Chandrachood M et al. GAIMS J Med Sci 2024;4(1) (Jan-Jun):74-79
Online ISSN: 2583-1763

Original Research Article

Preventing Mosquito Bite: Perceptions & Practices among Medical Students

Mandar Chandrachood[1*], Shreyash Mehta[1], Adwait Godse[2], Nirav Nimavat[1]

[1]Department of Community Medicine, Gujarat Adani Institute of Medical Sciences and GK General Hospital, Bhuj, Kachchh, Gujarat.
[2]Department of Physiology, BKL Walawalkar Rural Medical College and Hospital, Sawarde, Ratnagiri, Maharashtra.
*Correspondence: Dr. Mandar Chandrachood (drmandar5@gmail.com)
ORCID ID: 0000-0001-5111-2983

ABSTRACT

Background: Mosquito borne diseases remain a major public health challenge and contribute to annual outbreaks in India and in the world. Individual awareness and involvement is an important aspect of disease prevention and control. The aim of our study was to assess mosquito bite perceptions and preventive practices among medical students.

Methods: A cross sectional study was conducted among undergraduate medical students using convenient sampling method. Data was collected using semi-structured questionnaire and analyzed with SPSS software version 20.

Results: Among 258 study participants majority perceived that they are at risk of mosquito borne diseases which can be prevented. Mosquito repellant creams and full sleeve clothes were the most commonly resorted measures against mosquito bite. No significant association was observed between gender, history of disease and hospitalization with frequency of using the protective measures against mosquito bite.

Conclusions: Behavior change at individual level is essential for preventing mosquito bite; adoption of proper preventive practices needs to be emphasized among medical students and all concerned. The health campaigns should ensure that the knowledge acquired is put into practice.

Keywords: mosquito bite, medical students, perceptions, practices

INTRODUCTION

Behavior change is one of the key elements in the control of vector borne diseases. WHO emphasizes the importance of providing education and improving awareness, so that people should know how to protect themselves and their communities from these disease causing vectors. To raise the awareness regarding the disease, WHO had taken vector borne diseases as the issue for World Health Day 2014 and the theme was "Small bite, big threat".[1]

Mosquito borne diseases are major public health issue in India and South East Asia. Dengue fever, Japanese encephalitis and malaria occur in epidemic proportions almost every year with considerable morbidity and mortality.[2]

While India has shown a decline in cases of vector borne diseases such as malaria, cases of dengue/dengue hemorrhagic fever (DHF) continue to rise. Every year, during the period of July – November, there is an upsurge in the cases of dengue/DHF in Northern India; the disease having

become perennial in Southern and Western parts of the country.[3]

Despite of awareness programs through mass communication and educational approaches, community participation is far below expectation. Community participation in turn depends on peoples' awareness, knowledge, attitude and practice related to mosquito borne disease.[4]

Today's medical students are future doctors who would be change makers in the community for matters of public health concern. Hence, this study was aimed at assessing the perceptions and practices pertaining to protection from mosquito bite among undergraduate students of medical college in Gujarat.

Objectives of the study

The objectives of the present study were:
a) To assess the perceptions regarding mosquito bite and disease history among participants;
b) To assess the mosquito bite preventive measures practiced by the medical students;
c) To study the association between gender, history of disease and hospitalization with practices regarding prevention of mosquito bite.

MATERIAL & METHODS

Study setting

An observational, descriptive, cross sectional study was carried out among undergraduate students of a medical college run under public private partnership in Western Gujarat. The study was done for a period of two months from February to March 2023. The study was a part of the elective posting of Phase 3 students with the department of Community Medicine.

Sampling and study population

The convenient sampling method was used for selection of the study participants and all undergraduate medical students from Phase 1 MBBS to internee were included in the study. All those who were unwilling to participate were excluded from the study.

Data collection

A pre-tested, pre-validated, semi-structured questionnaire was used to collect the data. Google form was used to collect the anonymous data; the link of which was shared through WhatsApp groups of students studying in different phases of MBBS from phase 1 to internship. The informed consent was obtained from those who agreed to participate in the survey.

Study tool

The study tool comprised of three sections. The first section contained information regarding socio-demographic details of the participants such as age, gender and year of study. The second section contained questions which assessed the perceptions among the study participants particularly about mosquito bite and history of diseases & hospitalization. The third section had questions about preventive measures practiced by the medical students to protect themselves from mosquito bite.

Data analysis

The data was entered in Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software version 20. Descriptive analysis was carried out for computing frequencies and Chi square test was utilized for studying the association of socio-demographic variables and perceptions with measures practiced for prevention of mosquito bite. P value less than 0.05 was considered statistically significant.

RESULTS

Total 258 undergraduate medical students from Phase 1 MBBS to internship participated in the study. Of these 137 (50.8%) were female students and remaining 127 (49.2%) were male students. Participants were in the age range of 17-25 years with mean age of 20.4 years.

While assessing perceptions of participants regarding mosquito bite; it was observed that 157 (60.9%) participants think that they are at risk of mosquito borne diseases and 211 (81.8%) stated correctly that mosquito bite can be prevented. Majority of the

Table 1: Perceptions regarding Mosquito Bite and disease history

Question		Response of the participants		
		Yes	**No**	**Can't Say/ Don't Know**
Are you at risk of getting mosquito borne diseases? (n=258)		157 (60.9)	57(22.1)	44(17)
Is mosquito bite preventable? (n=258)		211 (81.8)	21(8.1)	26(10.1)
	Day time	**Night time**	**Any time of the day**	**Can't Say/ Don't Know**
At what time mosquitoes bite? (n=258)	12(4.7)	96(37.2)	138(53.5)	5(1.9)
			Yes	**No**
Have you suffered from Dengue or Malaria in last 5 years? (n=258)			62(24)	196(76)
Were you hospitalized for Dengue or Malaria in last 5 years? (n=62)			39(62.9)	23(37.1)

*Figures in parenthesis indicate percentages

Table 2: Practices for Protection from Mosquito Bite* (n=258)

Mosquito nets or bed nets	**Mosquito repellant creams**	**Full sleeve dress**	**Liquid vaporizers**	**Insecticidal sprays**	**Mosquito coils or Incense sticks**	**Mosquito rackets**	**Not using any measures**
89	149	145	120	38	48	53	18

*Contains multiple responses

Table 3: Frequency of using the protective measures against mosquito bite (n=258)

Regularly		**Not regularly**		**Not using**
Regularly throughout the year	Regularly during seasons of increased mosquito nuisance	Somewhat frequently but not regularly	Only if extreme nuisance of mosquitoes	Never
29(11.2)	122(47.3)	68(26.4)	30(11.6)	9(3.5)

*Figures in parenthesis indicate percentages

Table 4: Association of gender, history of disease and hospitalization with frequency of using the protective measures against mosquito bite

		Frequency of using the protective measures against mosquito bite		
Parameters		**Regularly**	**Not Regularly / Not using**	**Chi square test result**
Gender (n=258)	**Male**	69(26.8)	58(22.5)	1.815 p=0.1782
	Female	82(31.8)	49(18.9)	
History of Dengue or Malaria in last 5 years (n=258)	**Yes**	38(14.8)	24(9.3)	0.2567 p=0.6124
	No	113(43.8)	83(32.1)	
History of hospitalization for Dengue or Malaria in last 5 years (n=62)	**Yes**	25(40.3)	14(22.6)	0.3504 p=0.5539
	No	13(21)	10(16.1)	

*Figures in parenthesis indicate percentages

participants 138 (53.5%) mentioned that mosquitoes can bite at any time of the day. Near about one fourth i.e. 62 (24%) of the participants had history of malaria or dengue in last 5 years and 39 (62.9%) among them were hospitalized for the same.
(Table – 1)

While asserting the practices for protection from mosquito bite; it was found that mosquito repellant creams 149 (57.7%) were most commonly used followed by full sleeve dress 145 (56.2%) and liquid vaporizers 120 (46.5%). However; 18 (6.9%) respondents even mentioned that they are not using any measures for preventing mosquito bite. (Table–2) Majority of the respondents 199 (77.1%) were practicing these measures at night time only as against whole day 45 (17.4%) and few were using only at day time 14 (5.4%).

It was observed that 122 (47.3%) participants were using protective measures against mosquito bite regularly during seasons of increased mosquito nuisance; however, 9 (3.5%) mentioned that they never used any protective measure to prevent mosquito bite. (Table – 3) No any statistically significant association was found between gender, history of disease and hospitalization with frequency of using the protective measures against mosquito bite. (Table – 4)

When asked about any other method if being used to protect from mosquito bite apart from given choices, then few of the participants mentioned about closing windows and doors in the evening and running fans at high speed as commonly practiced methods.

DISCUSSION

Mosquito bites are preventable and preventive strategies work mainly by individual awareness and motivation to practice them in daily life. The present study was done to explore the perceptions and practices for preventing mosquito bite among undergraduate medical students.

In our study majority of the participants 138 (53.5%) mentioned that mosquitoes can bite at any time of the day. Similar findings were observed by Nagoor K et al in their study done in urban slums of South India in which majority of the respondents had knowledge regarding the mosquito biting time as any time of the day (85%).[5] These findings are also comparable with the studies done in Delhi by Acharya A et al and in Pondicherry by Malhotra V & Kaur P.[6,7]

We observed that majority (93%) of the participants were using some or other different kinds of protective measures against mosquito bite whereas in a study done in Pondicherry by Snehalatha KS et al; almost everyone (99.3%) used some personal protection measures.[8] Nagoor K et al found that majority (79%) of the respondents were using different kinds of protective measures but about 21% people did not practice any preventive measure.[5]

Shabadi N & Vidya GS in their study done among rural population in Mysore district regarding perception and practices pertaining to prevention and control of dengue fever found that people were practicing good personal protection measures to prevent mosquito bite as they felt that there are several diseases which spread through mosquito bite. They also observed that the knowledge regarding cause, modes of spread of the disease and vector characteristics were poor but the practices towards mosquito control measures were adequate.[9] However, this knowledge aspect was not part of our study.

In our study, it was found that mosquito repellant creams 149 (57.7%) were most commonly used measure to prevent mosquito bite followed by full sleeve dress 145 (56.2%) and liquid vaporizers 120 (46.5%). Our findings differ from the study done by Varun KT et al among urban population in Tamil Nadu; where majority of the study participants reported using mosquito repellents in the form of coils (55.2%) followed by mosquito nets, repellent creams and repellent sprays.[10] Our findings also differ from the study done by Arora P et al among urban community of Delhi where mosquito net use was the most preferred personal prophylactic measure for prevention against mosquito bite (61.4%). He also noticed that the use of other prophylactic measures such as sprays, coils, repellants and vaporisers was quite less; which may lead to inadequate protection from bites by *Aedes* as nets were generally used at night.[11] Same is the case in our study also as majority

of the respondents 199 (77.1%) were practicing these measures at night time only.

In a study done by Roselin V & Srisanthakrishnan V in Tamil Nadu; the common personal protective measure followed by the rural population was mosquito coils whereas in urban area it was multiple methods commonly liquid repellants[12] which was again different from preferred practices seen in our study. Joseph N et al in their study in urban and semi-urban areas of South India found that coils as economical and the reason for not using bed nets was fear of suffocation[13] However; such reasons behind use or non use of methods were not studied by us.

Limitations

The study has some limitations mainly the drawbacks of convenient sampling and it pertains to specific group of population i.e. undergraduate medical students; which makes it difficult to generalize findings to other populations belonging to different socio-economic or cultural backgrounds. However, similar studies can be done in a community on a wider scale to obtain the real picture about the mosquito bite perceptions and preventive practices among the population.

CONCLUSIONS

There is not enough being done even by medical students for preventing mosquito bite who are well aware about hazards and consequences of it. It may be concluded that there is a knowledge practice gap in terms of use of personal protective measures against mosquito bite. No significant association was found between gender, history of disease and hospitalization with frequency of using the protective measures against mosquito bite.

To tackle the problem of mosquito bone diseases to some extent with sustainable results; behavior change has to be brought about among all for use of various protective measures against mosquito bite. Health campaigns should ensure that the knowledge acquired is put into practice. Also more motivational efforts for consistent and timely use of personal prophylactic measures, by increasing awareness about vector characteristics, needs to be done.

REFERENCES

1. World Health Organization. WHO campaigns-World Health Day 2014. Available from: https://www.who.int/westernpacific/news/item/04-04-2014-world-health-day-2014-small-bite-big-threat- (Accessed on 11 March 2023)

2. Lobo DA, Velayudhan R, Chatterjee P, Kohli H, Hotez PJ. The neglected tropical diseases of India and South Asia: review of their prevalence, distribution, and control or elimination. PLoS Negl Trop Dis. 2011 Oct;5(10):e1222. https://doi.org/10.1371/journal.pntd.0001222

3. Annual report MOHFW. Available at: www.mohfw.nic.in. (Accessed on 13 March 2023)

4. Sharma AK, Bhasin S, Chaturvedi S. Predictors of knowledge about malaria in India. J Vector Borne Dis. 2007;44:189-97.

5. Nagoor K, Babu SD, Reddy BN, Kahn S, Kalluri RJ, John KR. Knowledge, attitude and practice on dengue fever and its prevention and control measures in urban slums of South India. Int J Community Med Public Health 2017;4:3013-7. https://doi.org/10.18203/2394-6040.ijcmph20173363

6. Acharya A, Goswami K, Srinath S, Goswami A. Awareness about dengue syndrome and related preventive practices amongst residents of an urban resettlement colony of south Delhi. J Vect Borne Dis. 2005;42:122–7.

7. Malhotra V, Kaur P. The Community knowledge, attitude and practices regarding Dengue fever in field practice area of urban training health centre of Patiala. Int J Res Dev Health. 2014;2(1):19-26. https://doi.org/10.18203/2394-6040.ijcmph20160455

8. Snehalatha KS, Ramaiah KD, Kumar VKN, 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 Tropica. 2003;88(1):3–9.
DOI: 10.1016/s0001-706x(03)00155-4

9. Shabadi N, Vidya GS. Perception and practices pertaining to prevention and control of dengue fever among rural population in Mysore district. Int J Community Med Public Health 2017;4:4608-12. https://doi.org/10.18203/2394-6040.ijcmph20175338

10. Varun KT, Vijay PM, Swaminathan P, Ravi KT. Awareness of dengue and practice of dengue control measures among urban population in Tamil Nadu, India. Int J Community Med Public Health 2018;5:795-800. https://doi.org/10.18203/2394-6040.ijcmph20180271

11. Arora P, Arora M, Sharma V, Kotwal A. Dengue: awareness, preventive practices and water storage behaviour in an urban community of Delhi. Int J Community Med Public Health 2017;4:4460-5. https://doi.org/10.18203/2394-6040.ijcmph20175148

12. Roselin V, Srisanthakrishnan V. A comparative study on knowledge and perception of vector borne diseases among rural and urban population in Tamil Nadu. Int J Community Med Public Health 2019;6:2672-8. https://doi.org/10.18203/2394-6040.ijcmph20192342

13. Joseph N, Nelliyanil M, Kotian SM, Omar M, Aswin RS, Donkena S, et al. Awareness, practices and expenditure towards mosquito bite prevention methods in urban and semi-urban areas of South India. International J Mosquito Res. 2015;1:53-9.

Source of Funding: None

Conflict of interest: None declared

How to cite: Chandrachood M, Mehta S, Godse A, Nimavat N. Preventing Mosquito Bite: Perceptions & Practices among Medical Students. GAIMS J Med Sci 2024;4(1):74-79.

https://doi.org/10.5281/zenodo.10036556