



Original Research Article

KNOWLEDGE AND ATTITUDES OF HEALTHCARE WORKERS REGARDING MONKEYPOX IN DURG DISTRICT AND SURGUJA DISTRICT OF CHHATTISGARH: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Monkeypox is an emerging zoonotic viral disease of global public health concern. Healthcare workers play a crucial role in the early detection, prevention, and management of such outbreaks. Adequate knowledge and a positive attitude among healthcare workers are essential to ensure effective infection control and preparedness, particularly in resource-limited settings. **Aims:** To assess the level of knowledge and attitudes of healthcare workers regarding monkeypox in Durg and Surguja districts of Chhattisgarh.

Materials and Methods: It was a facility-based cross-sectional study conducted over a period of one month in Primary Health Centers (PHCs), Community Health Centers (CHCs), and District Hospitals of Durg and Surguja districts, covering both urban and rural areas. Healthcare workers actively working in these facilities and willing to provide informed consent were included. A convenience sampling technique was used, and a total of 385 participants were enrolled. Data were collected using a pre-designed structured questionnaire and analysed using appropriate descriptive and inferential statistics.

Results: Among the 707 healthcare workers, 322 were from Durg district and 385 from Surguja district. In Durg District, most participants belonged to the 31–40 years age group (112; 34.8%), and in Surguja district the highest proportion of healthcare workers was observed in the 31–40 years age group (138:35.8%). Knowledge regarding monkeypox was satisfactory in both districts, in Durg, with 254 (78.9%) identifying it as a viral disease, 236 (73.3%) aware of its transmission, and 219 (68.0%) recognizing clinical symptoms. Similarly, in Surguja district, 289 (75.1%) identified it as a viral disease, 271 (70.4%) were aware of its transmission, and 285 (67.0%) recognized clinical symptoms. In Durg district, 142 (44.1%) participants had good knowledge, 118 (36.6%) had moderate knowledge, and 62 (19.3%) had poor knowledge; similarly, in Surguja district, 158 (41.0%) participants had good knowledge, 147 (38.2%) had moderate knowledge, and 80 (20.8%) had poor knowledge. A positive attitude was observed, and good knowledge was significantly higher in the Durg district compared to the Surguja district.

Conclusion: Although healthcare workers demonstrated generally good knowledge and positive attitudes toward monkeypox, gaps persist, particularly regarding vaccination awareness. Regular training and targeted educational interventions are essential, especially in rural and resource-limited settings.

Keywords: Monkeypox; Healthcare workers; Knowledge; Attitude; Cross-sectional study; Chhattisgarh.

INTRODUCTION

Monkeypox is an emerging zoonotic disease caused by the monkeypox virus. Spread via direct contact with bodily fluids, lesions, or respiratory droplets of infected individuals or animals. It gained global attention due to its recent outbreaks in non-endemic regions. It was declared a Public Health Emergency of International Concern (PHEIC) by WHO on 14 August 2024, emphasizing the need for global action. Their Knowledge, Attitudes, and Practices (KAP) are essential for disease control. Knowledge depends on education and training in emerging infectious diseases. Limited research on HCWs' preparedness in India, especially in Central India

Mpox, previously known as monkeypox, is a viral zoonotic disease caused by the monkeypox virus, which belongs to the Orthopoxvirus genus of the Poxviridae family.^[1] The disease was first identified in humans in 1970 in the Democratic Republic of Congo and has since remained endemic in several countries of Central and West Africa.^[2] Transmission occurs through close contact with infected animals, humans, or contaminated materials, and the clinical presentation includes fever, lymphadenopathy, and a characteristic vesiculopustular rash.^[3]

In recent years, Mpox has emerged as a significant global health concern due to its spread beyond endemic regions. The unprecedented multi-country outbreak reported in 2022 prompted the World Health Organization (WHO) to declare Mpox a Public Health Emergency of International Concern (PHEIC), highlighting the potential for international transmission and the need for heightened surveillance and preparedness.^[4] Although Mpox is generally less severe than smallpox, its resemblance to eradicated orthopoxvirus infections raises concerns regarding diagnostic challenges and outbreak containment.^[5] India reported its first laboratory-confirmed cases of Mpox in 2022, followed by subsequent detections of newer clades, underscoring the vulnerability of non-endemic countries to emerging zoonotic infections.^[6] In such contexts, healthcare workers serve as the frontline defense against disease transmission. Their knowledge and attitudes play a critical role in early case detection, appropriate isolation, infection control practices, and risk communication. However, data on healthcare workers' preparedness for Mpox, particularly in district-level and rural healthcare settings, remain limited.^[7] Understanding the level of knowledge and attitudes among healthcare workers is therefore essential for strengthening outbreak preparedness and guiding targeted training interventions.

MATERIALS AND METHODS

Study Design: A cross-sectional study.

Study area: PHC, CHC, AND DISTRICT HOSPITAL OF SURGUJA AND DISTRICT HOSPITAL IN DURG, CHHATTISGARH.

Study Population: Healthcare Workers from health facilities in Durg and Surguja districts of Chhattisgarh.

Study Variables:

- District (Durg, Surguja)
- Gender (Male, Female)
- Profession (Healthcare workers)
- Knowledge of monkeypox as a viral disease
- Knowledge of the mode of transmission
- Knowledge of common clinical symptoms
- Knowledge of the incubation period
- Knowledge of preventive measures
- Knowledge of isolation and infection control protocols
- Awareness of vaccination availability
- Perception of monkeypox as a serious public health problem
- Perceived occupational risk among healthcare workers
- Need for training programs on monkeypox
- Willingness to manage monkeypox patients
- Perceived effectiveness of standard infection control measures
- Overall knowledge level (Poor, Moderate, Good)
- District-wise distribution of knowledge levels

Inclusion criteria: Participants were required to be Healthcare workers actively working and willing to provide informed consent.

Exclusion criteria: those who do not give consent.

Sampling and Sample Size: Convenient sampling was used from the primary health center, community health center, and district hospital of Surguja, including both urban and rural areas, with 385 participants and 322 participants in the district hospital of Durg.

Study duration: 1 month.

Data Collection: Data were collected using a structured questionnaire (sociodemographic, knowledge, and attitudes). The questionnaire was distributed via Google Forms to HCWs at their workplaces. Participants gave informed consent, and data collection lasted 1 month, ensuring confidentiality and anonymity.

Statistical Analysis:

Data were entered and analyzed using SPSS version 25.0. Continuous variables were expressed as mean \pm standard deviation, and categorical variables as frequencies and percentages. The prevalence of refractive errors was calculated, and associations with screen time and other risk factors were assessed using chi-square tests for categorical variables and independent t-tests or ANOVA for continuous variables. Correlation between screen time and severity of refractive errors was evaluated using Pearson's correlation coefficient. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1: Age Distribution of Healthcare Workers

Variable	Age (years)	N (%)	p-value
Durg (n = 322)	21–30	98 (30.4%)	0.00001
	31–40	112 (34.8%)	
	41–50	72 (22.4%)	
	>50	40 (12.4%)	
Surguja (n = 385)	21–30	124 (32.2%)	0.00001
	31–40	138 (35.8%)	
	41–50	82 (21.3%)	
	>50	41 (10.7%)	

Table 2: Gender Distribution of Healthcare Workers

Variable	Gender	N (%)	p-value
Durg (n = 322)	Male	176 (54.7%)	.01828
	Female	146 (45.3%)	
Surguja (n = 385)	Male	206 (53.5%)	.05118
	Female	179 (46.5%)	

Table 3: Knowledge Regarding Monkeypox among Healthcare Workers

Variable	Knowledge Parameter	N (%)	p-value
Durg (n = 322)	Heard about Monkeypox	298 (92.5%)	0.00001
	Knows viral cause	254 (78.9%)	
	Aware of transmission	236 (73.3%)	
	Knows symptoms	219 (68.0%)	
	Knows preventive measures	244 (75.8%)	
Surguja (n = 385)	Heard about Monkeypox	349 (90.6%)	0.00001
	Knows viral cause	289 (75.1%)	
	Aware of transmission	271 (70.4%)	
	Knows symptoms	258 (67.0%)	
	Knows preventive measures	282 (73.2%)	

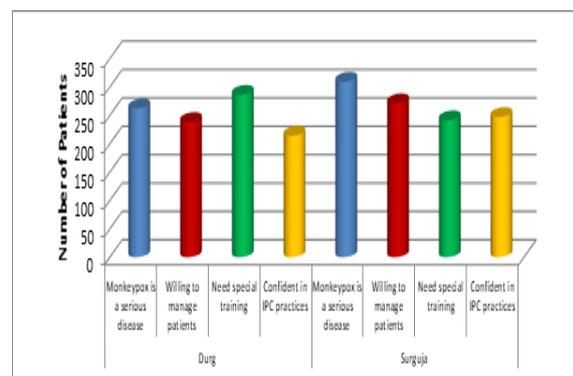


Figure 1: Attitude of Healthcare Workers Toward Monkeypox



Figure 2: Overall Knowledge Level of Healthcare Workers

Table 1 depicts the age distribution of healthcare workers in Durg and Surguja districts. In Durg

district (n = 322), the majority of participants belonged to the 31–40 years age group [112 (34.8%)], followed by the 21–30 years age group [98 (30.4%)]. Participants aged 41–50 years constituted 72 (22.4%), while those aged above 50 years accounted for 40 (12.4%). The age distribution within the Durg district was found to be statistically significant (p=0.00001).

In Surguja district (n = 385), the highest proportion of healthcare workers was observed in the 31–40 years age group [138 (35.8%)], followed by the 21–30 years group [124 (32.2%)]. The 41–50 years age group comprised 82 (21.3%) participants, and those above 50 years constituted 41 (10.7%). The age distribution within the Surguja district was also statistically significant (p=0.00001).

Table 2 shows the gender distribution of healthcare workers in both districts. In the Durg district, males constituted 176 (54.7%) participants, while females accounted for 146 (45.3%). The gender distribution in Durg district was statistically significant (p = 0.01828). In the Surguja district, 206 (53.5%) participants were male, and 179 (46.5%) were female. The gender distribution in Surguja district approached statistical significance (p = 0.05118).

The knowledge status of healthcare workers regarding Monkeypox is summarized in Table 3. In the Durg district, 298 (92.5%) participants reported having heard about Monkeypox. Knowledge regarding viral etiology was observed in 254 (78.9%) respondents, awareness of transmission in 236 (73.3%), recognition of symptoms in 219 (68.0%),

and knowledge of preventive measures in 244 (75.8%). The overall distribution of knowledge parameters in Durg district was statistically significant ($p < 0.00001$). Similarly, in Surguja district, 349 (90.6%) healthcare workers had heard about Monkeypox. Knowledge of viral cause, transmission, symptoms, and preventive measures was reported by 289 (75.1%), 271 (70.4%), 258 (67.0%), and 282 (73.2%) participants, respectively. The distribution of knowledge parameters in Surguja district was also statistically significant ($p=0.00001$). Table 4 presents the attitudes of healthcare workers toward Monkeypox. In the Durg district, 262 (81.4%) participants perceived Monkeypox as a serious disease. Willingness to manage Monkeypox patients was expressed by 238 (73.9%) respondents. A large proportion, 286 (88.8%), felt that special training was required, while 214 (66.5%) participants reported confidence in infection prevention and control (IPC) practices. In Surguja district, 309 (80.3%) healthcare workers considered Monkeypox to be a serious disease, 271 (70.4%) expressed willingness to manage patients, 341 (88.6%) acknowledged the need for special training, and 247 (64.2%) reported confidence in IPC practices.

Table 5 illustrates the overall knowledge levels of healthcare workers regarding Monkeypox. In Durg district, good knowledge was observed in 142 (44.1%) participants, moderate knowledge in 118 (36.6%), and poor knowledge in 62 (19.3%). In Surguja district, 158 (41.0%) participants demonstrated good knowledge, 147 (38.2%) had moderate knowledge, and 80 (20.8%) exhibited poor knowledge.

DISCUSSION

The present cross-sectional study assessed the knowledge and attitudes of healthcare workers regarding Monkeypox in Durg and Surguja districts of Chhattisgarh. The findings demonstrate that the majority of healthcare workers belonged to the younger and middle-aged groups (21–40 years), with statistically significant age distribution in both districts ($p < 0.00001$). Similar observations were reported by Bunge et al,^[9] who noted that most healthcare workers involved in Monkeypox preparedness activities were within the productive age group, reflecting an active workforce capable of effective outbreak response.

Gender distribution in the present study showed a slight male predominance, which was statistically significant in Durg district ($p = 0.01828$). This finding is comparable to the study conducted by Harapan et al,^[10] who reported male predominance among healthcare workers participating in infectious disease preparedness surveys. The near-significant gender difference observed in Surguja district ($p = 0.05118$) further supports the presence of a relatively balanced workforce in rural and semi-urban healthcare settings.

Knowledge regarding Monkeypox was found to be high among healthcare workers in both districts, with more than 90% of participants having heard about the disease. Awareness of viral etiology, transmission routes, clinical features, and preventive measures was also substantial, with statistically significant distributions in both districts ($p < 0.00001$). These findings are consistent with those reported by Adebayo et al,^[11] who observed high awareness levels among healthcare professionals following increased global attention to Monkeypox outbreaks. Similarly, Sah et al,^[12] reported that healthcare workers demonstrated good baseline knowledge due to widespread dissemination of information through public health advisories and media coverage.

Attitudinal assessment in the present study revealed a predominantly positive attitude toward Monkeypox management. A large proportion of healthcare workers perceived Monkeypox as a serious public health concern and expressed willingness to manage affected patients. This aligns with the findings of Alshahrani et al,^[13] who reported positive attitudes and a strong sense of professional responsibility among healthcare workers during emerging infectious disease outbreaks. The high proportion of respondents emphasizing the need for special training highlights the perceived importance of continuous medical education and preparedness programs.

Despite overall positive attitudes, confidence in infection prevention and control practices was comparatively moderate in both districts. Similar gaps in confidence were reported by Yadav et al,^[14] who emphasized the need for structured training programs to strengthen infection control competencies among healthcare workers. These findings suggest that while awareness and attitudes are favorable, practical preparedness may benefit from targeted interventions.

CONCLUSION

This cross-sectional study highlights that healthcare workers in Durg and Surguja districts possess an overall moderate to good level of knowledge and a generally positive attitude toward monkeypox. While awareness regarding the etiology, transmission, and preventive measures was satisfactory, notable gaps were identified in knowledge related to the incubation period and vaccination availability. Healthcare workers demonstrated strong support for training programs, though their willingness to manage monkeypox patients was comparatively lower. District-wise differences in knowledge were evident, favouring Durg district. These findings underscore the need for targeted, regular training and capacity-building initiatives, particularly in resource-limited and rural healthcare settings.

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