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Role of Community Participation in Control of Vector Borne Diseases in Urban Area of Ahmedabad.

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ABSTRACT:
Background: Among the south eastern nations, India has reported highest dip in malaria cases – from around 20 million in 2000 to about 5.6 million in 2020. Also malaria caseload is reduced by 28% and deaths by 41% in 2019(1).Despite of this, the absolute numbers of cases affected with mosquito borne diseases is still alarming and India is among the top 11 malaria burden nations in the world. In 2020, India has seen about 86% of malaria deaths in south asian region(1). These statistics are enough to depict that vector borne diseases are amajor health problem and need concerted efforts in adopting vector control measures.

Methods: This was a cross sectional study conducted during the transmission season of vector borne diseases - August 2019 to October 2019, in urban slum areas of Ahmedabad. Total 384 individuals were interviewed using a pre tested semi structured questionnaire. Data was analysed by Microsoft Excel.
Results: 26% respondents were not aware of symptoms of malaria while the same is true for 40% respondents in case of dengue and 45% respondents in case of chikungunya. 30% population didn't know about sites of mosquito breeding. While 18 % were not aware of any vector control activity done in their area, one fifth of participants didn't participate in any such activity. 66% were using preventive measures against mosquitoes and 34%were not using any preventive measures.
Conclusion: Overall knowledge and participation of individuals in vector control activities in the community is low. The seriousness of vector borne diseases and their impact on health and economy need to be emphasised to improve community participation.

KEYWORDS: IVM,Vector borne diseases, Community participation.

I. INTRODUCTION

According to WHO, vector borne diseases cause more than 70,000 deaths worldwide annually. More than 80% of the global population, approximately 5.5 billion people are threatened by at least on major vector borne disease(VBD) and more than 50% are at risk for 2 or more(2). The incidence of VBDs has risen in recent years as observed in intensified transmission in endemic areas, re- emergence and spread to new areas.

In view of the current rising trend in vector borne diseases(VBD), there is a need- to go beyond mere treatment of diseases towards their prevention by integrated vector management (IVM). IVM is defined as – "Rational decision making process for optimal use of resources in vector control." Effective vector control strategies are based on 4 facts: Knowledge and understanding of vector biology, surveillance of vector species, incrimination of vector species and public education and implementation of effective control norms(3). The term "integrated" refers to combination of chemical and non- chemical vector control tools to combat adult and immature vector. But also, it refers to integration within health sector and other sectors. IVM also includes non- health sector stakeholders like communities and private sector, particularlyfor implementation of interventions.

In view of the recent 'Global vector control response 2017-2030' of WHO reiterated to strengthen entomological infrastructure and vector control(4). So, NVBDCP in 2020 has formulated - Mosquito and other Vector Control Response (MVCR). MVCR seek to strengthen vector control interventions and intersectoral convergence and strong community engagement. Since the role of community participation in vector control is

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indispensable, this study endeavours to assess the knowledge of vector borne diseases(Malaria, dengue and chikungunya) and the prevalent knowledge and practices regarding vector control measures in the community.

II. METHODS

This was a cross sectional study conducted during the transmission season of vector borne diseases - August 2019 to October 2019, in urban field practice areas of B.J. Medical College, Ahmedabad.

For sample size estimation, formula used is:

$n= Z^2P(1-P)/d^2$

Where n is the sample size, Z is the statistic corresponding to level of confidence, P is expected prevalence (that can be obtained from same studies or a pilot study conducted by the researchers), and d is precision(5)Since P value from previous studies on the topic of present study is not available an anticipated P value of prevalent knowledge is taken as (50%). At P= 0.50 (50%) &d = 10%, a sample size of 384 would be needed.

Households were selected using systemic random sampling in each of the four field practice areas. The first house was randomly selected and after that every 5th household is selected.So, a total of 384 individuals with age >18 years were interviewed using a pre tested semi structured questionnaire. Data entry and analysis was done using Microsoft excel.

III. RESULTS

This study records the observations from 384 respondents. Among these, 36.7% were males and 63.3% were females. 20.6% respondents were illiterate and 79.4% were literate. Awareness regarding the signs and symptoms of the diseases are- 73.5% for malaria, 60.5% for dengue and 55% for chikungunya. Various personal protective measures that people are aware of were-bed nets, coils, repellent cream, full sleeves clothes and liquid vaporizes.Liquid vaporizer was the most commonly used anti adult mosquito measure used in the community while 34% of the households use no such measures as observed in figure 1. Overall knowledge regarding sites of mosquito breeding(pots, storage vessels, tyres, bird feeder, tanks, ditches, coolers etc.) is high, slightly higher in males as compared to females while 7.8% don't know any.Most common source of information regarding VBD and vector control is TV/radio followed by health workers and internet. Most common vector control activity which community participated in and aware of was- foggingfollowed by drainage of stagnant water in their homes, checking for breeding sites, putting of abate/temephos/chlorine tablets in water and IEC. Around 17% of the households were neither aware of nor supported any such activity in their homes or areas. As observed from table 3, overall participation in females is slightly higher than males while greater participation is seen among the age groups of <25 years and 25- 40 years. The difference between participation in control measures was significant between literate and illiterate individuals whereas no such difference was observed among any of the socioeconomic classes.

Table 1- Sociodemographic profile of the respondents

	MALE		**FEMALE**		**TOTAL**	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
	(n=141)	%	(n=243)	%	(n=384)	%
AGE						
I(18-25yrs)	**32**	**8.33**	**57**	**14.84**	**89**	**23.18**
II(25-40)	**52**	**13.54**	**83**	**21.61**	**135**	**35.16**
III(40-60)	**50**	**13.02**	**82**	**21.35**	**132**	**34.38**
IV(>60yrs)	**7**	**1.82**	**21**	**5.47**	**28**	**7.29**
EDUCATION						

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Illiterate	**12**	**3.13**	**67**	**17.45**	**79**	**20.57**
Primary	**43**	**11.20**	**88**	**22.92**	**131**	**34.11**
Secondary	**31**	**8.07**	**51**	**13.28**	**82**	**21.35**
Higher Secondary	**18**	**4.69**	**14**	**3.65**	**32**	**8.33**
Graduate	**27**	**7.03**	**18**	**4.69**	**45**	**11.72**
Post Graduate	**10**	**2.60**	**5**	**1.30**	**15**	**3.91**
HOUSING						
Pucca	**91**	**23.70**	**148**	**38.54**	**239**	**62.24**
Semi Pucca	**50**	**13.02**	**95**	**24.74**	**145**	**37.76**
SES(Modified B.G. Prasad Classification)						
I	**40**	**10.42**	**37**	**9.64**	**77**	**20.05**
II	**24**	**6.25**	**42**	**10.94**	**66**	**17.19**
III	**27**	**7.03**	**43**	**11.20**	**70**	**18.23**
IV	**32**	**8.33**	**83**	**21.61**	**115**	**29.95**
V	**18**	**4.69**	**38**	**9.90**	**56**	**14.58**

Figure 1- Anti adult mosquito measures used in community

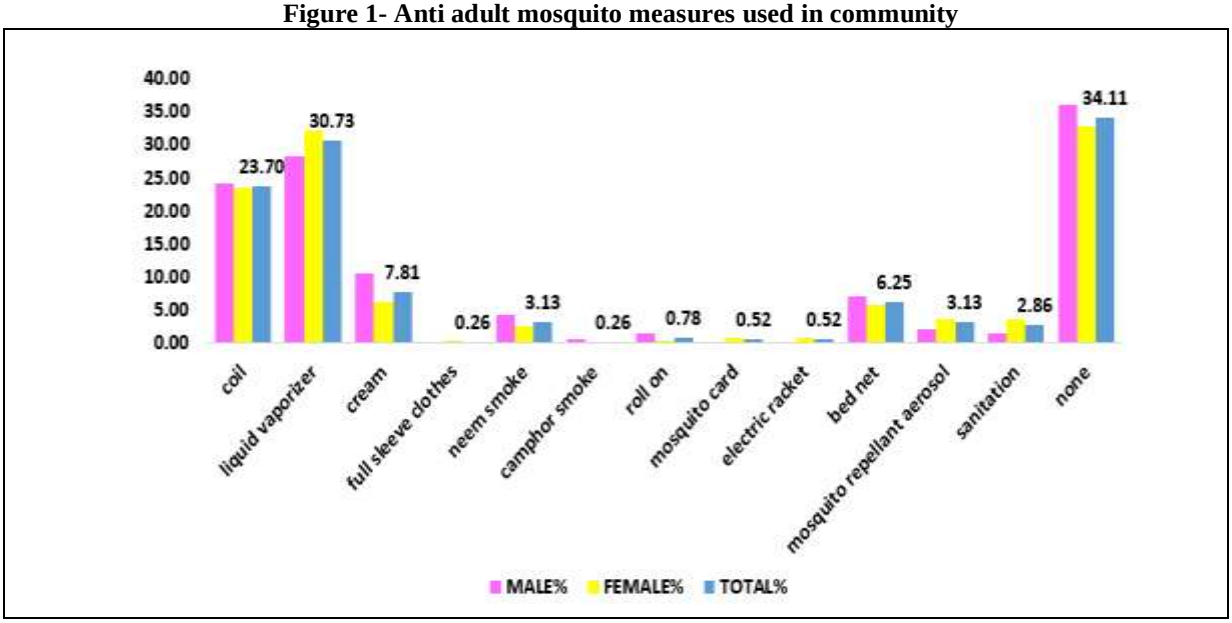

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Table 2- Community participation in supporting various vector control activities in their areas.

Activities supported by individuals in their houses	MALE		FEMALE		TOTAL	
	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
Checking of breeding places in house	44	31.21	129	53.09	173	45.05
Fogging	87	61.70	157	64.61	244	63.54
Stagnant water draining	67	47.52	107	44.03	174	45.31
Blood slides taken	14	9.93	15	6.17	29	7.55
Abate/ temephos/chlorine tab.in water	34	24.11	76	31.28	110	28.65
Educational awareness	46	32.62	68	27.98	114	29.69
No activity	33	23.40	33	13.58	66	17.19

Table 3- Association of sociodemographic variables and participation in vector control activities

VARIABLES	PARTICIPATION PRESENT	PARTICIPATION ABSENT	TOTAL	P VALUE	CHI SQUARE VALUE
Gender					
MALE	90(63.8%)	51(36.1%)	141	0.51	0.41
FEMALE	163(67%)	80(32.9%)	243		
Age					
<25 years	61(69.3%)	27(30.6%)	88	0.29	3.72
25-40 years	94(69.6%)	41(30.3%)	135		
40-60 years	83(62.8%)	49(37.1%)	132		
>60 years	15(53.6%)	13(46.4%)	28		
Education					
ILLITERATE	52(65.8%)	27(34.1%)	79	0.98	0.0002
LITERATE	201(65.9%)	104(34%)	305		
SES (Modified B.G. Prasad Classification)					
I	59(76.6%)	18(23.3%)	77	0.22	5.73
II	41(62.1%)	25(37.8%)	66		
III	45(64.2%)	25(35.7%)	70		
IV	74(70.4%)	31(29.5%)	105		
V	34(60.7%)	22(39.3%)	56		

A spot survey of the households was also conducted for the variables as- breeding places, larva in water tanks, utensils covered or not, presence of adult mosquitoes, sanitation and screened doors and windows in the house. It was observed that in around 65% of the houses adult mosquito were seen while mosquito larvae were seen in water tanks and vessels in around 14% of the houses. While in 12% of the houses water storage utensils were uncovered, 35% have mosquito breeding sites around the house.

IV. DISCUSSION

The knowledge of the community regarding the signs and symptoms of mosquito borne diseases is46.6% and 36.6% respondents didn't know any signs and symptoms while 16.8% have wrong information . These results are comparable to a study conducted in Rajkot district of Gujarat(6) where the results are 42% and 35.8% respectively.66% of the population is using some form of personal protective measures against adult mosquito whereas a significant proportion ,i.e.,34% is not using any form of protection. Similar results were obtained in studies done in Rajkot district of Gujarat (61% and 39% respectively)(6) and Karnataka (78% and 22% respectively)(7) which is better due to higher literacy levels.Though majority of participants were using personal protection against mosquitoes but methods as source reduction, larvicidal oils, indoor residual spray, long lasting insecticidal nets, biological nets etc., adopted by NVBDCP was very less. This was also observed in a study conducted in Jamnagar district, Gujarat(8).Awareness regarding mosquito breeding sites is good in the community which is due to health education through mass media like TV/radio which the most common source of information regarding MBDs and their control. The most common activity done by government according to the study is fogging which also has the highest participation of individuals. It was observed that people were reluctant to support any such activityin their homes like draining of stagnant and collected water as water supply is intermittent and they have to store water and putting chlorine tablets in water tanksbecause it alters the taste of drinking water. Also, knowledge and participation in activities as blood slide collection, health education and draining of stagnant water is found be low. Education plays a significant role in community participation as participation in literate respondents is found to be significantly higher despite of the socio economic status.

V. CONCLUSION

The knowledge and awareness regarding mosquito borne diseases and vector control is average in the community which is also reflected in their participation. Health education is identified as the key to educate people regarding the various methods of vector control. Intensified campaigns and advertisements via TV/radio should be done.The seriousness of vector borne diseases and their impact on health and economy need to be emphasised to improve community participation, especially during premonsoon season.

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