Knowledge, Attitude and Practices Regarding Mosquito Borne Diseases among Residents of Rural Area of Katihar District, Bihar

Ravi Prakash[1], Purnendu Kumar Singh[2], Akhil Bandhu Biswas[3]

[1]Second Year Postgraduate Student, Department of Community Medicine, Katihar Medical College, Katihar, Bihar.
[2]Professor, Department of Community Medicine, Katihar Medical College, Katihar, Bihar.
[3]Professor and HOD, Department of Community Medicine, Katihar Medical College, Katihar, Bihar.

ABSTRACT

BACKGROUND

The mosquito-borne disease results in avoidable ill health and death which also has been emphasized in National Health Policy in India. Environmental management strategies that reduce / eliminate mosquito breeding sites combined with improved personal prevention strategies can help to significantly reduce transmission of these infections. The aim of study was to assess the knowledge about mosquito borne diseases, attitude and practices for prevention and treatment of the various diseases spread by mosquitoes among residents of rural area of Katihar district, Bihar.

METHODS

A cross sectional community based KAP study was conducted by using predesigned and pretested questionnaire. A total of 492 study participants were selected for the study by random sampling technique after numbering each house in the study area. Data was collected from the adult members in family who were present at the time of visit. Informed consent was taken from each participant and confidentiality about identity of participant was maintained throughout the study.

RESULTS

Among a total of 492 participants, maximum belonged to age group 18-30 years (35.16%) and least to the age group of more than 60 years (7.72%). Regarding knowledge about mosquito borne diseases, 449 (91.26%) participants among all 492 were aware /heard about the disease. Among them 74.39% told about malaria, followed by 36.3% about dengue, 32.74% about chikungunya and only 6.46% participants told about kala-azar. Regarding symptoms 77.06% participants named fever. When enquired about breeding places of mosquito, 56.57% participants told that dirty water is responsible, followed by water stored in tyre / cooler / container (22.94%) and 20.49% were unaware. Majority participants (67.71%) reported that radio/television were the main source for the knowledge. In this study, 53.90% participants agreed that both government & public are responsible for the management of mosquito born diseases. 44.10% participants were still using smoke to control the mosquitoes in their area, followed by use of mosquito net (25.39%). When asked about the practices followed by them to eradicate the breeding site of mosquitoes, 71.49% didn't do anything,

CONCLUSIONS

Knowledge and attitude of participants in this study regarding mosquito borne diseases were below average and practices adopted by them were unsatisfactory. Hence, intensified efforts should be made towards creating public awareness, and strengthening personal protective- and community-measures to prevent mosquito borne diseases. There is also a need for district health departments & treating doctors to improve availability of information about mosquito borne diseases.

KEYWORDS

Mosquito Borne diseases, Knowledge, Attitude, Practices, Awareness, Katihar, Bihar

Corresponding Author:
Dr. Ravi Prakash,
R. No. 104, PG Boy's Hostel,
Katihar Medical College,
Katihar, Bihar.
E-mail: drraviprakash07@gmail.com

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BACKGROUND

The mosquito-borne disease results in avoidable ill health and death which also has been emphasized in National Health Policy and Sustainable Development Goals (SDGs) in India. Malaria causes more than 4,00,000 deaths every year globally, with maximum percentage of children under 5 years of age.[1] The incidence and geographical distribution of dengue have greatly increased in recent years. Currently, it is estimated that 390 million dengue infections occur each year with about 100 million manifesting clinically with varying degrees of severity of the disease; a small proportion progress to severe dengue.[2]

National Vector Borne Disease Control Programme (NVBDCP) under the aegis of National Rural Health Mission (NRHM) is one of the most comprehensive and multifaceted public health activities in India including prevention and control of mosquito-borne diseases.[3,4] Environmental management strategies that reduce/eliminate mosquito breeding sites combined with improved personal prevention strategies can help to significantly reduce transmission of these infections.[5] It requires public motivation through health education and usually legislation and law enforcement to encourage community participation. Community participation is essential for the prevention and control of an outbreak of mosquito borne disease.[6] In spite of mass communication and educational approaches, community participation is far below expectation and that mainly depends upon People's knowledge, awareness and attitude towards the disease. As with many community health problems, the knowledge, attitudes and practices (KAPs) of the population play a major role in implementation of control measures.[5] As a crucial element in vector-borne diseases is behavioural change. WHO works with partners to provide education and improve awareness so that people know how to protect themselves and their communities from mosquitoes.[1] As for example an elimination of the breeding sites from the human habitat is the most effective way to manage mosquito borne diseases, hence social and behavioural interventions at household level are thought to be the most viable measures for these diseases.[7,8]

The goal of this study was to assess KAPs of residents of rural area of Katihar district, Bihar regarding control of mosquito borne diseases such as dengue, malaria, kala-azar and Chikungunya mainly.

METHODS

From June to December 2019, a cross sectional community based KAP study was conducted by using the predesigned and pretested questionnaire. As according to the guideline for conducting knowledge, attitude and practice study, minimum sample required is 200,[9] but to make the data more precise, valid and more representative of the population i.e. high external validity a total of 492 study participants were selected for the study by random sampling technique after numbering each house in the study area. Data was collected from the members (more than 18 years) in the family who was present at the time of visit. Both sexes were given equal preferences for interview without any discrimination. Informed consent was taken from each participants and confidentiality about the identity of the participants were maintained throughout the study. Permission from the ethical committee of the concerned institute was taken prior to the study. Data was analyzed by using SPSS-20 & MS Office Excel 2007.

RESULTS

A total of 492 participants were included in the study and divided into five age groups of which maximum belongs to age group 18-30 years (35.16%) and least to the age group of more than 60 years (7.72%). Majority of the participants (62.60%) were male and most of the participants in this study were illiterate (53.66%), followed by primary educated (34.76%) and very few participants (2.23%) had graduate or higher degree. By occupation 33.13% participants were agriculture labourer or doing farming on own land and only 1.22% were in professional services. Among all 492 participants, 52.24% belongs to socio-economic class V according to modified B. G. Prasad's scale i.e. most of the participants belongs to low socio-economic background. Among all participants 45.33% reported about 5-6 no. of individual residing in their house and more than 6 in 38.82% whereas only 15.85% participants had less than 4 family members in their house. (Table-1)

Variables	No. (n=492)	(%)
Age Groups (Years)		
18-30	173	35.16
31-40	136	27.64
41-50	91	18.50
51-60	54	10.98
More than 60 years	38	7.72
Gender		
Male	308	62.60
Female	184	37.40
Education		
Illiterate	264	53.66
Primary	171	34.76
Secondary	46	9.35
Graduate/postgraduate	11	2.23
Occupation		
Student	107	21.75
Agriculture labourer/farming	163	33.13
Labour work	128	26.02
Housewife	51	10.36
Professional	6	1.22
Unemployed	37	7.52
Socio-Economic Class		
I	8	1.63
II	22	4.47
III	78	15.85
IV	127	25.81
V	257	52.24

Table 1. Socio-demographic Distribution of Study Population

Regarding knowledge about mosquito born diseases, 449 (91.26%) participants among all 492 had aware/heard regarding the disease. When enquired about various types of mosquito borne diseases, 74.39% had told about malaria, followed by 36.3% about dengue, 32.74% about chikungunya and only 6.46% participants had told about kala-azar.

Questions	No.	(%)
Are you aware/heard about any mosquito borne diseases?		**(n=492)**
Yes	449	91.26
No	43	8.74
Name some mosquito borne diseases you know at present.*		**(n=449)**
Malaria	334	74.39
Dengue	163	36.30
Chikungunya	147	32.74
Kala-azar	29	6.46

Table 2. Knowledge of Participants Regarding Mosquito Borne Diseases

*participants giving multiple answers

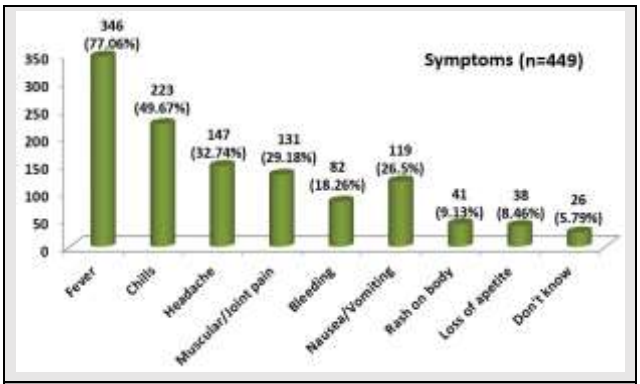

Figure 1. Knowledge of Participants Regarding Symptoms of Mosquito Borne Diseases*

*participants giving multiple answers.

Regarding the symptoms of mosquito born diseases, participants named fever (77.06%), chills (49.67%), headache (32.74%), muscular/joint pain (29.18%) and only few had known the symptoms like rash (9.13%), loss of appetite (8.46%). Almost 5.79% participants even didn't know anything about any symptom.

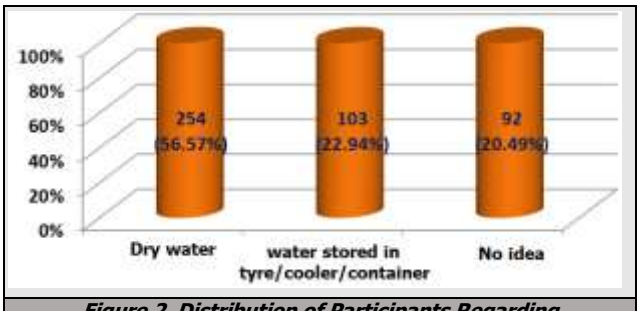

Figure 2. Distribution of Participants Regarding Knowledge of Mosquito Breeding Places. (n-449)

When enquired about breeding places of mosquito, 56.57% participants told that dirty water is responsible, followed by water stored in tyre/cooler/container (22.94%) and 20.49% were unaware regarding the breeding places.

Majority of participants (67.71%) reported that radio/television/media were the main source for the knowledge, followed by friends/relatives (28.06%) and health care providers (26.06%). Regarding the knowledge about prevention from mosquito bites, 65.48% had aware about the use of mosquito net, 19.15% heard about repellent/coil available in the market, but still 19.82% participants did not have any knowledge regarding other mode of preventive measures from mosquito bites.

	No. (n=449)	(%)
Source of knowledge regarding mosquito borne diseases*		
Health care providers	117	26.06
Newspaper	66	14.70
Radio/Television	304	67.71
Friends/Relatives	126	28.06
Knowledge regarding prevention against mosquito bites*		
Mosquito repellent/coil	86	19.15
Mosquito net	294	65.48
Insecticidal spray	47	10.47
Larvivorous fish	16	3.56
Don't allow water collection in surrounding areas	77	17.15
Don't know	89	19.82

Table 3. Source of Knowledge Regarding Mosquito Borne Diseases and Knowledge Regarding the Prevention of Mosquito Bites*

*participants giving multiple answers

	No. (n=449)	(%)
Is it possible to control the mosquito borne diseases?		
Yes	374	83.30
No	59	13.14
No Idea	16	3.56
Treatment seeking behaviour		
Treat at home	136	30.29
Consult with Physician	251	55.90
Never seek treatment	62	13.81
Do you believe mosquito borne diseases are a major public health problem in our area/country		
Yes	228	50.78
No	138	30.73
No Idea	83	18.49
Who is responsible for mosquito borne disease management?		
Govt. agencies only	101	22.49
Public	83	18.49
Both Public & Govt. agencies	242	53.90
Don't know	23	5.12

Table 4. Attitude towards Control, Treatment Seeking Behaviour & Responsibilities with regard to Mosquito Borne Diseases

Almost 83.30% participants agreed that it is possible to control mosquito borne diseases (Table-4) and when asked about their treatment seeking behaviour, only 55.90% participants consult to the physician, 30.29% treat at home and still 13.81% participants didn't seek medical care. 50.78% participants told that mosquito borne diseases are a major public health problem in our community/country whereas 30.73% disagreed with it and 13.82% had no any idea regarding the same. In this study 53.90% participants agreed that both the government & public are responsible for the management of mosquito borne diseases, 22.49% also consider it as a government responsibility only, whereas 18.49% believed that individual responsibility is the main component of prevention of mosquito borne diseases and few 5.12% didn't have any idea.

Mosquito Bite Protection Methods	No. (n=449)	(%)
Use of mosquito nets	114	25.39
Use of mosquito repellent/coil	26	5.79
Window & Door screen	14	3.12
Use of smoke	198	44.10
Insecticidal spray	31	6.90
Nothing	66	14.70
Practices to be Used	**No. (n=449)**	**(%)**
Prevention of storage of fresh/dirty water in open spaces	31	6.90
Cover water storage container	63	14.03
Empty flowerpots/cooler at least every week	34	7.57
Nothing	321	71.49

Table 5. Distribution of Participants According to Practices Used to Prevent Mosquito Bites & Practices Followed by Participants to Eradicate the Breeding Sites of Mosquitoes

Table 5 depicts about the practices that are prevalent in this community for prevention of mosquito born diseases,

maximum participants (44.10%) still using smoke to control the mosquitoes in their area, followed by use of mosquito net (25.39%), a part from above methods, very less participants i.e. 6.9% participants used insecticidal spray to kill the mosquitoes, 3.12% use window & door screen and 14.70% participants not using any methods for the prevention of mosquito borne diseases. When asked about the practices done by them to eradicate the breeding site of mosquitoes, 71.49% didn't do anything, only 14.03% participants reported that they cover the water storage container, very few 7.58% empty their flowerpot/cooler regularly and only 6.9% prevent the accumulation of water in open places.

DISCUSSION

Mosquito borne diseases are the major public health problem in India as well as worldwide. The mosquito borne diseases of public health importance are complex and their occurrence depends on the interaction of various biological, ecological, social and economic factors.

The mean age of the participants in this study was 38 years, which was similar to that reported by Alobuia WM et al,[5] Kumar V et al[10] and Joseph N et al.[11] Majority of the participants were male (62.60%), similar observations seen in study conducted by Gupta RK et al (65.5%).[12]

In our study 91.26% participants were aware about mosquito borne diseases which was little better to study by Sharma et al (88.04%)[9] and almost consistent with finding by Kumar et al.[13] Regarding various symptoms, fever was the most common symptom of mosquito borne diseases as reported by participants (77.06%) which is far better than study by Tenglikar PV et al (37.25%)[14] and less than the study by Sharma A et al (97.17%).[9] The participant (29.18%) who told about the muscle pain/joint pain as a symptom, which is far better than study by Koenraadt et al (1%),[15] slight above than Itrat A et al (21.8%)[16] but far less than that found in study by Naing et al (71.8%).[17]

Regarding the knowledge about breeding places of mosquitoes which cause various diseases, 56.57% participants claimed as dirty water is only responsible, which is better than the study by Mattas et al (45%)[18] and far below as observed in study by Kumar V et al and Malhotra et al.[10,19] Few participants (23.83%) claimed water stored in tyre/cooler/container also responsible, whereas 20.50% had no any idea, the reason for this poor knowledge was mainly illiteracy, lack of awareness. This study showed that the source of knowledge regarding mosquito borne diseases among participants mainly through the Radio/TV/Media (67.71%) which is quite comparable to study done by Tenglikar PV et al,[14] Kumari et al[20] and Sharma A et al (68.63%).[9]

Study revealed that 83.30% participants believe that mosquito borne diseases can be controlled by various measures which is quite less than study by Sharma A et al (90.06%)[9] and Malhotra et al (94.13%)[19] In present study only 55.90% participants had attitude to consult with physician which is far below as observed in study by Kumar V et al (96%)[10] and 30.29% treat at home which is very high as compared to study by Kumar V et al (4%)[10] and Kumar & Gururaj in Karnataka (18%)[21] and reason behind this attitude may be either due to lack of knowledge or poor economic condition of the family.

A positive view seen in attitude of study participants that 53.90% reported that both government & public are responsible for the mosquito borne disease prevention & control, but it is far below as reported in study by Kumar V et al[10] and almost comparable to study by Alobuia et al (55%) Whereas 22.49% participants told that only government is responsible as found by Alobuia et al (20%).

Regarding the practices done by participants, very few (5.79%) used mosquito repellent/coil which is comparable to study by Yadav SP et al (4%)[22] and quite higher than Nalangsack S et al (2%)[23] but far below as observed in study by Mayur V et al (52.31%)[24] & Patel AB et al (61%),[25] the reason may be that, the participants of our study were mostly from low socio-economic background. Mosquito net were used by 25.39% participants, observed higher than study by Itrat A et al (1.9%)[16] and Patel AB (10%)[25] and lower as observed in study by Tanglikar PV et al (30.77%).[14]

In this study maximum participants (44.10%) used smoke by burning of fossils/wood/husk to prevent the mosquito bites which may be due to easy & free availability and lack of knowledge regarding their harmful effects over health. Most of the participants (71.49%) didn't practice anything to eradicate the breeding site of mosquitoes, which shows very poor attitude and practice towards the prevention and control of mosquito borne diseases. Very few (7.58%) regularly emptying their water container in their household which is below as observed in study by Kumar V et al (9.4%)[10] and only 6.9% participants tried to prevent the stagnation of fresh or dirty water in open spaces which also show very poor practice done by participants in that area.

This study has certain limitations which must be taken into consideration when interpreting the results. First, our assessments of attitudes and practices toward mosquito borne diseases and mosquitoes control have relied on self-reported data collected through interviews and could potentially be affected by social desirability bias.

CONCLUSIONS

Despite so many efforts to control malaria, dengue, and chikungunya, these diseases are still having a huge impact on health, well-being, and economy of the people. Knowledge and attitude of the participants in this study regarding mosquito borne diseases were below average and the practices adopted by them were also unsatisfactory, hence intensified efforts should be made towards creating public awareness and strengthening personal protective and community measures to prevent mosquito borne diseases. There is also a need for district health departments, treating doctors & physicians to improve availability of information

about mosquito borne diseases through rural dispensaries & primary health centres and encouraged to give health education to the patient about the appropriate and affordable preventive measures.

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