

# Monkeypox and sex: Sexual orientations and encounters are key factors to consider

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## Abstract

**Background and Aims:** The monkeypox (mpox) virus was endemic to some African countries that have recently spread worldwide creating multicountry outbreaks outside of Africa. This most current mpox outbreak is caused by a variety of factors. However, there are some conflicting ideas and pejorative claims about this. Therefore, we conducted this narrative review to highlight the associations of mpox infection with sexual orientations and encounters and to break the misconception about mpox.

**Methods:** To find pertinent information and data, we searched Google, Google Scholar, and PubMed. The results of the study were supported by a large number of studies that demonstrated a connection between the mpox and sexual orientation. To gather information, we read the pertinent articles.

**Results:** According to the available documents, we have seen that there are normally two ways of monkeypox transmission. However, the LGBTQ and MSM communities are disproportionately affected by mpox infection. Numerous research have only focused on the sexual orientation of victims. According to a study, there were 54,709 laboratory-confirmed cases of mpox where the majority of these cases were in men who had sex with men and reported recent sexual activity with one or more partners. According to a study from Italy, the mpoxvirus was recently discovered in a sample of human semen from cases of confirmed mpox. However, this finding has not yet been confirmed because there is a chance that the specimen was contaminated by another means.

**Conclusion:** The present study suggests that there might have a prominent association between epidemiology of mpox infection and sexual orientations patients. Therefore, the general public should be made aware of mpox infections by healthcare authorities. They should let the people know about the facts about mpox. Only comprehensive planning and preventive measures will be able to halt this epidemic infection's pandemic progression.

## KEYWORDS

monkeypox, monkeypox virus, poxviridae infections, sexual encounters, sexual orientations

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## 1 | BACKGROUND

In 1958, the monkeypox virus (mpoxvirus) was first isolated in Denmark among laboratory monkeys. Later, the World Health Organization (WHO) designated mpoxvirus as an orthopoxvirus in 1980.<sup>1</sup> Human monkeypox (mpox) infection is a severe but rare viral zoonotic infection caused by mpoxvirus. The first case of human mpox was discovered in the Democratic Republic of the Congo (DRC) in 1970. It occurred in a 9-month-old boy in a place where smallpox was eradicated in 1968.<sup>2</sup> There are 11 African countries (Benin, Cameroon, the Central African Republic, the Democratic Republic of the Congo, Gabon, Cote d'Ivoire, Liberia, Nigeria, the Republic of the Congo, Sierra Leone, and South Sudan) where human cases of mpox have been documented since 1970.<sup>3</sup> Previously, the disease was only confined in those African countries. But since 2003, sporadic incidents of mpox cases have been found outside of Africa. The first mpox outbreak outside of Africa occurred in the USA in 2003.<sup>4</sup> On May 6, 2022, the UK experienced an outbreak of mpox with the first case of a British resident who had visited Nigeria.<sup>5</sup> An evolving epidemiological trend highlighted by the recent multicountry mpox outbreak followed by European and American countries.<sup>6</sup> The WHO has reported 82,624 laboratory-confirmed cases of mpox and 65 deaths from 110 countries or territories between January 1 and December 11, 2022.<sup>7</sup> Most of the clinical features of a human mpox infection are similar to those of smallpox.<sup>1</sup> Generalized headache and exhaustion appear in addition to the acute febrile prodrome. Many individuals have maxillary, cervical, or inguinal lymphadenopathy, which can range in size from 1 to 4 cm in diameter and often occurs before and concurrently with the development of a rash. The lymph nodes become enlarged, stiff, sensitive, and occasionally painful. Fever frequently goes down the day after the rash appears or remains up for following 3 days. The rash frequently starts on the face before spreading swiftly in a centrifugal pattern across the body. The characteristic lesions frequently manifest as macular, papular, vesicular, and pustular lesions in that order.<sup>1</sup> From a few to thousands of lesions may be present in a single patient.<sup>1</sup> Oral lesions are frequently observed and might make it difficult to eat and drink. For the quick detection of mpoxv, two real-time PCR assays have been created which are highly sensitive and specific diagnostic assays worldwide. They are B6R and E9L-NVAR assay, respectively, which demonstrate 100% specificity for mpoxv. Extracellular enveloped protein genes and orthopoxvirus DNA polymerase are targeted by them.<sup>8</sup> GeneXpert mpox/OPX test is regarded as an accurate and specific test to detect human mpox infection.<sup>9</sup> To protect people from mpox two vaccines are currently available (ACAM2000 and JYNNEOSTM). Mpox does not have a specific treatment. Supportive care is often enough as mpox is a mild and self-limiting infection in most cases. In severe cases, many antivirals (Cidofovir, Tecovirimat, Brincidofovir) can be considered as treatment options.<sup>10</sup>

The global shaping of this endemic infection has created panic among people at all levels worldwide.<sup>11</sup> However, many misconceptions and negative propositions about the ongoing multicountry mpox outbreak are evolving that might be detrimental to preventive and

therapeutic measures. Any negative conceptions and knowledge about any infectious disease (ID) might spoil all preventive and control efforts by the healthcare authorities.<sup>12</sup> Therefore, this article highlights the associations of mpox infection with sexual orientations and encounters. We looked for pertinent material about this on Google, Google Scholar, and PubMed. Many investigations that showed a link between the mpox and sexual orientation corroborated the study's findings. We read the relevant publications to collect information.

## 2 | TRANSMISSION OF MPOX INFECTION

There are several potential ways that the mpox virus can spread. Human infections have been associated with animal contact, but it might be challenging to identify the exact animal contact that led to a case in regions where wildmeat from a variety of species is often hunted or prepared.<sup>1</sup> Investigations are still ongoing to determine the precise means of mpox transmission. Direct contact or exposure to infected animals can result in animal-to-human transmission, which is typically brought on by bodily fluids, including saliva, pulmonary excretions, or discharge from cutaneous or mucosal lesions.<sup>13</sup> Another potential exposure route is viral shedding through feces.<sup>14</sup> In endemic areas of Africa with few resources and infrastructure, where people often sleep outside, on the ground, or nearby or in the forest where infected animals are more common, exposure to the excrement of infected animals can be a significant risk factor.<sup>15</sup> Households are forced to hunt and cook small mammals in places with a shortage of resources, such as food, which raises their risk of exposure to mpox. Human-to-human transmission, however less frequent than animal-to-human transmission, typically includes breathing droplets during extended face-to-face interaction or contact with an infected person's lesions.<sup>16</sup> A potential risk for viral transmission among residents of the same household is the use of contaminated objects or surfaces, such as sharing bedding, living in the same home, or eating or drinking from the same utensils as an infected person.<sup>13</sup> It has also been noted that the disease is more prevalent in men who have sex with men (MSM) during the current, ongoing mpox outbreak.<sup>13</sup> The WHO states that although it is unclear if mpox is sexually transmitted or not, it can spread through intimate contact.<sup>13</sup> When the host's oropharyngeal or respiratory mucosa is exposed, the mpox virus spreads in a manner akin to that of smallpox. After entering the body, the mpox virus multiplies at the inoculation site, which in the case of human-to-human transmission is the respiratory and oropharyngeal mucosa.<sup>13</sup> The viral burden spreads to the neighborhood lymph nodes initially after the infection. The viral burden in secondary infection travels through the bloodstream to distant lymph nodes and organs.<sup>13</sup> The entire procedure is the incubation period, which normally lasts 7–14 days with a maximum of 21 days.<sup>13</sup>

## 3 | MPOX AND SEXUAL ORIENTATION

The LGBTQ and MSM communities are disproportionately affected by mpox infection. The WHO states that people who are gender diverse and transgender are more vulnerable to mpox infection than others. In

the present outbreak, 98.2% of all mpox cases are males with a median age of 36 years.<sup>17</sup> Among cases with available sex-related data, 95.6% are MSM between 18 and 44 years, and 82.1% had a sexual encounter in the events of transmission indicating a significant bias in the sex-specific distribution of infections.<sup>17</sup> On the other hand, 45% of mpox-identified cases have human immunodeficiency virus positive.<sup>17</sup> There are other studies as well that associate mpox with sex. According to a report, 16 mpox cases were LGBTQ and MSM among 17 cases in the USA.<sup>18</sup> In another study, MSM accounted for 99% of the confirmed 508 human cases of mpox in Spain.<sup>19</sup> Additionally, a different study revealed that between January 1 and September 7, 2022, 54,709 laboratory-confirmed cases of mpox and 18 fatalities were reported; the majority of these cases were in men who had sex with men and who reported recent sexual activity with one or more partners.<sup>20</sup> It is currently unknown whether mpox is sexually transmitted or spread from one person to another through blood, semen, or other bodily fluids during sex. However, multiple investigations have shown that weeks after infection, mpox viral DNA can still be identified in an individual's semen.<sup>21,22</sup> In Italy, the mpoxvirus was recently found in the sample of human semen of confirmed mpox cases, though there are concerns about possible specimen contamination.<sup>23</sup> If other studies find the infectious virus in semen and identifying how long it can persist in that bodily fluid will be important. Furthermore, although mpox can spread by close skin-to-skin contact and is not normally thought of as a sexually transmitted infection (STI), the majority of media attention has been on the sexual mode of transmission coinciding with the current study. Framing the mpox outbreak as exclusively or primarily occurring among MSM and spreading through sexual activity could make things worse, reminding us of what occurred in the 1980s during the HIV/AIDS epidemic. It is never acceptable to stigmatize someone because of an illness. Anybody, regardless of sexual orientation, can spread mpox.<sup>24</sup> This risk is particularly greater in the digital age when misleading news spreads quickly and easily. More research is still necessary to determine whether mpox may be spread sexually.<sup>25</sup> So, it is essential to understand that not just men who are MSM or only male persons or only human immunodeficiency virus-positive persons, or only persons from a specific category are at risk for mpox. People of any sex from any religion can be affected by the mpoxvirus. Therefore, it is recommended that various measures can be taken to prevent mpox infection. For example, good hygiene, isolating the affected person from healthy people, and using personal protective equipment for healthy people if there is an infected person at home. It is clear that mpoxvirus is not only transmitted through sexual interactions or sexual orientations but is not the only risk factor for it. Therefore, we should consider mpox as an ID, not STD.

#### 4 | LESSONS FROM HIV AND AIDS

In 1981, scientists first observed that increasing numbers of young homosexual men died from unusual opportunistic infections. A retrovirus known as human immunodeficiency virus (HIV) was a primary culprit for

AIDS. It has become the most devastating ID in the early twenty-first century.<sup>26</sup> HIV can spread through sexual encounters, transcutaneous, and perinatal routes. However, 80% of adult patients acquire HIV by exposure to mucosal surfaces. Therefore, AIDS was initially identified as an STI by many studies.<sup>27,28</sup> At the early stage of the AIDS outbreak in the USA, the Caucasian male population infected by HIV was MSM. Only a small number of HIV patients are homosexual Caucasian American men worldwide. Still, the HIV epidemic disproportionately affects MSM groups.<sup>29</sup> Also, only 2% of MSM people were responsible for 65% of the newly infected HIV patients.<sup>30</sup> Recently, the epidemiology of HIV infection has changed a lot. More women and intravenous drug users have gotten HIV in recent years.<sup>31</sup> In the early stage, millions of Africans faced enormous obstacles in their social well-being due to AIDS victimization. To understand the global epidemiology of AIDS, African scientists have contributed largely to the research. They have demonstrated that HIV was primarily a heterosexually transmitted disease. Not sexual orientation but the degree of sexual activity with multiple partners was the primary risk factor for the acquisition of HIV.<sup>32</sup> In many parts of the world, HIV/AIDS was considered a "woman's disease" or a "prostitute's disease," which led patients to avoid getting tested for HIV or receiving care. HIV victims were being ostracized, mistreated, or thought to be immoral. Even medical staff may decline to treat HIV-positive patients. Many international healthcare organizations and agencies have played a vital role in breaking the stigma and misleading concepts about AIDS.<sup>33-36</sup> However, the positioning of AIDS in the mind of the general population is still in the same place.

#### 5 | WHAT CAN WE DO?

The initial subconscious positioning of mpox infections among LGBTQ and MSM communities is a big problem for most preventive measures. People other than the above communities do not care for mpox infection and are unwilling to follow most health safety guidelines. However, mpoxvirus can spread in different ways like other IDs, and everybody is at equal risk of getting this disease as LGBTQ and MSM communities.<sup>17</sup> Therefore, international healthcare organizations and agencies have many things to do to break people's misconceptions and create positive awareness regarding mpox infection from the very early stage of this recent outbreak. The misinformation and wrong conception of disease might create a stigma against victimized populations. In that case, the mpox victims may not be interested to report their problems and will not seek help. This situation further increases the prevalence and mortality of mpox infections. More survey research is required to determine the people's knowledge gaps regarding mpox. The authorities can develop specific guidelines for the victimized communities and make others well aware that they are equally vulnerable to developing the symptoms of mpox. Also, the authority can involve religious leaders, local and international influencers, social workers, and media personnel in their campaigns to break the initially developed stigma and taboo about mpox infection. The importance of early mpox control has been emphasized by both the WHO and the Centers for

Disease Control and Prevention (CDC).<sup>37</sup> Public health experts, regional health authorities, and gay, bisexual, and other men who have sex with men (GBMSM) communities must work together in concert to face this situation.<sup>38</sup> Health education campaigns are necessary to increase public awareness, to advise on how to manage potential animal reservoir species (gloves, protective gear, surgical mask, and avoiding close contact with the sick), and to improve knowledge in general.<sup>39</sup> Stopping the spread of human-to-human illness in the medical field depends on infection control methods. Along with the right infrastructure and human resources, improvements in isolation practices and nursing (gloves, protective gear, surgical mask) approaches are needed.<sup>39</sup> A smallpox vaccine should be obtained by medical personnel as well as by anyone treating or interacting with patients who have mpox or their samples.<sup>39</sup> A smallpox vaccination is thought to provide 85% cross-protection against mpox infection.<sup>39</sup> Public health providers must forge solid alliances with sex-on-premises establishments that cater to GBMSM in addition to community-based organizations that support the LGBTQ+ population. The best locations for immunization clinics include bathhouses, saunas, raves, other electronic music events, and well-known sex gatherings.<sup>38</sup> After extensive unprotected exposure to an infected animal or a confirmed human case, the Centers for Disease Control and Prevention (CDC) advised smallpox vaccination within 2 weeks, preferably before 4 days.<sup>39</sup> When a case of mpox is suspected in hospitals in developed nations (e.g., a patient with fever, skin lesions, and a history of visiting an endemic area or contact with patients), the patient should be placed in a negative air pressure isolation room right away, or in a private room if such facilities are not available.<sup>39</sup> Also, mpox can be treated with antiviral drugs approved to treat smallpox, such as tecovirimat and brincidofovir. Tecovirimat recently got endorsements from the European Medicines Agency and the UK Medicines and Health Care Products Regulatory Agency for the treatment of mpox (EMA).<sup>40</sup> Only all-out cooperation and support from all levels of society can prevent the recent multicountry mpox outbreak.<sup>41–45</sup>

## 6 | CONCLUSION

Mpox is not an STI but can be spread through close contact during sexual activity (STI). The WHO has released recommendations specifically for this demographic due to the disproportionately high number of infections among gay men and other MSM. The WHO has expressed great concern over the progress of the recent outbreak. To prevent an outbreak from turning into a pandemic, international healthcare organizations can set up a surveillance system for IDs. It is crucial to provide culturally appropriate health promotion messages that offer precise and timely information on the symptoms and preventative measures of mpox. This certainly enables communities to fight against the disease. In the end, this aids in creating an environment in which the illness and its effects may be discussed honestly, freely, and effectively, thus aiding in the disease's prevention and management as well as the outbreak. We recommend further

research to clarify the difference between STI and ID among the general population. The healthcare authorities can try to reduce the negative preconceptions connected with mpox that worsen societal stigma and prejudice.

## AUTHOR CONTRIBUTIONS

**Md Rabiul Islam:** Conceptualization; formal analysis; writing – original draft. **Delruba Tabassum Nowshin:** Conceptualization; writing – original draft. **Md Robin Khan:** Formal analysis; writing – original draft. **Mohammad Shahriar:** Supervision; writing – review & editing. **Mohiuddin Ahmed Bhuiyan:** Supervision; writing – review & editing.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

## TRANSPARENCY STATEMENT

The lead author Md. Rabiul Islam affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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**How to cite this article:** Islam MR, Nowshin DT, Khan MR, Shahriar M, Bhuiyan MA. Monkeypox and sex: sexual orientations and encounters are key factors to consider. *Health Sci Rep.* 2023;6:e1069. doi:10.1002/hsr2.1069