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**Original Research Article**

# A comparative study to assess the knowledge of people regarding dengue fever, its causes, sign and symptoms, treatment, prevention and control in rural and urban communities in selected areas of district Faridkot, Punjab

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## ABSTRACT

**Background:** Dengue is a vector-borne disease that possess a major public health threat globally. It is a viral disease caused by the infection of dengue virus, a Flavivirus, spreads through bite of infected female *Aedes aegypti* and *Aedes albopictus* mosquitoes. The present study was undertaken to find out the knowledge among the general population of Faridkot.
**Methods:** Comparative research study conducted in Puri colony of urban area and Village Kamiana of rural area of district Faridkot. Data was collected from 100 sample between age of 15 to 60 years from selected urban and rural community by using non probability convenient sampling. The collected data were group and analysed by descriptive and inferential statistics.
**Results:** Results of the study revealed that in rural community most of the samples (82%) has inadequate knowledge regarding dengue fever whereas only 18% has adequate knowledge. In urban community, more than half (58%) has inadequate knowledge whereas 42% has adequate knowledge dengue fever. Level of knowledge was found to be significant with age, gender, education, occupation, source of water.
**Conclusions:** As in both the communities more than half of the sample had inadequate knowledge regarding dengue fever. So, it was concluded that there is need to improve the knowledge of people regarding dengue fever in urban and rural community.

**Keywords:** Dengue fever, Knowledge, Rural community, Urban community

## INTRODUCTION

Dengue is a vector-borne disease that possess a major public health threat globally. It is a viral disease caused by the infection of dengue virus, a Flavivirus, spreads through bite of infected female *Aedes aegypti* and *Aedes albopictus* mosquitoes.[1] The rainy season with increased humidity is optimal environment for mosquito breeding sites. There are increased cases of dengue from urban, rural, and tribal populations and almost all the states across India.[2] The total number of cases has increased from 1,57,315 in 2019 to 2,89,235 in 2023. In India, 16,517 cases and 545 deaths were reported during the 1996 dengue outbreak after which there was an expansion of cases from 2010 onward.[3] In 2023, 2,89,235 and 485 deaths have been reported.[4] As of 30 April 2024, over 7.6 million dengue cases have been reported to WHO in 2024, including 3.4 million confirmed cases, over 16 000 severe cases, and over 3000 deaths.[5]

Dengue virus infection varies from a mild flu-like illness known as dengue fever to a life threating condition as

dengue shock syndrome. Dengue fever symptoms typically involve fever, rash, nausea, vomiting, and body aches. Whereas dengue shock syndrome, is characterized by severe blood vessels bleeding and shock, with mortality rates reaching as high as 20% if remains untreated.

The factors such as increase in population, unplanned urbanization, lack of effective vector control, high population density and poor water storage practices are associated major contributors to dengue epidemics. Rapid urban growth often leads to inadequate housing, increased construction activities, improper waste management, and limited access to clean water. Prime importance should be given to preventive strategies such as reducing breeding sites, source reduction and vector management for controlling the disease burden.[6-8]

Vector control is the ideal method to control dengue. Vector control methods depends not only on the efforts of health workers and policymakers but also on the Awareness and knowledge of the community members who are at risk.[9] Knowledge based studies can serve as an educational tool to prevent and control dengue by adopting practices like removing stagnant water, using mosquito nets, indoor spraying, community clean-up campaigns and seeking timely medical care.[10] these studies will also help the government to formulate strategies to fill the gap in the level of awareness and practices.

Hence, the present study was undertaken to find out the knowledge regarding dengue among the general population of selected communities of district Faridkot.

## METHODS

This was a comparative study conducted in Puri colony (urban community) and Village Kamiana (rural community) of district Faridkot. In this study people between 15 to 60 years were included who were residents of respective areas. Data was collected from 100 samples (50 from urban and 50 from rural community) by using non probability convenient sampling technique after fulfilling the inclusion and exclusion criteria. House to house survey was done by the investigators. Face to face interview was conducted after briefly explaining the objectives of the study and obtaining consent from the subjects.

### *Description of tool*

Section I consisted of age, type of house, source of water supply, education and religion, type of family, place of residence.

Section II consisted of self-structured knowledge questionnaire consisted of 25 multiple choice questions for Knowledge related to dengue fever, causes, sign and symptoms, treatment and prevention.

Scoring was done on the basis of level of knowledge. Adequate knowledge scored >14 and inadequate knowledge scored 0-14.

Each item had a single correct answer. Every correct answer was awarded score of one and every wrong was given zero score. The maximum score was 25 and minimum possible score was 0.

### *Data collection procedure*

Ethical permission was taken from ethical committee of institute. Before data collection informed written consent was obtained from samples and purpose of study was explained to them. The data was carried out from 12 March, 2024 to 14 March, 2024. It took 15 to 20 minutes for each subject to answer the questionnaire. They were assured that their responses would be kept confidential and used only for research purpose.

### *Analysis*

The collected data were group and analysed by descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics unpaired t test was used to find out the significant difference between mean knowledge score of urban and rural community. Chi square test was used to find the relationship between level of knowledge and selected socio-demographic variables.

## RESULTS

Table 1 shows the frequency and percentage distribution of socio-demographic characteristics of study participants. In terms of age most of the samples were in age group of 15-30 years in both urban (64%) and rural (60%) community. In both groups, most of the samples were females. In rural, 34% samples had education up-to matric whereas in urban, 42% were graduate and above. In terms of occupation, 38% of subjects in rural were farmers and less than half (44%) were working in private sector. In rural community more than half (56%) and in urban community 70% have nuclear family.

In terms of monthly income, in rural community more than half (58%) samples have income less than Rs. 10,000 whereas as in urban group 38% of subjects have monthly income between 20,001-30,000. In both groups most of the houses were pukka. Most of the subjects in both groups have tap water supply whereas 14% in rural group has hand pump.

Table 2 is showing the frequency and percentage distribution of samples in terms of level of knowledge regarding dengue fever in both rural and urban community. In rural group most of the samples (82%) has inadequate knowledge regarding dengue fever whereas only 18% has adequate knowledge. In urban group, more

than half (58%) has inadequate knowledge whereas 42% has adequate knowledge dengue fever.

Table 3 is showing the mean, standard deviation and 't' value of knowledge score regarding dengue fever in both rural and urban community. In urban community the mean knowledge score was 13.98 whereas in rural group it was 12.06. There was significant difference (at 0.05) between mean score of both groups in terms of knowledge score.

**Table 1: Frequency and percentage distribution of socio-demographic characteristics of study participants (n=100).**

| Variables | Rural N (%) | Urban N (%) |
|---|---|---|
| **Age (years)** | | |
| 15-30 | 30 (60) | 32 (64) |
| 31-40 | 09 (18) | 07 (14) |
| 41-50 | 06 (12) | 08 (16) |
| 51-60 | 05 (10) | 03 (06) |
| **Gender** | | |
| Male | 13 (26) | 14 (28) |
| Female | 37 (74) | 36 (72) |
| **Education** | | |
| Primary | 07 (14) | 01 (02) |
| Middle | 05 (10) | 05 (10) |
| Matric | 17 (34) | 10 (20) |
| Secondary | 15 (30) | 14 (28) |
| Graduate and above | 06 (12) | 21 (42) |
| **Occupation** | | |
| Student | 13 (26) | 21 (42) |
| Farmer | 19 (38) | 02 (04) |
| Labourer | 04 (08) | 01 (02) |
| Private sector/other | 07 (14) | 22 (44) |
| Government sector | 07 (14) | 04 (08) |
| **Type of family** | | |
| Nuclear | 28 (56) | 35 (70) |
| Joint | 09 (18) | 12 (24) |
| Extended | 13 (26) | 02 (04) |
| **Income (Rs.)** | | |
| Less than 10,000 | 29 (58) | 08 (16) |
| 10,001-20,000 | 15 (30) | 09 (18) |
| 20,001-30,000 | 03 (06) | 19 (38) |
| >30,001 | 03 (06) | 14 (28) |
| **Type of house** | | |
| Kuccha | 02 (04) | 01 (02) |
| Pukka | 48 (96) | 49 (98) |
| **Source of water** | | |
| Hand pump | 07 (14) | 03 (04) |
| Store water | 02 (04) | 0 |
| Tap water | 41 (82) | 47 (96) |

**Table 2: Frequency and percentage distribution of samples in terms of level of knowledge regarding dengue fever in both rural and urban community.**

| Level of knowledge | Score | Rural N (%) | Urban N (%) |
|---|---|---|---|
| **Adequate knowledge** | >14 | 9 (18) | 21 (42) |
| **Inadequate knowledge** | 0-14 | 41 (82) | 29 (58) |

**Table 3: Mean, SD, 't' value of knowledge score regarding dengue fever in both Rural and urban community.**

| Unpaired t test | Knowledge score | |
|---|---|---|
| | Urban | Rural |
| Mean score | 13.98 | 12.06 |
| Standard deviation | 2.93 | 6.75 |
| T test | 3.41 | |
| P value | 0.00046 significant (at 0.05) | |

**Table 4: Chi square showing association between level of knowledge with sample characteristics in urban community.**

| Variables | | Level of knowledge | | Association with urban knowledge | | |
|---|---|---|---|---|---|---|
| | | Inadequate | Adequate | Chi-square | P value | DF |
| Age (years) | 15-30 | 20 | 12 | 7.96 | 0.004 significant | 3 |
| | 31-40 | 3 | 4 | | | |
| | 41-50 | 7 | 1 | | | |
| | 51-60 | 0 | 3 | | | |
| Gender | Male | 5 | 9 | 3.96 | 0.04 significant | 1 |
| | Female | 24 | 12 | | | |
| Education | Primary | 1 | 0 | 6.41 | 0.01 significant | 4 |
| | Middle | 4 | 1 | | | |
| | Matric | 5 | 5 | | | |
| | Secondary | 11 | 3 | | | |
| | Graduate and above | 9 | 12 | | | |
| Occupation | Student | 14 | 7 | 8.39 | 0.003 significant | 4 |
| | Farmer | 2 | 0 | | | |
| | Labourer | 1 | 0 | | | |
| | Private sector/ other | 13 | 9 | | | |
| | Government sector | 0 | 4 | | | |
| Type of family | Nuclear | 19 | 17 | 2.21 | 0.13 non-significant | 2 |
| | Joint | 8 | 4 | | | |
| | Extended | 2 | 0 | | | |
| Income (Rs.) | Less than 10,000 | 6 | 2 | 3.42 | 0.06 non-significant | 3 |
| | 10,001-20,000 | 3 | 6 | | | |
| | 20,001-30,000 | 11 | 8 | | | |
| | >30,001 | 9 | 5 | | | |
| Type of house | Kuccha | 1 | 0 | 0.73 | 0.39 non-significant | 1 |
| | Pukka | 28 | 21 | | | |
| Source of water | Hand pump | 0 | 3 | 4.41 | 0.03 significant | 2 |
| | Store water | 0 | 0 | | | |
| | Tap water | 29 | 18 | | | |

**Table 5: Chi square showing association between level of knowledge with sample characteristics in rural community.**

| Variables | | Level of knowledge | | Association with rural knowledge | | |
|---|---|---|---|---|---|---|
| | | Inadequate | Adequate | Chi-square | P value | DF |
| Age (years) | 15-30 | 25 | 5 | 4.12 | 0.04 significant | 3 |
| | 31-40 | 8 | 1 | | | |
| | 41-50 | 3 | 3 | | | |
| | 51-60 | 5 | 0 | | | |
| Gender | Male | 10 | 3 | 0.30 | 0.58 non-significant | 1 |
| | Female | 31 | 6 | | | |
| Education | Primary | 7 | 0 | 4.42 | 0.03 significant | 4 |
| | Middle | 5 | 0 | | | |
| | Matric | 13 | 4 | | | |
| | Secondary | 13 | 2 | | | |
| | Graduate and above | 4 | 2 | | | |

Continued.

| Variables | | Level of knowledge | | Association with rural knowledge | | |
|---|---|---|---|---|---|---|
| | | Inadequate | Adequate | Chi-square | P value | DF |
| **Occupation** | Student | 11 | 2 | 1.60 | 0.20 non-significant | 4 |
| | Farmer | 16 | 3 | | | |
| | Labourer | 4 | 0 | | | |
| | Private sector/other | 5 | 2 | | | |
| | Government sector | 6 | 1 | | | |
| **Type of family** | Nuclear | 23 | 5 | 0.99 | 0.31 non-significant | 2 |
| | Joint | 7 | 2 | | | |
| | Extended | 12 | 1 | | | |
| **Income (Rs.)** | Less than 10,000 | 26 | 3 | 4.02 | 0.04 significant | 3 |
| | 10,001-20,000 | 10 | 5 | | | |
| | 20,001-30,000 | 3 | 0 | | | |
| | >30,001 | 2 | 1 | | | |
| **Type of house** | Kuccha | 2 | 0 | 0.45 | 0.49 non-significant | 1 |
| | Pukka | 39 | 9 | | | |
| **Source of water** | Hand pump | 7 | 0 | 2.14 | 0.12 non-significant | 2 |
| | Store water | 2 | 0 | | | |
| | Tap water | 32 | 9 | | | |

Table 4 depicts association between level of knowledge with sample characteristics in urban community. The level of knowledge regarding dengue fever is found to be significant with age, gender, education, occupation, source of water at 0.05 level of significance in urban community.

Table 5 depicts association between level of knowledge with sample characteristics in rural community. The level of knowledge regarding dengue fever was found to be significant with age, education, monthly income at 0.05 level of significance in rural community.

## DISCUSSION

In rural group most of the samples (82%) has inadequate knowledge regarding dengue fever whereas only 18% has adequate knowledge. In urban group, more than half (58%) has inadequate knowledge whereas 42% has adequate knowledge dengue fever.

A similar study to assess the knowledge regarding dengue fever and its prevention among women in urban and rural areas of Ratia, Fatehabad was conducted. The results of the study revealed that women from urban areas have better knowledge related to dengue and its prevention than women in rural areas.[11] The results of the study were also consistent with study conducted in rural and urban areas of Khurda district, Odisha which shows that sample from urban areas has better knowledge than people from rural areas.[12]

The present study reveals that there is significant difference between mean knowledge score of urban and rural area. This result is similar with study conducted in Fatehabad which shows that significant difference between mean knowledge score of both areas.[11,12] This result is also similar with the study conducted in Odisha.

In present study the level of knowledge regarding dengue fever is found to be significant with some socio-demographic variables (age, gender, education, occupation, source of water, monthly income). A similar study conducted by Devi revealed that the knowledge is not influenced by age, occupation, monthly income. Only age is found to be statistically significant with knowledge.[11]

## CONCLUSION

Assessment of knowledge in present study revealed that 58% people in urban community and 82% people in rural community had inadequate knowledge. So, it was concluded that there is need to improve the knowledge of people regarding dengue fever in urban and rural community.

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