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Knowledge Regarding Monkeypox Viral Infection among Adults in a Selected Rural Area of Manesar, Haryana

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Abstract

Monkeypox is an emerging zoonotic viral infection that poses significant public health challenges due to increasing cases in non-endemic regions. This descriptive study assesses the existing knowledge regarding Monkeypox viral infection among adults in a selected rural area of Manesar, Haryana. Data were collected from 60 participants using a structured questionnaire. Findings revealed that 48.33%

demonstrated good knowledge, while 51.67% exhibited poor knowledge. No significant association was observed between demographic variables and knowledge levels. This study highlights the need for targeted health education programs to enhance awareness and preparedness against Monkeypox.

Keywords: Monkeypox, Zoonotic Disease, Knowledge Assessment, Rural Health, Public Health Education

Introduction

Monkeypox is a rare zoonotic viral disease caused by the Monkeypox virus (MPXV), a member of the Ortho poxvirus genus. The disease has gained global attention due to outbreaks in non-endemic regions, including rural areas in India. Symptoms include fever, rash, and lymphadenopathy, often mimicking other viral infections.

Knowledge gaps in rural areas, where healthcare access is limited, hinder early diagnosis and prevention of Monkeypox. Addressing these gaps through educational initiatives is essential for mitigating its public health impact. This study evaluates the knowledge of adults in a selected rural area of Manesar, Haryana, to inform future health interventions.

Objectives of the Study

1. To assess the existing level of knowledge regarding Monkeypox viral infection among adults in the selected rural area.
2. To identify associations between demographic variables and knowledge levels about Monkeypox viral infection.

Material and Methods

A descriptive cross-sectional study was conducted from November 16 to 20, 2024, in Bhaganki village, Manesar, Gurugram, Haryana. The study aimed to assess the knowledge regarding Monkeypox viral infection among adults aged 18 years and above residing in the selected rural area. A total of 60 participants were included in the study using total enumerative sampling. Inclusion criteria required participants to be willing to participate and available during the data collection period. Individuals unwilling to participate were excluded from the study.

A structured questionnaire, developed and validated by experts in nursing and public health, served as the primary data collection tool. The questionnaire comprised two sections: Demographic data and knowledge assessment. The demographic section collected information on age, gender, religion, family type, education level, and monthly family income. The knowledge assessment included 20 multiple-choice questions with scores categorized as good (16–20), average (11–15), poor (6–10), and very poor (0–5).

The tool's reliability was established through a pilot study conducted with five participants, yielding a Cronbach's Alpha coefficient of 0.762, indicating high reliability. Ethical approval was obtained from Amity University, and informed consent was secured from all participants. Data was collected in a private and distraction-free environment to ensure confidentiality and participant comfort.

The collected data were organized and analyzed using descriptive and inferential statistics. Frequencies and percentages were used to summarize demographic variables and knowledge levels. The chi-square test was employed to assess associations between demographic variables and knowledge scores, with a significance level set at $p < 0.05$. This systematic approach ensured the reliability and validity of the study findings.

Results and Discussion

Demographic Characteristics of Participants

The demographic characteristics of the study participants revealed a diverse sample with varied age groups, gender, educational levels, and family incomes. The majority of participants (33.33%) were aged between 18 and 21 years, followed by 26.66% in the 22–25 years age group. A significant proportion of participants (68.33%) were male, while 31.66% were female. Regarding family structure, 66.66% of participants lived in extended families, while the rest were divided between joint and nuclear families. Educationally, 50% of participants had completed higher secondary education, and 56.66% reported a monthly family income between ₹6,001 and ₹8,000.

Table 1: Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–21	20	33.33
	22–25	16	26.66
	26–29	11	18.33
	30 and above	13	21.66
Gender	Male	41	68.33
	Female	19	31.66
Religion	Hindu	36	60
	Muslim	12	20
	Sikh	5	8.33
	Christian	4	6.66
	Others	3	5
Family Type	Joint Family	10	16.66
	Nuclear Family	10	16.66
	Extended Family	40	66.66
Education Level	No Formal Education	4	6.66
	Primary School	15	25
	Higher Secondary School	30	50
	Graduate and Above	11	18.33
Family Income (INR)	₹3,000–5,000	10	16.66
	₹6,001–8,000	34	56.66

Knowledge levels

The study assessed the knowledge of participants regarding Monkeypox viral infection. The results showed that 48.33% of participants had good knowledge, while 51.67% had poor knowledge. The overall mean knowledge score was 9.45 (47.25%), with a median score of 9.0 and a standard deviation of 2.32. These findings indicate significant

knowledge gaps within the population, highlighting the need for targeted educational initiatives.

Table 2: Knowledge Levels of Participants

Knowledge Level	Frequency (n)	Percentage (%)
Good (16–20)	29	48.33
Poor (6–10)	31	51.67

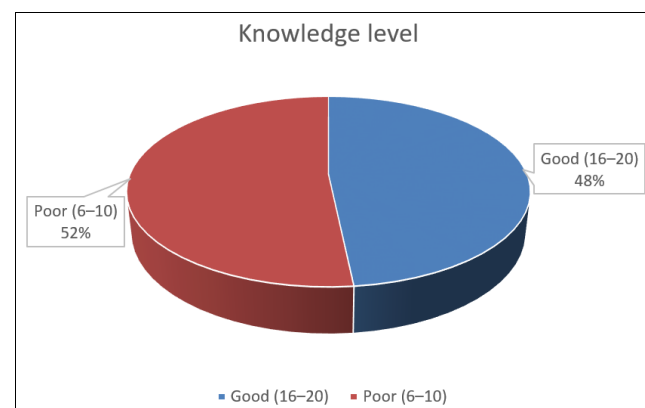


Fig 1: Knowledge Distribution; Pie chart illustrating the distribution of knowledge levels: 48.33% good knowledge, 51.67% poor knowledge

Knowledge Score distribution

The knowledge scores ranged from 4 to 14, with a mean score of 9.45. The mean percentage of knowledge was calculated to be 47.25%. This suggests that, despite some participants demonstrating good knowledge, there is still considerable room for improvement in the overall understanding of Monkeypox.

Table 3: Descriptive Statistics of Knowledge Scores

Descriptive Statistic	Value
Mean Knowledge Score	9.45
Median Knowledge Score	9.0
Standard Deviation	2.32
Maximum Knowledge Score	14
Minimum Knowledge Score	4
Mean Knowledge Percentage	47.25%

Association with demographic variables

The chi-square test was performed to assess the association between demographic variables and knowledge levels regarding Monkeypox. The results showed no significant associations between knowledge levels and age, gender, religion, family type, education status, or family income. The p-values for all demographic variables were greater than 0.05, indicating that these variables did not significantly influence the participants' knowledge regarding Monkeypox.

Table 4: Chi-square Test Results for Knowledge Scores and Demographic Variables

Variable	Category	χ^2 Value	p-value
Age (18–25 vs 26–30)	18–25	0.00	1.00
Gender	Male vs Female	0.08	0.777
Religion	Hindu vs Others	1.16	0.281
Family Type	Joint vs Extended	0.00	1.00
Education Level	School vs College	0.14	0.704
Family Income	₹3,000–5,000 vs others	2.50	0.286

Discussion

The findings of this study reveal significant gaps in knowledge regarding Monkeypox viral infection in the rural population of Bhaganki village, Manesar. Although some participants demonstrated adequate awareness of the disease, the majority exhibited poor knowledge, which poses challenges for public health efforts aimed at preventing the disease's spread. This aligns with previous studies that have identified low awareness levels about emerging zoonotic diseases in rural areas.

Despite the relatively high number of younger participants (aged 18–21 years), no significant association was found between age, gender, education, or income and the level of knowledge. This suggests that factors such as access to information, local awareness programs, and community engagement may play a larger role in determining knowledge levels than demographic variables alone.

The results highlight the urgent need for targeted health education campaigns that focus on improving public understanding of Monkeypox's transmission, symptoms, and preventive measures. Effective communication strategies using local media, community outreach programs, and healthcare professionals can help bridge the knowledge gaps in rural communities.

Key Findings

1. **Age Distribution:** The highest proportion of participants (33.33%) were in the 18–21 years age group, followed by 26.66% in the 22–25 years age group.
2. **Gender:** A significant majority of the participants (68.33%) were male, while 31.66% were female.
3. **Educational Status:** Most participants (50%) completed higher secondary school, followed by 25% with primary education, 18.33% with graduate or higher qualifications, and 6.66% with no formal education.
4. **Knowledge Levels:** 48.33% of participants demonstrated good knowledge, while 51.67% exhibited poor knowledge regarding Monkeypox viral infection.
5. **Knowledge Score:** The mean knowledge score was 9.45 (47.25%), indicating significant gaps in public understanding of Monkeypox.
6. **No Significant Associations:** No significant associations were found between demographic variables (age, gender, education, family income) and knowledge levels.

Conclusion

The study reveals that while some participants have a moderate level of knowledge about Monkeypox viral infection, a significant portion (51.67%) demonstrated poor understanding, indicating a knowledge gap. This highlights the urgent need for health education interventions tailored to rural populations to enhance awareness about the disease's transmission, symptoms, and prevention methods. No demographic variables significantly influenced knowledge levels, suggesting that public health campaigns should be broadly targeted to address these gaps across all demographic groups.

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