

Awareness among People of Chennai in Relation to Mosquitoes and Mosquito-Borne Diseases

S. Vaishali

BDS II, Saveetha Dental College, 162,P.H. Road, Chennai, Tamilnadu 600077.

Abstract: ***Aim:** The aim of the study is to create awareness among people of Chennai in relation to Mosquitos and mosquito-borne diseases. **Objective:** The objective of the study is to know about the knowledge, attitudes, practices among people of chennai in relation to Mosquitos and mosquito-borne diseases across a range of age groups and between males and female. **Background:** Each year, more than one billion people are infected and more than one million die from a mosquito-borne disease. So it very essential to know about the knowledge, attitude and practices of people about these in order to create awareness and reduce the mortality rate of people due to this disease. **Reason:** This study aims at creating awareness among people so that the number of people affected by mosquitos decreases and to create safety measures to prevent the spread of diseases. **Results:** There was limited awareness among people regarding the potential breeding sites could even be domestic container and occupational exposure. The mosquito count was higher(53%) during rainy reason and 54% of the participants used mosquito coils and mosquito netting to get rid of mosquitoes.*

Keywords: Mosquito, mosquito borne diseases, repellents

1. Introduction

Every year, more than one billion people are infected and more than one million die from a mosquito-borne disease (1). Not only can mosquitoes carry diseases that affects humans, they also transmit several other diseases and parasites that dogs and horses are very susceptible to. These include dog heartworm, West Nile virus (WNV) and Eastern equine encephalitis (EEE). In addition, mosquito bites can cause severe skin irritation through an allergic reaction to the mosquito's saliva - this is what causes the red bump and itching. Mosquito vectored diseases include protozoan diseases, i.e., malaria, filarial diseases such as dog heartworm, and viruses such as dengue, encephalitis and yellow fever[3]. *Aedes aegyptii* mosquito (vector for dengue) breed in small artificial collections of water like unused tyres, flower pot bases, broken bottles, etc. It is disappointing that many people did not know this mode of transmission for dengue, when in fact community participation is the only effective way in eradicating dengue outbreaks in the community. Behavioural theory suggests that people will be willing to put more effort into avoiding dengue if the consequences for not controlling mosquitoes seemed higher[4]. *Anopheles* species of mosquitoes (vector for malaria) breed mainly in clean water in contrast with the most widely held perception of people that they breed in drains or dirty water. Some of these misperceptions have been important hurdles affecting community participation in malaria prevention and control[5]. Higher global connectivity and the increased volume of international travel have escalated the threat of importation, establishment, and expansion of many arboviral diseases which include bite by arthropod ,mosquitoes and ticks[6-8]. The past two decades alone have been witness to the emergence of dengue, chikungunya, West Nile, Japanese encephalitis, and most recently, Zika viruses in naive populations across the globe [9-12]. Human movement patterns also contribute to the spread of mosquito-borne diseases at a finer scale, such as within cities, which is dangerous [13-15]. So this study aims

at assessing the awareness of people among chennai in relation to mosquito and mosquito borne diseases.

2. Materials and Method

The study included a total of hundred participants who were selected at random from various localities of Chennai, India.

Study Population

100 people belonging to various age groups were randomly selected from various localities of Chennai and were approached to complete the questionnaire.

Methods

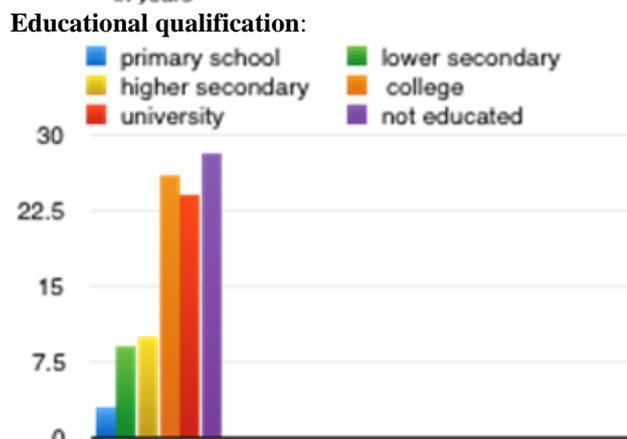
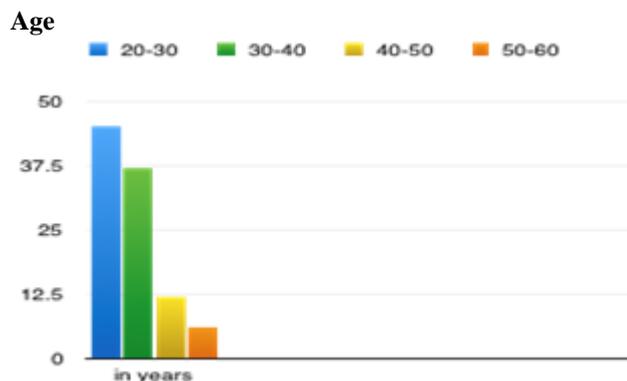
The questionnaires were self-formulated and was delivered by hand and collected on completion. The medium of answering the questionnaires was English. All the responses of the questionnaires were kept anonymous. The questions were framed in order to assess the awareness of people among Chennai in relation to mosquito and mosquito borne diseases. The data collected was entered in Microsoft excel sheet and the results were tabulated and described in bar graphs.

Questionnaire Design

The questionnaires were self-formulated and were designed to study the awareness of people among Chennai in relation to mosquito and mosquito borne diseases. The questions were related to their daily exposure to mosquitoes and knowledge regarding their existence and remedies to get rid of them. Some of the questions required their respondents to choose multiple options which applied to their condition.

3. Results

The data was entered in Microsoft excel and the results were tabulated and described in bar graphs.



Impact do mosquitoes have on your quality of life?	
Health risk	36%
Nuisance	41%
No concern	18%
Don't know	5%
During the worst times of the year, how often do you get bitten by mosquitoes?	
Everyday	59%
Someday	36%
Don't know	5%
In which locations are you bitten by mosquitoes?	
Home	27%
Recreation	9%
Work	18%
All of the above	46%
Don't know	10%
How much of a problem do you think mosquitoes are where you live?	
Not a problem	7%
Less significant problem	18%
Significant problem	73%
Don't know	2%
How concerned are you about catching a mosquito-borne disease?	
Not concerned	4%
Moderately concerned	50%
Very concerned	41%
Don't know	5%
Which measures do you take to reduce the member of mosquitoes present in your property?	
Kill as noticed	14%
Residual spray	41%
Eliminate with stagnant water	41%
Don't know	4%
What measures have you taken in last 12 months to protect yourself and family from being bitten?	
Mosquito coils	27%

Repellent	3%
Clothing	9%
Insect screens	14%
operate fans	9%
Electronic zapper	3%
Automatic spray	2%
Mosquito netting	27%
Don't know	5%
Which mosquito repellent have you used in past 12 months?	
Chemical based repellent	59%
Repellent wipes	14%
Repellent bracelets	3%
Chemical based repellent	9%
Natural based repellent	14%
Don't know	3%
What are the home remedy measures taken by you to protect yourself from being bitten?	
Neem oil	50%
Eucalyptus and lemon oil	14%
Garlic	14%
Lavender	2%
Citronella	3%
Tea tree oil	10%
Don't know	2%
According to you, which is the most common breeding sites for mosquitoes?	
Stagnant water	20%
Domestic container	14%
Flower pot plates	10%
Plants	14%
Toilet bowl	24%
Closed perimeter drains	16%
Don't know	2%
In which season do you find the count of mosquitoes are high?	
Rainy season	53%
Summer season	13%
Autumn season	27%
Spring season	4%
Don't know	3%
From which sources have you obtained information regarding mosquitos and mosquito-borne diseases?	
Health professional	9%
Friends, family and relatives	27%
Local government	9%
Social media	27%
Internet	14%
School, college and university	11%
Don't know	3%

4. Discussion

100 people belonging to various age groups were randomly selected from various localities in chennai. Majority of the participants (46%) belonged to the age group 20-30 years and few (6%) belonged to the age group of 50-60 years. About 28% of the participants were uneducated and majority were educated. 41% of the participants considered mosquitoes as nuisance and 36% considered it as a health risk. This suggests that majority of the participants are not aware of the adverse effects caused by the Mosquitos. Regarding the mosquito bite during the worst season of the year, 59% of the participants complained they were bitten by mosquitoes everyday, which shows that the breeding of mosquitoes during that particular season is quite high. About 46% of the participants complained that they were bitten by

mosquitoes at all the Places which included home, recreation and work. 73% of the participants considered mosquitoes as a significant problem, which suggests that the existence of mosquitoes in that localities is very high and they are much concerned about it. On regarding the elimination of the mosquitoes about 41% of the participants use residual sprays to get rid of the mosquitoes and another 41% consider eliminating the stagnant water would eliminate the mosquitoes. About 54% of the People use mosquito coils and netting to protect themselves from mosquito bites. On coming to home remedies used for the prevention of mosquito bites, 50% use neem oil as remedy which is most conventional method used from earlier days and his suggests people still have hope in natural remedies instead of relying on chemical repellants these days. Many of the participants considered toilet bowls and stagnant water as breeding sites for mosquitoes, but many were unaware that even flower pot plates, plants, domestic container are the common breeding sites. This negligence among people could probably lead to increase in the incidence of the mosquito borne diseases. The highest count of mosquito count was recorded during rainy season. The probable reason for this could be the prevalence of stagnant water which becomes the most common sites for mosquito breeding. Many of the participants received information regarding the mosquito and mosquito borne diseases from friends, family and relatives and from social media. Since many were uneducated the reason for obtaining information is less from schools, colleges .

5. Conclusion

The survey highlighted the existence of limited awareness of the potential for backyard breeding in domestic containers, occupational exposure to mosquitoes particularly in regions with a large employment base in the mining sector, increased exposure to mosquitoes during recreational activities and reduced awareness of mosquito- borne disease in individuals aged 40-60 years. The results of this survey will be used to develop a new communication strategy to reduce the impact of mosquito-borne disease. Also, conducting awareness programmes regarding the causes, signs and symptoms of mosquito borne diseases would be quite useful.

References

- [1] World Health Organization. A Global Brief on Vector-Borne Diseases. Geneva: World Health Organization (WHO) (2014).
- [2] American mosquito control association ; www.mosquito.org
- [3] Dengue Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, San Juan, Puerto Rico ,climate change and mosquito borne diseases, Environmental Health Perspectives • VOLUME 109 | SUPPLEMENT 1 | March 2001
- [4] Janz NK,Becker NH. The health belief model:a decade later. Health Educ Q 1984;11:1–47.
- [5] Pirooska Östlin Karolinska Institutet , Department of Public Health Sciences, Division of International Health, 171 76 Stockholm, Sweden , J Epidemiol Community Health 2003;57:392
- [6] Gubler DJ. Resurgent vector-borne diseases as a global health problem. Emerging Infectious Diseases. 1998;4(3):442–50. doi: 10.3201/eid0403.980326. pmid:9716967
- [7] Gubler DJ. Vector-borne diseases. Revue Scientifique et Technique (International Office of Epizootics). 2009 Aug;28(2):583–8.
- [8] Tatem AJ, Huang Z, Das A, Qi Q, Roth J, Qiu Y. Air travel and vector-borne disease movement. Parasitology. 2012 Dec;139(14):1816–30. doi: 10.1017/S0031182012000352. pmid:22444826
- [9] Mackenzie JS, Gubler DJ, Petersen LR. Emerging flaviviruses: the spread and resurgence of Japanese encephalitis, West Nile and dengue viruses. Nature Medicine. 2004 Dec;10(12):S98–109. doi: 10.1038/nm1144. pmid:15577938
- [10] Nasci RS. Movement of Chikungunya Virus into the Western Hemisphere. Emerging Infectious Diseases. 2014 Aug;20(8):1394–1395. doi: 10.3201/eid2008.140333. pmid:2506183
- [11] Rezza G. Dengue and chikungunya: long-distance spread and outbreaks in naive areas. Pathogens and Global Health. 2014 Dec; 108(8): 349–55. doi: 10.1179/2047773214Y.0000000163. pmid:25491436
- [12] Hennessey M, Fisher M, Staples JE. Zika Virus Spreads to New Areas-Region of the Americas, May 2015-January 2016. Morbidity & Mortality Weekly Report. 2016;65(3):55–58. Available: <http://www.cdc.gov/mmwr/volumes/65/wr/mm6503e1.htm>. doi: 10.15585/mmwr.mm6503e1.
- [13] Stoddard ST, Forshey BM, Morrison AC, Paz-Soldan VA, Vazquez-Prokopec GM, Astete H, et al. House-to-house human movement drives dengue virus transmission. Proceedings of the National Academy of Sciences of the United States of America. 2013 Jan;110(3):994–9. doi: 10.1073/pnas.1213349110. pmid:23277539
- [14] Reiner RC, Stoddard ST, Scott TW. Socially structured human movement shapes dengue transmission despite the diffusive effect of mosquito dispersal. Epidemics. 2014 Mar;6:30–36. doi: 10.1016/j.epidem.2013.12.003. pmid:24593919.
- [15] Adams B, Kapan DD. Man bites mosquito: understanding the contribution of human movement to vector-borne disease dynamics. PloS ONE. 2009 Jan;4(8):e6763. doi: 10.1371/journal.pone.0006763. pmid:19707544