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Monkey Pox and its Impact on the Human Health in the World

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ABSTRACT

This review was conducted in year 2023 in which main aim was to investigate Monkeypox (MPX) impact on the human health worldwidely. Several studies were searched through different online available sources including google scholar, pubmed, and researchgate. All studies were critically reviewed and analyzed the findings. MPX was first appeared in Denmark in 1958 among Monkeys, which were kept for research, later it appeared in a nine (9) months old boy in Democratic Republic of the Congo in 1970. The monkey pox was caused by *Monkey Pox virus* (MPXV) which is double stranded DNA virus. It belongs to Orthopoxvirus genus in Poxviridae family which consist of Variola, Cowpox, Vaccina and other viruses. The two genetic clades of the virus were clades I and II. The natural reservoir of MPXV was unknown and various small mammals such as squirrels and monkeys were susceptible. The sign and symptoms includes, rashes, swollen lymph nodes, sore throat, headache, muscle aches, back pain and muscle fatigue. MPXV transmits through respiratory droplets which creates due to face to face talking, breathing, kissing and also transmit through body touching. It was observed that the virus entered through broken skin, mucosal surfaces or through respiratory tract. Moreover, sexual partners is also the source of spreading MPXV. MPXV virus spread from one region to another through exports which affect different countries of the world. The virus spread to Europe and America from African region and outbreak occurred in 2022-2023. Mostly tecovirimat and smallpox treatment were used for management of MPXV. Several individuals died and also many were severely ill. This mortality and morbidity also affects the world economy. Due to MPXV, many health problems were raised including anxiety, depression and social stigma. Based on studies analysis, it is recommended to implement the quarantine strategy throughout the world for prevention and spreading of MPXV. Focus should be on transportation, imports, and exports of goods region to region. High quality healthcare centers should be design to tackle such outbreaks. Preferred to wash hand properly with sanitizer and soap. Better research laboratories is also advised for better, early and timely diagnosis of MPXV. Stay at home is another strategy in such situation. Moreover, awareness and medical counseling center is also important to aware public about the transmission, diagnosis and treatment of MPXV. Counseling center are important to reduce and remove the social stigma among general public.

Keywords: Monkeypox, MPX, MPXV, Zoonotic, World Community, Health

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INTRODUCTION

Monkeypox (MPX) is a viral zoonotic disease which was first time appeared in Denmark in year 1958 in Monkeys. Later, it was appeared in a nine months old boy in Democratic Republic of the Congo in 1970.[1] The monkeypox was caused by *monkeypox virus* (MPXV) double stranded DNA virus Orthopoxvirus genus in Poxviridae family which consists of Variola, Cowpox, Vaccina and other viruses. The two genetic clades of the virus were clade I and II.[2] First this disease was controlled in 1958 while later it appeared in 1970 while outbreak occurred in 2022-2023 due to spreading in the 99 countries of the world.[3] This virus was susceptible to monkey and squirrel. John *et al.,* (2022) told that in 16 countries this disease was spread in which majority were found gay.[4] Through sex they touched with one another and the disease was spread among younger age people whose average age was under 38 years. This Monkeypox was only confined to the African region but also spread to the European and American continents. A great problem was raised for the world presently and also for the future generation of the world.[5] Manirambona *et al.,* (2023) investigated that health worker predominantly were at risk to MPX.[6] On 23rd July 2022, the World Health Organization (WHO) also reported that monkeypox cases are raising more than 75 countries and emergency were announced in the world for the management like COVID-19 because both have similar transmission, incubation and treatment strategy.[7] Monkeypox not only affected the health workers but also it affects the whole world economy.[8] Therefore, emergency

was imposed and were focused on the quarantine strategy in order to confined the MPXV. Therefore, this study was conducted to investigate the monkeypox effects on the human health and the world community.

METHODS AND MATERIAL

The review study was carried out and about ten (10) latest and highly cited articles were searched of well reputed journals were selected. Different search engines were used as a searching tool including the Pubmed, google scholar, researchgate, academia, and google also. Different medical subjects headings were used in order to retrieved the articles such as Monkey pox, *monkey pox virus*, MPX, MPXV, and its association with the economy and human health All retrieved articles were carefully read, reviewed, and critically analyzed the present situation. All articles were summarized and cited as per standards.

MONKEYPOX IMPACT ON THE HEALTH OF THE WORLD COMMUNITY

History of MPXV shows that it was first time reported in monkeys in year 1958, afterthat relapsed in year1970 in nine (9) months baby boy, while for the third time it was recently appeared in year 2022 and 2023 and rapidly spread to the developed countries like Europe and America.[9] Ferdous *et al.,* (2022) investigated that Monkeypox is the zoonotic disease which was caused by monkypox virus while transmitted from animal to human and then human to human. Many cases were found in endemic and non-endemic area. From September 2018 to November 2021 one case was found in Israel while one was found in Singapore and two were found in US Youth.[10] Manirambona *et al.,* 2022 and the WHO reported monkeypox cases in over 75 countries and emergency were announced in the world for management of the monkeypox because it spread in the globally. Several people were killed in which majority cases were identified from African region.[6] Ullah *et al.,* (2022) investigated that there are many diseases which spread sporadically and transmit in the rest of the world. It also have negative impact on the economy of the world.[11]

John *et al.,* (2022) reported that the first case was found in the outer region of Africa and later identified upto 528 active cases between April, 27 to June 24, 2022 in 43 different cities in sixteen different countries.[4, 12] Ninety eight percent (98%) were found in gay and bisexual men. Moreover, seventy five percent (75%) were found in white population while forty one percent (41%) were found in immunocompromised patients such as affected with Immunodeficiency Virus (HIV) infected individuals.[3, 13] Additionally, the median age of the infected people was 38 years. Rashes, severe fever, headache, and lymph nodes issues were the major sign and symptoms of the monkeypox disease. Majority people were admitted due to severe pain but no fatality was reported. Majority people were stayed at their home in order to prevent the spread of the *monkeypox virus*. All healthcare centers of the world were in fully ready to handle any epidemic of the disease.[14, 15]

Zardi and Chello (2022) study reported that common sign and symptoms of MPX are fever, headache, rash and lymph node.[16] Monkeypox was endemic in western and central African country while it spread quickly to the Europe and USA. It was reported that African endemic countries are the reserve pool and also a reservoir for the spreading of the monkeypox through travelling and sexual network to other countries.[17] They also found that the gay and bisexual communities were mostly affected by monkeypox disease.[18] Shehryar *et al.,* (2023) reported the etiology, epidemiology, diagnostic methodologies, treatment modalities, clinical manifestation and preventive strategies. They observed that smallpox treatment plays a great role in Monkeypox in prevention particularly in the affected area of the world.[19] Tambo *et al.,* (2022) discussed that Monkeypox spread to non-endemic countries of the world and recorded 3413 number of cases with one death.[20] Ahmad *et al.,* (2022) discussed that MPXV also created anxiety and mental problems. Also affected the behavior of the people. Cases of suicide, sadness, anger, frustration, and depression reported in the public. On August 31, 2022 approximately 50000 confirmed cases have been reported of MPX from 99 countries and also 15 deaths cases also reported.[21]

CONCLUSION

This review study concludes that the Monkeypox is a viral disease which was appeared in year 1958 in Monkeys, later reappeared in year 1970 in nine year old child and recently reported with higher number of cases in year 2022-23. The natural reservoir of the virus is unknown but small mammals such squirrels and monkey are predicted of possible reservoir. This MPXV is transmit from one to another individuals through different sources including with direct contact, touching, kissing, breathing, sexual activity, and through respiratory droplets. The reported sign and symptoms are rashes, swollen lymph nodes, sore throat, headache, muscles aches, back pain, and muscle fatigues. Mostly, tecovirimat and smallpox treatment were used for prevention of Monkey pox virus. This MPXV spread to the different regions of the world through import and exports of goods from one region to another region. Several cases were reported and few death cases were also reported from different regions of the world.

RECOMMENDATION

Based on the review study, the following recommendation has been proposed:

Stay at home is crucial in order to prevent and stop the spreading of infection from individual to individual. Quarantine is another factor to be implement particularly for the individuals having active infection. Banned on social activities including

wedding ceremony and other festivals should be banned in order to restrict the MPXV. Physical contact and direct personal to personal contact should be avoid in order to prevent the spreading of MPXV.

Strict checkup points should be applied for imports and exports of goods and items from region or country to another country. Quality research centers are also very crucial for serotypes identification and other prevention planning. Special training centers are also advised for the healthcare professionals training and handling of emergency situation. Quality healthcare sectors for early diagnosis, and management is important for prevention and treatment of MPXV particularly in emergency situation. Researchers should focus on vaccine development or medicine related to MPXV. Special protection and caring centers are advise where healthcare professional can handle the affected individuals. Epidemiological studies are also important for conducting the research in order to identity virus and its pattern of virulence.

Always wash hands with sanitizer or disinfectant soap with warm water after touching the item or individual having suspect case. Awareness programs are also recommended for affected individuals, and for general community regarding the pattern of virus transmission and its reservoirs. It is also recommended for the global partnership, leaders, and developed countries and organization including the WHO to strengthen the health system and community in order to tackle any emergency related to MPXV.

CONTRIBUTION OF THE AUTHORS

Naushad Khan created the idea. Shah Fahad and Mahnoor Naushad helped in abstract writing while Aftab Ullah, Mehtab Ullah, Jamila Bibi and Shahab Ullah helped in conclusion writing and downloading the data.

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