

## Original Article

# Awareness and practice about preventive method against mosquito bite in Gujarat

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## Abstract

Mosquito borne diseases are major public health problems in India. Gujarat is endemic for malaria and other mosquito borne diseases. *Anopheles*, *Aedes* and *Culex* are commonly seen in Gujarat. Therefore the efforts have been consistently made to educate the citizens of State on danger of mosquito bites. The present study was conducted to assess the awareness and practices of mosquito bite prevention methods among households of Central Gujarat district Vadodara. Total 311 families have participated in the study from UHTC area of the Medical college. Door to door visit was conducted to visit the all households. The study was conducted in the month of June 2009, which is observed as Anti-Malaria month in Gujarat. The pilot pre-tested structure questionnaire was used to collect the data. Study respondents were 57% male and 43% female. Almost 99% had knowledge about breeding places of mosquito, but poor knowledge about biting time (20%). 71% of participants knew that mosquito bite causes malaria. 39% Of households were using mosquito net as protection against the bite, but only 10% were using insecticide treated bed net. There is need of increasing use of insecticide treated bed nets and continuous updating of knowledge about various aspects of mosquito bite.

## Introduction

Mosquito borne diseases constitute a major public health problem in India. Gujarat is endemic for malaria and other mosquito borne diseases. *Anopheles*, *Aedes* and *Culex* are commonly seen in Gujarat. *Anopheles* specie bites transmit the malarial parasite (*Plasmodium*), *Aedes aegypti* and some other species bites transmit yellow fever and dengue, while both *Anopheles* and *Culex* have been incriminated for the transmission of lymphatic filariasis<sup>1</sup>. Therefore the efforts have been consistently made to educate the citizens of the danger of mosquito bites to have effective control of the diseases transmitted by the arthropods particularly mosquito<sup>2</sup>.

Government of India is working on the control of mosquito transmitted diseases. The National Malaria control programme was launched in 1952 and it has been renamed as National Vector Borne Disease Control Programme in 2003<sup>3</sup>. Studies have revealed that human knowledge, attitude and practice of various methods of personal and household protection against mosquito bites vary in different endemic regions of tropical countries<sup>3-8</sup>. There are many personal protective measures suggested to prevent mosquito bites. They are mosquito nets, screening, repellents, vaporizers and anti mosquito coils. Under National Vector Borne Control programme, Government has introduced Insecticide Treated Nets (ITN) for community. They

are doing social marketing for ITN in our country. Study revealed that Insecticide Treated Nets have proved effective against vector borne diseases especially malaria<sup>9</sup>.

One of the important components of Vector borne disease control programme is to impart awareness about mosquito bite prevention in the general community. The present study was conducted to assess the awareness and practices of mosquito bite prevention methods amongst households of Central Gujarat (Vadodara. District)

**Methods:**

The community based study was conducted in malaria and dengue endemic district of Vadodara, in Central Gujarat. It is located on 25.29° north latitude and 76.35° east longitude. Population of the city is 1.5 million.

It was decided to cover all households of Urban Health Training Center catchment area of department of Community Medicine, SBKS Medical institute and Research center, Piparia, of Vadodara.district. Thus 311 families were selected to represent the study area. It was a cross sectional study. Door to door visit was conducted to visit the all households. The study was conducted in the month of June 2009, which is observed as Anti-Malaria month in Gujarat.

The pre designed and pre-tested proforma was used to collect the data. The questionnaire consisted of questions regarding information on various aspects of mosquito bite, breeding places of mosquito, measures of prevention of mosquito bite, diseases transmitted by mosquito bite and service utilization for diseases. The study was initiated after obtaining permission of institutional ethical committee. The internee doctors of Department of Community Medicine were trained for interview and data collection.. Informed consent was taken before interview. Questions were asked in local language and collected in questionnaire. Collected data was coded in Microsoft excel and analyzed.

**Results:**

Three hundred and eleven houses were visited for the study. There were 177 males and 134 females who were interviewed for the study. The demographic profile of the study population is shown in table -1.

Table – 1 Demographic profile of study population

Sex	Study participant (n)	Literacy	No	Mean age	Range	Median
Male	177	Literate	168	39.6	15-72	39
		Illiterate	9	47.5	21-76	46
Female	134	Literate	112	36	18-80	36
		Illiterate	22	45.5	29-70	45

Various aspects about knowledge of mosquito breeding, biting time and disease transmitted by mosquito bite were asked and their responses are shown in table-2.

Table -2 Knowledge and myths about mosquito and disease transmission

Knowledge details	Male (n=177)	Female (n=134)	Total (n=311)
1. Knowledge about breeding places of mosquito	174 (98.3%)	133 (99%)	307 (98.7%)
2. Garbage is the mosquito breeding site	36 (20.3%)	24 (17.9%)	60 (19.3%)
3. Knowledge that malaria is caused by mosquito bite	129 (72.8)	92 (68.6%)	221 (71%)
4. Knowledge that dengue, chickungunia is transmitted by mosquito	72 (40.6%)	49 (36.5%)	121 (39%)

Almost 97% of study participants were using one or other personal protective measures against mosquito bite. The commercial product 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 ration= 1.4). Only 10% of study participants were aware about insecticide treated bed-net.

Table -3 Protective practices against mosquito bite

Practices	House holds No.	Households %
Mosquito net	121	38.9
Mosquito coil	167	53.7
Repellent	29	9.3
Mosquito killing by racket	14	4.5
Traditional way like burning Neem leaves	14	4.5

Major source of knowledge about mosquito bite prevention was television( 77.5% ) followed by newspaper & magazine (35.00%.) – Table 4

Table-4 Source of knowledge about mosquito and diseases:

Source of knowledge	N=311	%
Television	241	77.5
Newspaper-magazine	108	34.7
Radio	70	22.5
Friends-relative	56	18
Hoarding-banners	48	15.4

### Discussion:

The wide spread knowledge about mosquito breeding places amongst study population reflects the impact of effective IEC by government (table-2). Sharma SK et al<sup>11</sup> reported in their study in 1993 that majority of Bastat district of Madhya Pradesh did not know about mosquito breeding places. The present study showed better awareness amongst the population probably due to good IEC activities in the state. However, 20% of study population still had myths that garbage was the breeding place for mosquito..

Almost 71% of study population had knowledge that mosquito bite is the cause for malaria but only 39% of the study population knew that dengue, chikungunya and kala-azar etc

was transmitted by mosquito. Surendren SN<sup>4</sup> had reported from war-torn northern Sri-lanka that 71% of study participants were able to name at least one disease transmitted by mosquitoes. Tyagi P<sup>11</sup> reported from New Delhi in 2005 that 100% of study participants knew that mosquito bites transmit malaria.

When practice regarding prevention of mosquito bite was enquired, 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 SN<sup>4</sup> from Sri Lanka where 96% of study participants were using one or other personal protective measures against mosquito bite, and Babu BV<sup>5</sup> reported from Orissa that 99% of urban households; 84% of rural households were using at least one measure against mosquito bites and Snehlatha KS<sup>8</sup> from Pondicherry reported that 99% and 73% of urban and rural respondents respectively were found to use some personal protection against mosquito bites. But study from Madhya Pradesh, Panda R<sup>7</sup> et al reported that about 55% of study participants did not take any measures to prevent mosquito bites. Thus there is evidently varying practices against mosquito bite from place to place.. 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.

Mosquito coil, mosquito mat, repellent, mosquito net and traditional Neem leaf burning were the various methods of personal protective measures amongst the study participants. Most popular was the mosquito coil (57%) followed by using bed net (39%). Snehlatha<sup>8</sup> et al reported in their study that most popular method was mosquito coil in urban and rural area; Babu BV<sup>5</sup> from Orissa reported 76% of urban and 58% of rural household were using untreated bed net. This reflects that high malaria endemic districts used more of bed net compared to lower endemic districts.

Only 39% of study participants were using Bed Net for mosquito bite prevention and none of the study participants used insecticide treated bed-net(ITN). The awareness about ITN was poor in the study population. Similar findings were observed by Snehlatha KS<sup>8</sup> et al, Ziba C<sup>6</sup> et al +and Babu BV<sup>5</sup> et al.

It was observed that Television was the main source of awareness for the community followed by newspaper, radio, friends and advertisements. It was disappointing to note that doctor or health staff were not mentioned as the source of knowledge.

### **Conclusion:**

The study revealed that knowledge about causes of malaria and mosquito breeding places was satisfactory, but some myths were still prevalent. There is a dire need to expand the focus of knowledge to other mosquito borne diseases also. Incidence of Chikungunya, Japanese Encephalitis, Kala Azar and dengue are increasing warranting an urgent need to effectively implement the National Vector borne Disease prevention programme. Insecticide treated bed-net is a good weapon to fight against mosquito borne disease and Strong social or commercial marketing of these products can definitely increase the acceptance. Television was the best source of acquiring knowledge amongst the population and this medium should be targeted for maximum effect of I E C activities..

**Reference:**

1. Park's Textbook of Preventive and Social Medicine; Bhanot Publication, 19<sup>th</sup> Edition p-626
2. Heyneman, D., 2004. Medical parasitology. In: Medical microbiology, Brooks, G.F., J.S. Butel and S.A. Morse (eds.). 23rd Edn, McGraw Hill, Boston, pp: 661-701
3. [http://gujhealth.gov.in/health\\_programmes/malaria/index.htm](http://gujhealth.gov.in/health_programmes/malaria/index.htm) visited July 2009
4. Surendran SN, Kajatheepan A; Perception and personal protective measures toward mosquito bites by communities in Jaffna District, northern Sri Lanka; J Am Mosq Control Assoc. 2007 Jun;23(2):182-6.
5. Babu BV, Mishra S, Mishra S, Swain BK. Personal-protection measures against mosquitoes: a study of practices and costs in a district, in the Indian state of Orissa, where malaria and lymphatic filariasis are co-endemic. Ann Trop Med Parasitol. 2007 Oct;101(7):601-9
6. Ziba C, Slutsker L, Chitsulo L, Steketee RW, Use of malaria prevention measures in Malawian households. Trop Med Parasitol. 1994 Mar;45(1):70-3
7. Panda R, Kanhekar LJ, Jain DC, Knowledge, attitude and practice towards malaria in rural tribal communities of south Bastar district of Madhya Pradesh. J Commun Dis. 2000 Sep;32(3):222-7.
8. Snehalatha KS, Ramaiah KD, Vijay Kumar KN, Das PK. The mosquito problem and type and costs of personal protection measures used in rural and urban communities in Pondicherry region, South India. Acta Trop. 2003 Sep;88(1):3-9
9. Lengeler,C. 2000. Insecticide treated bed nets and curtains for preventing malaria. Cochrane Database Syst Rev 2: CD000363.
10. Sharma SK, Jalees S, Kumar K, Rahman SJ. Knowledge, attitude and beliefs about malaria in a tribal area of Bastar district (Madhya Pradesh); Indian J Public Health. 1993 Oct-Dec;37(4):129-32.
11. Tyagi P, Roy A, Malhotra MS, Knowledge, awareness and practices towards malaria in communities of rural, semi-rural and bordering areas of east Delhi (India); J Vect Borne Dis 42, March 2005, pp 30–35

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