintained.

Data analysis

The information from questionnaire survey was entered in Microsoft Excel and later analyzed with open epi info version 3.5, Chi-square 'p' value of <0.05 was considered statistically significant.

Comparisons between the malaria endemic areas and low endemic area groups were made by chi-square test for bivariate analysis. Crude odds ratios (OR) and their 95% confidence intervals were calculated

RESULTS

A total of 207 household respondents were interviewed, 104 from Devarayasamudra PHC area and 103 from Nangli PHC area. There were 536 (49.0%) females and 561 (51.0%) males. The socio-demographic and household characteristics of the study population are presented in Table 1.

Around 48 per cent of the head of the households in the studied communities were illiterate. The proportion of illiterates in Nangli PHC area was 54.4 per cent and in Devarayasamudra PHC was 41%. The socioeconomic status of the households surveyed in the two PHC areas was graded as per Pareek's socioeconomic classification. The variables studied which included nine components namely caste, occupation, education, land owning, social participation, family members, house, farm power and material possession (Table 1).

None of the households came under the upper and upper middle class (Grade I and II). Majority (72.5%) of the households would be classified under lower middle class. Around 20 per cent belong to lower class and there is no significant difference in the distribution of households according to socioeconomic classification in the two PHC areas. The studied villages had only Hindus. All the households surveyed belong to either scheduled caste, scheduled tribes or other back ward community. There were none belonging to upper caste group (Table 1).

Appropriate knowledge regarding malaria transmission from person to person is more in Devarayasamudra PHC area (69.2%) compared to Nangli area (26.2). This difference in the knowledge regarding malaria transmission from person to transmission is statistically significant (p<0.001) (Table 2).

In Devarayasamudra PHC area has received much higher information or knowledge regarding malaria by health care providers (87%) where as in Nangli PHC area very few (10.5%) of the households recollected about the health care providers providing information on malaria.

ASHA workers are involved in delivery of information regarding malaria in Nangli area where as in Devarayasamudra area they are not involved (Table 2).

Table 1 Socio-demographic and household characteristics of the study population.

Variables	Devarayasamudra PHC*	Nangli PHC**	Total
	N (%)	N (%)	N (%)
No. of households	104 (50.2)	103 (49.8)	207 (100)
No. of males	275 (51)	286 (51.3)	561 (51.15)
No. of females	265 (49)	271 (48.7)	536 (48.85)
Education			
Illiterates	43 (41.3)	56 (54.4)	99 (47.9)
Primary and middle	20 (19.2)	11 (10.7)	31 (15)
High school	19 (18.3)	14 (13.6)	33 (16)
College and above	22 (21.2)	22 (21.4)	29 (21.3)
Grades* **			
lll	7 (6.5)	11 (9)	18 (7.7)
IV	76 (71)	75 (74)	151 (72.5)
V	21(22.5)	16 (17)	37(19.7)
Caste			
Scheduled caste	34 (32.7)	18 (17.3)	52 (25)
Scheduled tribe	12 (11.5)	24 (23)	3 (17.2)
Other backward caste (OBC)	58 (55.8)	62 (59.6)	120 (58.9)

*API>2 – Devarayasamudra PHC; **API<1- Nangli PHC; ***Grades- Pareek socioeconomic classification.

Table 2: Reported knowledge on malaria transmission in the study population in Mulbagal.

Variables	Devaraysamudra PHC	Nangli PHC	Total	χ^2 test	P value
	N (%)	N (%)	N (%)		
Person to person transmission	72 (69.2)	28 (26.9)	100 (48)	38.28	<0.001
Knowledge/information providers					
Health care providers*	91 (87.5)	13 (10.5)	104 (49)	119.1	<0.001
Students**	35 (33.7)	8 (7.7)	43 (20.7)	21.73	<0.001
ASHA workers	Nil	18 (17.3)	18 (17.3)	NA	NA

*Health care providers- Doctors and ANM's; **Students- Medical and Nursing students.

Table 3: Distribution of households in relation to awareness on causes, transmission, and symptoms of malaria.

Variables	Devarayasamudra PHC	Nangli PHC	Total	χ^2 test	P value
	N (%)	N (%)	N (%)		
Awareness on causes of malaria					
Mosquito	85 (81.7)	35 (34)	120	48.43	<0.001
House fly	2 (1.9)	6 (5.8)	8		
Dirty water	1 (1)	1 (1)	2		
Do not know	16 (15.4)	61 (59)	77	47.40	<0.001
Awareness on symptoms of malaria					
Fever	84 (34.2)	29 (27.8)	113 (32.3)	57.79	<0.001
Headache	41 (16.7)	Nil	41 (11.7)		
Body ache	53 (21.6)	6 (5.7)	59 (16.9)	51.73	<0.001
Chills	57 (24.2)	4 (3.8)	61 (17.4)	64.54	<0.001
Do not know	10 (4)	65 (62.5)	75 (21.4)	64.09	<0.001
Total	245	104	349 (100)		

The knowledge on the causes and symptoms of malaria is better in Devarayasamudra PHC area compared to Nangli PHC area. Appropriate knowledge regarding causes of malaria is more in Devarayasamudra PHC area (81.7%) compared to Nangli area (34%). This difference in the knowledge regarding causes of malaria by mosquito bite is statistically significant (p<0.001). Around 62% of the respondents in Nangli PHC area could not mention any symptom of malaria (Table 3).

DISCUSSION

Finding knowledge and practices is a good initial step for planning public health measures. This is of greater value in diseases such as malaria, wherein awareness about the cause and spread is a major stakeholder for prevention. The community knowledge on malaria, it's transmission and it's prevalence and control clearly depends on the endemicity of malaria. It assumes significance in a state like Karnataka wherein the distribution of malaria cases within this state is not geographically uniform. Further communities studied under Devarayasamudra PHC area which is problematic for malaria and Nangli PHC area which is non-problematic for Malaria. Therefore, the strength of this study lies in its ability to capture the probable contribution of disease awareness among these areas. The findings of this study could shape the future discourse of research on local approaches to prevention of endemic diseases in India.

In our study we reported on knowledge of person to person transmission in the communities and we found that around 48% of the interviewed persons were aware that malaria is transmitted by mosquito bites. This knowledge was better in Devarayasamudra PHC area community (69.2%) compared to Nangli PHC area (26.9%). This difference was statistically significant ($p<0.001$). This may be attributable to high level of education in the rural community especially at Devarayasamudra PHC area where API >2. Knowledge of mosquito behavior is important to take appropriate malaria preventive actions and it was relatively high among participants of the present study. Budhathoki et al in the year 2008 did a study on perceptions of malaria pattern of treatment seeking behavior among Tharu and Pahari communities of Jhalari and it was observed that 33.1% of the subjects had knowledge regarding person to person transmission.[6]

The knowledge on transmission of malaria was acquired from either health care providers namely ANMs, ASHA workers and, medical and nursing students. Around 33.7% of the interviewed household members in Devarayasamudra PHC area mentioned that they acquired information on malaria transmission from medical and nursing students and, interns of the medical college in Kolar. Devarayasamudra PHC area is the field practice area for this medical college. Hence, the knowledge on malaria and it's transmission is better (69.2%) in Devarayasamudra PHC area compared to Nangli PHC area (26.9%). In a study conducted by Joshi et al, the source of knowledge regarding malaria was health workers (21.7%), relatives and friends (13.5%), and malaria patients (10.2%).[7] John et al reported 52.8% and 28.9% of the respondents got information about malaria from Radio/TV and health workers respectively, while in our study about 87% of the respondents got information about malaria from the health workers. May be this is the reason among the problematic area of Devarayasamudra PHC area the respondents are more aware on malaria person to person transmission. In the same study they identified 90.9% as mosquito is the cause for malaria, in our study had a similar finding of about 82% respondents aware that mosquito is the cause for malaria transmission in the problematic area of PHC. 76.7% identified the bites of mosquito infected with malaria as the means of malaria transmission.[8]

We also found that awareness on causes of malaria by mosquito bites was 81.7% in Devarayasamudra PHC compared to 34% in Nangli PHC area. This difference was statistically significant ($p<0.001$). Similar findings were observed in a study conducted by Joshi et al where 73.7% of the subjects had awareness on causes of malaria by mosquito bite.[7]

In a study conducted by Mazigo et al expressed fever and headache as a common symptom identified by the respondents. It has been observed that fever was the common symptom expressed by the respondents in our study.[9]

CONCLUSION

The community knowledge on malaria, it's transmission and it's prevalence and control clearly depends on the endemicity of malaria. The communities studied under Devarayasamudra PHC area which is problematic for malaria had a better knowledge on malaria transmission and it's prevention. The knowledge on malaria transmission, it's prevention and control was relatively poor in Nangli PHC area.

Health is one of the thrust areas under the National Common Minimum Programme (NCMP). NRHM under NCMP has the mission of improving the availability and accessibility to quality health care services to people in the rural areas. The findings from this survey on knowledge and practices in malaria prevention have important implications for implementing the malaria prevention and control programme. The results of the study show that there is a felt need for providing credible information on malaria and its prevention under the anti malaria programme.

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REFERENCES

1. World Health Organization. World malaria report, 2017. Available at http://www.who.int/malaria/world_malaria_report_2017/WMR2017_factsheet.pdf\. Accessed on 29 April 2018.
2. World Health Organization. Fact sheets on vector borne diseases in India.2014. Available at http://www.searo.who.int/india/mediacentre/events/

world_health_day/VBD_Fact_Sheets.pdf. Accessed on 29 April 2018.
3. Dhawan G, Joseph N, Pekow PS, Rogers CA, Poudel KC, Bulzacchelli MT. Malaria-related knowledge and prevention practices in four neighbourhoods in and around Mumbai, India: a cross-sectional study. Malaria J. 2014;13:303.
4. District Malaria office. NVDCP. Progress report 2011. District Health Family Welfare Service. Kolar.
5. Malaria elimination: a field manual for low and moderate endemic countries. Geneva, World Health Organization, 2007. Available at: http://www.who.int/malaria/docs/elimination/MalariaElimination_BD.pdf. Accessed on 25 April 2017.
6. Budhathoki CB, Bc RK. Perceptions of Malaria and pattern of treatment seeking behaviour among Tharu and Pahari communities of Jhalari. J Nepal Health Res Council. 2008;6(13):84-92.
7. Joshi AB, Banjara MR. Malaria related knowledge, practices and behaviour of people in Nepal. J Vector Borne Dis. 2008;45(1):44-50.
8. Arute John E, Okolosi-Patani Emily O, Ahwinahwi Ufuoma S, Agare Goodnews I. A Survey of the Knowledge, Attitude and Practice of Lay Publics' Towards Malaria in Delta State, Nigeria. International Res J Pharmaceutical Biosci. 2016;3(2):8-24.
9. Mazigo HD, Obasy E, Mauka W, Manyiri P, Zinga M, Eliningaya J, et al. Knowledge, Attitudes, and Practices about Malaria and Its Control in Rural Northwest Tanzania. Malaria Res Treatment. 2010: 2010.

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