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Original Article

Attitude Regarding Dengue Vector Control Among the Community of Tehsil Sahiwal, Sargodha

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ABSTRACT

Dengue fever is one of the most threatening vector borne diseases, causing severe epidemics and has brought the world to take serious steps for its control and prevention. **Objective:** The objectives of the study are to assess the attitudes regarding dengue vector control among community of Tehsil Sahiwal, District Sargodha **Methods:** It was a community based and cross-sectional study in which 384 residents of Tehsil Sahiwal of District Sargodha were included. Simple random sampling technique was used. Data was collected through questionnaire, which was entered and statistically analyzed using SPSS 20.0. Frequency tables were generated for all possible variables. For quantitative data like age and income, mean and standard deviation were calculated and for qualitative data like sex, education, occupation percentages were calculated. Written consent was taken from respondents. **Results:** Among 384 respondents, mean age was 37.35 ± 11.67 years. 69.8% respondents were males. 58.1% respondents had overall good attitude and 41.9% had poor attitude. Among 207 respondents who had overall good knowledge, 199 (51.8%) had good attitude and 8 (2.1%) had poor attitude **Conclusions:** Study concluded that attitude regarding dengue vector control among community was found satisfactory 58.1% had overall good attitude.

INTRODUCTION:

Dengue fever (DF) is caused by a mosquito-borne human viral pathogen that belongs to the genus Flavivirus of the family Flaviviridae (single-strand, non-segmented RNA (ribonucleic acid) viruses). Dengue is transmitted in humans by two species of *Aedes* mosquitoes namely *Aedes aegypti* (principal vector) and *Aedes aldopictus* [1]. Dengue virus (DENV) has four serotypes, DENV-1, DENV-2, DENV- 3 and DENV-4 [2]. The global incidence of dengue has grown dramatically in recent decades [3]. An estimated 3900 million people in 128 countries are at risk for dengue infection [4]. One recent estimate indicates 390 million dengue infections per year, of which 96 million manifests clinically (with any severity of disease) [5]. Vector control, the most important strategy to prevent and control dengue, requires the cooperation of entire communities, as it is not solely a government responsibility [6]. According to the World Health Organization (WHO), *Aedes aegypti's* control is mainly achieved by source reduction of the vector through the elimination of the mosquito breeding sites.21 Due to *Aedes aegypti's* domestic ecological feature, their larvae preferably proliferate in small and artificial water-containers, placed inside or near human houses [7]. Therefore, community contribution is, undoubtedly crucial in dengue prevention and control [8].

Community based eradication campaigns are made with the objective of educating the public about the strategies for the elimination of breeding sites to reduce mosquito production. In this method, the public or community people are divided

into different groups because all the people of community are not well educated and their level of understanding is not same [9]. In some countries like Cuba, community involvement has been very useful for the effective eradication of *Aedes aegypti* mosquitoes from the environment [10]. However, to get maximum vector control, community involvement should be used in combination of other methods to limit vector density, [11,12]such as the combination of community based campaigns and chemical control have shown significant results in controlling *Aedes aegypti* in Cuba state [13].

METHODS

The study was community based and cross sectional. The study setting was Tehsil Sahiwal of District Sargodha. A total of 384 subjects were taken at 5% margin of error, 95% confidence interval and expected percentage of good knowledge as 51.7% [14]. Simple random sampling technique was used.Residents of Tehsil Sahiwal of District Sargodha, Age range between (18-60), Both Genders (Male and Female) were included.

Data was entered, cleaned and analyzed using SPSS (Statistical Package for Social Sciences) version 20.0. Frequency tables were generated for all possible variables. For quantitative data like age and income, mean and standard deviation were calculated and for qualitative data like sex, education, occupation percentages were calculated. Formal consent was taken from whom to conduct the study. Written consent was taken from respondents. Privacy and confidentiality of data was maintained at all costs in accordance with principles.

A semi-structured questionnaire was prepared by researcher and finalized after pre-testing. The residents of Tehsil Sahiwal, District Sargodha were interviewed by the researcher himself and responses were noted on the questionnaire.

DATA ANALYSIS PROCEDURE

The software was used for data analysis namely SPSS, through SPSS software, the data was initially arranged with the help of Likert Scale. Parametric or Non-parametric test as also applied for the purpose to smooth the data or as per needs. Descriptive statistics, correlation, regression.

RESULTS:

Among 384 respondents, 204 (53.1%) covered their water jars after using immediately while 180 (46.9%) respondents did not cover water jars, 231 (60.2%) had a cover in their water tanks while 153 (39.8%) had no cover. Among 384 respondents, 223 (58.1%) changed the water of the indoor plants every week while 161 (41.9%) respondents did not change. 234 (60.9%) said they ever drain off the water in the plates of the flower pot while 150 (39.1%) respondent said they did not, 134 (34.9%) examined any discarded thing that can hold water around their house while majority 250 (65.1%) did not examine, 123 (32.0%) discarded soft drink plastic bottles with caps while majority 261 (68.0%) did not discard soft drink plastic bottles with caps, 268 (69.8%) changed their air cooler water while 116 (30.2%) did not, 268 respondents who changed their air cooler water, 94 (35.1%) changed every day and 174 (64.9%) respondents changed water every third day, 232 (60.4%) said that they wear full sleeve clothes early morning and evening in mosquito season while 152 (39.6%) respondents said they did not, 327 (85.2%) used mosquito net/coils in their house while 57 (14.8%) respondents did not use, 327 respondents who used mosquito net/coils in their house, all of them used mosquito net/coils during night (Table 1).

FREQUENCY DISTRIBUTION OF RESPONDENTS WHO COVERED WATER JARS AFTER USING IMMEDIATELY		
n-384	Frequency	Percentage (%)
Yes	204	53.1
No	180	46.9
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO HAVING A COVER IN THEIR WATER TANKS		
Yes	231	60.2
No	153	39.8

FREQUENCY DISTRIBUTION OF RESPONDENTS WHO CHANGE THE WATER OF THE INDOOR PLANTS EVERY WEEK		
Yes	223	58.1
No	161	41.9
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO EVER DRAIN OFF THE WATER IN THE PLATES OF THE FLOWER POT		
Yes	234	60.9
No	150	39.1
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO EXAMINATION ANY DISCARDED THING THAT CAN HOLD WATER AROUND THEIR HOUSE		
Yes	134	34.9
No	250	65.1
FREQUENCY DISTRIBUTION OF RESPONDENTS WHO DISCARDED SOFT DRINK PLASTIC BOTTLES WITH CAPS		
Yes	123	32.0
No	261	68.0
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO CHANGE OF WATER IN THEIR AIR COOLER		
Yes	268	69.8
No	116	30.2
If yes, when		
Everyday	94	35.1
Every third day	174	64.9
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO WEARING OF FULL SLEEVE CLOTHES EARLY MORNING AND EVENING IN MOSQUITO SEASON		
Yes	232	60.4
No	152	39.6
FREQUENCY DISTRIBUTION OF RESPONDENTS ACCORDING TO USE OF MOSQUITO NET/COILS IN THEIR HOUSE		
Yes	327	85.2
No	57	14.8
If yes, when		
Night	327	100.0
Day	0	0.0

Table 1: Questions asked from respondents regarding dengue vector control

Socio-demographic characteristics	Overall Attitude			P-value
	Good	Poor	Total	
Age (years)				
≤40	112 (29.2%)	100 (26.0%)	212 (55.2%)	
>40	111 (28.9%)	61 (15.9%)	172 (44.8%)	0.370
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	
Sex				
Male	155 (40.4%)	113 (29.4%)	268 (69.8%)	
Female	68 (17.7%)	48 (12.5%)	116 (30.2%)	0.206
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	

Education				
Illiterate	20 (5.2%)	18 (4.7%)	38 (9.9%)	
Literate	203 (52.9%)	143 (37.2%)	346 (90.1%)	0.163
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	
Occupation				
Employed	134 (35.0%)	97 (25.2%)	231 (60.2%)	
Unemployed	89 (23.1%)	64 (16.7%)	153 (39.8%)	0.014
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	
Family monthly income (Rs.)				
<20,000	144 (37.5%)	95 (24.7%)	239 (62.2%)	
≥20,000	79 (20.6%)	66 (17.2%)	145 (37.8%)	0.377
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	

Table 2: Correlation between socio-demographic characteristics and attitude regarding dengue vector control

Table 2 demonstrates that among 212 respondents who were upto 40 years old, 112 (29.2%) had overall good attitude and 100 (26.0%) had poor attitude. Among 172 respondents who were above 40 years old, 111 (28.9%) had overall good attitude and 61 (15.9%) had poor attitude. The result was found statistically insignificant (P=0.370). Among 268 respondents who were males, 155 (40.4%) had overall good attitude and 113 (29.4%) had poor attitude. Among 116 respondents who were females, 68 (17.7%) had overall good attitude and 48 (12.5%) had poor attitude. The result was found statistically insignificant (P=0.206). Among 38 respondents who were illiterate, 20 (5.2%) had overall good attitude and 18 (4.7%) had poor attitude. Among 346 respondents who were literate, 203 (52.9%) had overall good attitude and 143 (37.2%) had poor attitude. The result was found statistically insignificant (P=0.163). Among 231 respondents who were employed, 134 (35.0%) had overall good attitude and 97 (25.2%) had poor attitude. Among 153 respondents who were unemployed, 89 (23.1%) had overall good attitude and 64 (16.7%) had poor attitude. The result was found statistically significant (P=0.014). Among 239 respondents who had family monthly income <20,000 rupees, 144 (37.5%) had overall good attitude and 95 (24.7%) had poor attitude. Among 145 respondents who had family monthly income ≥20,000 rupees, 79 (20.6%) had overall good attitude and 66 (17.2%) had poor attitude. The result was found statistically insignificant (P=0.377).

Overall knowledge	Overall Attitude			P-value
	Good	Poor	Total	
Good	199 (51.8%)	8 (2.1%)	207 (53.9)	
Poor	24 (6.3%)	153 (39.8%)	177 (46.1%)	0.000
Total	223 (58.1%)	161 (41.9%)	384 (100.0%)	

Table 3: Overall attitude of respondents regarding dengue vector control

Above table exhibits that among 207 respondents who had overall good knowledge, 199 (51.8%) had good attitude and 8 (2.1%) had poor attitude. Among 177 respondents who had overall poor knowledge, 24 (6.3%) had good attitude and 153 (39.8%) had poor attitude. The result was found statistically significant (P=0.000) (Table 3).

Overall attitude	Frequency	Percentage (%)
Good	223	58.1
Poor	161	41.9
Total	384	100.0

Table 4: Frequency distribution of respondents according to overall attitude

Table 4 describes that among 384 respondents, 223 (58.1%) had overall good attitude and 161 (41.9%) had poor attitude.

DISCUSSION

Age is believed a major factor to create better awareness among community for the prevention of dengue. It is significant to mention that more than half of the respondents (55.2%) were upto 40 years old and 44.8% were more than 40 years old while mean age of the respondents was 37.35 $\pm$ 11.67 years. The findings of our study are comparable with a study undertaken by Rehman and coworkers (2015) who also reported that more than half (62.7%) respondents were upto 40 years old while remaining proportion (37.3%) was more than 40 years old [15]. A study carried out by Chinnakali and associates (2012) highlighted that mean age of the respondents was 33.8$\pm$12.8 years [16]. The results of another study performed by Nagoor and collaborators (2017) showed that participants mean age was 34.5 years [16]. It was found during study that most of the respondents (69.8%) were males and 30.2% were females. A similar study carried out by Chinnakali and associates (2012) also confirmed that majority of respondents (78.3%) who participated in the study were males and 21.7% were females [16]. But the findings of a study conducted by Koenraadt and partners (2006) indicated that mainstream of respondents (82.0) were females and only 18.0% were males [17].

Study showed very encouraging results that more than half (52.9%) of respondents believed that the mosquito that transmits dengue infection does not lays its eggs in dirty sewage water. But the findings of our study did not show better results than the study carried out by Diaz-Quijano and comrades (2018) who asserted that 81.6% respondents were aware that mosquito that transmits dengue infection does not lays its eggs in dirty sewage water [18]. In our study 54.9% respondents had knowledge that empty stagnant water from old tires, trash cans, refrigerator tray, air-conditioner water collection pot, open water storage tank, old plastic shoes, birds water pots and flower pots can be breeding places for mosquitoes while the results of the study undertaken NurAin and fellows (2017) elucidated that 98% respondents were aware that empty stagnant water from trash cans, flower pots and old tires etc. can be the mosquitoes breeding places [19].

At present, no proper treatment is available for dengue infection so effective vector control of *Aedes aegypti* can prevent from infection. It was found during study that 59.9% respondents had knowledge that only method of controlling dengue infection is to combat the vector mosquitoes. The results of our study are comparable but showed better situation than the study carried out by Sayavong et al. (2015) who stated that 56.6% respondents had knowledge that the best way to control dengue infection is to combat vector mosquitoes [20]. It was found during study that majority of respondents were aware that stored water containers/tanks for drinking water without being covered should be cleaned after every four days. Study further highlighted that these respondents acquired knowledge about dengue from different sources. Among respondents, main source of infection was health personnel counseling (35.1%), followed by television (25.0%), banners in area (20.1%) and mosque announcement (19.8%). But the study performed by Chinnakali and associates (2012) confirmed that majority (54.9%) of respondents got information from television, followed by newspaper/magazine (51.7%), health personnel (26.9%), radio (7.7%) and past illness with dengue (8.8%) [16]. Another study carried out by Rehman and coworkers (2015) indicated that 74.22% respondents source of information regarding dengue was television, followed by newspaper (12.67%), teachers/professors (7.78%) and other sources (health care providers, radio, friends and internet etc.) (5.33%) [15].

Study also assessed the attitude of respondents regarding dengue vector control and found that most of the respondents covered water jars after using immediately for the prevention of dengue. Likewise majority (60.2%) had cover in their water tanks but Shuaib and teammates (2010) reported in their study that significant majority (80.4%) had cover in their water tanks [1]. Similarly majority of respondents changed water of their indoor plants weekly, drain off the water in the plates of the flower pot. There were 34.9% respondents who examined any discarded thing that can hold water around their house, for dengue vector control in their area. But the study done by Shuaib and teammates (2010) confirmed that more than half (56.4%) of respondents examined discarded things to eliminate stagnant water around their house to reduce the mosquitoes [1]. When the overall attitude regarding dengue vector control was assessed among respondents, study highlighted that 58.1% respondents had overall good attitude while 41.9% had poor attitude. The results of a similar study performed by Rehman and coworkers (2015) indicated that 46.0% respondents had good and 54.0% had poor attitude [15]. But the results of another study performed by Said and colleagues (2018) showed that significant majority (99.2%) of respondents had good while only 0.8% respondent had poor attitude [21].

CONCLUSION

Dengue fever is believed a leading public health issue these days. It has emerged as an important problem worldwide. Current study assessed the attitude regarding dengue vector control among the community of Tehsil Sahiwal, Sargodha. Study concluded that attitude regarding dengue vector control among community was found satisfactory as 58.1% respondents had overall good attitude.

REFERENCES

1. Shuaib F, Todd D, Campbell-Stennett D, Ehiri J, Jolly PE. Knowledge, attitudes and attitudes regarding dengue infection in Westmoreland, Jamaica. West Indian Med J. 2010; 59(2): 139-146.
2. Valantine B, Kumar RP, Vasudevan S, Sureshbabu J, Singh Z. Cross sectional study on knowledge, attitude and attitude regarding dengue among adult population visiting a tertiary care hospital in Puducherry, India. Int J Community Med Public Health. 2017; 4: 623-627. doi: 10.4103/jfmpc.jfmpc_327_21
3. Arora P, Arora M, Sharma V, Kotwal A. Dengue: awareness, preventive attitudes and water storage behavior in an urban community of Delhi. Int J Community Med Public Health. 2017; 4: 4460-4465. dx.doi.org/10.18203/2394-6040.ijcmph20175148
4. Alobuia WM, Missikpode C, Aung M, Jolly PE. Knowledge, attitude, and attitudes regarding vector-borne diseases in Western Jamaica. Ann Glob Health. 2015; 81(5): 654-663. doi: 10.1016/j.aogh.2015.08.013.
5. World Health Organization. Dengue and severe dengue. Available at: https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue.2017
6. Alves AC, dal Fabbro AL, Passos ADC, Carneiro AFTM, Jorge TM, Martinez EZ. Knowledge and attitudes related to dengue and its vector: a community-based study from Southeast Brazil. Rev Soc Bras Med Trop. 2016; 49(2): 222-226. doi: 10.1590/0037-8682-0240-2015.
7. Nazareth T, Teodósio R, Porto G, Gonçalves L, Seixas G, Silva AC, et al. Strengthening the perception-assessment tools for dengue prevention: a cross-sectional survey in a temperate region (Madeira, Portugal). BMC Public Health. 2014; 14: 39. doi.org/10.1186/1471-2458-14-39
8. Jansen CC, Beebe NW: The dengue vector Aedes aegypti: what comes next. Microbes Infect. 2010, 12: 272-279. doi: 10.1016/j.micinf.2009.12.011.
9. Abbas A, Abbas RZ, Khan JA, Iqbal Z, Bhatti MMH, Sindhu ZUD, et al. Integrated strategies for the control and prevention of dengue vectors with particular reference to Aedes aegypti. Pak Vet J. 2014; 34(1): 1-10.
10. Vanlerberghe V, Toledo ME, Rodríguez M, Gómez D, Baly A, Benítez JR, et al. Community involvement in dengue vector control: cluster randomized trial. MEDICC Rev. 2010; 12: 41-47.
11. Pérez-Guerra CL, Zielinski-Gutierrez E, Vargas-Torres D, Clark GG. Community beliefs and practices about dengue in Puerto Rico. Rev Panam Salud Publica. 2009; 25: 218-226. doi: 10.1590/s1020-49892009000300005.
12. Shriram AN, Sugunan AP, Manimunda SP, Vijayachari P. Community-centred approach for the control of Aedes spp in a peri-urban zone in the Andaman and Nicobar Islands using temephos. Natl Med J Ind. 2009; 22: 116-120.
13. Baly A, Toledo ME, Boelaert M. Cost-effectiveness of Aedes aegypti control programmes participatory versus vertical. Trans R Soc Trop Med Hyg. 2007; 101: 578-586. doi: 10.1016/j.trstmh.2007.01.002.
14. Nagoor K, Babu SD, Reddy BN, Kahn S, Kalluri RJ, John KR. Knowledge, attitude and practice on dengue fever and its prevention and control measures in urban slums of South India. Int J Community Med Public Health. 2017; 4: 3013-3017. dx.doi.org/10.18203/2394-6040.ijcmph20173363
15. Rehman AR, Mahmood MA, Kazmi SF, Munir F, Ghani U. Dengue fever; impact of knowledge on preventive practice. Ann Pak Inst Med Sci. 2015; 11(4): 195-201. doi: 10.1371/journal.pone.0252852
16. Chinnakali P, Gurnani N, Upadhyay RP, Parmar K, Suri TM, Yadav K. High level of awareness but poor practices regarding dengue fever control: a cross-sectional study from North India. North Am J Med Sci. 2012; 4: 278-282. doi: 10.4103/1947-2714.97210
17. Koenraadt CJM, 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(4): 692-700.

18. Diaz-Quijano FA, Martínez-Vega RA, Rodriguez-Morales AJ, Rojas-Calero RA, Luna-González ML, Díaz-Quijano RG. Association between the level of education and knowledge, attitudes and practices regarding dengue in the Caribbean region of Colombia. BMC Public Health. 2018; 18: 143. doi: 10.1186/s12889-018-5055-z.

19. NurAin M, Azfar M, Omarulharis S, Azfar H, Maryam A, Hafizah S, et al. Knowledge, attitude and attitude of dengue prevention among sub urban community in Sepang, Selangor. Int J Public Health Clin Sci. 2017; 4(2): 73-83

20. Sayavong C, Chompikul J, Wongsawass S, Rattanapan C. Knowledge, attitudes and preventive behaviors related to dengue vector breeding control measures among adults in communities of Vientiane, capital of the Lao PDR. J Infect Public Health. 2015; 8: 466-473. doi: 10.1016/j.jiph.2015.03.005

21. Said MFF, Abdullah H, Ghafar NA. Dengue prevention practices among community in dengue hotspot area. Int J Community Med Public Health. 2018; 5: 4664-4669. dx.doi.org/10.18203/2394-6040.ijcmph20184553