Original Article

Knowledge, Attitude and Practice (KAP) of Dengue Fever in Adult Semi-Urban and Rural Population of Central Punjab Pakistan

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ABSTRACT

Objective: To assess Knowledge, Attitude and preventive measures practiced by semi-urban / rural adult population of central Punjab regarding dengue fever. **Study setting:** Independent University Hospital Faisalabad located in semi urban area of Jinnah Town (District Faisalabad) was selected for this study. **Study Design:** A cross sectional Descriptive study was conducted among the adult patients and their attendants from semi-urban/rural area attending OPD IUH**.** **Study Population:** Adult patients/their attendants aged 18years and above from both sexes and from all economical strata attending OPD of IUH were asked to take part in the study. **Materials and Methods: Inclusive criteria:** Participant should be residing in Jinnah Town Faisalabad for the last one year. **Sample Size:** 550 adult individuals were taken by convenient sampling from the OPD patients &their attendants of IUH as a representative sample of total population of Jinnah Town. 95% confidence interval, 5% sampling error, assumption of 50% knowledge and attitude prevalence and 15% non-response rate were decided prior to study. **Results:** 550 individuals were enrolled for study, 50 participants decline to continue study. Analysis showed that 83.8% participants have adequate knowledge about vector, 38.6% know about dengue fever, 83.2% have good attitude about dengue fever, 86.6% participants use some of the preventive measures to protect themselves from mosquito. **Conclusion:** More Awareness Campaigns regarding dengue fever are still needed in rural area to have adequate level of KAP to control and prevent dengue fever epidemics. Due to low literacy level, there is gap between knowledge and practices. Health services in rural areas are insufficient, understaffed and un-accessible due to lack of roads/transport indicating differential allocation of resources for rural areas. **Key words:** Dengue Fever, Knowledge, Attitude, practice, Rural area, Semi-urban area.

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INTRODUCTION

Dengue fever is newly emerging acute viral infection caused by dengue virus which is flavivirus, having 4 serotypes i.e. (DEN-1, DEN-2, DEN-3, DEN-4). Dengue viruses are capable of infecting human beings and causing disease. These infections may be asymptomatic or may lead to (a) classical dengue fever (b) dengue haemorrhagic fever without shock (c) dengue haemorrhagic fever with shock. The dengue virus is transmitted by bites of Aedes aegypti / albopictus mosquito.[1,2]

The vector is 20 degree centigrade isotherm, day time feeder urban mosquito and has special association with used automobiles tires.[3]

A prevalence of Aedes aegypti / albopictus together with the circulation of dengue virus of

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more than one type in any particular area tends to be associated with outbreak of DHF / DHSS.[4]

Dengue has emerged as a worldwide problem since 1950 and approximately 400 million people are infected yearly.[11] Globally, the reported incidence of dengue has been increasing. It is found in tropical and subtropical regions around the world where 2.5 billion people are at risk of disease, an estimated 50 million dengue infections occur worldwide annually and about 500,000 people with DHF require hospitalization each year.[5]

Pakistan and other Asian countries like India and Sri Lanka are facing dengue fever epidemics from last successive decades. The first confirmed dengue hemorrhagic fever outbreak in Pakistan occurred in 1994.[6]

An outstanding, unparalleled dengue fever epidemic occurred in the country in 2005-2006 and a large number of cases were reported from many parts of the country. About 3,640 probable cases of dengue fever were admitted to several Secondary and Tertiary Care Hospitals in the country and among them 40 cases were declared dead. Most of the cases were from Karachi and interior Sindh.

As per report by the "Field Epidemiology and Disease Surveillance Division" National Institute of Health Islamabad, during 2011-2014, the 48188 laboratory confirmed Dengue Fever cases were reported in Pakistan, with 55% of total from Punjab, 26% from KPK, 17% from Sindh and 2% from ICT.[11]

So for very few KAP studies of dengue fever has been conducted in Pakistan, possibly due to lack of proper data records. That`s why, this study was conducted to establish level of awareness of dengue fever among semi-urban / rural population in central Punjab , Pakistan. It will also help to determine community rule in prevention of foreseen epidemics of dengue fever.

MATERIALS & METHODS

Study Setting

Independent University Hospital Faisalabad located in semi urban area of Jinnah Town (District Faisalabad) was selected for study setting.

Study Design

A cross sectional descriptive study was conducted from 1st March 2015 to 1st September 2015 among the adult patients and their attendants, attending OPD IUH Faisalabad.

Study Population & Inclusive Criteria

Adult patients/their attendants aged 18years and above, from both sexes and from all economical strata, attending OPD of IUH were asked to take part in the study. The participant should be living in Jinnah Town from at least one year. Participation in the study was voluntary and no incentives were provided. The participants were interviewed on a pre-tested, pre-discussed questionnaire. The protocol for the study was reviewed and approved as per ethical considerations.

Sample Size

550 adult individuals were taken by convenient sampling from the OPD patients of IUH Faisalabad as a representative sample of total population of Jinnah Town. 95% confidence interval, 5% sampling error, assumption of 50% knowledge and attitude prevalence and 15% non-response rate was decided prior to study.

Data collection:

The data was collected on daily basis by the demonstrator of Department of Community Medicine IUH from adult patients and their attendants visiting OPD of IUH. The convenient sampling was used from all volunteer individuals aged 18 and above. A pre-tested, pre-discussed. structured questionnaire was used to interview the participants of the study. The questionnaire was translated into local language (in Urdu/Punjabi) for convenience of respondents. Data entry was registered twice and analyzed using SPSS V. 16.0. Descriptive recorded and results were shown in percentage in various tables. Associations were assessed by chi-square test. P value < 0.05 was considered significant.

RESULTS

550 adult individuals were enrolled for study. 50 participants declined to continue this study. Therefore, only 500 respondents were successfully interviewed. The response rate for this study was 90.90%. The data so obtained, was analyzed and the results were phrased in six tables.

Table 1: Socio-demographic details

The analysis of information collected in this study showed that 73.4% participants were from rural area and 26.6% from semi-urban area, 74.2% were male and 25.8%female , mean age in male participants was 23.4± 17.70 & in female 37±12.7%, 77% participants were married & 23% unmarried ,35% had primary school education and 24% were illiterate. According to the socio-economic details shown in table 1, most of the individuals fall in low socio-economic group.

Table 2: Knowledge on causes and spread of dengue fever

The results plotted in this table revealed that 83.8 % respondents knew that the vector for dengue fever is mosquito, whereas 16.2 % respondents knew that human to human spread occurs in dengue fever mainly by mosquito bites. Regarding common symptoms of dengue, fever was the most agreed response (65.2 %) followed by muscular pain (09.8 %).

Table 3: Knowledge of vector characteristics of dengue fever

The results recorded in this table after interview of study participants showed that 94% respondents knew about various breading places of mosquito.

Spatial distribution

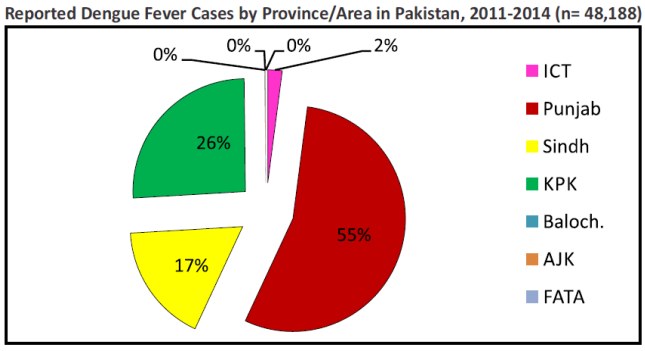

Figure 1: Spatial Distribution

The most commonly recognized breeding place of mosquito, was dirty water (49.2 %) followed by, water storage in jars / containers (boxes, pots, cans etc) 22.2%. The dengue mosquito breeds in clean standing water was not known b by all the respondents. About the timings of the mosquito biting habits, 47.2 % respondents replied evening while 35.4 % respondents answered night. Table 4: Attitude of Respondents towards dengue fever.

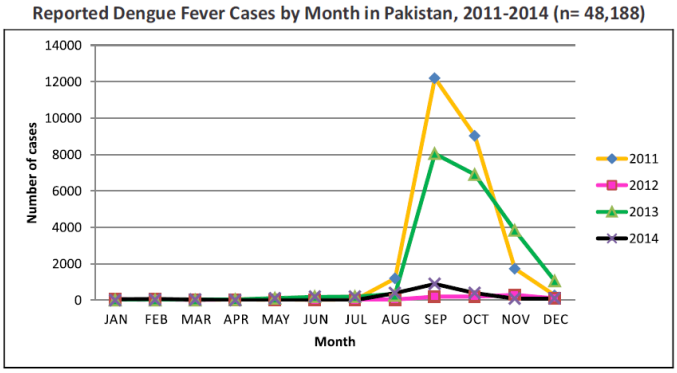

Figure 2: Dengue fever casus by month

The results of attitudes of the respondents, compiled after evaluation through asking a number of questions relating to dengue fever. According to these results , 54.6 % respondents strongly agreed and 28.6% fairly agreed that dengue fever is a serious illness, 9% don't know about seriousness of dengue fever, 13.18 % respondents strongly agreed and 11.46% fairly agreed that they are at risk of getting dengue fever, whereas 62.92 % were not sure about the risk, 52.68 % respondents strongly agreed and 32.2% fairly agreed that D F can be prevented, 61.96% respondents strongly agreed for prompt treatment and admission in hospitals if deemed necessary. 86.4% respondents were of opinion that it is State / Government responsibility to eliminate vector (mosquito) breeding.

Table 5 Personal Preventive Measures against dengue fever

This table shows the attitude of respondents towards D F. Regarding personal protection against mosquito bite, 35.40 % respondents were using mosquito nets and 29.8% mosquito repellants i.e.(mats/coils/lotions), 23.4 % respondents were using screened windows doors and better housekeeping , 6.2 % were using mosquito residential spray and 7.2% did not use any preventive measure .

The preventive practices adopted against dengue fever were found according to the knowledge they kept about dengue fever.

Table 6 Source of their information about dengue fever

The source of information of respondents about dengue fever was obtained by asking a single question about media /channel of information. As per results: 61.40 % came to know about dengue

fever through television followed by friends/relatives (47.80 %) , from the school / college / factory colleagues 37.4%, from radio 21.4%, from print media i.e. Newspapers / Brochures / Banners 40.62% and from health personals 21.6%.

Table 1: Socio – Demographic Characteristics of study population

Sr. no		Frequency n = 500	%age
1	**Stratification**		
	I. Urban	133	26.6%
	II. Rural	367	73.4%
2	Sex		
	Male	371	74.2%
	Female	129	25.8%
3	Female mean age	37.0 ± 12.7	
	Male mean age	23.4 ± 17.70	
4	Marital Status		
	Married	385	77%
	Unmarried	111	23%
5	Education		
	i. Primary School	175	35%
	ii. Secondary School	95	19%
	iii. Intermediate	65	13%
	iv. Graduate / above	45	09%
	v. Illiterate	120	24%
6	Occupation		
	1. Govt Employee	50	10%
	2. Non-Govt Employee	137	27.4%
	3. Farmers	135	27%
	4. Self Business	85	17%
	5. Retired	08	01.6%
	6. Unemployed	80	16%
	7. Students	35	7%
7	Income per month		
	1. No income (non earning)	115	23%
	2. Less than Rs 10000.	135	27%
	3. From 10,000 to 20,000.	205	41%
	4. More than 20,000.	45	9%

Source: OPD IUH Faisalabad

Table 2: Knowledge on causes and spread of Dengue Fever

Causes of Dengue Fever	Frequency (n-500)	%age
Mosquito bite	419	83.8 %
Houseflies	7	1.4 %
Unhygienic food	09	1.8%
Dirty drinking water	17	3.4 %
Don't know	113	22.6%
Human to human Spread		
Yes	81	16.2%
No	220	44%
Don't know	119	39.8%

Source: OPD IUH Faisalabad *Varied response

Table 3: Knowledge of Vector Characteristics of Dengue Fever

Common breeding sites	Frequency (n-500)	%age
Water storage jars/ containers	111	22.2%
AC water Coolers, Fridge, Trays etc	74	14.8%
Municipal waste /garbage house	39	7-8%
Dirty muddy water	246	49.2%
Do not know	30	6%
Most frequent mosquito bite time		
Morning	49	8.6%
Day time	37	07.4%
Evening	236	47.2%
Night	178	35.4%
Don't know	06	1.2%

Source: OPD IUH Faisalabad *.varied response

Table 4: Attitude of Respondents towards Dengue Fever

Dengue Fever is a serious illness	Frequency (n-500)	%age
Fairly Agree	143	28.6%
Strongly Agree	273	54.6%
Disagree	26	5.2%
Strongly disagree	13	2.6%
Don't know	045	9%
Fairly Agree	47	11.46 %
Disagree	54	13.18 %
Strongly disagree	28	6.82 %
Not sure	258	62.92 %
Dengue Fever can be prevented		
Strongly Agree	216	52.68 %
Fairly Agree	132	32.2 %
Disagree	34	2.3 %
Strongly disagree	09	2.2 %
Not sure	19	4.64 %

Need for treatment & hospitalization		
Strongly Agree	132	32.2 %
Fairly Agree	254	61.96%
Disagree	09	2.2 %
Strongly disagree	05	1.22 %
Not sure	10	2.44 %
Government Responsibility of controlling breeding mosquito		
Strongly Agree	86	20.98 %
Fairly Agree	269	65.6 %
Disagree	13	3.18 %
Strongly disagree	10	2.44 %
Not sure	32	7.8 %

Source: OPD IUH Faisalabad *Varied response

Table 5: Personal Preventive Measures against Dengue Fever

Personal Preventive Measures	Frequency (n-500)	% age
Use of Mosquito Nets	177	35.4%
Use of Mosquito Mats/Coils	96	19.2%
Use of mosquito Repellants	53	10.6%
Use of Window-Door screens, Better House Keeping.	117	23.4%
Don't know	67	13.4%

Source: OPD IUH Faisalabad *Varied response

Table 6: Source of Their Information Regarding Dengue Fever

Source of information	Frequency (n-500)	%age
Television	307	61.40 %
Health personal	105	21.6 %
Friends & Neighbors	196	47.8 %
Newspapers / Magazines	96	19.42 %
Brochures	43	5.6%
Radio (on mobile)	156	21.4 %
Flex Banners	89	15.6%
Schools /colleges /factories	135	37.4 %

Source: OPD IUH Faisalabad

DISCUSSION

Due to repeated dengue fever epidemics and government vigorous DF awareness campaigns, most of the individuals in study group were found familiar with the name of dengue fever. Majority of the participants knew about mosquito as causative vector of dengue fever but they were ignorant about the species and its differential characteristics. An acceptable level of awareness was observed in respect of life threatening signs of dengue fever such as bleeding but they knew a little about signs of shock.

Likewise, there was misunderstanding regarding symptoms of the disease because majority of the respondents perceive every fever as dengue fever. The results of this study are slightly better than results of an earlier study done in Pakistan by Akram D S, Ahmad S. in 2005.[7]

In this context, it is explainable that there was difference in both studies regarding study population, study setting, variables, access to electronic media, shift in government policies towards D F and lapse of a period of about ten years between two studies.

A similar study was conducted in Brazil by Donalisio MR in 1998 which showed that better social and urban environment had greater impact on knowledge, attitudes as compared to low environmental conditions.[8]

A KAP study in Kamphaeng Phet province, Thailand also showed a direct association between knowledge on dengue fever prevention and practiced preventive measures.[9]

Swaddiwudhipong W, also conducted KAP study on dengue haemrrhagic fever in Thailand in1992 and concluded that health education can prepare people to accept responsibility for vector control activities.[10]

In pursuance to this finding, it is necessary to initiate health education activities for delivery of disease information, training and capacity building of the community.

The electronic media is main stay for dissemination of information. In present study most used channel of information television (61.40%) is consistent with the study conducted by Swaddiwudhipong W. in Thailand (59.75%) TV being the source of information.[10] As in KAP study by Qadir S in local population, knowledge

about disease was 60%, positive attitude 92% and practice 90%.[12]

Study by Ahmad S in Swat,[13] Badar S in Bahawalpur,[14] Ifitkhar A,[15] Qureshi EMA in Lahore[16] and Zameer M in Lahore.[17] had approximately similar results while study by Hafeez F in Lahore[21] concluded knowledge about vector 85.5% in urban, 76.5% in rural area and TV/Radio as a major source of information.

This study also indicates differential allocation of resources for preventive care in semi-urban and rural areas. There is need for initiation of dengue fever prevention awareness campaigns on mass level. However, in view of the study setting, the possibility of interviewer bias and drawbacks of convenience sampling are accepted / acknowledged.

CONCLUSION

The study concluded that population in rural areas have not enough knowledge and information about prevention and protection from dengue fever. Mostly the practices are according to the knowledge but still there is a mild gap between knowledge and practices due to low literacy and cultural factors. The study also shows less allocation of resources for preventive as well as curative health services, education and roads in rural areas. The existing health services in rural areas are insufficient, under-staffed and un-accessible due to lack of roads and transport.

RECOMMENDATION

The Government and political forces should have committed policies for awareness campaigns and provision of health facilities regarding prevention and treatment of dengue fever in rural areas by mass approach or whole school approach through community involvement and intersectoral action. The need to allocate adequate resources for provision of education and health care facilities in rural areas may be addressed on priority basis .

REFERENCES

1. Winch PJ, Leontsini E, Rigau-Pérez JG, Ruiz-Pérez M, Clark GG, Gubler DJ. Community-based dengue prevention programs in Puerto Rico: impact on knowledge, behavior, and residential mosquito infestation. American journal of tropical medicine and hygiene. 2002;67(4):363-70.
2. Egger JR, Ooi EE, Kelly DW, Woolhouse ME, Davies CR, Coleman PG. Reconstructing historical changes in the force of infection of dengue fever in Singapore: implications for surveillance and control. Bulletin of the World Health Organization. 2008;86(3):187-96.
3. Gooddard J2003, CRC press.
4. Who (1993), Monograph on dengue/dengue hemorrhagic fever, compiled by parasert thongchoren, Regional publication SERO no 22
5. Park Preventive and Social Medicine 22nd edition, 2014;5(3): 224-31.
6. Rai MA, Khan H. Dengue: Indian subcontinent in the line of fire. J Clin Virol 2007; 38: 269-70.
7. Akram D S, Ahmed S. Dengue Fever. Infect Dis J 2005; 14: 124-5.
8. Donalisio MR, Alves MJ, Visockas A. A survey of knowledge and attitudes in a population about dengue transmission--region of Campinas São Paulo, Brazil- 1998. Rev Soc Bras Med Trop 2001; 34: 197-201.
9. Koenraadt CJ, Tuiten W, Sithiprasasna R, Kijchalao U, Jones JW, Scott TW. Dengue knowledge and practices and their impact on Aedes aegypti populations in Kamphaeng Phet, Thailand. Am J Trop Med Hyg 2006; 74: 692-700.
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. Ministry of National Health Services, Regulations & Coordination Government of Pakistan NIH, Islamabad. Field Epidemiology & Disease Surveillance Division/WHO Center,Gazzett 34th Issuance Oct, 2015.
12. Qadir S, Ahmad I, Akhtar MN, Naeem H. Knowledge, Attitude and Practice about Dengue fever among local population. Gomal Med Sci, 2015;13:87-90.

13. Ahmad S, Rehmat A, Shah S, Illahi I. To evaluate Epidemiology Trends of Dengue Fever in Teaching Hospital at District Swat Pakistan. APP Sci Report 2014;06:78-81.
14. Badar S, Yasmin S, Hussain W, Amjad MA. Knowledge and Practices of preventive measures Of dengue fever among students of Bahawalpur city, Pakistan. Professional Medical Journal,2014;21:106-110.
15. Ifitkhar A, Burney WA. Physician Knowledge regarding DHF, June 2012. Isra Med. J 2012;4(2):88-89.
16. Qureshi EMA, Vehra S, Ghafoor GZ, Ali AS, Ahmad F. Community Perception regarding Dengue Epidemic in Lahore, Pakistan. Pak J Sci,2014;66:7-9.
17. Zameer M, Shuja M, Ashraf A, Mukhtar A, Ahmad BM. KAP study of Dengue viral infection And its association with environmental factors and health issues, Lahore Pakistan. African Journal of Env.Sci and Tech 2013;07:711-717.
18. Jahan, Dengue Fever in Pakistan. Asia Pacific Family Medicine 2011;10:1-4.
19. National Guide lines for Dengue Vector control in Pakistan 2013. Available on http:/www. Dmc.govt pk/documents/GDC.
20. WHO 2012, Dengue and severe Dengue Fact Sheet.
21. Hafeez F, Akram W, Suhail A. Knowledge and Attitude of Public towards Dengue Control in Urban and Rural areas of Punjab. Pakistan. J Zool 2012;44(1):15-21.

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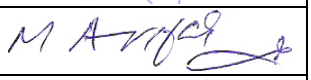
Dr. Muhammad Arif Ali	2nd Author	
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