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Correspondence

**The impact of monkeypox outbreak on mental health and counteracting strategies: A call to action***Dear Editor,*

The World Health Organization (WHO) has designated the global outbreak of monkeypox (MPX) a Public Health Emergency of International Concern in an attempt to increase the level of effort put into containing the disease. The MPX outbreaks and their containment can cause mental health problems such as sadness, anger, frustration, depression and anxiety in the public. As a result, they will have a wide-ranging impact on a wide range of areas, from adverse impacts on economy, social behaviour, healthcare, to animal trades. MPX cases are continuously rising everyday and as of August 31, 2022, nearly 50000 confirmed cases have been reported from 99 countries with 15 deaths. The virus is expanding its horizon to affect more and more people globally [1]. A large part of what countries and international organizations such as the WHO are doing now is focusing on testing, isolating, vaccinating and treating monkeypox virus (MPXV) infected people, increasing disease awareness programmes and promoting development of drugs, therapeutic strategies, and vaccines in an effort to control and mitigate the epidemic's impact. The recent MPX outbreak, despite all our efforts to defeat it, has yet to clear a path in the near future. Many already overburdened healthcare systems struggle to cope with an alarming rise of MPX outbreak in the middle of a continuing COVID-19 pandemic are a cause for high public health concern [2]. The unpredictability and anxiety caused by the MPX outbreak are expected to lead to a rise in prevalence of mental health disorders. Concerns regarding stigmatization and social isolation of patients, survivors, and their families were prevalent during the 2017/18 MPX outbreak in Nigeria, which was characterized by tremendous fear and panic among the public [3,4]. It is critical for public health initiatives to accurately describe the spread of contagious disease, as accurate epidemiology reduces the risk of public stigma by raising awareness [2] and encouraging implementation of preventive interventions in targeted populations [5]. Health anxiety is one of a variety of mental factors that impacts on how an individual reacts to a viral disease outbreak [6], including monkeypox. Patients with MPX often have negative emotions. Even a case of suicide has been reported during the 2017 MPX outbreak in Nigeria [7]. Recent studies on analyzing the impact of infectious diseases-related public health emergencies on mental health, suicide and suicidal behaviour, self-harm and psychologically negative thoughts revealed an increasing trend in mental health associated disorders, and a few cases of suicides have been reported during the epidemics such as SARS in Hong Kong and the ongoing COVID-19 pandemic era [8–10].

Mental factors are well established to play a significant influence in the success of prevention strategies used to control outbreaks, such as risk communication, antiviral medication, immunization, social distancing and hygiene habits [11]. Health anxiety is a significant factor that plays a role in determining whether any of these approaches are to be effective or not [6]. However, the mental health repercussions of

infection with MPX have not yet been well understood [12].

In our view, at least eight groups of people are particularly vulnerable to mental health and psychosocial consequences of the MPX outbreak: first and foremost, those who have been exposed to the virus, either directly or indirectly; those who are already vulnerable to psychological or biological stresses; healthcare providers; those who have been following the outbreak through multiple media sources; pregnant and breast-feeding mothers; immunocompromised people; family members of infected people; and the Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex (LGBTQI) community.

The MPX outbreak and its containment measures (social isolation, quarantine, and self-isolation) can impact a person's mental health state. Psychiatric disorders such as depression and schizophrenia are known to be exacerbated or worsened by an individual's isolation and lack of social engagement. In the absence of human interaction, depression and anxiety are more likely to develop and worsen.

According to the findings of previous pandemics, particularly after imposition of quarantine, self-isolated health practitioners are at an increased risk of developing symptoms of substance use disorders, post-traumatic stress disorder (PTSD), and depression [13]. It is important that healthcare providers who treat infected individuals to receive regular training to prevent mental disorders.

There is a considerable risk of miscarriage, severe infection, and maternal and/or fetal mortality associated with monkeypox and smallpox viral infections in humans [14]. Due to the well-known vertical transmission, psychological stress in pregnant or breastfeeding women may increase the number of abortions.

In May 2022, Alder et al. reported seven new cases of MPX, and three out of seven cases had a low mood and uncertainty about their conditions [15]. These findings indicated that the current MPX outbreak in 2022 has a significant impact on the mental health status of infected patients.

To mitigate the mental health effects of the MPX outbreak, there are not enough mental health specialists, counselors, and rehabilitation institutions. Therefore, conversations within communities can contribute to the development of support for public health efforts. On the other hand, there is a paucity of knowledge regarding interventions of monkeypox, especially among healthcare providers [16]. This indicates that frontline health workers/staff are put in potentially stressful situations [17].

The MPX epidemic will eventually come to an end, but its adverse effects on the psychological health and well-being of the overall population, healthcare providers, and people who are particularly susceptible need to be studied in-depth and addressed appropriately. To track the effects of the MPX outbreak, it is also very important to have up-to-date data on mental health disorders. Finally, to reduce the risk of MPXV transmission and mental health disorders, we provide some advices for

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Table 1
Strategies to reduce the risk of mental health disorders of monkeypox outbreak.

No	Current advices
1	It's important to limit the sources of stress: only use authorized sources of information and ignoring those that come through unofficial channels and uncontrollable sources.
2	Safe and healthy sexual practices and adequate knowledge of risks are crucial approaches to help prevent the spread.
3	Increasing immunity begins with a well-balanced diet and immune-boosters foods that includes enough of fruits, vegetables, whole grains, fluids and nutraceuticals.
4	Reduce the amount of time spent alone by increasing the amount of time spent communicating with friends, family members, and loved ones, even if they are physically apart from you. There is some evidence that engaging in activities like video chatting or group phone calls with members of one's family can assist to alleviate feelings of isolation and heightened anxiety.
5	Exercise and physical activities will reduce stress via effect of releasing hormones like endorphins.
6	Optimal conditions for sleeping and resting during outbreaks (8 hours).
7	Thinking optimistic and mindfulness. Which makes your future to be more clear and more healthy.
8	Avoidance of drinking alcohol, smoking and using unwanted medications or illegal drugs.
9	When you are infected, then avoid contact to pregnant, breast-feeding, young children, and immunocompromised people.
10	Practice regular hand hygiene and appropriate sanitary measures.
11	Avoid emotional overwhelm such as thinking about having the disease.
12	Considering spiritual and mental factors in order to acquire contentment and tranquility.
13	Training and preparation by necessary authorities to cope with post-traumatic stress issues, such as a severe outbreak of the monkeypox disease in a particular area.
14	Reducing the prevalence of mental health problems among groups directly impacted, such as health care professionals, isolated persons, or people at risk of infection.
15	To avoid the disease, complete preventive measures must be taken up, however it must also be done in such a way that obsessions are prevented.

healthcare providers and general community (Table 1). In conclusion, amidst the ongoing devastating health stress of COVID-19 pandemic, threats of continuously emerging newer variants of SARS-CoV-2 posing vaccine breakthrough infections and panic, and considering the currently rapid rising of MPX cases in several countries, there are needs to adopt appropriate policies and recommendations to safeguard mental health of the public and patients. Disseminating correct information related to the health impacts of infectious diseases causing high global public concerns could explicitly tackle the infodemic's misinformation and disinformation, which can aid in ameliorating the rising mental health disorders, morbidity and mortality triggered by the epidemics and public health emergencies including Monkeypox.

Ethical approval

Not applicable. All data presented in the study has been collected from open-source platforms with proper citation and/or from media sources.

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Data statement

All data presented in the present review is available online and can be accessed from the appropriate reference in the reference list.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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