_____

Health educational intervention is an effective tool for control the dengue disease as current menace

Bhawna pant[*1]**, Sartaj ahmad** [2]**, Amit mohan varshney**[3]**, Arvind k. Shukla**[4]**, Aditi singh**[5]

[1]*Professor, Department Community Medicine , Subharti Medical College Meerut, U.P., India*
[2]*Asstt Professor Medical Sociology, S.V. Subharti University Meerut, U.P., India*
[3]*Asstt Professor, Department Community Medicine, Subharti Medical College Meerut, U.P., India*
[4]*Asstt Professor Bio-Statistics, Department Community Medicine, Subharti Medical College Meerut, U.P., India*
[5]*Junior resident, Department Community Medicine, Subharti Medical College Meerut, U.P., India*

ABSTRACT
Background: Dengue has become a global problem since the second world war and is endemic in more than 110 countries. Apart from eliminating the mosquitoes, work is ongoing on a vaccine, as well as medication targeted directly at the virus.
Objective: To ascertain the knowledge, attitudes and practices regarding Dengue. Among students in urban and rural areas of Meerut District.
Materials and Methods: A quasi interventional study was conducted among 320 students, (200 from urban and 120 from rural students) were randomly selected. Chi –square test used for significant differences between before and Post Intervention response.
Results: The knowledge, attitudes and practices of students was inadequate regarding dengue before the educational session and better improvement was observed after the educational session.
Conclusion: There is better improvement found in knowledge attitude and practice for the control dengue after educational session. This study concludes that health educational intervention is an effective tool for prevention and controls   the Dengue as disease.

Keywords: Dengue, urban and rural students, health education.

_____

Introduction

Dengue fever also known as break bone fever, is an infectious tropical disease caused by the dengue virus. Dengue is transmitted by several species of mosquito within the genus Aedes, principally A. aegypti. Dengue virus infection is a escalating health problem throughout the world because of increasing mortality and morbidity and is currently endemic in over 100 countries [1]. Increasing occurrence of Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) are all causes for great concern; particularly for India where an

_____

*Correspondence
Dr. Bhawna Pant
Professor, Department of Community Medicine ,
Subharti Medical College, Meerut, U.P, India.
Email: aditi3182@gmail.com

increased frequency of the infection has been observed in recent years[2].Dengue fever continues to be a major public health problem in India, with significant impact on children. It is unfortunate that no major steps have been taken to promote awareness and precautionary attitude in the community with regards to dengue fever despite the ostensible burden of disease. Health education is a major means for prevention and control of the National Dengue Control Program (NDCP), and is delivered to communities and in schools.

Material and Methods

This quasi interventional study conducted in   urban school near Urban Health Training Centre Multan Nagar Meerut and in a rural school near Rural Health Training Centre Village Sarawani under department of community medicine of Subharti Medical College Meerut. All 320 students belonging to age group 15-18 years were

_____

evaluated throughout the study. A pre- designed and pre tested semi structured questionnaire was used to assessment the existing level of knowledge, attitude and practice towards dengue. The duration of the study was from Jan 2013- April 2013.The intervention session focused on aspects of the dengue as assessed during the pre – intervention assessment. Following the initial assessment an educational intervention programme was conducted amongst the target group through learning

objectives, instruments of evaluation and teaching learning materials were used through lectures, demonstration with the help of a power point presentation. After one month post interventional assessment was conducted and same questionnaire was used. All the data was collected and appropriate statistical methods χ^2- Test used for significant differences between before and post Intervention response.

Table 1: Source of information different areas

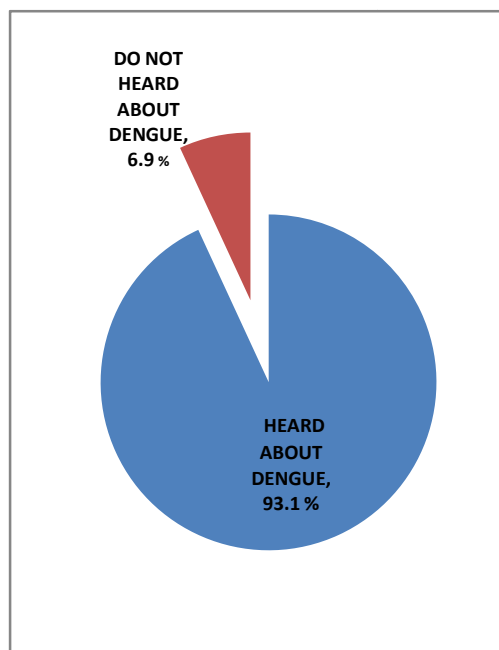| SOURCE OF INFORMATION	Urban		Rural		Total	
	FREQ	%	FREQ	%	FREQ	%
Audio-visual media	82	41.0	28	23.3	110	34.4
Print Media	60	30.0	45	37.5	105	32.8
IEC Materials	28	14.0	10	8.3	38	11.9
Health Personnel	15	7.5	23	19.2	38	11.9
Relatives/ Friends	5	2.5	2	1.7	7	2.2
Don't know	10	5.0	12	10.0	22	6.9
TOTAL	200	100.0	120	100.0	320	100.0
χ^2 = 21.68 P-value= .006						

Fig 1: Percentage of people who have heard versus who haven't heard about dengue
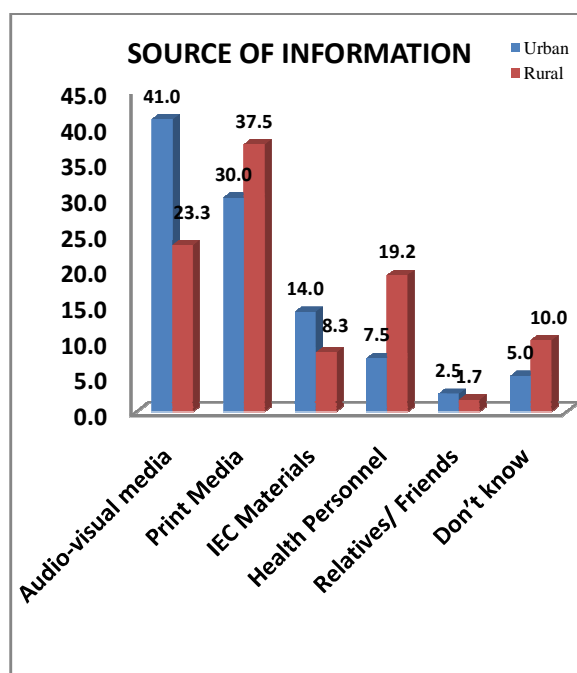
Fig 2: Source of information in rural and urban areas

	URBAN (N=200)					RURAL (N=120)				
	PRE		POST		χ^2	PRE		POST		χ^2
	FREQ	%	FREQ	%	P-VALUE	FREQ	%	FREQ	%	P-VALUE
TRANSMISSION OF DENGUE										
Mosquitoes	144	72.0	160	80.0	18.34	88	73.3	95	79.2	13.75
Insect bite	15	7.5	5	2.5	0.001	3	2.5	2	1.7	0.008
Flies	21	10.5	7	3.5		12	10.0	5	4.2	
Dirty Water	10	5.0	22	11.0		5	4.2	15	12.5	
Don't know	10	5.0	6	3.0		12	10.0	3	2.5	
SEASON FOR DENGUE										
Rainy season	115	57.5	127	63.5	10.72	40	33.3	60	50.0	11.16
Winter season	60	30.0	40	20.0	0.013	45	37.5	28	23.3	0.011
Summer season	15	7.5	10	5.0		23	19.2	27	22.5	
Don't know	10	5.0	23	11.5		12	10.0	5	4.2	
BREEDING /PLACE OF MOSQUITOES										
Artificial Water collection	120	60.0	150	75.0	11.62	60	50.0	87	72.5	13.11
Rainy water	70	35.0	47	23.5	0.003	48	40.0	28	23.3	0.001
Don't know	10	5.0	3	1.5		12	10.0	5	4.2	
SYMPTOMS OF DENGUE										
Fever	110	55.0	122	61.0	5.96	65	54.2	72	60.0	15.17
Body ache /Headache	50	25.0	55	27.5	0.310	28	23.3	32	26.7	0.004
Bleeding	10	5.0	7	3.5		10	8.3	6	5.0	
Rashes	12	6.0	5	2.5		2	1.7	8	6.7	
Abdominal pain	13	6.5	8	4.0		15	12.5	2	1.7	
Nausea and Vomiting	5	2.5	3	1.5		0	0.0	0	0.0	
CURABILITY OF DENGUE										
Yes	155	77.5	178	89.0	9.48	84	70.0	92	76.7	1.36
No	45	22.5	22	11.0	0.002	36	30.0	28	23.3	0.243
PREFERRED PLACE OF TREATMENT										
Government Hospital	110	55.0	112	56.0	7.65	65	54.2	70	58.3	13.02
Government Dispensary	19	9.5	22	11.0	0.105	12	10.0	20	16.7	0.011
Private Hospitals	44	22.0	49	24.5		15	12.5	17	14.2	
Private Clinics	15	7.5	15	7.5		10	8.3	10	8.3	
Quacks or traditional methods	12	6.0	2	1.0		18	15.0	3	2.5	
DENGUE IS PREVENTABLE DISEASE										
Yes	160	80.0	187	93.5	15.86	94	78.3	102	85.0	0.59
No	40	20.0	13	6.5	<0.001	26	21.7	22	18.3	0.441

Table 2: Factors of dengue in urban and rural areas

METHODS OF MOSQUITOES CONTROL										
Stop water Collection	12	6.0	15	7.5	5.92	10	8.3	15	12.5	29.65
Used full sleeves shirts	19	9.5	23	11.5	0.747	3	2.5	8	6.7	0.0002
Fogging	15	7.5	20	10.0		0	0.0	0	0.0	
Spray DDT	12	6.0	15	7.5		0	0.0	5	4.2	
Used mosquito net	15	7.5	19	9.5		4	3.3	8	6.7	
Used Repellants (Mortine or odomos cream)	12	6.0	12	6.0		5	4.2	15	12.5	
Spraying kerosene/petrol oil	10	5.0	12	6.0		25	20.8	25	20.8	
Clean surrounding	8	4.0	10	5.0		2	1.7	8	6.7	
Burning Neem Leaves	5	2.5	5	2.5		30	25.0	15	12.5	
Don't know	92	46.0	69	34.5		41	34.2	21	17.5	

Results

In this study, 320 students were studied, out of them 200 (62.5%) from urban area and 120 (37.5%) were from rural area. 190 (95.0%) urban and (90.0%) rural students heard about dengue as a disease. In urban, audio-visual media 82 (41.0%), print media 60 (30%) IEC materials 28 (14.0%), health personal 15 (07.5%) and relatives or friends 05 (02.5%) were the most source of information. In the rural, audio-visual media 28 (23.3%), print media 45 (37.5%) IEC materials 10 (08.3%), health personal 23 (19.2 %) and relatives or friends 02 (1.7%) were the most source of information. In this study, 232 (72.5%) of students had told that the transmission for dengue is a mosquitoes bite before educational intervention, the level of knowledge was increased to 255 (79.7) among students after educational intervention. The level of knowledge about transmission was significant in both areas. 135 (48.4%) of students had told that dengue can occurs in rainy season before educational intervention, the level of knowledge was increased to 187(58.4%) after educational intervention. The level of knowledge about rainy season was significant in both areas although summer season was not significant.180 (56.3%) students knew that water accumulation is breeding place of mosquitoes before educational intervention, the level of knowledge was increased to 273 (74.1%) after educational intervention. The level of knowledge about breeding place of mosquitoes was significant in both areas. Before intervention assessment, respondents reported the following as being most commonly associated with dengue as fever (54.7%), headache (24.4%), bleeding (06.3%), Rashes (04.4%), abdominal pain (08.8%) and nausea and vomiting (01.6%), the level of knowledge was increased to fever (60.6%), headache (27.2%), bleeding (04.1%), Rashes (04.1%), abdominal pain (03.1%) and nausea and vomiting (0.9%) after educational intervention. The level of knowledge about symptoms for dengue was significant in both areas however rashes were not significant. Dengue is curable disease suggested by 239 (74.7%) students before educational intervention, the level of knowledge was increased to 270 (84.4%) after educational intervention. The level of knowledge about curability was significant in both areas Before intervention assessment, Government hospital 175(54.7%), Government dispensary 31 (09.7%), private hospital 59 (18.43%) , private clinic 25 (07.8%), quacks 30 (09.3%) of students knew about the place of treatment of dengue, the level of knowledge was increased to Government hospital 182 (56.8%), Government dispensary 42 (13.1%), private hospital 66(20.62 %) and private clinic 25 (07.8%)., quacks 05 (01.6%) preferred source of treatment of Dengue after educational intervention. The level of knowledge about preferred source of treatment of Dengue was significant in both areas 254 (79.4%) respondents were aware about the prevention of dengue before educational intervention , the level of awareness of prevention was increased to 289 (90.3%) after educational intervention. The level of knowledge about prevention of dengue was significant in both areas Before educational intervention knowledge of the

preventive practices, stop water collection 22 (06.9%), used full sleeves shirts 22 (06.9%), spraying DDT 12 (03.8%), fogging 15 (04.7%), used mosquito net 19 (05.9%), used of repellents 17 (05.3%) , spraying kerosene/petrol oil 35 (10.9%), clean surrounding 10 (03.1%), and burning neem leaves 35 (10.9 %) were main mosquitoes control methods suggested as a personal health care in both areas. The level of awareness of preventive practices was increased to stop water collection 30(09.4%), used full sleeves shirts 31 (09.68%), spraying DDT 20 (06.3%), fogging 20 (06.3%), used mosquito net 27 (08.4%), use of repellents 27 (11.6%) , clean surrounding area 18 (05.6%), spraying kerosene/petrol oil 37 (05.3 %), and burning neem leaves 20 (06.2%) were main mosquitoes control methods as a personal health care in both areas after educational intervention. The level of attitude and practice about dengue was significant in both areas although spraying kerosene/petrol oil was not significant.

Discussion

In this study 93.1% of the students had heard about the dengue. Another study conducted by Gupta P *et al.* (1998) reported that 87.3% of the respondents were aware about the dengue[3].Regarding the source of knowledge, all the sources were reported in more numbers from urban areas. The most common source of knowledge about dengue was audio-visual media 110 (34.4%) was observed in both area after educational intervention. In the urban area students were reported that audio-visual media   (41.0) was a most source of knowledge about dengue which is larger proportion as compared to rural area (23.3%).   A study conducted by Itrat A. *et al.(*2000) revealed that this may reflect that in urban area students are in better touch with means of mass communication, electronic and print media and health personnel as compared to rural areas. This is probably because of greater access to electronic and print media, better education facilities and contact with well informed individuals [4].After educational assessment (79.7%) students knew that the vector for dengue is a mosquito although another study conducted by Syed *et al.* (2010) revealed that 93.0% people knew that the vector for dengue is a mosquito[5].In this study, after interventional session (74.1%) students knew that water

accumulation is breeding place of mosquitoes. An another study have reported encouraging results about the biological control of dengue vectors by fish and have recommended using this intervention in the community[6].In this study, after educational assessment the symptom of dengue as fever (60.6%) was reported by students. In the study of Syed M. *et al.* (2010) in Karachi, respondents reported fever (74.5%) the following as being most commonly associated with dengue[5].After educational intervention, preferred government hospitals, in the study of Gupta P. 81.0% urban and 52.1% rural people preferred government hospitals.[3].After educational intervention, the level of awareness of prevention was (90.3%) amongst the students in this study. A study from Brazil on the public knowledge and attitudes concerning dengue found a gap between knowledge and practices about vector prevention[7]. Another study from Northeast Thailand identified several barriers towards dengue control including insufficient control agents and inadequate knowledge of control methods.[8]Measures aimed at preventing water stagnation, which serves as local breeding sites were the second most popular techniques in use. This is in accordance with studies done in Thailand which reported a significant reduction of dengue vectors and dengue hemorrhagic fever cases in areas having clean-up campaigns before and during rainy seasons. Swaddiwudhipong W *et al*., have suggested that health education can induce the people to accept themselves as being responsible for Aides control programs[10].Window and door screens were also a popular method of vector control. Window curtains and domestic water container covers treated with insecticide can reduce densities of dengue vectors to low levels and potentially affect dengue transmission [11]. These results displayed that the study population was using adequate preventive methods aimed at controlling both the vector's breeding and its spread [12].

Conclusion

Health education is essential for the control of diseases such as dengue and students can better understand the mechanisms of infection transmission, prevention, and methods of mosquitoes control by health education. This study concludes that health educational intervention is an

effective tool for knowledge attitude and practice, prevention and control, the Dengue as disease.   Based on our findings, it is recommended that future campaigns should involve more aggressive health education in liaison with community schools.   The community schools involvement in the prevention and control of dengue is essential, but will not be effective while health education is poorly resourced and irregular. We suggest the need for sustained routine education in school and colleges for dengue prevention and control, and the need for approaches to ensure the translation of knowledge into practice.

Acknowledgement

References

1. Guzmán MG, Kourí G. Dengue: an update. *Lancet Infect Dis* 2002; 2: 33-42.
2. Gubler DJ. Epidemic dengue/dengue hemorrhagic fever as a public health, social and economic problem in the 21st century. *Trends Microbiol* 2002; 10: 100-3.
3. Gupta P, Kumar P, Aggarwal OP. Knowledge, attitude and practices related to dengue in rural and slum areas of Delhi after the dengue epidemic of 1996. *J Commun Dis* 1998; 30: 107-12.
4. Itrat A, Khan A, Javaid S, Kamal M, Khan H, *et al*. Knowledge, Awareness and Practices Regarding Dengue Fever among the Adult Population of Dengue Hit Cosmopolitan. *PLoS ONE* 2008; 3: e2620.
5. Syed M, Saleem T *et al*. Knowledge, attitudes and practices regarding dengue fever among adults of high and low socioeconomic groups. *J Pak Med Assoc.*2010; 60(3):21-33

6. Seng CM, Setha T, Nealon J, Socheat D, Chantha N, Nathan MB. Community based use of the larvivorous fish Poecilia reticulata to control the dengue vector Aedes aegypti in domestic water storage containers in rural Cambodia. *J Vector Ecol* 2008; 33: 139-44.
7. Gonçalves Neto VS, Monteiro SG, Gonçalves AG, Rebêlo JM. Public knowledge and attitudes concerning dengue in the Municipality of São Luís, Maranhão, Brasil, 2004. *Cad Saude Publica* 2006; 22: 2191-200.
8. Phuanukoonnon S, Brough M, Bryan JH. Folk knowledge about dengue mosquitoes and contributions of health belief model in dengue control promotion in Northeast Thailand. *Acta Trop* 2006; 99: 6-14.
9. Van Benthem BH, Khantikul N, Panart K, Kessels PJ, Somboon P.Knowledge and use of prevention measures related to dengue in northern Thailand. *Trop Med Int Health* .2002; 7: 993–1000.
10. Swaddiwudhipong W, Lerdlukanavonge P, Khumklam P, Koonchote S, Nguntra P, Chaovakiratipong C. A survey of knowledge, attitude and practice of the prevention of dengue hemorrhagic fever in an urban community of Thailand. *Southeast Asian J Trop Med Public Health* 1992; 23: 207-11.
11. Hairi F, Ong CH, Suhaimi A, Tsung TW, bin Anis Ahmad MA, Sundaraj C, *et al*. A knowledge, attitude and practices (KAP) study on dengue among selected rural communities in the Kuala Kangsar district. *Asia Pac J Public Health* 2003; 15: 37-43.
12. Kroeger A, Lenhart A, Ochoa M, Villegas E, Levy M, *et al.* Effective control of dengue vectors with curtains and water container covers treated with insecticide in Mexico and Venezuela: cluster randomised trials. *Bmj.*2006;332:1247–1252.