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Original Research Article

AWARENESS LEVEL AND PREVENTIVE PRACTICES ABOUT DENGUE DISEASE AMONG THE RESIDENTS: A COMPARATIVE STUDY OF PERI-URBAN & RURAL AREAS OF MULTAN DISTRICT

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Abstract: *Pakistan has faced a chain of epidemics over the last two decades. However, Pakistan is included among low-ranked healthcare countries yet has tackled this worldwide disease nicely. The purpose of the current study is to check the residents' awareness level and preventive practices about dengue disease and further find out the factors affecting knowledge, attitudes, and practices. The quantitative approach was used to conduct the study, and the target population was residents of peri-urban and rural areas of the Multan district. A sample of 200 residents was selected using the multi-stage cluster sampling technique. The researcher got significant and valuable results. It is seen that citizens of peri-urban are more conscious about preventive practices; moreover, the research depicts that as the quality of education improves, awareness and attitudes also improve. Based on the findings, the researcher has given valuable suggestions to the policymakers and future researchers that would help in policy making.*

Keywords: Epidemics, Dengue Disease, Awareness Level, Peri-Urban, Rural, Preventions, Practices

Introduction

We live in the 21st century and the people are becoming more and more moderate with the help of different inventions and advanced technologies. Modern technology is playing a significant role in today's life. All the betterment and advancement we see in people's lives is the result of technology. Due to technology, the different necessities of life are being provided with excellent manners. This study talks about citizens' knowledge, attitudes, and practices regarding the devastating dengue virus disease. Earlier, it was defined that the dengue virus is a viral disease, becoming lethal for the entire human population worldwide. There are a lot of impacts of this disease in Pakistan, too. The previous year, many cases were noted, and almost a hundred people in Pakistan lost their lives just because of this dreadful disease. This study was done in the Multan district, particularly in the rural and semi-urban areas.

Dengue has been a viral disease all over the world for fifty years. It has damaged many countries and nations throughout the world. It spreads mainly in rainy seasons and is only contained by a particular type of mosquito called Aedes Aegypti. According to research, these mosquitoes breed in freshwater. It bites in the daytime, especially during sunrise and sunset. Dengue virus has been a significant issue in Pakistan for the last decade. Mostly, stagnant water around the house in discarded tires, broken pots, and bottles is a breeding place for Aedes mosquitoes. The use of screened windows is a significant tool in avoiding dengue mosquitoes. Most people wear fans and full-sleeved shirts to avoid dengue biting. The government has taken many steps to control this viral disease, including local non-governmental agencies and residents, but this disease is still progressing. Previously, we have had almost one hundred deaths in our country during the last year. Much has been done in Pakistan to avoid this disease, but we can avoid this pandemic by adopting little precautions. The flow of this disease is very fast in Asia.

Dengue fever is a viral disease producing extreme influenza similar to sickness and, sometimes, influencing, without a doubt, a savage issue known as excessive dengue fever. It belongs to the Flaviviridae family. It has very severe effects on humans. It attacks in daylight, particularly when the sun rises and sunset. If the dengue bites the humans, it may cause dengue infection. Dengue fever hints towards dengue infection. Dengue infection exists all over the world. It is evaluated that 50-100 million diseases are accounted for yearly over global areas, and roughly 50% of the population is at risk. The term "dengue" came from the Spanish West Indies, and the disorder was anciently known as "Break bone fever." The first case was documented in a Chinese medical encyclopedia in 1922. Dengue is a self-limiting illness. The term self-limiting means it clears up by itself, which we call the incubation period, and usually takes six to eight days. Dengue fever is related to human propensities. Aedes aegypti breeds are found around family units, building locales, and production lines—the WHO and Infection Resistor Centers and Inhibition acclaim introducing communal-based informative movements to control vector breeding sites. Awareness is the principal way of getting information about dengue signs, symptoms, transmissions, and preventive methods (Harish *et al.*, 2018). Rapid unplanned urbanization, slums, and low socioeconomic zones are the primary causes of the spread of dengue disease in urban areas. A total of 19,296 dengue

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cases have been confirmed in Pakistan, according to government reports in 2019. The rural extent of Aedes is associated with development projects, poor rural supply systems without health impact assessments, inadequate water storage and lifestyle improvements, excessive usage of air coolers, and widespread use of plastic containers, bottles, and transport systems. Dengue fever has periodic surges, leading to extensive mortality and morbidity in prevalent areas. Vector control is the most important defensive measure to combating dengue fever without vaccination. Every year, the revert of dengue fever increases in cases that need to be combated through vector control efforts (Malhotra and Kaur, 2014).

In 1994, the first case of DHF happened in Karachi, Pakistan. In 1995, the second episode happened in Baluchistan. In 2002, the instructive projects for Aedes aegypti mosquitoes were built up. In 2003, 10 cases were affirmed alongside 4 passing at Haripur. In Rawalpindi, from September to November 2008, 49 positive cases were recognized. Out of these, 23 were detailed at BBH and 26 at HFH. The unlucky deficiencies of explicit antibodies and the lack of viral treatment against DF are the fundamental reasons behind the creation of a worldwide medical issue (Zafar *et al*., 2013). Dengue infection diseases have turned into a genuine medical issue with touchy flare-ups since 2006 all over Pakistan, especially in profoundly populated urban areas like Lahore and Karachi. The number of announced cases is 22,000 from Lahore during 2011, the most elevated among all flare-ups over the most recent couple of years. The discovery of common mosquito disease with arboviruses is crucial in any reconnaissance study and is essential for implication and viable vector control measures (Jahan *et al*., 2014).

Dengue fever is a rapidly spreading public health issue in Pakistan. Dengue fever is a viral malady on the planet. The enormous urban communities of the nation, for example, Lahore, Karachi, and Rawalpindi, are in danger. The government is propelling efforts concerning the causes and counteraction of gangue fever, even though dengue fever is a widespread, irresistible infection that becomes a reason for death. Media is a quick way to approach public awareness. Media campaigns should be introduced in the country against the viral disease. Pakistan's government uses Smartphone data to inform the public of the outbreak of dengue fever and assigns 1500 employees about dengue cases, its commands, and locality time. Media is a favorable awareness tool for rural people. Dengue fever was first documented in 1950. Dengue outbreak can't be beaten without community participation. Media is an informative source for approaching the inhabitants of remote areas. Television and newspapers are the best information tools for the public to combat dengue fever (Waseem, 2017). Dengue fever is now a significant medical problem in southern Punjab, and it has been very much overseen through network investment in the influenced regions. Preparing and consciousness of the board alternatives for control of mosquito-borne infections are fundamental for dengue executives.

Incorporated irritation of mosquito vector executives is the best way to control dengue fever. The Aedes aegypti and A. albopictus have been accounted for as normal vectors of dengue fever in India. In peri-urban regions, A. aegypti grows quicker at the larval stage than A. albopictus. Standing water in plastic, iron, and elastic holders is the best rearing spot for A. aegypti and A. albopictus. Urbanization broadens debased zones and enormously adds to the spreading of infections. Along these lines, the natural surroundings of individuals play a significant role in spreading sicknesses (Saeed *et al*., 2017).

Dengue fever is a controllable and escapable disease. Prevention of dengue fever can be passed out through the exclusion of inhabitant mosquitoes, vaccination of vulnerable individuals, and health education, particularly during outbreaks. Many literatures evaluate dengue fever's impact on healthcare education, public awareness, and attitudes regarding the disease. Knowledge and awareness factors determine the socioeconomic status, level of education, and computer literacy of the individuals to tackle dengue fever. The attitudes differ and do not seem to be associated with the public knowledge regarding dengue disease. Socioeconomic status is a factor regarding dengue awareness. In Pakistan, there is a statistical difference between high and low socioeconomic classes regarding knowledge and awareness of dengue disease. Knowledge and awareness are poorly reported in rural areas. Television is a source of information and sometimes neighbors, relatives, friends, and healthcare professionals. The prevention of dengue fever can be possible through inhabitant mosquitoes or infected vaccination.

Vaccination control programs have not improved since that issue, and vector control programs can be successful through community participation (Almuhanna *et al*., 2018). The ideal strategy to control dengue fever is vector control. Techniques for vector control may be effective just through network cooperation. Control measures need help with collaboration and cooperation by the network. It is critical to survey the network's information regarding dengue malady, its reproducing locales, and the transmission method of dengue fevers since just about a fourth of dengue cases happen in provincial settings.

The individuals had away from dengue fever, with cerebral pain and joint torment as primary indications of dengue fever. Knowledge study acts as an educational diagnosis of the people. People get information regarding dengue fever from television and mass media (Basole *et al*., 2018). Dengue fever is produced by the infection with the Togaviridae family of dengue virus, a flavivirus. The focus is on preventing mosquito breeding conditions in homes and workplaces and minimizing human-mosquito interaction to tackle rising dengue cases in peri-urban and urban and rural areas due to growing urbanization, lousy water, and solid waste management. The focus is preventing mosquito breeding conditions in households and workstations and minimizing interaction with man-mosquitoes. For this vector-borne disease, improved monitoring, case management, community engagement, inter-sectoral coordination, enactment and enforcement of civic by-laws, and building by-laws are highlighted for vector-borne infection. Because of the cost-effectiveness of the defensive measures against care fees for dengue fever in private hospitals, there is an urgent need to raise awareness among individuals about preventive strategies. Thus, the current study emphasized assessing the consciousness and preparation towards preventing dengue infection, which helps as an educational analysis of people. This evidence helps plans set communication aims related to improved

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community participation and request for services and develops policies suitable for the social, cultural, and political. They understood the contexts of at-risk communities (Pradeep et al., 2016). Dengue fever is a prevalent and concerning health issue in Pakistan. It is a viral disease that causes significant morbidity and mortality in both urban and rural areas of the country. Pakistan has experienced a significant loss of life due to Dengue fever, with 16,580 reported cases and 60 deaths from July to November 2019, according to the WHO. However, Pakistan lacks prompt healthcare facilities and has been struggling with this issue for the past six to seven years. The government and agencies have made efforts to eradicate the disease, but they have not been successful in doing so. Therefore, assessing the awareness levels and practices of rural and urban residents regarding Dengue fever is crucial. The primary focus should be to prevent the spread of dengue mosquitoes. This study aims to assess the awareness level of district Faisalabad's residents regarding anti-dengue campaigns and the role of different media sources in spreading awareness. Given the current alarming situation in Pakistan for Dengue fever, it is necessary to conduct such research.

Methodology

The current research is designed to check the factors involving infection of dengue disease. It involved people's practices, knowledge, and attitudes toward dengue issues in the targeted area. A quantitative cross-sectional design is used for the current study. The current study's universe has consisted of District Multan's residents. It is a comparative study of people from peri-urban and rural areas. The target population of the current study was residents of peri-urban and rural areas of the District Multan. This population was selected because it was tough for the researcher to cover all the aspects of the universe. A multi-stage cluster sampling technique was used to select local households for better results and proper research. Because data was to be collected from the rural and peri-urban societies, the researcher divided both societies into further small segments for the proper representation of the communities. In this regard, the multi-stage cluster sampling technique selects an appropriate representation of 200 respondents from the whole universe. A well-structured questionnaire was used to collect the data from the different segments of the societies. The questionnaire was further divided into more parts so that the actual responses of the respondents could be taken. The correlation test was applied to the data to analyze it.

Results & Discussion

Table 1 depicts the frequencies and percentages of gender. Ninety-three answerers were males (46.5%), and one hundred-seven citizens were females (53.5%). Table 1 also shows the place of residence and use of social media among the study population.

Table 2 shows that respondents (1.5%) strongly disagreed with the query. Additionally, 3 respondents (1.5%) disagreed with the query. Fifty-one respondents (25.5%) were neutral, while 73 (36.5%) agreed with the query. Finally, 70 respondents (35%) strongly agreed with the query.

Table 1. Gender, place of residence, and use of social media

Variable	Constructs	Frequency	Percentage
Gender	Male	93	46.5
	Female	107	53.5
Place of residence	Rural	111	55.5
	Peri-Urban	89	44.5
Social Media	Yes	143	71.5

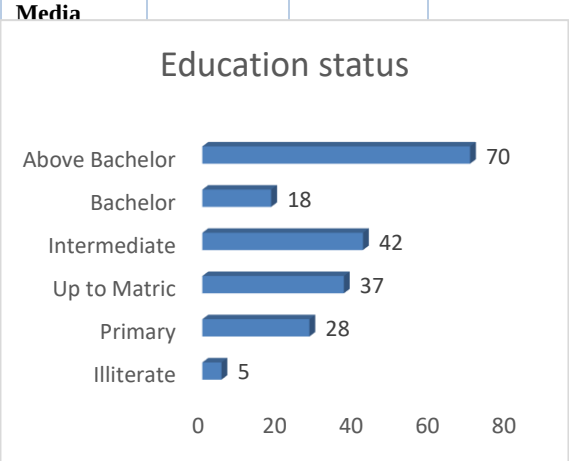

Figure 1. Literacy level of the study population

Figure 1 depicts the frequencies and percentages of education. Five answerers are illiterate (2.5%), there are twenty-eight answerers have a primary level of education (14%), there are thirty-seven answerers are up to matric (18.5%), there are forty-two answerers have an intermediate level of education (21%), there are eighteen citizens who are bachelor with (9%), and there are seventy citizens who have above bachelor literacy level with (35%).

Table 2'Awareness regarding mosquitoes breed in standing water.

Answers	Frequency	Percentage
Strongly Disagree	3	1.5
Disagree	3	1.5
Neutral	51	25.5
Agree	73	36.5
Strongly Agree	70	35.0

Table 3: Fully covered water containers reduce mosquitoes.

Answers	Frequency	Percentage
Strongly Disagree	4	2.0
Disagree	6	3.0
Neutral	45	22.5
Agree	74	37.0
Strongly Agree	71	35.5

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Table 3 shows that out of all the respondents, 4 (2%) strongly disagreed with the query, 6 (3%) disagreed, 45 (22.5%) remained neutral, 74 (37%) agreed, and 71 (35.5%) strongly agreed.

Table 4 Use of screened windows in homes to reduce mosquitoes.

Answers	Frequency	Percentage
Strongly Disagree	8	4.0
Disagree	7	3.5
Neutral	57	28.5
Agree	59	29.5
Strongly Agree	69	34.5

The current table depicts that eight answerers (4%) Strongly Disagree with the query, there are seven answerers with (3.5%) Disagree with the query, there are fifty-seven answerers with (28.5%) are Neutral, there are fifty-nine answerers with (29.5%) who are Agree with the query; lastly, there are sixty-nine answerers with (34.5%) are Strongly Agree with the query.

Table 5: **Correlation between attitudes and affecting factors among citizens.**

Variables	Test	Attitudes	Affecting Factors
Attitudes	Pearson Correlation	1	.282**
Affecting Factors	Pearson Correlation	.282**	1

**Correlation is significant at the 0.01 level (2-tailed)

Based on the data collected from 200 respondents, it has been observed that there is a strong correlation between attitudes and affecting factors. The p-value of the test is 0.001, indicating a highly significant correlation between the two variables. Moreover, the actual value of the correlation coefficient is 0.282, which further supports the existence of a strong correlation. The test has proved an alternate hypothesis, and we accept it as it can be seen that there is a highly significant correlation between the variables. Moreover, there is a positive correlation between the variables. People's attitudes are very much necessary in that kind of research. Based on this test, the researcher can say that different factors involving dengue fever and dengue virus are very much responsive to citizens' attitudes.

Table 5 Correlation between marital status of citizens and media role.

Variables	Test	Literacy Level	Knowledge
Literacy Level	Pearson Correlation	1	.153*
Knowledge	Pearson Correlation	.153*	1

*Correlation is significant at the 0.05 level (2-tailed)

It is seen that humans' attitudes to seek specific education and awareness depend significantly on other societal factors. Here, the researcher explains that factors like education, family background, income, and economics significantly affect citizens' attitudes regarding dengue fever and dengue virus. These factors mold the minds of the citizens for specific tasks. Through influencing these factors, humans build their minds, their senses, and their attitudes and then react accordingly (Al-Dubai et al., 2013) Based on a sample size of 200, the table above demonstrates a significant correlation between literacy level and knowledge, with a p-value of .030 (2-tailed). This indicates a highly significant correlation between the two variables, with a coefficient of .195. The test has proved an alternate hypothesis as it can be seen that there is a significant correlation between the variables, and it is a positive correlation between the variables. The study shows that as the literacy level improves, the knowledge and awareness among the citizens also improve. The current table defines that, as the citizens get into the group of better education, their knowledge and awareness of the dengue disease and virus improve. According to the researcher, it was evident that someone with a better education level would have better awareness and knowledge about some particular topic. Education in some formal institutions can give a better understanding of society. Having a better literacy level can show better aspects of anything. The higher literacy level of citizens makes them broad-minded and ready for any specific function (Buckley et al., 2007).

Conclusion

After reviewing all the analyses, the researcher compared the Knowledge, Attitude, and practices regarding dengue prevention in rural and peri-urban areas of district Multan. The respondents reported that peri-urban people had more knowledge about practices and preventing the dengue virus. The study also reported that educated people had more knowledge about good practices regarding dengue prevention, but on the other hand, rural people had a lower level of awareness and attitude about practices and prevention of dengue virus. The study found that social media significantly impacted people's knowledge, attitudes, and practices related to preventing dengue virus. Patients with dengue fever have a high chance of recovery, and the government plays a satisfactory role in prevention. The age of citizens and their living standards affect their knowledge and attitudes about the disease. Other factors such as education, family background, income, and marital status also play a role. Finally, the level of literacy is positively associated with knowledge and awareness.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
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Approved by the department Concerned.
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The authors declared absence of conflict of interest.
Author Contribution

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