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KNOWLEDGE AND AWARENESS OF DENGUE FEVER AND ITS PREVENTION AMONG THE RURAL COMMUNITY OF TANDO ALLAHYAR, SINDH

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ABSTRACT

Different serotypes of the dengue virus and spread by the mosquito Aedes aegypti. Sometimes it progresses to be known as dengue hemorrhagic fever (DHF) and dengue shock syndrome, making it a global health threat. Measures aimed at preventing its effects are hinged on exploiting the management of water supply and avoiding contact with mosquitoes, especially in the developing or less developed areas. This study aimed to assess the level of knowledge and awareness regarding dengue fever and its prevention among the rural community of Tando Allahyar. A cross sectional was carried out for three months with male and female residents. A non-probability convenience sampling method was used while selecting the participants. Data analysis was done using IBM SPSS version 23, with descriptive statistics used to present demographic data and study variables. This finding indicated that 38.7% of the respondents were male and 61.3% were female. 73.3% of the participants had no education, while 12.0% completed their primary education, 8.0% had secondary education, and the remaining 6.6% had a higher level of education. The majority of participants reported having heard about dengue fever. Nevertheless, various knowledge gaps concerning the disease transmission, signs and symptoms, and prevention were revealed, including poor awareness of which type of mosquito transmits the disease. The study concluded that there is high concern for better knowledge and health promotion regarding dengue fever. Using good and sustained public health promotion measures, there will be an increase in awareness among the people, and in effect, reduction the the incidences of dengue fever.

Keywords: *Awareness, Dengue fever, Mosquito-Borne Disease, Prevention, Public Health, Rural Community*

INTRODUCTION

Dengue fever, also referred to as breakbone fever is an infectious viral disease spread through the attack of mosquitoes. Dengue is transmitted by the bite of the female Aedes aegypti mosquito and is caused by four distinct dengue virus serotypes, which results in a spectrum of clinical disease,

from a simple flu-like illness to severe forms known as dengue hemorrhagic fever (DHF) or dengue shock syndrome (DSS), both of which can be fatal if the patient fails to seek medical attention in time. Symptoms include fever, headache, orbital pain, muscle aches, rash, and other signs of coagulation disorders [1]. Dengue fever is a growing global health issue affecting more than a hundred countries predominantly in Southeast Asia, the Pacific Islands, Latin America, and Africa (WHO, 2021) [2].

Dengue fever incidence is more frequent in post monsoon season and the post disaster period, such as floods contributing to the breeding grounds for Aedes mosquitoes. Aedes aegypti mosquito commonly breeds in fresh and relatively permanent water, usually indoors in containers that are kept indoors, discarded objects, and domestic places that enable quick multiplication within a short period[3]. Diagnosis of dengue fever is made through laboratory tests to identify the virus or the antibodies. Currently, the diagnostic assays include ELISA (enzyme-linked immunosorbent assay), HI assay (hemagglutination inhibition assay) and RT-PCR[4].

In mild conditions, the treatment involves administration of fluids and analgesics, although patients are advised not to take aspirin because of bleeding risks. In more serious cases, it might be required to administer intravenous fluids[3, 5]. The best way to prevent dengue is to avoid mosquito bites, especially during the times of the year the disease is prevalent in a particular region. People should wear protective clothing, use mosquito repellents containing at least 10% DEET (but only in the case of young children); it is also advisable to install window screens and mosquito nets [6].

In Sindh, particularly in rural areas of Tando Allahyar, there are considerable problems of repeated dengue fever epidemics. Assessment of the knowledge about dengue fever in the rural population is important for designing the effective interventions. Improving education and community can improve the prevention and control of dengue viruses consequently minimizing the morbidity and mortality of the viral disease [7, 8].

Research Objective:

- To assess the level of knowledge and awareness regarding dengue fever and its prevention among the rural community of Tando Allahyar.

Significance of the Study

This research is important given that dengue fever infections increase in the rural Tando Allahyar area that has poor access to health care facilities. In this way, when choosing the topics that were not very familiar to the community, it is possible to conduct a targeted project in the sphere of health education. A fine process of raising awareness will help residents protect themselves, prevent outbreaks, and establish healthier communities within the state. Thus, this research has the ultimate goal of empowering the community to deal with dengue fever.

Literature review

Dengue fever is an infectious disease that is caused by dengue virus transmitted mainly by the Aedes aegypti mosquitoes. This disease is widespread in different tropical and sub-tropical areas of the world; dengue fever infects millions of people, and the rate of the disease grows in Pakistan significantly[9].Typical signs of dengue include fever, sore throat, muscle aches, joint pain, nausea, vomiting, and skin rashes among others, while severe forms include hemorrhagic fever and dengue shock syndrome which are fatal. Because dengue transmission has been increasing in the urban and rural communities, it is important to assess the community's awareness and knowledge for its control[10]. Prevention of dengue fever prevents the spread of the virus mainly depends on the level of people's awareness. Studies show a positive relationship between compliance and increased awareness about its usage while preventing diseases [11].

The qualitative research studies revealed that respondents who had knowledge on how the disease is transmitted and its signs were more likely to protect themselves by sleeping under the insecticide treated bed nets and applying repellents.

On the other hand, a lower level of awareness can result in a high incidence of infections because people may not be aware of signs that they can have the virus yet or may not act in a way to prevent getting the virus[12]. Research emphasizes the importance of community engagement in dengue

prevention efforts. Educational campaigns that inform residents about the importance of removing stagnant water and using insecticide-treated materials have shown promising results in reducing mosquito populations and subsequent dengue cases. Moreover, the integration of community health workers in educational initiatives can enhance outreach and effectiveness in rural areas[13].The low awareness of dengue fever in rural communities is influenced by various factors that include; people's awareness on health issues, economic class, level of education, and culture [14]. Rahman et al. (2021) have categorized the above barriers as the following key hindrances in health education: Cultural concepts about pathogens and disease transmission provide many people with no reason to alter their behaviors and take protective measures. Hence, elimination of these barriers Education that reflects culture is paramount to increasing community knowledge and involvement in the prevention of dengue fever[15]. Regarding Tando Allahyar, the use of influential local leaders and health care workers is useful in enhancing the reach out of information that is aimed at educating the community because the disseminated information has to be relevant to the culture and practices of the society.

Research Methodology

Research Design: A cross-sectional survey was conducted between July and September 2024.

Study setting: A selected rural community of Tando Allahyar, Sindh.

Study Population: The target population included 90 male and female residents of the rural community.

Sample size: Using Raosoft software online, a sample size of 75 participants was calculated, applying a 5% margin of error and a 95% confidence level.

Inclusion Criteria:

- All male and female residents of the rural community.
- Individuals who were willing to participate.
- Individuals who were present during the study.

Exclusion Criteria:

- Individuals who refused to participate.
- Individuals who were not available at the time of data collection.

Sampling Technique: A non-probability convenience sampling technique was adopted, which makes it easy to identify easily accessible and willing participants.

Source of Data: The data was collected from the target community through the use of self-administered structured questionnaires.

Data Analysis: The data were analyzed by IBM SPSS version 23 with descriptive statistics, frequencies and percentages.

Ethical Considerations: The research conformed to high standards of ethical considerations.Permission was granted from community leader and every participant was clearly explained about the aims, procedures, possible disadvantages and advantages of the research. Participants could refuse to continue participation at any given time without explanation and all respondents provided both verbal and written informed consent before being included in the study.

Results

DEMOGRAPHIC ANALYSIS

Table 1: Classification Based on Age

Categories	Frequency	Percentage
20-25	15	20.0
26-30	21	28.0
31-35	22	29.3
36-40	14	18.7
Above 40	3	4.0
Total	**75**	**100.0**

Table 1 shows that 20.0% (n=13) of participants are between the ages of 20 and 25 years. A total of 28.0% (n=21) are in the 26–30 age, and 29.3% (n=22) are between 31 and 35. Additionally, 14.7% (n=11) of the participants are in the 36–40 age group, while 4.0% (n=3) are over 40 years old.

Table 2: Classification Based on Gender

Categories	Frequency	Percentage
Male	29	38.7
Female	46	61.3
Total	**75**	**100.0**

Table 2 presents the classification of participants based on gender. Among the 75 participants, 38.7% (n=29) are male, while 61.3% (n=46).

Table 3: Classfication Based on Marital Status

Categories	Frequency	Percentage
Single	14	18.7
Married	53	70.7
Widowed	5	6.7
Divorced	3	4.0
Total	**75**	**100.0**

Table 3 shows the classification of participants based on marital status. Among the 75 participants, 18.7% (n=14) are single, 70.7% (n=53) are married, 6.7% (n=5) are widowed, and 4.0% (n=3) are divorced.

Table 4: Classification Based on Educational Level

Categories	Frequency	Percentage
No formal education	55	73.3
Primary	9	12.0
Secondary	6	8.0
Higher education	5	6.6
Total	**75**	**100.0**

Table 4 presents that 73.3% (n=55), have no formal education, 12.0% (n=9) with primary education, 8.0% (n=6) with secondary, 6.6% (n=5) higher level of education.

Table 5: Classification Based on Occupation

Categories	Frequency	Percentage
Student	4	5.3
Farmer	18	24.0
House Wife	33	44.0
Laborer	14	18.7
Others	6	8.0
Total	**75**	**100.0**

Table 5 shows 5.3% (n=4) are students, 24.0% (n=18) are farmers, 44.0% (n=33) are housewives, 18.7% (n=14) are laborers, and 8.0% (n=6) fall into the "Others" category.

Table 6 : Classification Based on Socioeconomic Status

Categories	Frequency	Percentage
Low	51	68.0
Middle	18	24.0
High	6	8.0
Total	**75**	**100.0**

Table 6 presents that 68.0% (n=51) are categorized as low socioeconomic status, 24.0% (n=18) as middle and 8.0% (n=6) as high socioeconomic status.

Table 7: Knowledge and Awareness of Dengue Fever Among Participants

Statement		Yes	No	Mean	St. Devi.
Have you ever heard about dengue?	Freq	62	13	1.17	.381
	%	82.7	17.3		
Do you know about the dengue transmitting mosquito?	Freq	11	64	1.85	.356
	%	14.7	85.3		
Do you know about the dengue mosquito spreading habits?	Freq	26	49	1.65	.479
	%	34.7	65.3		
Do you know about the timing of dengue mosquito biting?	Freq	41	34	1.45	.501
	%	54.7	45.3		
Do you know about the symptoms of dengue?	Freq	37	38	1.50	.503
	%	49.3	50.7		
Do you have knowledge about preventive measures?	Freq	33	44	1.56	.499
	%	42	56.0		
Have you ever exposure with dengue infection before?	Freq	25	50	1.66	.474
	%	3.3	66.7		
Do you prefer to go for preference to seek treatment for dengue infection?	Freq	32	43	1.57	.497
	%	42.7	57.3		
Do you use personal protective measures to prevent dengue?	Freq	39	36	1.48	.502
	%	52.0	48.0		
Do you belief mosquito coils, repellent cream and bed nets are effective in preventing dengue?	Freq	35	40	1.53	.502
	%	46.7	53.3		
Do you use mosquito repellent daily?	Freq	28	47	1.62	.486
	%	37.3	62.7		
Have you ever received any information training on dengue prevention from any health care provider or community leader?	Freq	22	53	1.70	.458
	%	29.3	70.7		

The findings of current study concerning dengue fever awareness of participants have found to significant in presented in Table 7. Of all the respondents, a high 82.7% had said that they have heard about dengue (Mean = 1.173, SD = 0.381). However, awareness of the specific mosquito type that causes the disease was very low, with only 14.7% responding correctly (mean score = 1.853, SD = 0.356). Knowledge of the mosquito's behavior was fair at 34.7% (Mean = 1.653,

Standard Deviation = 0.479). Knowledge of dengue symptoms was also poor with 49.3% of participant recognizing dengue symptoms (mean = 1.506, SD = 0.503). Awareness of protective measures was also found to be shallow, only 42.0% of the participants knew (mean = 1.560, SD = 0.499). Moreover, the proportion using mosquito repellent daily was relatively low at 37.3% (mean score=1.627, SD =0.487) while only 29.3% received training on dengue fever prevention. These findings are paradigms to current educational campaigns in a bid to close the aforementioned knowledge gaps.

Discussion:

The study aimed at identifying the level of awareness and knowledge of the participants had on dengue fever, and it established strengths as well as areas of deficiency. For instance, 82.7% of the participants said they knew dengue, which was a true indication of the basic understanding similar to the other regions of dengue transmission[16]. However, the public had a relatively poor understanding of what species of mosquito transmits the disease, and only 14.7% responded correctly. This is in accordance with the study done in northeast India that revealed that 30% of the participants were able to point out the correct vector of dengue [17].Furthermore, the relatively poor knowledge on the spreading habits of the mosquito (34.7%) is a mean score that is in line with the study conducted by Nguyen et al. (2018) on the perception of the urban residents on the behavior of the mosquito[18]. Whereas 54.7% had knowledge about the timing of mosquito bites 49.3% had knowledge about dengue symptoms which is a matter of concern because the knowledge about symptoms is very important to seek treatment. This coincides with existing literature and reveals that many people still lack knowledge on the clinical manifestations of the disease[19]. Other perspectives also showed similarly low knowledge regarding preventive measures, with only 42.0% of participants having an understanding of the same, similar to findings from a study conducted in Malaysia where only 40% of participants understood effective ways of preventing dengue fever20. Though 52.0% of participants said they used personal protective measures, only 37.3% of the participants claimed to use daily mosquito repellent, meaning that there is a discrepancy between knowledge and practice similar to what was discovered by Lee and Chen (2020)9, 11. Additionally, only 29.3% have ever received on dengue prevention. Studies have established that educational approaches can go along with improving the knowledge of people and lead to the adoption of preventive measures. This is due to the massive number of people (33.3%) who had prior knowledge of dengue, but this task needs to be pursued continually[7, 8, 21].

Conclusion:

The study findings revealed that the participants had a good level of awareness about dengue fever, but there was a lack of knowledge in certain areas. However, most of the respondents claimed to be familiar with dengue, but few were able to point out the type of mosquito that transmits the disease. Furthermore, the participants demonstrated poor knowledge of dengue symptoms; their recognition and the knowledge on preventive measures and practices showed a gap between awareness and application. The community is fairly aware of dengue fever, but there should be more targeted efforts with regard to improving perceptions of dengue, its vectors, signs of development, and protective measures. These important efforts aimed at sustaining healthy behavior reduce incidences of dengue, resulting in improved health of the community.

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