ORIGINAL ARTICLE

Community Participation in Terms of Awareness and Practices Regarding Mosquito Borne Disease Control: Comparative Study in Rural and Urban Slum Field Practice Area of A Medical College

Jyoti Landge[1],Amitav Banerjee[2], Swati Ghonge[3]

Authors' Affiliation: [1]Associate Professor, Dept. of Community Medicine, Nootan medical college and research centre, Visnagar; [2]Professor and Head;[3]Associate Professor, Dept. of Community Medicine, Dr DYPMC, DPU Pimpri, Pune
Correspondence: Dr.JyotiLandge, Email; jlandge11@gmail.com, Mob No. 08087649980

ABSTRACT

Background: In spite of various strategies followed by government of India since 1953 Mosquito Borne Diseases (MBDs) are a health threatening condition all over country and problem is worsening with increasing urban slum. Impact of any strategy depends upon understanding by community members so present study was carried out to find any difference in awareness and practicing mosquito control measures in urban slum and rural field practice area of medical college.

Material and methods: A cross sectional study was carried out for duration of 6months (June to Nov 2017-most important transmission season of vector borne diseases) infield practice area (UHTC&RHTC) of community medicine department with sample size of 540.One adult respondent from each selected households were selected randomly and interviewed using a semi-structured questionnaire. Data was analyzed using SPSS 20 and results were expressed in terms of frequency and percent.

Results: About 78.9% urban slum and 70.7% rural respondents had heard about mosquito borne diseases, 70% urban slum respondents and 83.3% rural respondents knew correct mode of transmission of diseases. Nearly three fourth (75%) of households in urban slum and more than 90% (94.5%) in rural were practicing one or more efficient larvae control measures but they were not specific to mosquito control.

Conclusion: Awareness regarding mosquito borne diseases and control measures was satisfactory to some extent. Community participation in terms of practices is varied at studied places & needs to be addressed as per deficiency to reduce disease burden.

Keywords: Awareness, Mosquito borne diseases, Practice, Rural, Urban slum

INTRODUCTION

Mosquito borne diseases (MBD) are of public health importance and their occurrence depends on the interaction of various biological, ecological, social and economic factors. Though several measures are followed for the prevention and control of MBD, yet the problem density is too high with 300-500 million cases and 1.1-2.7millilon deaths due to malaria alone globally per year. [1]

Rapid and unplanned urbanization is among one of the factors that is making urban areas more receptive to epidemics of MBD. Poor living conditions in the low socioeconomic areas and slums not only contribute to the spread of the disease but also make it difficult to curb the vector population effectively in this areas.[2]

National Vector Borne Disease Control Programme (NVBDCP)[3]under National Health Mission (NHM) [4] is one of the most comprehensive and multifaceted public health activities in India including prevention and control of mosquito borne diseases.

Information education and communication (IEC) activity is one of strategy in various national health programmes to reduce burden of diseases. Every year in spite of various IEC activities to create awareness cases of MBDs are increasing. It is very important to aware community about various measures available and how to use them correctly. In spite of mass communication and educational approaches community participation is far below expectation in different parts of country; especially in urban slum areas where access to houses is a difficult proposition due to security, it is essential that communities themselves undertake interventions against vector mosquitoes. Community participation depends on people's awareness & also the practices they follow to prevent mosquito breeding or mosquito bites at their home. Present study was an attempt to find any difference in awareness and practicing

mosquito control measures of urban slum and rural field practice area of medical college.

MATERIAL AND METHODS

It was across sectional study for duration of 6months (June to Nov 2017-most important transmission season of vector borne diseases) infield practice area of community medicine department. Urban slum area selected for present study was laltopinagar, near to urban health training centre; a typical urban slum having enough houses for study purpose. Rural area selected for present study was Alandi village (Rural health training centre) because of easy transport facility and enough houses for study purpose.

Considering 9% and 1.5% population from urban slum and rural area not practising any Personal protective measure in a study by Malhotra G [5] using this proportion, 5% of β error and 80% power of study required sample size using software winpepi was 328 with 1:1 division in urban slum and rural area. A total of 540 (270 each) adult household members were interviewed during study duration.

A household and one adult respondent>15 yearspresent at home during interview from each household was selected and for our convenience then every tenth household was selected in urban slum area, while every fifth household was selected in rural area.

Pre-tested and semi structured questionnaire was used for collecting data. Questionnaire included information regarding socio-demographic characteristics, Knowledge and practice on mosquito control. Consent of the participants was taken after explaining the purpose of the study and knowing their willingness to share the information. Ethical approval was obtained from the institutional ethics committee.

Data entry was done by using Microsoft Excel 2007 sheet and analysis done in SPSS 20 software. Data was analysed in terms of frequency and percentage and compared for rural and urban slum area.

RESULTS

In the study total 540 household members were interviewed, each 270 family taken from urban slum and rural area of Pune district. In urban slum area maximum (37.7%) respondents were above 45years of age and in rural area maximum (30%) respondents were of 26-35years of age. There were 61.4% (166) male respondents in urban slum and 44% (119) male respondents in rural study area. Maximum subjects were residing in nuclear family (89.2% in urban slum and 77.8% in rural) in both study area [table 1].

Among urban slum respondents 78.9 %(213) and in rural 70.7 %(191) had heard about mosquito borne diseases.

Table 1: Baseline characteristics of study subjects

Demographic Profile	Urban slum (%)	Rural (%)
Gender		
Female	104 (38.52)	151 (55.93)
Male	166 (61.48)	119 (44.07)
Age group		
15-25Yrs	42 (15.56)	61 (22.59)
26-35Yrs	76 (28.15)	83 (30.74)
36-45Yrs	50 (18.52)	64 (23.70)
>45Yrs	102 (37.78)	62 (22.96)
Education		
Illiterate	54 (20.00)	68 (25.37)
Primary	104 (38.52)	106 (39.55)
Secondary	64 (23.70)	81 (30.22)
Graduate & above	48 (17.78)	13 (4.85)
Type of family		
Nuclear	241 (89.25	210 (77.78
Joint	29 (10.75	60 (22.22

Table 2: Awareness about mosquito borne diseases

Awareness	Urban slum (%)	Rural (%)
Heard about mosquito born diseases?		
Yes	213 (78.89)	191 (70.74)
No	57 (21.11)	79 (29.26)
Disease transmitted by mosquito*		
Malaria	190 (70.37)	122 (45.19)
Dengue	184 (68.15)	154 (57.54)
Chikunguniya	6 (2.22)	3 (1.11)
Others		11 (4.07)
Don't know	42 (15.56)	84 (31.11)
How the mosquito born disease is transmitted?*		
Mosquito bite	189 (70)	225 (83.33)
Water/food born	67 (24.81)	50 (18.51)
Skin to skin contact	0 (0.0)	4 (1.48)
Don't know	14 (5.19)	7 (2.59)
Places of mosquito breeding		
Water	190 (70.37)	211 (78.15)
Hanging objects	22 (8.15)	29 (10.74)
Sand	6 (2.22)	4 (1.48)
Mud	11 (4.07)	21 (7.78)
On wall	0 (0)	5 (1.85)
Don't know	54 (20)	42 (15.56)

*Multiple responses

Surprisingly rural participants were more aware about mode of transmission of diseases than urban slum. Among urban slum respondents 70% (189) and among rural respondents 83.3% (225) knew correct mode of transmission of diseases. Maximum respondents were aware about malaria and dengue as a mosquito borne diseases. Very few had awareness about Chickunguniya as a mosquito borne disease. Overall 15.56% (42) in urban slum and 31.11% (84) in rural participants didn't know about mosquito borne diseases. In urban slum 20% (54) and in rural

15.56% (42) were not aware about places of mosquito breeding. Proportion of rural respondent (78.1%) was more compared to urban slum (70.3%) about

Table 3: Awareness about symptoms of mosquito borne diseases

Awareness	Urban slum (%)	Rural (%)
Symptoms of Malaria		
Fever	206 (76.3)	102 (37.78)
Chills	9 (3.33)	15 (5.56)
Joint pain	5 (1.85)	8 (2.96)
Others	9 (3.33)	12 (4.44)
Don't know	60 (22.22)	159 (58.89)
Symptoms of Dengue		
Fever	188 (69.63)	69 (25.56)
Bodyache	27 (10)	25 (9.26)
Joint pain	11 (4.07)	-
Headache	5 (1.85)	-
Others	52 (19.26)	34 (12.59)
Don't know	56 (20.74)	175 (64.81)
Symptoms of Chickunguniya		
Don't know	200 (74.07)	267 (98.89)
Fever	53 (19.63)	2 (0.74)
Body ache	14 (5.19)	1 (0.37)
Joint pain	5 (1.85)	-

Table 4: Preventive and Control measures against mosquito borne diseases

Measures	Urban slum (%)	Rural (%)
Personal protective measure		
All-out (Mats)	135 (50)	105 (38.89)
Mosquito coils	121 (44.81)	169 (62.59)
Mosquito nets	52 (19.26)	37 (13.7)
Odomos	5 (1.85)	20 (7.41)
Smokes &Dhoop	58 (21.48)	54 (20)
Insecticide spraying	2 (0.74)	12 (4.44)
Screening of house	3 (1.11)	2 (0.74)
Not using any measures	42 (15.56)	14 (5.19)
Measure to prevents mosquito borne disease		
Scrubbing of containers	86 (31.85)	129 (47.78)
General cleanness	145 (53.7)	156 (57.78)
Edible oil application	2 (0.74)	0 (0)
Chlorine tablet	2 (0.740	11 (4.07)
Covering the containers	96 (35.56)	118 (43.7)
Don't follow any measure	67 (24.81)	15 (5.55)
Change of domestic water frequently?		
Yes	246 (91.11	251 (92.96)
No	24 (8.89)	19 (7.04)
Water change frequency		
2 Days	181 (73.57)	201 (80.07)
7 Days	65 (26.43)	50 (19.93)

correct place (water) of mosquito breeding. Very few responded hanging object, mud and sand as mosquito breeding places [table 2].

Among practices followed to protect from mosquito borne diseases most common practice in both study area was All-out (mats) (50% in urban slum and 38.9% in rural), mosquito coils (62.6% in rural and 44.8% in urban slum), smoke and Dhoop (21.5% in urban slum and 20% in rural). Less than one fourth participants in both study area (19.2% in urban slum and 13.7% in rural) were using mosquito nets.

Nearly three fourth (75%) of households in urban slum and more than 90%(94.5%) in rural were practicing one or more efficient larvae control measures but they were not specific to mosquito control. Most frequent measures were general cleanness (55.74%), regular scrubbing of water storage container (39.81%), use of larvicidal tablet (2.41%) and application of edible oil (0.37%). Both urban slum as well as rural participants was following change of water storage but frequency of water change was more frequent in rural compared to urban slum. [table 4].

Overall proportion of personal protective measures as well mosquito control measures followed were more in rural participants compared to urban slum indicating more awareness and community involvement to reduce diseases than urban slum.

DISCUSSION

Primary prevention is the most effective measure in reducing burden of disease in community. This study provides comparative data on awareness and prevention practices regarding mosquito borne disease in urban slum and rural areas of Pune, India, around the peak time of disease transmission.

The findings of the study showed that in an urban slum majority 190(70.37%) knew that malaria followed by 115(68.15%) Dengue are mosquito borne diseases and 42(15.26%) did not knew any diseases that are transmitted by mosquito. In opposite rural findings showed that majority 154(57.54%) knew that dengue is transmitted by mosquito followed by 122(45.19%) malaria and 84(31.11%) did not knew any diseases that are transmitted by mosquito. Knowledge about MBD was comparatively less among rural community.Also rural Community knowledge regarding mosquito borne diseases were misleading as 11(4.07%) answered other disease (typhoid, diarrhea and hepatitis etc) also transmitted by mosquito.Present study respondents had much high awareness about mosquito borne diseases. However awareness of other diseases transmitted by mosquitoes was only 8.8% to 39% in other studies.[6-9]This variation in study findings may be due to difference in study settings and geographical areas.

A sizeable proportion of the respondents (70% in urban slum and 83.3% in rural area) knew about most common routes of transmission and symptoms of malaria, but majority of them were unaware about symptoms of chikunguniya and dengue. Similar to our study K. Ravikumar et al in their study in Karnataka stated that regarding mosquito-borne diseases other than malaria, viz. dengue, Japanese encephalitis and Lymphatic Filariasis, the majority of the people

had no idea of transmission of this disease.[4]More than seventy percent respondents from urban slum and above 80% from rural area were aware that a mosquito bite is the mode of disease transmission. However, proportions of respondents from both areas incorrectly believed that disease could be contracted by drinking contaminated water, eating contaminated food, or close contact with a patient. Similar to our study Shanker Matta **et al reported** that majority (87%) of respondents answered correctly about the mode of transmission.[10] Study findings about incorrect information are not surprising, as prior research has also found comparatively high rates of reporting some incorrect information about disease transmission.[11,12] This replicate the need for corrective actions to improve misconceptions among community.

Community knowledge regarding mosquito breeding habitat was fair and proportionately rural area respondents(78.1%) were answered correctly compared to urban slum (70.3%). Study by Dhaduk KM et al found that Community knowledge regarding mosquito breeding habitat was not only poor (50%) but also misleading at places (>15%), particularly in slum respondents (60% didn't know and 20% misleading)[9] this finding indicates that there is need to focus on urban slum where there is lot of migration and diversity in community members compared to rural areas.

Considerable proportion (15.56%) households were not using any preventive measures against mosquito bite in urban slum while only 5.19% were not using any preventive measure in rural area and there was clearly observed difference in the proportion of the use of different methods in urban slum and rural area. Findings of study matches with study findings of Dhaduk K et al[9] and DhawanG et al[11]. Another study by T Anand et al [13]reported that about (90/100; 90%) families were actually using at least one of the PPMs. However, very few families were using them correctly (1/90; 1.1%) and adequately (5/90; 5.6%). The most common PPM being used by the participants was liquid vaporizers (54/90; 60%).

The practice of anti-larval activities was not being used in sizeable proportion of households in urban slum (24.81%) in opposition to rural area where only 5.55% were not practising any anti-larval activities but methods whichever practiced by community, was a part of general sanitation in the household. Most frequent measures were general cleanness (55.74%) regular scrubbing of water storage container (39.81%), use of larvicidal tablet (2.41%) and application of edible oil (0.37%). Both urban slum as well as rural participants was following change of water storage but frequency of water change was more frequent in rural compared to urban slum. S. Matta et al [14]in a hospital based study in New Delhi observed that about 15% of sampled respondents said that they check breeding containers and among them 41.0% had changed the water, 16.2% who had cleaned the containers thoroughly and 43.2 % who added Kerosene oil.

CONCLUSION

Overall, respondents were generally aware of malaria and dengue but not aware about Chickunguniya, japnese encephalitis, lymphticfilariasis as mosquito borne disease. Respondents had awareness about mode of transmission, breeding sites of mosquitoes, personal and environmental control measures but most of them were practicing measures as general cleanness measures and no special efforts towards mosquito borne diseases. Study respondents awareness regarding mosquito borne diseases and control measures was satisfactory to some extent. Programs should focus that knowledge gets translated into practice (Behavioural Change Communication). Community participation in terms of practices regarding mosquito borne disease and control are varied at studied places & needs to be addressed as per deficiency to reduce disease burden.

REFERENCES

1. SEARO. WHO vector borne diseases in India: report of brain storming session, 2012.
2. Singh B. Dengue outbreak in 2006: Failure of public health system? Indian J Community Med. 2007;32:99–100
3. Kumar A, Valecha N, Jain T, Dash AP. Burden of Malaria in India: Retrospective and Prospective View. Am. J. Trop. Med. Hyg.2007; 77(6): 69-78.
4. Ravi Kumar K. and Gururaj G. Community Perception Regarding Mosquito-borne Diseases in Karnataka State, India. Dengue bulletin, 2006; 30: 270-277.
5. Malhotra G, Yadav A, Dudeja P. Knowledge, awareness and practices regarding dengue among rural and slum communities in north indian city, india . International Journal of Medical Science and Public Health 2014 ; 3 (3) :295-299
6. Patel AB, Rathod H, Shah P, Patel V, Garsondiya J, Sharma R. Perceptions regarding mosquito borne diseases in an urban area of Rajkot city. National Journal of Medical Research 2011; 1:45-47.
7. Yerpude PN, Jogdand KS, Jogdand M. A study on awareness and practice about preventive methods againstmosquito bite among households in an urban slum area of south India. International Journal of Recent Trends inScience and Technology 2013; 8:69-71.
8. Pandit N, Patel Y, Bhavsar B. Awareness and practice about preventive method against mosquito bite in Gujarat. Healthline 2010; 1:16-20.
9. Dhaduk KM, Gandha KM, Vadera BN, Mehta JP, Parmar DV, Yadav SB. A community level KAP study on mosquito control in Jamnagar district. Natl J Community Med 2013; 4:321-328.

10. Matta S, Kumar R, Singh G, Srivastava R. A study on awareness regarding malaria in rural and urban areas of delhi during commonwealth games-2010. Indian J. Prev. Soc. Med. Vol. 43 No.3, 2012

11. Dhawan G, Joseph N, Pekow PS, Rogers CA, Poudel KC, Bulzacchelli MT. Malaria-related knowledge and prevention practices in four neighbourhoods in and around Mumbai, India: a cross-sectional study Malaria Journal 2014, 13:303

12. Sabin LL, Rizal A, Brooks MI, Singh MP, Tuchman J, Wylie BJ, et al. Attitudes, knowledge, and practices regarding malaria prevention and treatment among pregnant women in Eastern India. Am J Trop Med Hyg 2010, 82:1010–1016.

13. Anand T, Kumar R, Saini V, Meena GS, Ingle GK. Knowledge and use of personal protective measures against mosquito borne diseases in a resettlement colony of Delhi. Ann Med Health Sci Res. 2014 Mar-Apr; 4(2): 227–232. doi: 10.4103/2141-9248.129048

14. Matta S, Bhalla S, Singh D. Rasania SK, Singh S. Knowledge, Attitude and Practice (KAP) on Dengue fever: A Hospital Based Study, Indian Journal of Community Medicine.2006;Vol. 31(3):185-86.