



Malaria Prevention and Control Practices in the Tribal Population of Akole Taluka of Maharashtra

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ABSTRACT

BACKGROUND: Mosquito borne diseases are major public health problem in India. There is less awareness and inadequate practices of respondents on various aspects of Malaria and its control which may be one of the important factors responsible for the persistence of Malaria in Tribal areas. With this Background this study was conducted to study the awareness, prevention and control the practices on Malaria in Tribal area.

Aim: To study the practices on Malaria prevention and control in the Tribal population of Akole Taluka of Maharashtra.

METHODS: Questionnaire based interview, cross-sectional epidemiological quantitative study, Non probability convenient sampling was used to study the awareness, prevention and control the practices on Malaria in 300 participants.

RESULT: The survey is in progress till now 100 participants were surveyed and are being presented here. 75% people know that malaria is caused by mosquito while only 2 don't know how its caused. 31% knew that malaria mosquito breeds in dirty water, and 12 said that it breeds at garbage. 49% knew that malaria is a preventable disease and also 80% said that if untreated it can cause death. 40% people used some insecticidal sprays, 41% burned cow dung, 8% used mosquito coils to keep away mosquitoes and only 2 % used bed net.

CONCLUSION: Final result and analysis of all 300 participants This study confirms that in tribal areas where poverty is rampant and lifestyle comprises poor housing quality, also concluded that 65% of the participant lived in joint family so the mosquito bed net were not affordable which led to financial burden on the family. And they have their traditional ways of prevention of mosquito bite. Only 11.66% of Participants used Bed Net as Preventive Practices. As from collected data the maximum tribal population appears to have fine

knowledge and good practices regarding malaria control and prevention. Less participants use Mosquito bed nets because it is not affordable for all family members.

Low education was detected as a major drawback the participants has less knowledge about the mosquitoes resting places. Proper health education and sensitization is needed to increase community knowledge and awareness about malaria prevention and control.

KEY WORDS: Prevention, Control Practices, Malaria, Tribal.

I. INTRODUCTION

Global and Regional Malaria Burden

Globally, 3.2 billion people are at risk of malaria, and 1.2 billion are at high risk. According to world Malaria report 2018, in 2017, an estimated 219 million cases of malaria occurred worldwide, compared with 239 million cases in 2010 and 217 million cases in 2016.

India

India ranked fourth in the number of malaria cases in the world according to the latest Lancet Commission report released on the evening of September 8, 2019. Malaria was primarily a disease of the rural areas. In 2017, 71 per cent of malaria cases in the state of Tamil Nadu occurred in the capital city.^[2]

Tribal Block

Mosquito born diseases are major public health problem in India. Maharashtra is endemic for malaria and other mosquito borne diseases specially in rural area. Anopheles, Aedes and Culex are commonly seen in Maharashtra. India's poor tribal people have far worse health indicators than



the general population. Most tribal people live in remote rural hamlets in hilly, forest or desert areas where illiteracy, trying physical environments, malnutrition, inadequate access to potable water, and lack of personal hygiene and sanitation make them more vulnerable to disease. This is compounded by the lack of awareness. The presence of various malaria parasites and vector species, climatic diversity favouring growth and proliferation of the parasite and vector as well as a highly susceptible human population have resulted in high malaria transmission in tribal areas. The utilization of health services is poor among them and they have their orthodox health beliefs. The proportions of tribal population vary considerably among Indian states/Union Territories (UTs)

It has been observed that there are very few research studies which have been conducted on this topic in tribal population. So because of this the researcher has decided to select the tribal population for this study.

II. METHODOLOGY

Study Design:

The study was cross-sectional epidemiological study. The study was conducted by quantitative research methods.

Type of Study:

The study was a quantitative type of research study. The study was mainly based on primary type of information. The required data was collected from Questionnaire based interview.

Study Period:

The study was conducted for 12 months, between the months of April 2019 to May 2020

Study Population:

The sample population for the present study was the people living in Akole Block of Ahmednagar district of Maharashtra, which is a notified "Tribal Block" (the percentage of Scheduled Tribes living in the area exceeds over 50% of the population), by government. Total population of Akole tehsil is 2,91,950. According to 2011 population census enumeration total population is settled in 189 villages. Out of this 47.86 percent (1,39,730) population of Akole tehsil is tribal which is distributed in western part of tehsil. Western area of tehsil is characterized by sparse population because of thick forests, hilly area and low productivity of agriculture. They speak a different dialect close to Marathi language.

Sampling Method:

Non probability convenient sampling was used. As the population of area is around 1.4 lakh, it was conveniently decided to study 300 participant responses.

Sample Size was 300 Participant

Inclusion Criteria:

- 1) Above 18 years of age from Tribal area.
- 2) People those who are willing to participate.
- 3) Must be a resident of area under study for at least last six months.
- 4) Not currently suffering from major illness.

Exclusion Criteria:

- 1) Non Tribal population.
- 2) People who do not give consent to the study.

Data Collection Tools and Techniques:

Tools

A structured, Questionnaire based interview, Pretested Semi-structured questionnaire was used as tool. The questionnaire included demographics, socioeconomic status, and awareness prevention and control practices was used for collecting the data through a quantitative survey. The data was collected from the general population of Head of the Household or any other Adult Member of the House.

Techniques

Participants were given a brief introduction to the research and the purpose of research. A detailed questionnaire was approved by the Ethics Committee. After taking oral consent of each participant. Each respondent's face to face interview was conducted, in the local language (Marathi).

Ethical Consideration:

Ethical clearance was obtained from Institutional Ethical Committee vide letter No. PMIS/CSM/RC/2019/01, dated 21/03/2019 of Centre for Social Medical, Pravara Institute of Medical Sciences- Deemed to be University, Loni. Consent from study subjects was obtained and the objectives of the study was explained to them. Desire of the participants was highly appreciated, they were not forced. Participation was completely voluntarily in this study. Confidentiality of the information shared by the individuals and families were kept confidential.

Analysis

Data collected and analysis by help of software like Ms. Excel, SPSS, epi Info, open EPI etc.



III. RESULT

Gender	Frequency	Percentage
Female	107	35.66 %
Male	193	64.33 %

Gender distribution of study population.

Three hundred in above 18 years of age from the study was conducted in Akole tribal block of Maharashtra were interviewed. The study respondent were male 64.33% and female respondent 35.66 %.

Type of family	Frequency	Percentage
Nuclear	105	35 %
Joint	195	65 %

Type of Family

As per the study table shows that participants in this study has majority in joined family were 65% and nuclear family were 35%.

Monthly income (In Rupees)	Frequency	Percent
10357-15535 (Class II)	32	10.66%
6214-10356 (Class III)	69	23%
2092-6213 (Class IV)	199	66.33%
Total	300	100

Socio-Economic Status

Table expresses the socio-economic status of the participants of the study. According to

modified BG Prasad scale the participants were categorized from Class I to Class VI. During the study, participants belonging to only Class II to Class IV were encountered and they were categorized accordingly. Maximum number of participants i.e. 66.33 % belong to social class IV i.e. monthly income is between Rs 2092-6213. 23 % participants have monthly income between Rs 6214-10356. While 10.66 % of the participants, belonged social class II.

Type of house	Frequency	Percentage
Kaccha	206	68.66667 %
Kaccha-pakka	94	31.33333 %

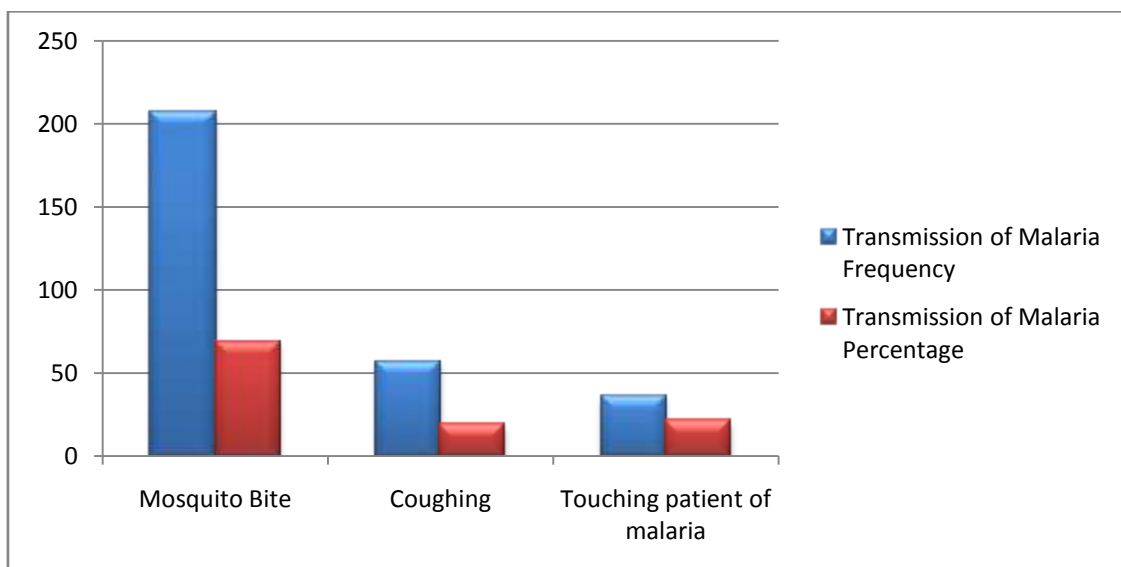
Type of house

As per study 68.6% participants have Kaccha type of house were 31.3% participants have kaccha-pakka house which is showed in the table type of house also plays important role in malaria transportation.

Awareness about Malaria treated		
	Frequency	Percentage
Yes	258	86 %
No	42	14 %

Awareness about Malaria treated

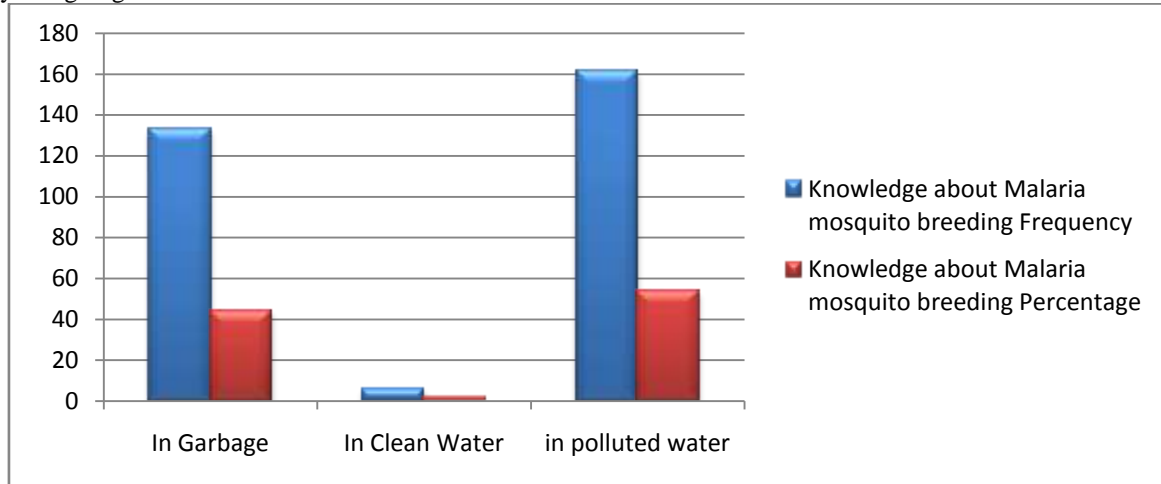
86% Participants said Yes Malaria can be treated as well as were 14% of participant said No malaria can be treated.





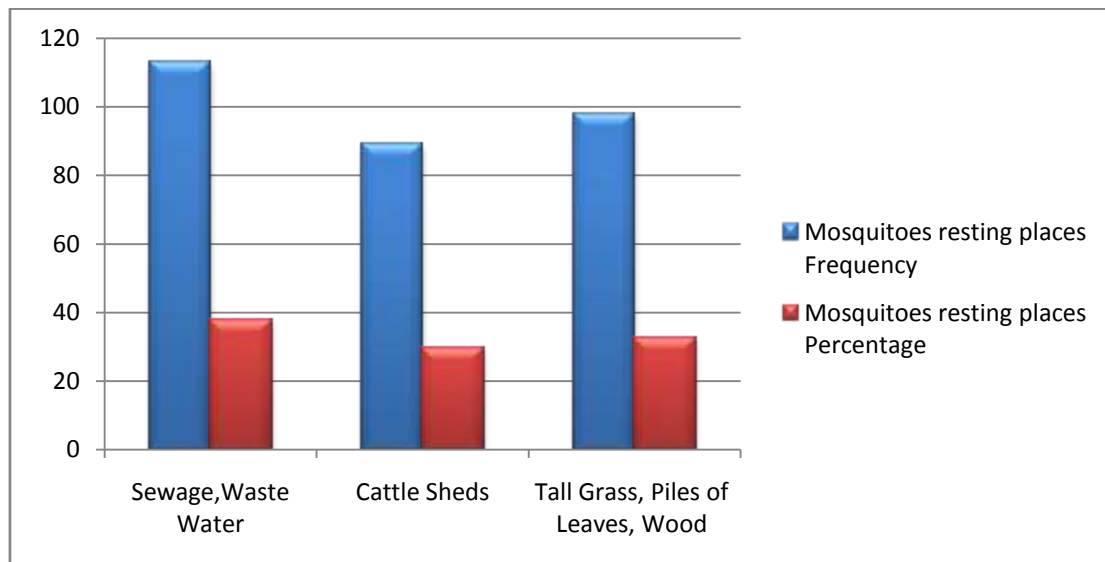
Transmission of Malaria

207(69%) of the total Participants said Malaria was transmitted by Mosquito Bite, 57(21%) of the Participants said that it was caused by touching Malaria patient, and 36(19%) of Participants said it was caused by Coughing.



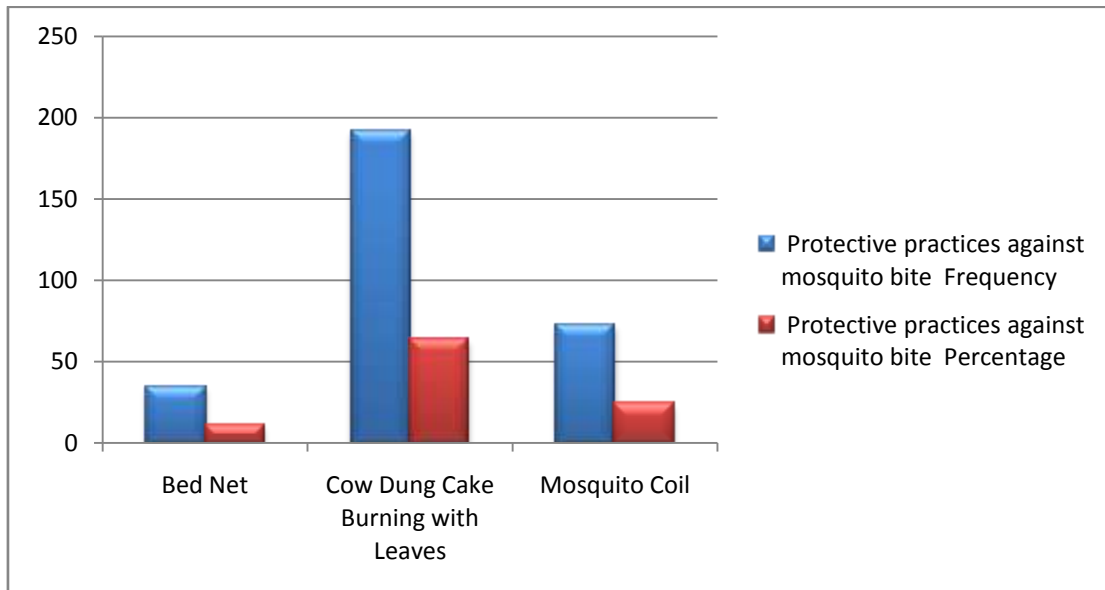
Knowledge about Malaria mosquito breeding

161(53.66%) of the Participants mentioned that Malaria mosquitoes breed in the polluted water, 133(44.33%) of the Participants mentioned that Malaria mosquitoes breed in clean water, and only 11(2%) mentioned that Malaria Mosquitoes breed in Clean Water.



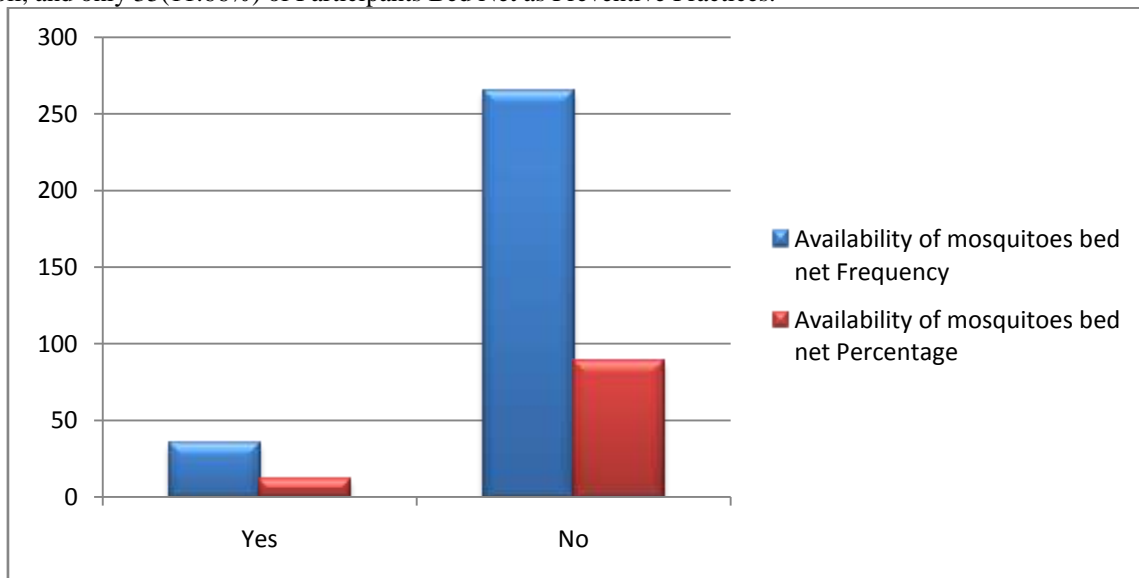
Mosquitoes resting places

113(37.66%) of the Participants stated that Mosquito rest in sewage, waste water, 98(32.66%) of the Participants states that the Mosquitoes in Rest tall grass, Piles of Leaves, woods, and 89(29.66%) of the Participants stated that Mosquito rest in cattle sheds.



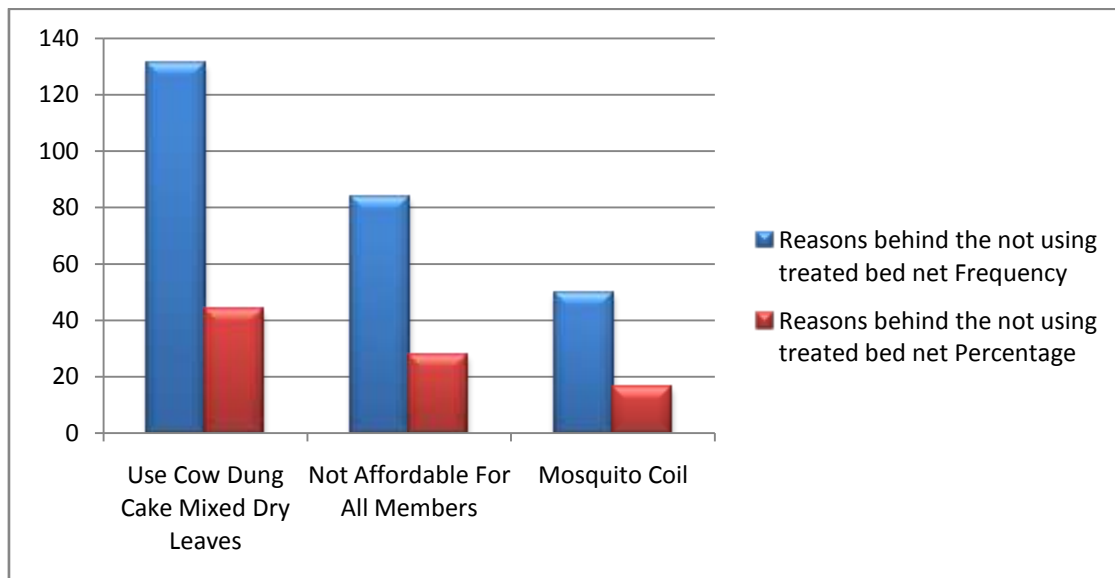
Protective practices against mosquito bite

192(64%) of Participants used Cow Dung Cake Burning with leaves, 73(24.33%) of Participants used Mosquito Coil, and only 35(11.66%) of Participants Bed Net as Preventive Practices.



Availability of mosquitoes bed net

265(88.33%) of Participants do not use Mosquito bed-nets and 35(11.66%) Participants use Mosquito bed-nets.



Reasons behind the not using treated bed net

131(43.66%) of Participants use Cow Dung Cake Mixed Dry Leaves, 50(16.66%) use Mosquito Coil and 84(28%) were not affordable for all family using Mosquito Bed Net.

IV. DISCUSSION

The focus of the present study was on the prevention and control practices and awareness of Malaria in the Tribal population of Akole Taluka of Ahmednagar district of Maharashtra and various factors related to it. In present study out of 300 Participant in above 18 years of age from the study was respondent were male 64.33% and female respondent 35.66 % in Akole tribal block of Maharashtra were interviewed.

Several studies have reported the significance of head's age in the probability of the presence of malaria patient in the household. The present study also showed that even after controlling for other socio-demographic and socio-economic and behavior risk factors, the age of head had significant negative association with malaria. Such results are expected, as head's age is a maturity and familiarity with awareness, preventive and control methods of malaria.^[13] So this study present that 195 (65%) participants were living in joint family, One of the highly significant socio-demographic variables in the study was family size. Families with 4-5 members and six or more members had considerable higher chances of having a malaria case as compared with family with ≤ 3 members. Agricultural labourers are known to be at a higher risk through increased risk of contact with malaria vector at field^[13] In this study 243 (81%) participants main occupation was

farming and expresses the socio-economic status of the Maximum number of participants i.e. 66.33 % belong to social class IV i.e. monthly income is between Rs2092-6213/-. According to modified BG Prasad scale the participants were categorized from Class I to Class VI.

In the community 206 (68.66%) housing type was kaccha and only 94(31.33%) was kacchapakka. House quality is known to affect the entry of mosquitoes in dwelling places. A Sri Lankan study^[22] showed that housing type was more important determinant of variability in malaria risk than the socioeconomic differences that accompanied it.

This study found out that there was low literacy rate in the study area, hence the participants had less knowledge about the mosquitoes resting places. According to 37.66% participants the mosquito rest in sewage waste water. 32.66% participants said that the mosquitoes rest on the tall grass, leaves and woods. Whereas 29.66% participants said the mosquitoes rest in cattle sheds.

A total of 164 (82%) participants commented that mosquitoes breed in dirty stagnant water whereas 36 (18%) had no idea where the mosquito breed. In a study conducted by Singh et al.^[15] But in the present study 53.66 % of the participant stated that mosquitoes breed in polluted water, 44.33 % participant stated that mosquitoes breed in garbage and only 2% participant stated that mosquitoes breed in clean water.

Mosquito coil, mosquito net and traditional cow dung cake burning and leaf burning were the various methods of personal protective measures amongst the study participants. The study also find out that 64% of the participants most



frequently used the cow dung cake burning with leaves; followed by 24.33% of the participants used mosquito coil and 11.66% of the participants used the bed. Similar study as Niraj Pandit¹, Yogesh Patel² et al. Reported in their study that most popular method was the mosquito coil 57% and only 39% of study participants were using Bed Net for mosquito bite prevention.^[8]

In this study findings stated that the majority of participants i.e. 43% did not use treated bed net as the participants used traditional ways of prevention i.e. cow dung cakes mixed with dry leaves of trees because it is easily accessible, available and easy to use. Whereas 28% participants said that they do not use mosquito treated bed net because, of their large family size, the tribal community has large family size and each and every family member cannot afford the price of the Bed net. 16.66% of the participants stated that they use mosquito coil as preventive measure.

V. CONCLUSION

The study revealed that awareness about causes of malaria, malaria prevention, malaria transmission, mosquito breeding places and awareness about malaria treatment was satisfactory in the participants. There was awareness of Malaria in the study area. All preventive measures and control practices were carried out in the study area. This study confirms that in tribal areas where poverty was rampant and lifestyle comprises poor housing quality, also concluded that 65% of the participant lived in joint family so the mosquito bed net were not affordable which led to financial burden on the family, the study participants of the tribal area have their traditional ways of prevention from mosquito bite by using homemade mosquito bed nets with the help of the Nine yards sari. Only 11.66% of Participants used Bed Net as Preventive Practices and 24.33% of participants using mosquito coil. Less participants use Mosquito bed nets because it was not affordable for all family members.

Low education was detected as a major drawback of the participants. Majority of the study participants had less knowledge about the mosquitoes resting places. Proper health education and sensitization was needed to increase community knowledge and awareness about malaria prevention and control.

Improvements in standard of living, good access to healthcare facilities, health awareness, and large-scale community based interventions that either prevents infection or reduce the rate or intensity of exposure will have a significant impact in future in these areas.

VI. RECOMMENDATIONS

- On the basis of the findings of the study following recommendations were made.
- 1. This study indicate that there was much knowledge, less awareness and traditional practices used by respondents on Mosquitoes and its control which may be one of the important factors responsible for the persistence of malaria in tribal areas.
- 2. There is a need for special campaign to educate the illiterate and poor tribal communities on malaria, vector mosquitoes and disease transmission by mosquitoes by increasing awareness about malaria.
- 3. This motivation will increase in the regular use of bed nets in the tribal community. Information regarding the mosquito borne diseases, its prevention by using bed nets, Educating the tribal people about use of mosquito bed net, adverse effects of mosquito coil, adverse effects of burning the leaves and cow dung cakes on health and Communication between the tribal people about the vector borne diseases.
- 4. Information Education and communication activities should be taken up to increase community's knowledge and awareness in local language at the individual and community level, to promote malaria prevention, Malaria Transmission and use of bed nets for successful malaria control.
- 5.

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