

Research Article**Mosquito Bite Prevention and Controlling Practices of Tribals in
Himayatnagar, Nanded District (Ms), India****Deepak Walke, S. P. Chavan****and D. H. Dudhmal**

Vector Borne Diseases and Epidemiology Laboratory,
Department of Zoology, School of Life Sciences,
Swami Ramanand Teerth Marathwada University,
Nanded-431606, India

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ABSTRACT:

Mosquitoes are dangerous insects which cause diseases to vertebrates. Mosquito borne diseases are major health problems in India and in the world. Maharashtra is also endemic for malaria and other mosquito borne diseases that leads to a serious loss to the human economy. Apart from spreading deadly diseases, their continuous bites cause irritation resulting in sleepless nights. Mosquito species like *Anopheles*, *Aedes* and *Culex* are commonly found to be responsible for this havoc. Therefore, in order to keep the mosquito population under control and prevent mosquito biting to human beings, Health departments of State and Central Government are consistently working for this. People leaving in the mosquito prone areas also put their efforts in controlling and preventing themselves from the bites of mosquitoes with the help of modern and traditional ways. People leaving in the urban areas use synthetic chemicals to keep mosquitoes away from them. There are certain mechanical instruments also, with the help of which, mosquito bites are controlled. The chemical insecticides and mechanical instruments are easily available to the urban population but it becomes a difficult task altogether when it comes to rural population in the context of mosquito control. People from rural and tribal areas do not use these practices so often as all these facilities are not available in their nearby vicinity. Therefore, to know the traditional and modern ways by which the tribal population from the villages of Himayatnagar of Nanded district controls the mosquito population and prevent its bites, the current study was carries out. The data was obtained through interviews by questionnaire method which was prepared by following the instructions of District Malaria and Filariasis Officers. The awareness about mosquito borne diseases among tribals of this region was also assessed during a period of 12 months from September 2014 to August 2015. Finally, after analyzing the results obtained from the current study, it was concluded that awareness about mosquitoes, their control and information about the use of synthetic mosquito repellents should also be given to the tribal population so as to minimize the rate of mosquito borne diseases.

Keywords: Tribal people, Mosquito control, Nanded.

INTRODUCTION:

The mosquitoes are midge like flies of Culicidae family belonging to class insecta and

order diptera. Mosquitoes are nocturnal and some species of mosquito bite during day time.

There are 3500 species and subspecies of mosquito under 42 genera and 140 subgenera (Walter Reed Biosystematics Unit 2001). Only female mosquito sucks the blood of man and causes mosquito born diseases like Dengue, malaria, filarial, Japanese Encephalitis, chikungunya. Ninety one countries and 40% of the world's population are at risk of malaria (Matta *et al.*, 2004). The world-wide malaria incidence is estimated to be 300-500 million clinical cases every year (Matta *et al.*, 2004). Malaria is the world's third most dreaded killer (Sigh and Rahman, 2001). Dengue is one of the oldest mosquito borne disease in India like Malaria. Dengue commonly occurs in urban, semi urban and rural areas. By the late 1990s, dengue was second only to malaria among the most important mosquito-borne disease affecting humans. In India, Lymphatic Filariasis is the one of the most important public health problems. Therefore, efforts are being made to keep the mosquito population under control and also to minimize the rate at which mosquito bites to human beings. It not only causes deadly diseases but also causes irritation by its bites which may result in many sleepless nights thereby affecting the routine. There are number of ways by which one can easily keep the mosquitoers away from biting. It includes both mechanical and chemical ways of preventing mosquitoes. These methods are famous in the urban areas due to awareness about mosquitoes and easy access to all resources. But it becomes a difficult task when it comes to how the tribal and rural population of our country is dealing with the mosquitoes and mosquito borne diseases. The present study is an attempt to throw lights on how the people in tribal areas tackle the problems of mosquitoes in thier surrounding. The study was carried out for a period of 12 months from September, 2014 to August, 2015. The data was collected through questionnaire method with oral consent of the participants from five different villages as Sonwadi, Dagadhwadi, Mahadhapur, Kupti and Jaldhara of Nanded district which is know to be tribal region as the

report of Government of India. In this tribal region, Andh, Pradhan, Lolam, Gond communities were dominant. The tribal area is mostly near to hilly area. Questionnaire was used to collect information about practices of mosquito bite prevention methods among tribes and assess the awareness about mosquito born diseases (Dudhmal *et. al.* 2015a, 2015b, 2015c). It was recorded that people of this region were using various methods by which mosquitoes can be controlled and prevented from biting but the emphasis of the villagers was on the use of traditional methods. A very few people from the participants stated that modern ways of mosquito controlling methods are employed in such villages.

MATERIALS AND METHODS:

Study Area:

As per the annual report of Ministry of Tribal Affairs, Government of India, Annual report 2009-10, all these villages, Sonwadi, Dagadhwadi, Mahadhapur, Kupti and Jaldhara were mentioned as tribal villages of Nanded district, Maharashtra. The study area is rural in nature and are in range of 120 km away from district headquarter Nanded. The languages spoken in these villages are Andh, Marathi, Hindi and Urdu.

The data was obtained through individual interviews with the family heads of these villages. The questionnaire was prepared as per the instructions of District Malaria Officer and District Filaria Officer which mainly focused on the practices employed by the tribals against mosquitoes, regarding information on various mosquito related aspects, prevention against mosquito bite and awareness about mosquito borne diseases. The interviews were conducted in Marathi language and later the data was converted into English. Each of the participant were informed about the study and oral consent was obtained (Dudhmal *et al.* 2015a, 2015b and 2015c).

RESULTS:

A total of 133 (One hundred and thirty three) villagers from the five villages were

interviewed participants for the study.out of which 62 were males and 71 were females.

Literacy among selected population

Out of the total interviewed individuals from all these villages, 03 males and 11 females were found to be illiterate.

Table – 1.1 Literacy among interviewed villagers

SEX	Literate	Illiterate
Male	62	03
Female	57	11
Total	119	14

Use of Synthetics against Mosquitoes:

The villagers were questioned about the way by which they get rid of mosquitoes which may cause deadly diseases to them. It was noted that a very few people stated that they were using synthetic chemical insecticides and mechanical instruments to prevent mosquito bites. Mosquito repellent creams were not used by any of the interviewed villagers (Table 1.2)

Table – 1.2 Synthetic Insecticides and Mechanical instruments used against mosquitoes by interviewed villagers

Protective practices against mosquito bite	Number of users/Villagers Interviewed
1.Mosquito Net	07/133
2.Mosquito Racket	03/133
3.Mosquito Coil	39/133
4.Mosquito Repellent cream	00/133
5. Plugged in Ultra-Sonic Machines	04/133
Total	53/133

Traditional Methods against mosquitoes by interviewed villagers

Using traditional and unrecommended practices against mosquitoes were observed to be more familiar, cost friendly and causing side effects to human health. These were

practiced very often in the villages studied because easy availability. In these villages, no recommended method was used against mosquito bite. All participants believed that there was no need whatsoever of using other insecticides against mosquitoes, only woodburning smoke keeps mosquitoes away from human habitats.

Table-1.3 Traditional method used against mosquitoes by interviewed villagers

Protective practices against mosquito bite	Number of users/Villagers Interviewed
1.Woodburning Smoke	133/133
2.Cowdung Dics Smoke	76/133
3. <i>Dhuptnacha pala</i> (leaves) Smoke	41/133
4.Kerosene as Repellent	04/133
5.Neem Leaves	49/133

Awareness about Mosquito borne diseases:

The interviewed population was also examined for having the basic information about mosquito borne diseases. People shared that the major source of knowledge about mosquito and related aspects was gained by television, newspaper, radio, mobile, and from discussion on related subject with other villagers. It was noted that all of the participants knew that Malaria is caused due to mosquito bite but the number decreased when they were asked about the cause of Dengue, Chikungunya and Lymphatic Filariasis. As expected, no villagers was aware about Japanese Encephalitis (JE) as this disease is not a very common disease in this region of the world.

Study respondents were almost people had knowledge about breeding places of mosquito, but had poor information about mosquito biting time. It was further recorded that mosquito nets were used only for new born babies, only when they are economically good. There was no proper awareness about prevention of mosquito bite. There is need of

increasing use of insecticide treated bed nets and to educate people to handle the insecticides and their effects

Table:1.4 Awareness of Mosquito borne diseases:

Mosquito Borne Diseases	Number of Villagers knowing the disease
Malaria	131/133
Dengue	53/133
Chikungunya	49/133
Lymphatic Filariasis (LF)	19/133
Japanese Encephalitis (JE),	00/133

DISCUSSION:

The current work stresses the point that people living in the tribal areas do not get resources to limit the mosquito growth as well as to prevent it from biting to the tribals. People residing in the tribal region of Himayatnagar of Nanded district use various practices to keep mosquitoes away from them. But it was recorded through the current study that villagers were not aware about the mosquito, its role in diseases and also the use of chemical insecticides and mechanical means of mosquito repellents. This work promotes the public awareness of the tribals in the context of limiting mosquito borne diseases from this region. Earlier in 2015, Dudhmal et al carried out similar study in filaria endemic villages of Nanded district to know different practices of filaria management and also mosquito vector management. The study came to a similar conclusion that the endemic population should be made aware about the disease, its pathogen, its vector and their biology. The study also postulates the importance of hygiene and sanitation in such areas. They further recommended that Local Governing bodies, Health department of State government should make mosquito repellents more easily available.

Almost 98% of study population had knowledge that mosquito bite is the cause for malaria but only 40% of the study

population knew that dengue, and 37% of the study population knew that Chikungunya etc are also caused by mosquitoes. The current study revealed that knowledge about causes of malaria .there is need to educate people and take practices to clean there surrounding. Educate them to use any prevention method , to avoid mosquito bite. Tyagi P11 reported from New Delhi in 2005 that 100% of study participants knew that mosquito bites transmit malaria.it was observed that 97% of study participants were using one or other personal protective measures against mosquito bites. Similar observation was reported by Surendran SN4 from Sri Lanka where 96% of study participants were using one or other personal protective measures against mosquito bite, and Babu BV5 reported from Orissa that 84% of rural households were using at least one measure against mosquito bites and Snehlatha KS8 from Pondicherry reported 73% rural respondents respectively were found to use some personal protection against mosquito bites.

Mosquito coils, repellent creams, mosquito net and traditional neem leaf burning were the various methods of personal protective measures amongst the study participants. Most popular was the woodburnig smoke .Snehlatha8 et al reported in their study that most popular method was mosquito coil in urban and rural area; Babu BV5 from Orissa reported 76% of urban and 58% of rural household were using untreated bed net.

Television and mobile users was the main source of awareness for the population and no doctor health department and also the Gram Panchyat were not mentioned as the source of knowledge.

CONCLUSION:

It can be concluded through the findings of the present study, there is an urgent need for providing awareness about mosquitoes, their life cycle, control measures and also the types of mosquito borne diseases prevalent in that particular geographical area. It is also recommended that the concerned authorities

like Local Governing bodies, Health departments should make the repellent creams and other objects more easily accessible to the tribal population of this region so as to minimize the rate of mosquito borne diseases.

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