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Original Research Article

Knowledge Awareness and Practices Regarding Mosquito Borne Diseases among People of Jana, Maharashtra

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ABSTRACT

Background: Mosquitoes are the most common disease vectors worldwide. Recently in India mosquito borne diseases have revealed as a big threat to public health specially disease like Dengue, Malaria and Chikungunya. The objective of the survey was to study the awareness, attributes and practices about mosquito borne diseases in urban areas of Jalna, Maharashtra and explore various myths about mosquito borne diseases.

Materials and Methods: This community based cross sectional study was conducted in Jalna urban of Maharashtra, India during Feb to May 2018 among 877 respondents, survey was done with the help of pre designed and pre-tested structural questionnaire. The aim was to assess the knowledge, awareness and preventive measures regarding mosquito borne diseases.

Result: We have conducted study among 877 people from various areas of Jalna Urban. 71% people said that, mosquito bite in evening time, it was observed that 88% people have knowledge about mosquito egg laying habitat and more than 50% people depended on artificial methods for precaution against mosquito bite. 51% people do not visit government department related to mosquito borne diseases while only 30 % people know the importance of Dry day celebration.

Conclusion: There is a need to make people more aware about preventive measures and practices, thus it could help in controlling outbreak of diseases. Escalated efforts should be made to enhance public awareness.

Keywords: Mosquito Borne Diseases, Awareness, preventive measures, Structural Questionnaire & Jalna

INTRODUCTION

Mosquitoes are one of the deadliest Insects in the world. Nearly 700 million people get a mosquito-borne illness each year resulting in over one million deaths. [1] The mosquito is a Dipteran insect belongs to family *Culicidae*. Although there are 3541 species of mosquito tracked down in areas of tropical and subtropical regions of the world, only a hand full of them cause vector for most of the mosquito borne diseases. [2] Mosquitoes have worldwide distribution being found throughout the tropic and temperate region. In recent years, mosquito borne diseases have emerged as serious public health problem in countries of south East Asia region. [3] Earlier the mosquito borne diseases were mainly restricted to urban and sub urban areas of country but now it spread in rural area, because of the availability of favourable breeding sites of disease vectors. In the last 50 years, incidence has increased 30 folds with increasing geographic expansion to new countries and in present decades from urban to sub urban and rural side. [4] Recently in India, vector borne disease have revealed as a serious public health issue. Especially diseases like Dengue fever, Malaria and Chikungunya. A last few years

back, it has been suggested that the actual number of malaria cases per year is likely between 9 and 50 times greater, with an approximate 13-fold underestimation of malaria-related mortality. [5] On the other hand, changing epidemiology of mosquito borne diseases in terms of strains, severity and geographic distribution is a growing concern in Indian subcontinent. Emerging insecticidal resistance and lack of expertise in vector borne diseases is important reason behind insurgent of these various diseases. WHO currently estimates there may be 50–100 million dengue infections worldwide every year. [6] Actually various measure are taken for control and prevention but still the Intensity of problem is too high as Dengue, malaria and chikungunya struck over 1.13 million people in the country last year. Of these, 766 succumbed. India bears a huge burden of mosquito-borne diseases, contributing 34 per cent of global dengue and 11 per cent of global malaria cases. [7] The mosquito borne disease results in ill health problem and death which has also been emphasized in national health policy [9] and Millennium development goal. [10] National vector borne disease control program (NVBDCP) [8] under the aegis of National Rural Health Mission [11] includes preventions and control of mosquito borne disease. People's awareness and knowledge play important role in controlling vector borne diseases. In spite of social media and educational things, community participation still far below the expectation. Actually community involvement completely depends on individual knowledge, awareness and attitude towards diseases. With this background the study was conducted to determine people's perception about mosquito and their attitude towards preventions of diseases from Jalna urban.

MATERIAL AND METHODS

A Questionnaire based cross sectional study was conducted from February 2018 to May 2018 to spread the knowledge, awareness and practices regarding mosquito borne diseases. It was conducted in selected semi urban areas of Jalna, which is geographically located in Marathwada region of Maharashtra state of India (Figure 1). Jalna experiences climatic condition of minimum temperature 7°C and maximum temperature 47°C and average rainfall is 600-700mm.To collect relevant data, Simple random sampling method was used. The sampling was random there were no any special criteria. The gross sample size of study was 877 respondents from Jalna Urban.

Survey was done with the help of pre-designed and pre-tested questionnaire and under the guidance of applied parasitology research centre of Zoology Department, JES College Jalna.Faculty and research scholar along with trained undergraduate students from department visited study area (Figure 1).

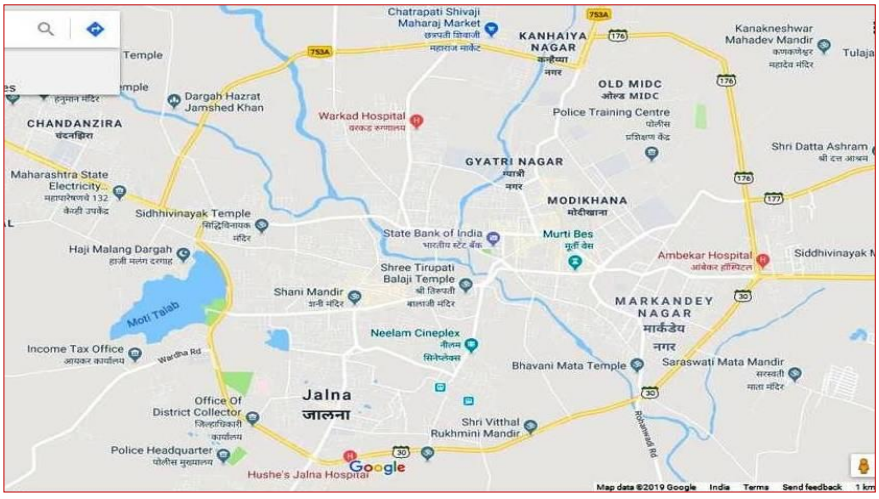

Figure 1: Map showing study area (Jalna urban)

Questionnaire was formulated with the help of research papers and workers in this field which include,

- Awareness regarding mosquito species
- Awareness about Mosquito Biting time
- Awareness about Mosquito egg laying habitat
- Awareness about Precautions undertaken for mosquito bite
- Whether visited government department
- Awareness about Dry day celebration
- Expenditure incurred by people's precaution taken to avoid mosquito biting

Respondents were also asked about annual income expenditure required for protection from mosquito biting. The information given by respondent was checked for correctness before entering into worksheet. Data validation checks were performed at regular interval. Collected data was fed in Microsoft Excel and results were tabulated; the frequency and respective percentage were calculated.

RESULT AND DISCUSSION

We have conducted a study among 877 people from different areas of Jalna about how much people are aware about mosquito related problems, how it has generated and what are the ways by which they can approach government to avoid it (Table 1).

1. Awareness about Mosquito Bites:

We conducted studies on awareness regarding mosquito biting time which shown, 71% population are aware that mosquito bites only at evening (6-8 pm.) rest of 18% people thinks that at midnight only. Few people i.e. 3% and 8% know that mosquito can bite whole day and on day light respectively (Figure 2).

Table 1: Showing awareness about Mosquito Bites

Awareness about Mosquito Bite	Respondent	%
All Time	29	3
Day	69	8
Evening	625	71
Midnight	154	18
Total	877	

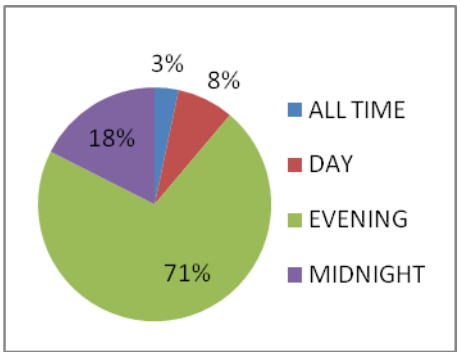

Figure 2: Awareness about Mosquito Bites

Potter et al. 2016 reported majority of individuals across WA were bitten at home (76.9%), while 48.6% reported being bitten during recreational activities and 8.9% at work. Individuals from the Kimberley (30.1%), Pilbara (31.2%), Gascoyne (24.4%), and Goldfields Esperance (34.6%) were more likely to be bitten at work than the state as a whole (8.9%), while individuals in the Pilbara were more likely to be bitten during outdoor recreational activities (75.3%) compared to the state as a whole (48.6%). [12] Begonia et. al. 2013 reported surprisingly about 30.18% of respondents were unaware that dengue mosquitoes are more likely to bite in the afternoon. [13] Niraj Panditet al. 2010 reported almost 99% population had knowledge about breeding places of mosquito, but poor knowledge about biting time 20%. [14] Heymann D. L, 2004reported according to World Health Organization (WHO), Aedes mosquitoes usually bite during the day. [15] Thus based on results of present study and findings of previous researchers indicates that timing of mosquito bites may differ species wise and also geographically.

2. Awareness about Mosquito egg laying:

It has shown in our survey that most of the population 88% are aware clearly that mosquito can lay eggs only on water, only few i.e. 6% thinks that they can lay eggs on soil as well but there are 6% people who don't have clear idea about where actually mosquitoes lay eggs (Figure 3).

Results of present study are similar with findings of Nanjesh K. S., 2017 who reported 86% of the population thought polluted water as a mosquito breeding place and 76% of them had an idea about growth of mosquito larvae in water. [16] Patel et al. 2011 found 54.2% of the study subjects believed that mosquitoes breed in polluted water. [17] Boratne et al. 2010 when asked regarding mosquito breeding places it was found 290 (59.79%) male and 726 (61.06%) female respondents knew that stagnant water is the breeding place for vectors followed by ditches and ponds in the vicinity.

Table 2: Awareness about Mosquito egg laying

Mosquito egg laying	Respondent	%
Water	769	88
Soil	55	6
No Clear Idea	53	6
Total	877	

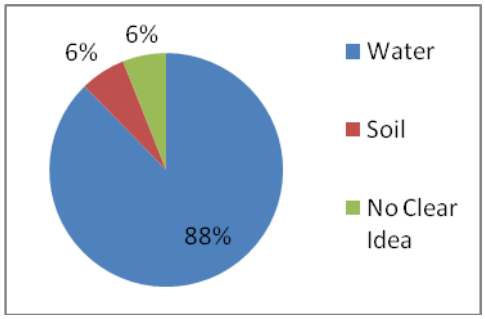

Figure 3: Awareness about Mosquito egg laying habitat

He further reported only about 4% of the respondents stated coconut shells as one of the breeding places for vectors while about 2% respondents knew old tyres as breeding places of mosquitoes. [18] Niraj Panditet.et al. 2010 found 20% of studied population still had myths that garbage was the breeding place for mosquito. [14] Sharma S. K. et al.1993 stated majority of individuals in Bastat district of Madhya Pradesh did not know about mosquito breeding places. [19]

3. Awareness about Precautions against mosquito bite:

Infected mosquitoes can cause serious illness to people, there are many standard precautions given by WHO against mosquitoes which should be used but different people have different method to combat it, same thing shows in our survey shows 66% population of survey i.e. 577 respondents (Table 3) thinks that the artificial repellent can help them to avoid mosquito bite, 18% thinks that some of the natural ways can protect them from mosquito bite and very small population i.e. 16% believes that managing breeding beds and cleanliness can be one of the precaution against mosquito bite (Figure 4).We found in our survey that awareness about standard precaution is not prevalent among people; they are more influenced by one another for using methods as precaution against mosquitoes.

Table 3: Awareness about Precautions against mosquito bite

Precautions for mosquito bite	Respondent	%
Artificial Repellent	577	66
Natural Ways	155	18
Maintain Cleanness	145	16
Total	877	

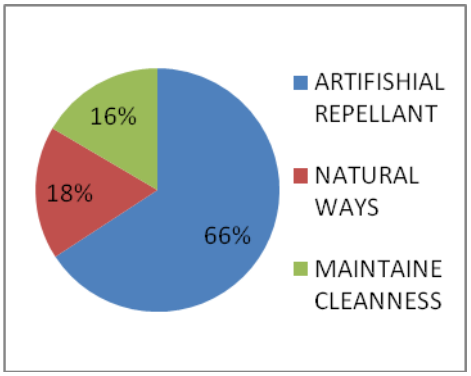

Figure 4: Awareness about Precautions against mosquito bite

Results of present studies reconfirmed with findings of Nanjesh et al. 2017 who reported65% study subjects used mosquito coils for protective measures and 31% used mosquito nets. [16] Patel et al. 2011 found 61.4% subjects used mosquito repellents as a personal protective measure. [17] The findings of Niraj Pandit et al. 2010 are different who reported 39% of households were using mosquito net, 57% mosquito coil while only 10% used insecticide treated bed net as protection against the bite. Almost 97% of study participants were using either one or other personal protective measures. [14] The commercial products like coil, repellent and mat were used more among literate

households compared to illiterate families (odds ratio = 2.32), whereas mosquito net use was almost same among literate and illiterate families (odds ratio = 1.4). He further added only 10% of study participants are aware about insecticide treated bed-net. Babu B. V. 2007 reported from Orissa 99% of urban households, 84% of rural households were using at least one measure against mosquito bites and 76% of urban while 58% of rural household using untreated bed net. [20] Snehlatha K. S. 2003 reported 99% and 73% of urban and rural respondents from Pondicherry were found to use some personal protection against mosquito bites. The knowledge and use of personal protective measures had significant association with literacy status (odds ratio=2.32). Literate people were using more commercial products than illiterate. [21] Boratneet al. 2010 found total 1023 (61.11%) respondents knew about chemical measures and 348 (20.79%) about environmental measures as the methods for prevention and control of mosquito-borne diseases while 103 (21.24%) male and 241 (20.27%) female respondents did not know about any prevention and control measures. [18]

4: Whether people visited government departments:

We found in our study that approximately 51% never visited government departments regarding mosquito problem and 24% people don't have any idea about such certain government of departments which can help them out regarding the problem, only 25% people were aware and approached government department regarding the same problem (Figure 5).

The similar observations reported by Nanjesh et al. 2017 who observed48.5% subjects said health authorities didn't come for active surveillance, 41.5% peoples visited general practitioner for consulting on their health issues. [16] Patel et al. 2011 found in Rajkot city 67.8% subjects visited private general practitioner for consulting on their health issues. [17]

Table 4: Whether people visited government departments

Whether people visited government departments	Respondent	%
Yes	216	25
No	452	51
No idea	209	24
Total	877	

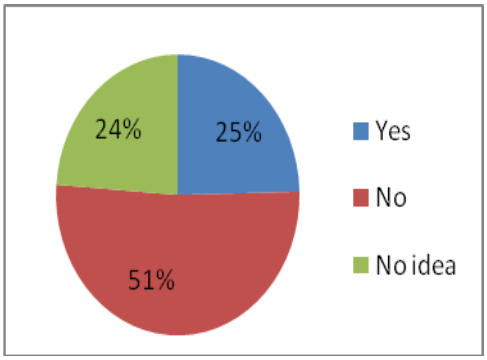

Figure 5: whether people visited government department

Niraj Pandit et.al. 2010 reported major source of mass knowledge about mosquito bite prevention was television (77.5%) followed by newspapers & magazines (35%). It was observed that television was the main source of awareness for the community followed by newspapers, radios, friends and advertisements. It was shocking reported that doctor or health staffs were not mentioned as the source of knowledge. [14] Boratne et al. 2010 found about 75.93% of the study population were aware about mosquito borne diseases through television followed by health care providers (16.43%) and newspapers (12.84%) and only 8.18% through radio. [19] Joshi and Banjara, 2008 study from Nepal showed that respondents labelled radio (58.1%) and television (25.4%) as the major media source for information regarding malaria. [22] National vector borne disease control program has been launched by government of India which is very active against mosquito related problems; they have established Drug Distribution Centre (DDC) and Fever Treatment Depots (FTD) in rural areas.

5: People awareness regarding Dry day celebration:

Our survey shows that 60% population are aware about dry day but they didn't follow dry day and 10% population have no idea about it means in all 70% population didn't follow dry day concept. Only 30% celebrate the dry day (Figure 6). Since there is no vaccine available till now against it so it is our duty that we should look around ourselves and, empty and clean vessels which can store water.

Table 5: People awareness regarding Dry day celebration

Dry day celebration	Respondent	%
No	526	60
Yes	259	30
No idea	90	10
Total	875	

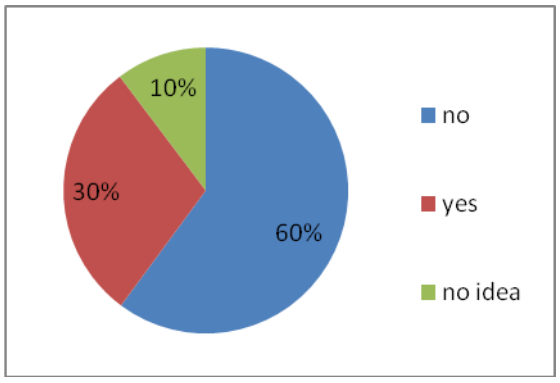

Figure 6: People awareness regarding Dry day celebration

Nanjesh et al. 2017 reported43% of study subjects favoured covering containers and 32% preferred scrubbing of water containers once a week for intra-domestic anti larval activities. [14] Joshi and Banjara, 2008 studies from Nepal revealed 66.7% and 48.1% of respondents reported removal of the collected water from ditches and spraying insecticides can control mosquito-borne diseases. [22] It is imperative for every household that once a week observes as "dry day" where all the tanks, utensils and pots are emptied and cleaned.

CONCLUSION

Our study showed that people from Jalna urban are limitedly aware about mosquito biting time, as mosquito bites differ species wise and also geographically. Survey also high lightened awareness regarding mosquito eggs laying habitat as most of the people have good knowledge but need to clear confusion of the same. From the survey study, it also understood that regulatory methods implemented by people as control strategies were not well planned. Most of the people fully relied on repellent and chemical insecticides to get rid of mosquito biting. So, to cope with all such situations it become mandatory that government should undertake active plans to inculcate the habit of cleanliness in surrounding area. Results of this survey also indicate that approximately 50% of population have not visited government department regarding mosquito problems and also more than 70% of people are not aware about the concept of dry day.

Recommendation and Suggestion

Basic information related to prevention and control measures of mosquitoes should be taught in schools. Frequent awareness programmes should be conducted by stakeholder, Community volunteers and NGO's to maximize community awareness.

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