ORIGINAL ARTICLE

# PERCEPTIONS REGARDING MOSQUITO BORNE DISEASES IN AN URBAN AREA OF RAJKOT CITY

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## ABSTRACT

**Background:** Mosquito borne diseases is a growing urban problem because of unplanned urbanization, industrialization and excessive population growth coupled with rural to urban migration. For developing a suitable and effective health education strategy, it is inevitable to understand the level of knowledge of the community, their attitude and practices regarding mosquito borne diseases.
**Materials and Methods:** The present study was carried out in an urban field practice area of Urban Health Centre in Rajkot city. Total 500 houses were selected for study by systematic random sampling. Data was collected using a semi-structured questionnaire during transmission season of vector borne diseases. The results were analyzed using the SPSS 17 software.
**Results:** 90% respondents agreed that mosquitoes are a problem. 30.4% didn't know breeding sites of mosquitoes. Only 11.6% of people associated clean water collections with mosquito breeding. Regarding diseases transmitted by mosquito, 62% answered malaria, 37.4% were not aware and 8.8% people mentioned about Filariasis, Dengue or Japanese encephalitis. 4.7% granted mosquito control as responsibility of community. 61.4 % were using repellents for prevention against mosquito bites and 39% not taking any preventive measure. 67.8% consulted private practitioner for treatment.
**Conclusion:** Intensified efforts towards creating public awareness and mobilizing the community regarding the preventive measures they can take are needed.

**Key-words:** Mosquito borne diseases, community perception, mosquitoes, malaria

## INTRODUCTION

In recent years, vector-borne diseases (VBD) have emerged as a serious public health problem in countries of the South-East Asia Region, including India. [1] During 2008, Gujarat state reported a total of 50884 malaria cases including 11668 plasmodium falciparum cases and 36 deaths, and 1065 dengue cases with two deaths. [2] Mosquito borne diseases is a growing urban problem because of unplanned urbanization, industrialization and excessive population growth coupled with rural to urban migration. National Vector Borne Disease Control Programme(NVBDCP) is one of the most comprehensive and multifaceted public health activity including prevention and control of mosquito borne diseases. [3]Environmental control offers the best approach to the control of mosquitoes. Source reduction is potentially the ideal method for controlling mosquito. It is the method applied to prevent breeding of mosquito, by means of taking care of the larval breeding sources. It requires public motivation through health education and usually legislation and law enforcement to encourage community participation. Community participation is essential for the prevention and control of an outbreak of mosquito borne disease.[4-5] For developing a suitable and effective health education strategy, it is inevitable to understand the level of knowledge of the community, their attitude and practices regarding mosquito borne diseases. With this background, it was decided to carry out this study in the urban locality of Rajkot city.

## MATERIAL AND METHODS

The present study was carried out in an urban field practice area of Urban Health Centre (UHC) under community medicine department of government

medical college, Rajkot. Total 500 houses were selected for study with systematic random sampling. Data was collected during transmission season of vector borne diseases. The information was gathered using a semi-structured questionnaire, which included questions related to perceptions of people on mosquitoes, their breeding places, the diseases spread by them, control measures, personal protection measures used in community and source of treatment. Questionnaire was filled in by trained interviewers. Interview was carried out with a respondent from each house, preferably a head of family. Pilot study was carried out to find out any deficit and accordingly corrected. The results were analyzed using the SPSS 17 software.

## RESULTS

Present study shows the observations based upon responses received from 500 respondents. Among respondents, all were adults; 28.9% were male and 71.1% were female. Responses to each question have been analyzed separately. In response to a question whether they perceived mosquitoes as a problem or not, 90 percent of the respondents agreed that mosquitoes are a problem. Out of which 68.3% gave the reason of nuisance from mosquito bite, while only 21.7 percent mentioned that mosquitoes cause disease.

A question was asked regarding the breeding places of mosquitoes. 30.4% respondents did not know breeding sites of mosquitoes. More than half (54.2%) responded drains or polluted water, while 11.6% of people associated clean water collections with mosquito breeding. Only some (7.2%) replied garbage or green plants [Table 1].

**Table 1:** Knowledge about breeding places of mosquito

| Answers for breeding places of mosquito* | Respondents (n=500) (%) |
|---|---|
| Drains/ Polluted water | 271 (54.2) |
| Clean water | 58 (11.6) |
| Garbage/ Green plants | 36 (7.2) |
| Don't know | 152 (30.4) |

*Multiple responses

Regarding diseases transmitted by mosquito, 62% answered malaria. 37.4% interviewees were not aware of any disease being transmitted. Only few (8.8%) people mentioned about Filariasis, Dengue or Japanese encephalitis. Rest (5%) reacted with other diseases. When it was asked how you would identify mosquito borne disease, more than one-third (35.8%) people could not reply. About 42.6 percent responded fever, while 23.6% people mentioned fever and body ache/ shivering. Remainders answered combinations of nausea, vomiting and above symptoms and signs [Table 2].

**Table 2:** Knowledge about mosquito borne diseases and their symptoms/signs

| Responses | Respondents (n=500) (%) |
|---|---|
| **Diseases transmitted by mosquito*** | |
| Malaria | 310 (62.0) |
| Filariasis/ Dengue/ Japanese Encephalitis | 44 (8.8) |
| Other diseases | 25 (5.0) |
| Don't Know | 187 (37.4) |
| **Symptoms/ signs** | |
| Fever | 213 (42.6) |
| Fever & Body ache/ Shivering | 118 (23.6) |
| Nausea/ vomitting & above | 47 (9.4) |
| Don't know | 179 (35.8) |

*Multiple responses

When asked what they could do to reduce mosquitoes, 22 percent did not know anything about it. About 34 percent identified chemicals, while others reacted with variety of measures related to environmental sanitation like cleanliness of surrounding, proper drainage and emptying of containers. When asked about responsibility for mosquito control, majority of people (76.5%) mentioned government's responsibility. Very few (4.7%) granted that it is the responsibility of community, while rest did not answer at all.

**Table 3:** Personal protection measures against mosquito bite

| Personal protection measures* | Respondents (n=500) (%) |
|---|---|
| Repellents | 307 (61.4) |
| Mosquito bed net | 51 (10.2) |
| Screening of windows\ doors | 15 (3.0) |
| Fans | 102 (20.4) |
| Don't use any measure | 195 (39.0) |

*Multiple responses

The people were queried about personal protective measures being taken by them. Repellents in various forms like mosquito coils, creams, mats and vapours were used by 61.4 % respondents for prevention against mosquito bites. About 10 percent people were using mosquito bed net, while only 3 percent replied screening of windows/ doors. 20.4% people mentioned use of fans. More than one third (39%) respondents were not taking any preventive measure [Table 3].

**Table 4:** Source of treatment

| Source of treatment | Fever cases (n=118) (%) |
|---|---|
| Government health system | 16 (13.6) |
| Private practitioner | 80 (67.8) |
| Self medication | 13 (11.0) |
| Home remedy | 4 (3.4) |

On asking about fever in last fifteen days in family, 118 fever cases were found. Majority of them (67.8%) consulted private practitioner for that. Only 13.6% went to government health system for taking treatment. 11 percent cases took self-medication like buying drugs from medical stores, while a very few (3.4%) used home remedies as treatment [Table 4].

## DISCUSSION

It is an established fact that community participation is essential for control of mosquito borne diseases. The present study showed that most of respondents accepted mosquito as a problem, but only about one fifth (21.7%) of them related this problem with diseases spread by mosquito. 37.4% were not aware of diseases transmitted by mosquito and very few knew that filariasis, dengue and Japanese encephalitis are related with mosquito. Even for malaria, it was known by respondents below expectation. This shows that the perceived risk of mosquito as a cause of morbidity and mortality is considerably low by people. Naturally this leads to lack of interest by people in the control of mosquito. A study[6] reported the same and emphasized upon necessity of knowledge about consequences of not controlling mosquitoes for better community participation.

30.4% respondents did not know where mosquitoes breed. Though 54.2 percent people related drains and polluted water with mosquito breeding, but only 11.6% could identify clean water as a breeding place for mosquito. A study in Karnataka[7] found 55% respondents having correct knowledge regarding breeding sites of mosquitoes and suggested that the breeding of Anopheles and Aedes mosquitoes in relatively clean water in domestic water containers should be conveyed to community. This shows that vector borne disease control programmes should stress the importance of source reduction as a method for control of indoor mosquito breeding for dengue/urban malaria prevention activities.

More than one-third (39%) respondents did not use any measure for protection against mosquito bite and 20.4 percent were using fan for the same. It shows how lack of knowledge about risk of mosquito bites results into practice of not taking any specific measure for prevention. Majority of people (76.5%) considered that control of mosquito is government's responsibility. An interventional study[8] concluded that community-based educational interventions are effective in increasing understanding and active involvement of community in mosquito control and disease prevention.

Present study showed that 67.8% of fever cases sought treatment from private practitioner, while very few (13.6%) went to government health facility and other either took self-medication or home remedy. A study[7] also reported the same as 67% cases consulted the private medical practitioner. If people do not seek treatment from government health facility, then it would be very difficult task for government to reduce burden of mosquito borne diseases. Reasons for the same should be explored and properly dealt with to get hold over the situation.

It can be concluded that intensified efforts towards creating public awareness and mobilizing the community regarding the preventive measures they can take are needed. Information about breeding sites of mosquitoes, mortal outcomes of mosquito bite and control measures should be conveyed to community in innovative and efficient ways. So it can improve knowledge and awareness of community and thereby help in social mobilization for full involvement of the community in control of mosquito borne diseases.

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