

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING DENGUE AND CHIKUNGUNYA IN SECONDARY SCHOOL CHILDREN IN A CITY OF NORTH INDIA.Prashaant K. Bhatnagar*¹, Sunil K. Garg², Tanveer Bano³ and Seema Jain³¹Postgraduate Student, ²Professor and Head, ³Professor,
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ABSTRACT

Background & Objectives: Many vector-borne diseases are prevalent in India and have become serious public health problem. Recurring outbreaks of dengue fever have been reported in various states and union territories of India including Uttar Pradesh. Currently in 2016, big upsurge of chikungunya is being observed in Delhi and nearby cities with reporting of cases from other States/UT's too. Meerut comprises of about 2% of the population of Uttar Pradesh. Despite this there was no documented evidence of knowledge, attitude and practices (KAP) of school children regarding dengue and chikungunya. Therefore current study was planned on secondary and senior secondary school children of 9th to 12th standard who are in adolescent age group. **Methods:** A cross sectional study was carried out among 738 school children in four schools of Meerut in the month of September 2016. A pre-designed, pre-tested, semi structured, self-administered questionnaire was used to collect information. **Results & Conclusion:** The fact that dengue and chikungunya are caused by mosquito bite was known to 96% and 71% children respectively. 43% children knew female mosquito bites and spread diseases. Only 21% knew that they are caused by *Aedes* mosquito. 47% knew that it breeds in clean stagnant water and 49% knew that it bites during day. Only 50-60% children took personal protective measures against mosquito bites and check for breeding of mosquitoes. 95% children feels that prevention of these diseases should be taught in schools. Findings of the study can help making strategies for children to enhance knowledge on these diseases.

KEYWORDS: Meerut, Knowledge Attitude and Practice, School Children, Dengue, Chikungunya.**INTRODUCTION**

Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 1 million deaths every year globally. More than 2.5 billion people in over 100 countries are at risk of contracting Dengue.^[1] Many vector-borne diseases namely malaria, dengue, chikungunya, filariasis and kala-azar are prevalent in India and have become serious public health problem.^[2]

Dengue is the most rapidly spreading mosquito-borne viral disease of mankind, with a 30-fold increase in global incidence over the last five decades. About 50-100 million new dengue infections are estimated to occur annually in more than 100 endemic countries. Recurring outbreaks of dengue have been reported in various states and union territories of India including Uttar Pradesh.^[3]

In the Indian sub-continent, first isolation of the chikungunya virus was done in Calcutta during 1963. Subsequently, there have been several reports of chikungunya virus infection during 60's in different parts of India. The last outbreak of chikungunya infection in 20th century occurred in India during 1973. Thereafter, after a quiescence of 2-3 decades during 2006 reports of

large-scale outbreaks of fever caused by chikungunya in several parts of India have confirmed the re-emergence of this virus in the country with 13.9 million clinically suspected and 2001 laboratory confirmed cases.^[4] During 2006, the disease re-appeared in the country, affecting millions of people in 16 States/UTs and incapacitating many of them with crippling disabilities for varied period.^[5] Since 2007, cases of clinically suspected cases of chikungunya are being reported from many states and UT's in the country. During 2015, a total 27,553 clinically suspected case of chikungunya have been reported from 22 states and 3 UT's. Currently in 2016, big upsurge of Chikungunya is being observed in Delhi and nearby cities with reporting of cases from other States/UT's too. Till, 11th September, 2016 a total of 14656 clinically suspected cases (including 1724 in Delhi) from 18 states and 2 UT's have been reported.^[6]

According to the Census 2011, adolescent constitute 20.9% of total population in India. Uttar Pradesh ranks first in terms of adolescent population in the country, accounting for 19.3% of total adolescents of the country.^[7] Meerut is the second largest city in National Capital Region (NCR) and is located 70km north-east of

Delhi. It has a population of 3,443,689 which is about 2% of the population of Uttar Pradesh.^[8] Recently, Meerut and nearby areas have experienced a substantial rise in number of cases of Dengue and Chikungunya. Despite this there was no documented evidence of Knowledge, Attitude and Practice in school children of Meerut regarding Dengue and Chikungunya. Therefore current study was planned on secondary and senior secondary school children of 9th to 12th standard who are in adolescent age group for assessing their knowledge, attitude and practices (KAP) about Dengue and Chikungunya.

AIMS AND OBJECTIVES

1. To assess and identify gaps in knowledge, attitude and practice about Dengue and Chikungunya in secondary and senior secondary school children in Meerut.
2. To assess the adequacy of information about these diseases in school curriculum and need for improvement.

MATERIAL AND METHODS

A Cross Sectional school based study was carried out in four schools of Meerut in the month of September 2016. A consent from schools was taken in advance. A verbal consent from the participants was also taken. A pre-designed, pre-tested, semi-structured, self-administered questionnaire was used to collect information from children of classes IX-XII (Secondary and Senior Secondary Level). A total of 738 children participated in the study. The results were charted and analysed in

Microsoft Excel 2013. After the study, correct answers were given to participants as well as information was provided about mosquito borne diseases through audio-visual aids and queries of the participants were also solved.

RESULTS

Out of 738 children who participated in the study, 378 (51%) were boys and 360 (49%) were girls. All children have some but not complete knowledge of dengue and chikungunya. Majority of children (96%) knew that dengue is caused by mosquito bite but only 528 (71%) knew that chikungunya is caused by mosquito bite. Only 318 (43%) of children could correctly answer that it is the female mosquito which bites and spread diseases. It was very surprising to note that only 156 (21%) children could correctly answer that dengue and chikungunya is caused by bite of *Aedes* mosquito. Only 348 (47%) children knew that this mosquito breeds in clean stagnant/collected water. 366 (49%) children knew that this mosquito mostly bites at daytime. These diseases usually occur in rainy season was answered by 498 (68%) children. 553 (75%) children said that either they or any of their family member have suffered from dengue or chikungunya in past. Knowledge about symptoms were good. 660 (89%) knew about fever, 672 (91%) about joint pain, 474 (64%) about rashes and 414 (56%) about headache but awareness about haemorrhagic manifestation and bleeding in Dengue was present only in 96 (12%) children. 558 (76%) Children knew about government's programme on vector borne diseases.

Table 1: Knowledge about dengue and chikungunya			N= 738
S.No	Variable	n	%
1.	Dengue is caused by mosquito bite		
	Yes	708	96
	No	030	04
2.	Chikungunya is caused by mosquito bite		
	Yes	528	71
	No	210	29
3.	Sex/Stage of Mosquito which bite		
	Female	318	43
	Male	060	08
	Both	186	25
	Larva	138	19
	Don't Know	036	05
4.	Type of Mosquito spreading Dengue and Chikungunya		
	Aedes	156	21
	Anopheles	264	36
	Culex	096	13
	Any	150	20
	Don't Know	072	10
5.	Where mosquito of Dengue/Chikungunya breed?		

	Clean storage water	348	47
	Dirty stored/ stagnant water	294	40
	Mud	030	4
	Garbage	048	7
	Don't know	018	2
6.	Time of biting of mosquito of Dengue/Chikungunya		
	Day	366	49
	Night	054	7
	Anytime	318	44
7.	Season in which Dengue/Chikungunya is common		
	Summer	216	30
	Rainy	498	67
	Winter	006	01
	Spring	018	02
8.	Knowledge of symptoms (multiple responses)		
	Fever	660	89
	Vomiting	276	37
	Headache	414	56
	Joint Pain	672	91
	Rashes	474	64
	Bleeding	96	12
9.	Knowledge about Govt's programme on these diseases		
	Yes	558	76
	No	180	24
10.	You or someone in your family suffered from Dengue/Chikungunya in past.		
	Yes	553	75
	No	185	25

192 (26%) children believe that dengue is a deadly disease whereas 90 (12%) believes that chikungunya is a deadly disease. Majority of children 432 (59%) believes that both are deadly diseases. Almost all (99%) children believe that both of these diseases can be prevented. 240 (32%) children believe that lack of awareness in people regarding these diseases is responsible for outbreak. 426 (57%) feels that their school curriculum fails to provide enough information regarding these diseases and 702 (95%) children believe that information about these

diseases should be given in school. Almost all (98%) children felt that before the seasonal occurrence of these diseases some kind of workshop/seminar should be organized in schools to create awareness about their prevention. Newspapers (90%) and television (77%) were the major sources of information about dengue and chikungunya for the children. Social media (32%) appeared as an emerging source of information for the children.

S.No	Variable	n	%
1.	Which among these is deadly disease?		
	Dengue	192	26
	Chikungunya	090	12
	Both	432	59
	None	024	03
2.	Do you think that Dengue and Chikungunya is preventable?		
	Yes	732	99
	No	006	01

3.	Who/what do you think is the main cause of recent outbreak of these diseases?		
	Lack of action of Government/administration	144	20
	Lack of knowledge and awareness in people	240	32
	Heavy Rainfall	072	09
	Can't say	282	39
4.	Does school curriculum provides sufficient knowledge about these diseases?		
	Yes No	312 426	43 57
5.	Do you think that these diseases should be taught in school?		
	Yes No	702 036	95 05
6.	Do you feel the need of conducting workshop/seminar about these diseases in school before the season of its occurrence?		
	Yes No	720 018	98 02
7.	Source of Information about Chikungunya and Dengue (multiple responses)		
	Television	564	77
	Radio	180	24
	Newspaper	660	90
	Social network/media (Facebook/WhatsApp etc)	234	32
	School teachers	288	39
	Family members/Friends	406	55

Only 317 (43%) children acknowledged that they or their family members regularly check for the breeding sites of mosquitoes in and around their house. Regarding personal protective measures 539 (73%) children answered that they wear full sleeves shirt, bed nets were used by 347 (47%) children. Insecticide spray (44%), Mosquito repellent creams (39%) and Electric Racquet (36%) were other protective measures. About 2% children did not use any protective measures at all. When

asked about actions taken against mosquito breeding, emptying and drying desert cooler when not in use was practiced in families of only 413 (56%) children. 177 (24%) put kerosene oil in water of desert cooler when not in use. Overhead water tanks were covered in houses of 435 (59%) children. Only 376 (51%) children answered that collection of water in old tyres, broken pots etc was checked in and around their house.

S.No	Variable	n	%
1.	Does you or your family members regularly check for mosquito breeding sites in and around your house?		
	Yes No	317 421	43 57
2.	Use of Personal Protective Measures against mosquitoes (multiple responses)		
	Wearing full sleeves shirt	539	73
	Mosquito repellent cream	288	39
	Bed nets	347	47
	Insecticide spray	325	44
	Electric racquet	266	36
	Nothing	015	02
3.	Action taken against mosquito breeding (multiple responses)		
	Empty and dry desert cooler when not in use	413	56
	Put Kerosene oil in desert cooler when not in use	177	24
	Don't allow water to collect in tyres, broken pots etc	376	51
	Cover overhead water tanks	435	59

DISCUSSION

The current study documented the knowledge, attitude and practices regarding dengue and chikungunya among the secondary and senior secondary school children in Meerut. Most of the children were aware that dengue (96%) and chikungunya (71%) were caused by mosquito bites but only 43% children responded correctly that female mosquito bites. This is in contrast to results of study by Taran *et al.*^[9] in Malwa region where 80% students responded to this correctly. Knowledge about *Aedes* mosquito as vector of these diseases was present in only 21% of children which is similar to the results obtained by Majra *et al.*^[10] in Karnataka but this knowledge was present in 14.8% children in study of Taran *et al.*^[9] 47% children correctly knew that this mosquito breeds in clean stagnant water. In the study by Taran *et al.*^[9] this knowledge was present only in 19.5% children. In the same study 62.7% children had mis-conception that garbage is a breeding place. Pandit *et al.*^[11] in their study in Gujarat reported this mis-conception in 19.3% subjects but in our study only 7% children had this mis-conception. In our study, 76% children had heard of government programme on vector borne diseases. Taran *et al.*^[9] in Malwa reported 53.6%, Kumar *et al.*^[12] in Karnataka reported 60% and Patel *et al.*^[13] in Rajkot reported that 21.09% of subjects were aware about government programme for control of mosquito borne diseases. 73% children wear full sleeves shirt and 57% used liquid vaporizer as most common methods of personal protection which is similar to study of Taran *et al.*^[9] and Patel *et al.*^[13] In our study two important sources of information were Newspapers (90%) and Television (77%) which is similar to the results obtained by Taran *et al.*^[9] In a study of New Delhi by Chinnakali *et al.*^[14] most important source of information was television (54.9%) and similar results were obtained by studies by Acharya *et al.*^[15] in South Delhi, Gupta *et al.*^[16] in East Delhi and Hairi *et al.*^[17] in Kuala Lumpur. Social networking media like Facebook and WhatsApp appeared as emerging sources of knowledge and information in our study (32%). In a study by Alobuia *et al.*^[18] in Jamaica, 20% subjects believed that it is the sole responsibility of the government to prevent these diseases, this is similar to results obtained by us. In our study only 49% of children knew that this mosquito bites in day time which is similar (48%) to the results obtained by Majra *et al.*^[10] but Chinnakali *et al.*^[14] reported this knowledge in only 24% of subjects. This highlights the existing gap in the knowledge with respect to the biting habits of *Aedes* mosquito. In our study knowledge about symptoms of dengue and chikungunya was good which is similar to the results obtained by Dhaduk *et al.*^[19] in their study in Jamnagar but the knowledge of symptoms was much lower in the study of Chinnakali *et al.*^[14] Practice of measures aimed to prevent mosquito breeding in our study is higher than as reported by Chinnakali *et al.*^[14] in Delhi and Ven Benthem *et al.*^[20] in Thailand. 57% children felt that school curriculum is not sufficient to

provide enough information about these diseases and 95% children wanted that about these diseases they should be taught in school. Almost all (98%) children wanted that a workshop or seminar about prevention of these diseases should be organized in schools before the seasonal occurrence of these diseases.

CONCLUSION

Awareness of school children is an important factor for preventing dengue and chikungunya in the community. There is a need to sensitize school teachers to spread awareness about these diseases in school children. Furthermore, this study describes the existing knowledge regarding dengue and chikungunya among school children is not sufficient and identified the current practices used by school children in their home environment to prevent them and also identified the perceived barriers and available resources. Findings of the study will be helpful to make strategies for children to enhance knowledge on these diseases. Further, findings can be utilized for health care personnel and policymakers to eradicate this problem from the community. Government should utilize methods of mass communication for educating about mosquito borne diseases. Government can also use school as platform for spreading knowledge/awareness as a mandatory activity. Adolescent age is the best age because seeding right knowledge at right age can altogether change the future scenario.

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