

## ORIGINAL ARTICLE

# Knowledge, attitude and practise regarding Mosquito borne diseases in urban and rural areas of Maval, Western Maharashtra

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### ARTICLE CYCLE

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### ABSTRACT

**Background:** Mosquito-borne diseases, have always been a serious health concern in South East Asian countries, particularly India. Maharashtra was reported as one of the highly endemic areas in India and recorded the second-highest number of deaths due to Dengue. The comprehensive management of mosquito-borne diseases hinges not solely on the efforts of health authorities but also on the community's understanding, mindset, and proactive approach in pursuing timely treatment. **Aim & Objective:** To assess and compare knowledge, attitude and practices of people residing in both the strata regarding Mosquito borne diseases. **Methods and Material:** A comparative analysis was undertaken in the Maval region, encompassing both rural and urban settings, through a cross-sectional study. Taluka. A sample size of 250 houses—125 houses in each stratum were surveyed. Data collection involved interviews with head of family or next available person. **Statistical analysis used:** Microsoft excel was used for chi square and z value. **Results:** Awareness regarding Mosquito borne disease was 87.2% in urban population and 73.6% in rural population. **Conclusions:** There are gaps in understanding the timing of Mosquito bites and the identification of breeding sites. This underscores the need for improved knowledge and awareness, with focus on Mosquito control measures to effectively combat these diseases.

### KEYWORDS

Mosquito Borne Disease, Knowledge, Attitude, Practise, Urban, Rural

### INTRODUCTION

In South East Asia, notably in India, inadequate sanitation, improper water storage, and unplanned urbanization contribute to elevated health risks associated with mosquito-borne diseases like Malaria, Dengue, Lymphatic

Filariasis, and Japanese Encephalitis.(1) Anthropogenic global climate change largely drives increase in Mosquito-borne diseases due to its impact on Mosquito bionomics through high temperatures and heavy rainfall.(2) Disease transmission hinges on

agent-host-environment triad, vector density, and biting times.(3) Southeast Asia contributes 2% of global Malaria cases, with India accounting for 83%.(4) Maharashtra is a Dengue hotspot, recording high cases and deaths.(5) In India, a nationally representative study revealed that 75% of Malaria's economic impact results from lost wages, with 24% from medical expenses.(6) Indian studies show inadequate awareness of transmission, prevention, treatment, with rural areas understanding Mosquito breeding better.(7,8,9) Common protective methods include Mosquito nets, coils, vaporizers, while others use pesticides to control Mosquitoes, but face drawbacks.(10) In 2003, India's government initiated National Vector Borne Disease Control Program, encompassing Malaria and other vector-borne diseases.(11) Despite numerous control efforts, vector-borne diseases still significantly harm people's health. Controlling Mosquito borne disease depends on both health services and community awareness and behaviour.

## MATERIAL & METHODS

The research took place in both rural and urban field practice areas associated with a

**Table1: Demographic details of study participants**

		Rural N (%)	Urban N (%)
<b>Gender</b>	Male	40 (36.4%)	58(61.7%)
	Female	70 (63.6%)	37(39.4%)
<b>Education</b>	Illiterate	4 (3.6%)	4 (4.2%)
	Primary	12 (10.9%)	3 (3.1%)
	Secondary	26 (23.6%)	13 (13.8%)
	Higher Secondary	29 (26.4%)	17 (18.1%)
	Graduate	37 (33.6%)	50 (53.2%)
	Post graduate	2 (1.8%)	8 (8.5%)
<b>Occupation</b>	Unemployed	15 (13.6%)	25 (26.3%)
	Unskilled worker	13 (11.8%)	6 (6.3%)
	Skilled worker	48 (43.6%)	25 (26.6%)
	Professional	34 (30.9%)	39 (41.5%)
		<b>Mean +/- SD</b>	<b>Mean +/- SD</b>
<b>Age</b>	18-33 YR	27 +/- 4	25 +/- 4
	34-49 YR	40 +/- 4	39 +/- 4
	50-65 YR	56 +/- 4	55 +/- 3
	>65 YR	73 +/- 4	68 +/- 1

Awareness regarding Mosquito borne disease was found 87.2% in urban population and 73.6% in rural population. Knowledge regarding transmission of Malaria, Dengue, Filariases by Mosquito bite was found

Medical College located in Western Maharashtra, spanning from August to October 2022.

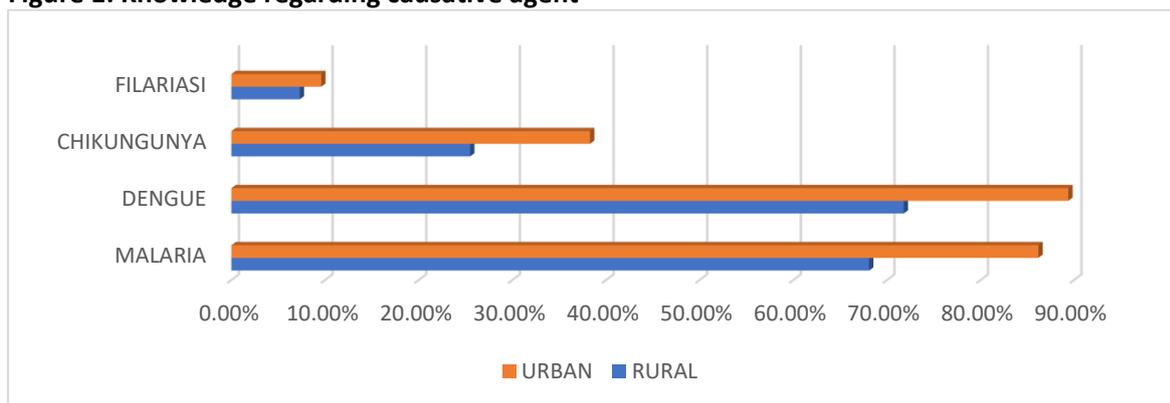
The study received proper ethical clearance from the Institutional Ethics Committee. Total 250 houses were selected using random sample technique, 125 in each group. A pre-structured, pre validated questionnaire included sociodemographic details, awareness regarding Mosquito borne diseases, diseases transmitted by Mosquito bite, source of information, time of bite, breeding places, preventive measures, sign and symptoms of Mosquito borne disease, health seeking behaviour. Head of the family or the eldest individual aged 18 years or older underwent an interview with the principal investigator. Verbal consent was taken before interviewing and if the interviewee was reluctant to give information, next household was chosen. The total number of families interviewed were 110 in rural areas and 95 in urban areas. Some families were not willing to participate or had gone out of station.

## RESULTS

The demographic details of these participants are given in Table 1

significant (two tailed p- value 0.0016, 0.0015, 0.0001). Although very few people in both the population were aware of the causative agent of Filariasis Figure 1.

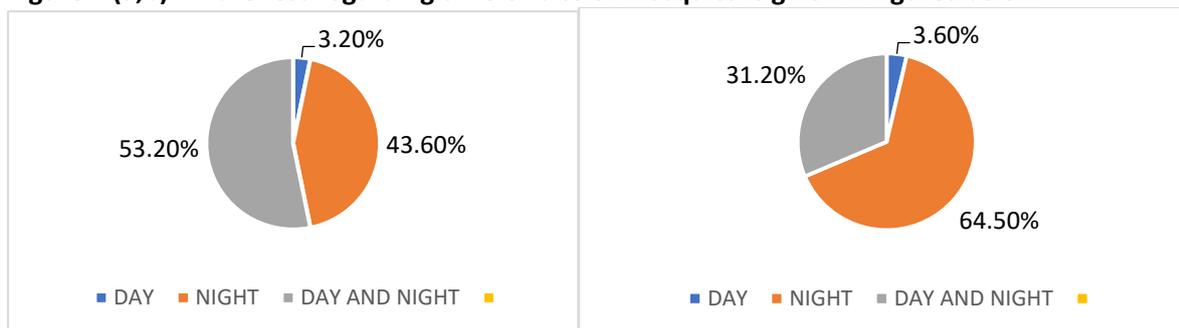
**Figure 1: Knowledge regarding causative agent**



The popular sources of information in both communities were, health personnel / friends/ relatives, announcement/ banners/ posters/ hoardings and television/newspaper/radio. Health personnel / friends/ relatives was main source of information in urban population (53.2%). Whereas, the principal source of information for rural residents were television, newspapers, and radio (52.7%).

However, in rural areas, announcements/ posters/ banners were more useful sources of information ( $p= 0.0022$ ) as compared to the urban areas ( $p= 0.068$ ). When people were asked about the time of bite, significantly few people answered correctly. ( $Z= -4.27366$ ,  $P<0.0001$ ,  $p<0.5$ )

**Figure 2 (a,b): Awareness regarding time of bite of mosquito is given in figures below**



When asked regarding breeding places around house, 40.1% urban population and 46.8% rural population answered in the affirmative. Awareness regarding Mosquito breeding places was compared between the two population. Significantly very less people in both urban and rural were aware that clean water is also one of the breeding places, with only 17.2% and 10% respectively.

Awareness in rural population was significantly less than urban population regarding rest of the breeding places like drain or dirty polluted dirty water, garbage; water collected in coconut shells, broken bottles and discarded vehicle tyres etc. with ( $Z= -13.0985$ ,  $P<0.0001$ ;  $Z=5.62443$ ,  $P<0.0001$ ;  $Z=8.74061$  ( $P< 0.0001$ )) respectively.

74.5% and 86.2% population in rural and urban respectively were aware about the preventive measures. Almost equal number of people in both urban and rural areas felt that spraying chemicals and keeping the surrounding clean will help in preventing Mosquito borne diseases. 1/3<sup>rd</sup> people in both populations were aware of government measures to prevent these diseases. However only 25.5% of the population was satisfied by the facility provided by the government. (Table 2)

**Table 2: Awareness regarding measures provided by government**

	RURAL	URBAN
Chemical spraying and fogging	52 (47.2%)	66 (70.2%)
Cleaning of garbage	40 (36.4%)	73 (77.7%)

Fever accompanied by chills and rigors was a symptom that many individuals accurately recognized in urban areas as compared to rural areas (p value= 0.0329). however, jaundice was wrongly thought to be a symptom by more people in urban areas compared to rural areas (chi square= 16.66631(P<0.00045))

Health seeking behaviour between both the population was compared and significantly more people took treatment in private hospital in both urban and rural population (chi square= 13.76(P< 0.00028)). More people in urban areas took self-medication as compared to rural areas (Z= 12.84(P<0.00039). hence, it can be presumed that they should be educated about taking appropriate health seeking behaviour

## DISCUSSION

Public health measures development starts with knowing the existing knowledge, attitude of population towards the disease. Mosquito borne diseases can primarily be prevented if the population has a good knowledge of the disease transmission, preventive measures and attitude regarding the disease.

The present study showed notable awareness in both urban (87.2%) and rural (73.6%) population. A study in urban setting of Rajasthan showed similar awareness regarding Mosquito borne disease (88.4%).(12)

The findings of source of information in our study of rural population (52.7%) was similar to most studies. Television served as the primary medium through which people gained knowledge about diseases transmitted by mosquitoes.(12) However, In our research, the urban population indicated that they primarily rely on health personnel, friends, or relatives for obtaining information (53.2%).

The prevailing research reveals that Dengue emerged as the predominantly known disease among both urban and rural populations, closely trailed by Malaria. Whereas, most studies showed, Malaria was more known than Dengue. (9,13,14)

While interviewing the candidates, it was observed that most people in both the population believed, typhoid was also caused by Mosquito. However, we failed to note the

exact number of candidates who believed in Mosquito as source of typhoid.

A study by Patel et al showed 67.8% candidates visited private hospitals for consultation.(7) In our study, similar result was seen in rural population 68.2% but urban population 54.3% preferred government hospitals to consult for their health issues.

39.1% in rural area and 50% in urban area knew fever and chills was the predominant manifestation shared by all diseases transmitted by mosquitoes. A study conducted in rural setup of Karnataka and another in urban setup of Gujarat said that 84.5% and 42.6% respectively believed fever and chills as the most common symptom.(7, 15)

Nangesh KS et al conducted a study revealing that 48.5% of participants claimed that no one from health authority had conducted active surveillance for Mosquito borne disease. Additionally, they believed that the health authorities were in charge of developing Mosquito borne illness control and preventive strategies.(16) Similarly, in our study, it was noticed that 74.5% were not satisfied by the services provided by government to prevent Mosquito borne disease. In this current investigation, it was observed that the urban population demonstrated a higher level of awareness regarding mosquito breeding sites in comparison to their rural counterparts Interestingly, despite this discrepancy in knowledge, 21.8% of the rural population and 51.1% of the urban population identified garbage as a potential breeding ground for mosquitoes. These findings contrast with Mehta et al.'s study, where only 13.5% associated garbage with mosquito breeding sites.(9) Moreover, our study aligns with Sharma SK et al.'s observations, indicating a lack of substantial knowledge about mosquito breeding places, especially among the rural demographic.(15)

## CONCLUSION

In our study, it was seen that, Awareness regarding mosquito borne disease was high , but awareness about time of bite and breeding places was low. People were unhappy about government measures . In urban areas more people were taking self- medication. Also

knowledge about preventive measures was limited. Therefore, it is essential to enhance understanding and awareness regarding diseases transmitted by mosquitoes. A comprehensive approach is required for the successful execution of information, education, and communication (IEC) campaigns, giving particular attention to addressing all facets of mosquito-borne diseases, especially emphasizing environmental control measures for mosquitoes.

### RECOMMENDATION

Due to existing gaps in knowledge and attitudes surrounding mosquito-borne diseases, it is imperative to enhance Information, Education, and Communication (IEC) campaigns. These campaigns should focus on promoting preventive measures against mosquito-borne diseases, targeting both urban and rural areas within this region.

### LIMITATION OF THE STUDY

As the study was a KAP study, it was not possible to give Health education.

### RELEVANCE OF THE STUDY

It is recommended to improve IEC campaigns, for both rural and urban areas of this region.

### AUTHORS CONTRIBUTION

All authors contributed equally.

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Nil

### CONFLICT OF INTEREST

There are no conflicts of interest.

### DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/ AI assisted technologies in the writing process.

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