Assessment of Awareness and Practices with regard to Mosquito Borne Diseases in Rural Health Training Center, Guntur Medical College, Guntur

Dulla Chinnamma[1], Ch. Harshitha[2], T. Divya Jyothi[3]

[1]Department of Community Medicine, Guntur Medical College, Guntur, Andhra Pradesh, India. [2]Department of Community Medicine, Guntur Medical College, Guntur, Andhra Pradesh, India. [3]Department of Community Medicine, Guntur Medical College, Guntur, Andhra Pradesh, India.

ABSTRACT

BACKGROUND

Vector borne diseases (VBD) account for more than 17% of all infectious diseases, causing more than 700000 deaths annually. VBDs constitute important cause of morbidity and mortality in India. Assessment of knowledge, attitude and practices of community about prevention of mosquito borne diseases is important for planning efficient interventions.

METHODS

This is a community based cross-sectional study conducted in Nidumukkala village Guntur Dist. from January 2019 to March 2019. 250 residents of Nidumukkala village, who were selected by systematic random sampling were included in the study. House to house survey was conducted, using preformed semi structured questionnaire, data was collected and analysed using SPSS version 16. Chi-square test was used to find the association and $p < 0.05$ was considered significant.

RESULTS

Among the 250 respondents, 136 (54%) were females and 114 (46%) were males. Nearly one third (33%) of the heads of the families were illiterates. 137 (54.8%) belong to upper lower class. Majority of them have knowledge regarding the vector breeding sites, symptoms of VBD. 50% of them are using mosquito coils to prevent vector bites, 68% of them are not using any antilarval methods. 82.1% of them reported that 'Fogging' as the activity done by the government to control VBD, and nearly 85% responded that it is done irregularly.

CONCLUSIONS

There is a gap between the knowledge regarding VBD (Vector Borne Diseases) and practice of vector control among the respondents.

KEY WORDS

Vector Borne Diseases, Preventive Measures, Protective Methods

Corresponding Author:
Dulla Chinnamma,
Associate Professor,
Department of Community Medicine, Guntur Medical College, Guntur,
Andhra Pradesh, India
E-mail: chinnammadulla@gmail.com

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BACKGROUND

Vector-borne infectious diseases are emerging or resurging as a result of changes in public health policy, insecticide and drug resistance, shift in emphasis from prevention to emergency response, demographic and societal changes, and genetic changes in pathogens. Effective prevention strategies can reverse this trend. Research on vaccines, environmentally safe insecticides, alternative approaches to vector control, and training programs for health-care workers are needed. Vector borne diseases (VBD) account for more than 17% of all infectious diseases, causing more than 700000 deaths annually.[1] VBDs constitute important cause of morbidity and mortality in India. In 2017 alone 0.53 million cases and 194 deaths noted due to malaria.[2] Effective reduction in the vector breeding sites combined with improved personal preventive strategies can significantly reduce the transmission of these diseases.[3] Previous studies have demonstrated the most effective vector control approaches used community-based methods tailored to the local context.[4-7] As mosquito is the commonest vector in India, the assessment of knowledge, attitude and practices of community about prevention of mosquito borne diseases is important for planning efficient interventions, therefore this study was conducted.

We wanted to determine the level of awareness, knowledge and practices towards vector borne diseases.

METHODS

A Cross sectional study was conducted in the Rural health training centre among 250 residents of Nidumukkala village, sample size was calculated considering 62% as level of knowledge regarding mosquito borne diseases according to a study done by Patel AB, Rathode, et al[3] with 95% confidence interval and 10 % relative precision.

$N = 4\ pq/L^2$
$= 4(62)\ (100-62)/\ (6.2)^2$
$= 4\ (62)\ (38)/\ (38)$
$= 9424/38$
$= 248$ which is rounded to 250
N= sample size, P= prevalence, q = (100-p), l= relative precision (10 % of 62% =6.2)

Methods of Data Collection
The RHTC of Guntur medical college caters services for 8 villages, of those Nidumukkala village was selected by lottery method and through systematic random method total households (N) of the village were divided by 250 (n) to get k value as 5 and from the center of the village to the right side residents of every fifth house data was collected by interview method using pre formed semi structured questionnaire.

$$k = \frac{1150}{250} = 4.6 \text{ (rounded to 5)}$$

Statistical Analysis
Data was collected and analyzed using SPSS version 16. Chi-square test was used to find the association and $p < 0.05$ was considered significant.

RESULTS

Among the 250 respondents 136 (54%) are females and 114 (46%) are males. Nearly one third (33%) of Head of the family of them are illiterates. 137 (54.8%) respondents belong to upper lower (according to Modified Kuppuswamy scale) socio economic status. Majority (161, 64.4%) of them are living in Pucca houses. 90% of the respondents lives in the areas with open Peridomestic drains. 38% of them responded that Drains as the potential mosquito breeding sites followed by garbage (27%). 44.8% of them knew that Mosquitos causes Malaria and 44.9% of them responded as Fever with chills as the common symptom associated with mosquito bites. 30.5% of them knew that keeping surroundings clean can prevent mosquito borne diseases (MBDs) (Table no. 1) Mosquito coils are most commonly used to prevent mosquito bites (50%) (Table 2), nearly (68%) of them are not using anti-larval measures (Table 3). Majority of them had relatives' friends and neighbours as source of information followed by TV and newspapers regarding MBDs (Fig. 1). Education of respondent is playing an important role in controlling mosquitos, presence of peri domestic drains and practice of vector control measures. People living with peri domestic drains are following more anti-larval measures than anti-adult measures compared to those living with closed drains and this is not statistically significant. Knowledge regarding MBDs is high among respondents whose head of the family were illiterates or completed primary education but Anti larval measures were practiced mostly by respondents whose head of the family had completed secondary education and above (Table 4) There is no significant difference between different socio economic classes and knowledge and practice of personal protective measures against mosquito bites but the anti-larval measures were taken by people belonging to upper lower social class (Table 5)

Knowledge Regarding Mosquito Breeding Sites*	Frequency (%)
Drains	176 (38%)
Garbage	126 (27%)
Plants	47 (10.1%)
Stagnant water	42 (9%)
Others	70 (14.6%)
Don't Know	(1.3%)
Knowledge Regarding diseases caused by Mosquitos*	
Malaria	207 (44.8%)
Dengue	137 (29.7%)
Chikungunya	65 (14.1%)
Others	28 (6%)
Don't know	25 (5.4%)
Knowledge Regarding symptoms of MBD*	
Fever with chills	193 (44.9%)
Headache	72 (16.7%)
Vomiting	45 (10.5%)
Body ache	41 (9.5%)
Others	50 (11.0 %)
Don't know	29 (6.7%)
Knowledge Regarding Preventive measures against MBD*	
Keeping surroundings clean	132 (30.5%)
Personal protective measures	116 (26.8%)
Spraying insecticides	80 (18.5%)
Others	78 (18%)
Don't Know	27 (6.2%)

Table 1. Knowledge Regarding Mosquito Borne Diseases
*Responses are mutually not exclusive

Type*	Frequency (%)
Mosquito coils	173 (50%)
Bed nets	80 (23.2%)
Liquid vapouriser	44 (12.8%)
Screening doors and windows	26 (7.5%)
Not using any method	22 (6.4%)

Table 2. Personal Protective Measures taken to Prevent Mosquito Borne Diseases

*Responses are mutually not exclusive

Type	Frequency (%)
Emptying of containers, change of water	60 (24%)
Edible oil application	20 (8%)
Not using any method	170 (68%)

Table 3. Practice of Antilarval Measures

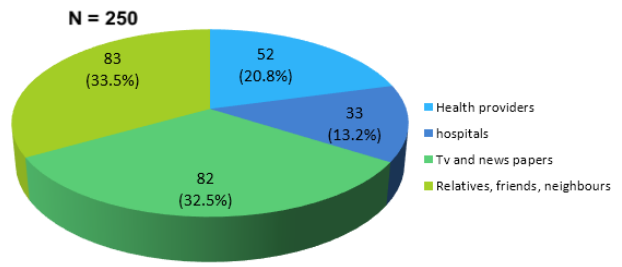

Figure 1. Source of Information

		Education of the head of the family	Yes	No	p Value
Knowledge	Regarding Mosquito breeding sites	*Group 1 responses	178(71.2%)	4(1.6%)	0.024
		**Group 2 responses	66(26.4%)	2(0.8%)	
	regarding diseases spread by mosquitos	*Group 1 responses	182(72.8%)	10(4%)	0.005
		**Group 2 responses	43(17.2%)	15(6%)	
	regarding symptoms of mosquito borne diseases	*Group 1 responses	180(72%)	21(8.4%)	0.25
		**Group 2 responses	41(16.4%)	8(3.2%)	
	Regarding preventive measures to control mosquitos	*Group 1 responses	178(71.2%)	23(9.2%)	0.5
		**Group 2 responses	45(18%)	4(1.6%)	
Practice	Personal protective measures	*Group 1 responses	187 (74.8%)	14 (5.6%)	0.014
		**Group 2 responses	41 (16.4%)	8 (3.2%)	
	Anti-larval measures	*Group 1 responses	34 (13.6%)	132 (52.8%)	0.001
		**Group 2 responses	46 (18.4%)	38 (15.2%)	

Table 4. Knowledge and Practice Measures vs Education of Head of the Family

*Group 1 Responses = Responses of people whose Head of the family are illiterates and primary education. **Group 2 Responses = Responses of people whose Head of the family had completed secondary education and above.

		Socio Economic Status	Yes	No	p Value
Knowledge	Regarding Mosquito breeding sites	*Group 1 responses	170 (68%)	2(0.8%)	0.87
		**Group 2 responses	74 (29.6%)	4(1.6%)	
	regarding diseases spread by mosquitos	*Group 1 responses	159(63.6%)	15(6%)	0.27
		**Group 2 responses	66(26.4%)	10(4%)	
	regarding symptoms of mosquito borne diseases	*Group 1 responses	153(61.2%)	21(8.4%)	0.72
		**Group 2 responses	68(27.2%)	8(3.2%)	
	Regarding preventive measures to control mosquitos	*Group 1 responses	159(63.6%)	15(6%)	0.09
		**Group 2 responses	64(25.6%)	12(4.8%)	
Practice	Personal protective measures	*Group 1 responses	160(64%)	4((5.6%)	0.5
		**Group 2 responses	68(27.2%)	8(3.2%)	
	Anti-larval measures	*Group 1 responses	52(20.8%)	144 (57.6%)	0.00
		**Group 2 responses	28 (11.2%)	26(10.4%)	

Table 5. Knowledge and Practice Methods Vs Socio Economic Status

*Group 1 Responses = Responses given by people belonging to upper lower class.
** Group 2 Responses = Responses given by people belonging to lower class.

DISCUSSION

The present community based observational study assessed the knowledge and practices regarding VBDs and their prevention in the rural health and training center region of Guntur medical college, Guntur district. The study revealed that knowledge regarding VBDs like Dengue (29.7 %) and Malaria (44.8%) was fair in the study participants. However, Chikungunya was named by only 14.1%. The findings are similar to that found in a study by Boratne et al. [8] in 2010 in peri-urban areas of Puducherry where nearly 57% of the study population was aware about malaria while the knowledge about dengue was just 19%. A study in Rajkot in 2011 also revealed similar knowledge about VBDs with only 62% being aware of malaria. These findings show low perception about risk of mosquitoes as a cause of morbidity and mortality, by the study participants. Thus, the study emphasizes the need for intensification of health education regarding VBDs as the prevention of BDs through better knowledge and knowledge is the appropriate way to keep the disease away.[9] The most common source of information about MBDs and their prevention were family and friends followed by television. This finding is in contrast to the results found in other study where television was reported as the most common source.[8] Health-care professionals as source of information were reported by few only which points towards the low participation by doctors and paramedical staff in spreading Knowledge regarding MBDs. Though majority (81%) of respondents felt that anti-malarial activities (Fogging) were being undertaken by municipality, but at the same time 85% of them found that grossly inadequate and irregular. Thus, there is a need for strengthening of efforts for control of MBDs at community level. Practice of using PPMs against mosquitoes was quite high among study subjects (93.6%). Similar observations were noted in study performed in 300 households of Vadodra District in Gujarat where 97% of the participants were using at least some kind of the PPMs.(10) A study performed in rural, semi-rural and bordering areas of East Delhi showed the use of PPMs to be nearly 100%.(11) Thus, there is evidently varying practices against mosquito bites from place-to-place. Mosquito coils followed by bed nets, liquid vaporizers were the most common PPMs used in the current study. Studies done in South India, (8,12) found a similar pattern of use of PPMs.

CONCLUSIONS

There is a gap between the knowledge regarding VBD (Vector Borne Diseases) and practice of vector control among the respondents. This can be decreased by BCC (Behavioural Change Communication) among people regarding preventing the vector borne diseases by using simple protective measures like using bed nets or mosquito repellent coils, by repeated IEC, information education, and communication by health workers.

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