

## Research Article

# Monkeypox Knowledge Level in Healthcare Professionals

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### Abstract

**Objectives:** Monkeypox is a zoonotic viral infectious disease. Transmitted by direct contact, the disease has a similar clinical picture to smallpox. As healthcare workers are at the frontline of contact with these patients, it is crucial that they have the necessary knowledge. In our study, we aimed to determine the level of knowledge of healthcare workers about monkeypox disease, which created a new epidemic panic after a devastating pandemic such as COVID-19.

**Methods:** The population of the descriptive study consisted of physicians and allied health personnel (midwives, nurses, health technicians) working in hospital A. No sample was selected, and it was aimed to reach the entire population. The questionnaire was left to the departments as per the number of employees, and individuals were asked to fill it in by themselves. All questionnaires were collected within three days. The data were analyzed in SPSS software. Frequency, percentage, and Chi-square test were performed in the analysis.

**Results:** 177 participants employed in the hospital completed the questionnaire. 57.76% (104 individuals) of the participants were female. In the study, 23.2% (41/177 participants) of the healthcare personnel had not heard of Monkeypox, while 76.8% (136 participants) knew about it. The percentage of physicians who did not know/hear about the disease was 6.2% (5 participants), while the percentage of allied health personnel (midwives, nurses, health technicians) was 37.5% (36 participants).

**Conclusion:** Monkeypox is a zoonotic DNA virus of the Orthopoxvirus genus of the Poxviridae family. It was first identified in 1958 among monkeys transported from Africa to Denmark for research purposes. The disease, characterized by a vesicular rash, can affect people of all ages, and there is no specific antiviral treatment. Monkeypox is endemic to Africa. However, it has recently been seen as small outbreaks in Europe and imported cases in our country. Although it is publicized, only 76.8% of the healthcare workers in our study were aware of this disease. Nonetheless, less than half of those who heard about the disease had accurate information about it. One of the challenges in preventing and treating the disease is the lack of knowledge of health workers. We consider that training for healthcare workers should be increased regarding early diagnosis of the disease and prevention of transmission.

**Keywords:** Education, Healthcare Professionals, Monkeypox

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Monkeypox is a zoonotic viral infection. The disease, which is transmitted by direct contact, has a rash that can be confused with smallpox but has a milder clinical course. The smallpox vaccine provides protection against

the monkeypox virus, which suppressed monkeypox at the time of vaccination, hence the disease was not common. However, after the eradication of smallpox and the abandonment of the vaccine, there was an increase in the

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incidence of Monkeypox. The Monkeypox outbreak in 2022 created a new panic in individuals traumatized by the severe COVID-19 pandemic. Healthcare workers are on the frontline of disease management, and their knowledge of the disease is crucial in preventing transmission. Therefore, this study was planned to measure the level of knowledge of healthcare professionals on this issue.

## Methods

The study was approved by Ankara City Hospital Clinical Research Ethics Committee (Date: 29/06/2022 and Decision no: E1/2750/2022).

The population of the descriptive study consisted of physicians and allied health personnel (midwives, nurses, and health technicians) working in Hospital A. No sample was selected, and it was aimed to reach the entire population. The questionnaire questions were prepared by reviewing the literature and brochures of the Ministry of Health. The questions included information about the virus. The prepared questionnaire was left in the departments on January 2, 2023 as per the number of employees, and individuals were asked to fill it in on their own. All questionnaires were collected within three days. The data were analyzed in SPSS software. Frequency, percentage, and Chi-square test were performed in the analysis.

## Results

A total of 177 people completed the survey. In the study, 23.2% (41 participants) of the healthcare personnel had not heard of Monkeypox disease, while 76.8% (136 participants) knew about it. The percentage of physicians who did not know/hear about the disease was 6.2% (5 participants), while the percentage of allied health personnel (midwives, nurses, health technicians) was 37.5% (36 participants). There was a statistically significant difference between physicians and allied health personnel with regard to having heard/knowledge of the disease ( $p=0.001$ ). While 15.3% (27 participants) of the information sources of those who

knew about the disease were academic articles, 84.7% (150 participants) were media (television, newspapers, internet news, newspapers, etc.). The correct answers given to the questions by those who knew/heard about the disease are shown in Table 1. Accordingly, 46.3% (63 participants) answered the first question, 34.6% (47 participants) answered the second question, 44.1% (60 participants) answered the third question, 37.5% (51 participants) answered the fourth question, and 27.2% (37 participants) answered the fifth question correctly.

## Conclusion

Monkeypox virus is an enveloped, double-stranded DNA virus of the Orthopoxvirus genus of the Poxviridae family. It was first identified in 1958 among monkeys transported from Africa to Denmark for research purposes. Monkeypox in humans was first diagnosed in the Democratic Republic of Congo in 1970. It is endemic to Africa. However, it has recently been observed as small outbreaks in Europe and imported cases in our country. The first cases of Monkeypox outside Africa were reported in 2003.<sup>[1-4]</sup>

The clinical presentation of monkeypox is similar to smallpox in terms of symptom onset, timing of rash development and rash distribution, but is generally less severe than smallpox in terms of complication rate, case fatality rate. It has an infectious character from the onset of symptoms until the rash is completely healed. Individuals without symptoms do not transmit the virus to others. Transmission occurs through direct contact with sick people and animals, respiratory secretions, and close contact with contaminated materials. It can also be transmitted transplacentally from mother to baby.<sup>[5-8]</sup> The CDC links the global Monkeypox outbreak to sexual contact. Difficulty in recognition due to atypical clinical course in most cases, limited surveillance, and lack of diagnostic tests may be effective in its spread. At-risk groups include healthcare workers, immunocompromised individuals, and pregnant women.<sup>[3,6,9]</sup> Healthcare workers can acquire the disease through

**Table 1.** Distribution of answers given to questions about the disease by those who know/hear about monkeypox disease among healthcare professionals

Questions asked	Questions answered		
	They know right	They know wrong	They do not know
Monkeypox disease is a new virus disease that emerged after the covid 19 epidemic	63 (46.3%)	64 (47.1%)	9 (6.6%)
monkeypox virus mostly affects children	47 (34.6%)	28 (20.6%)	61 (44.9%)
Is the smallpox vaccine protective against the Monkeypox virus?	60 (44.1%)	27 (19.9%)	49 (36.0%)
Monkeypox disease can be treated with antiviral agents	51 (37.5%)	17 (12.5%)	68 (50%)
Quarantine should be enforced as Monkeypox disease is so contagious?	37 (27.2%)	77(56.6%)	22 (16.2%)

contact with patients or clinical specimens without using personal protective equipment and play a role in its spread. Although information about the disease is shared with the public, 76.8% of the healthcare workers accessed in our study were aware of this disease. But of those who were aware, more than half did not have accurate information about the disease.

It was observed that the majority of patients diagnosed with Monkeypox outside the endemic region were under 40 years of age. This is attributed to the discontinuation of smallpox vaccination and the susceptibility of unvaccinated individuals to the disease.<sup>[6]</sup> As cases have been seen outside Africa, vaccine studies for Monkeypox have been in progress, and the vaccine called JYNNEOS was approved for individuals over the age of 18 in the USA in 2019. This vaccine is not used in routine vaccination but is recommended for prophylaxis in case of contact. The vaccine is recommended in two doses four weeks apart, with maximum protection achieved two weeks after completion of vaccination. However, it is not known how long the protection will last or whether it will diminish over time. The CDC has been working on the effectiveness of the JYNNEOS vaccine in the outbreak.<sup>[10]</sup>

There are no antiviral drugs effective against Monkeypox yet. Although Tekovirimat has not been approved by the US Food and Drug Administration (FDA), it has been identified as a first-line drug to be considered in patients with Monkeypox. To investigate drug efficacy, the AIDS Clinical Trials Group (ACTG) in the US launched the Study of Tecovirimat for Human Monkeypox Virus (STOMP). If a patient is scheduled to receive Tecovirimat, it is recommended to register with the STOMP study in order to obtain the drug.<sup>[3,11]</sup> In our study, health workers were not sufficiently informed about vaccination and treatment.

To prevent the contagiousness of monkeypox, individuals with monkeypox should be isolated at home or, if necessary, in hospital during the infectious period (from the onset of symptoms until lesions heal and scabs fall off). Covering lesions and wearing a medical mask in the presence of others can help prevent the spread. Quarantine is not necessary.<sup>[3,11]</sup> In our study, 72.8% of health personnel did not know or misunderstood the necessity of quarantine.

One of the challenges in preventing and treating the disease is the lack of knowledge of health workers. The fact that more than half of health personnel do not know or misunderstand monkeypox infection would lead to inadequate intervention in a future pandemic. Therefore, we consider that training on diseases that may cause epidemics should be increased for healthcare workers in terms of early diagnosis and prevention of transmission.

## Disclosures

**Ethics Committee Approval:** The study was approved by Ankara City Hospital Clinical Research Ethics Committee (Date: 29/06/2022 and Decision no: E1/2750/2022).

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

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