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Mastering MPOX: Knowledge, Prevention, and Treatment Strategies for Tomorrow Healthcare Leaders

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ABSTRACT:

Purpose: This study aimed to evaluate the effectiveness of an educational webinar in improving knowledge and awareness of Monkeypox (MPOX) among health science students. It specifically sought to address critical gaps in understanding regarding transmission, clinical symptoms, prevention strategies, and treatment options, thereby empowering future healthcare leaders to respond effectively to emerging infectious diseases.

Methods: A quantitative research approach was utilized, involving a pre-test and post-test design among 150 health science students from the Adventist University of the Philippines and the University of Gitwe. Participants were selected through stratified random sampling to ensure representative data. A validated survey instrument covering ten key areas of MPOX knowledge was administered before and after the webinar session. Descriptive statistical analysis was conducted using Jamovi software to determine knowledge acquisition.

Findings: Pre-test results revealed a low baseline knowledge level *(grand mean = 1.725),* with most students unaware of key prevention and treatment strategies. However, post-test scores demonstrated a significant improvement *(grand mean = 3.066),* indicating a high level of knowledge acquisition. The most substantial gain was observed in the understanding of antiviral treatments and prevention protocols, while some epidemiological concepts like the incubation period remained less well understood. These findings affirm the efficacy of interactive and targeted educational interventions in enhancing public health preparedness among emerging healthcare professionals.

KEYWORDS: Mastering MPOX, Knowledge, Prevention, Treatment Strategies, Healthcare Education, Public Health Readiness

INTRODUCTION

Over the past few years, Mpox (previously referred to as monkeypox) has become a key global health issue, calling for prompt action for enhanced surveillance, prevention, and response. The World Health Organization (WHO) has established Mpox as a Public Health Emergency of International Concern because case increases are observed not only in endemic areas in Central and West Africa but even in some European, North American, and Asian regions (Abdullahi et al., 2024; Chanpitakkul, 2024). The observation of this wide spread necessitates extensive education and readiness measures in healthcare workers.

In spite of global attention, gaps in knowledge continue to be abysmally large. An international study reported that a mere 13.8% of medical staff had been given any information regarding Mpox during medical school, and their average score on a test of knowledge was a mere 13.84 out of 34 (Swed et al., 2023). In Bangladesh too, just 53% of professionals showed good knowledge, with widespread regional variations (Imran et al., 2023).

In Africa, where Mpox is traditionally endemic, healthcare workers tend to have inadequate knowledge and readiness. In Ethiopia, a mere 28.13% of professionals possessed good knowledge about the disease, and previous exposure to credible information sources had a significant impact on knowledge levels (Kiros et al., 2025). In Cameroon, although 92.7% of HCWs were aware of Mpox, only 12.9% possessed excellent knowledge (Nka et al., 2024). Likewise, in Nigeria, just 60.5% of HCWs had sufficient knowledge (Awoyomi et al., 2023). These statistics unambiguously indicate the necessity for focused education programs, ongoing professional development, and the inclusion of Mpox in healthcare curricula in all African countries (Nachega et al., 2024).

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Focusing specifically on Rwanda, while complete national data remain limited, regional closeness to outbreak areas and rising cross-border movement increase the risk of transmission. Research in Africa has indicated that the knowledge of Mpox transmission dynamics, clinical presentation, and prevention is essential to preparing effective health systems (León-Figueroa et al., 2024; "Epidemiological Updates of MPOX," 2023). In addition, the One Health concept, which brings together human, animal, and environmental health, is especially important for endemic nations such as Rwanda (Gemperli et al., 2014; Awoyomi et al., 2023).

Against this backdrop of challenges, this webinar of Mastering MPOX: Knowledge, Prevention, and Treatment Strategies for Tomorrow's Healthcare Leaders has been crafted to bridge the current knowledge gaps. It seeks to empower tomorrow's healthcare leaders with evidence-based knowledge on Mpox epidemiology, symptoms, prevention, and treatment. Through a global-to-local approach, this session highlights the value of interdisciplinary collaboration, education, and realistic readiness in preparing tomorrow's leaders to respond effectively to infectious disease threats.

Research Questions

This webinar aimed to enhance understanding and awareness of Monkeypox (MPOX) transmission, prevention, and management. Specifically, the investigation addressed the following questions:

1. To what extent does direct contact with infected animals or humans contribute to the transmission of Monkeypox (MPOX)?
2. To what extent is the presence of a rash with lesions and subsequent scabbing a defining clinical symptom of MPOX infection?
3. To what extent does the incubation period of 5 to 21 days affect early detection and containment of MPOX?
4. To what extent is the smallpox vaccine effective and recommended in preventing Monkeypox infection?
5. To what extent are antiviral drugs, such as tecovirimat, utilized as first-line treatments in managing MPOX cases?
6. To what extent are young children and immunocompromised individuals at increased risk for severe outcomes from MPOX infection?
7. To what extent is patient isolation until symptom resolution effective in preventing secondary transmission of MPOX?
8. To what extent do strict isolation protocols in healthcare settings control and prevent the spread of MPOX?
9. To what extent does promoting hand hygiene and safe animal handling serve as a key public health measure in reducing MPOX transmission?
10. To what extent can healthcare leaders contribute to MPOX prevention through sustained public awareness and education campaigns?

METHOD

A quantitative research design was employed in order to determine changes in Mpox knowledge and awareness among 150 Adventist University of the Philippines and University of Gitwe health science students. Participants were proportionally chosen across different levels of academics by using stratified random sampling to ensure representative results.

Data were collected using a pre-test and post-test survey instrument designed by the webinar staff, addressing ten major topics under Mpox transmission, symptoms, prevention, and treatment. Pre-test was taken prior to the webinar to evaluate baseline knowledge and post-test was taken after the session to gauge knowledge acquired.

The survey was pre-tested by public health researchers and data collected online with full assurance of confidentiality and informed consent and full ethical standards. The data analysis was carried out using Jamovi and utilized descriptive statistics to aggregate participant responses and assess knowledge change.

RESULTS AND DISCUSSION

Pre-test

Respondents' Level of Knowledge and Awareness on Monkeypox (Mpox)

Table 1 presents the grand mean score of respondents' pre-test responses regarding their knowledge and awareness of Monkeypox (Mpox). The grand mean was *1.725* with a standard deviation of *0.5301*, indicating an overall qualitative descriptor of *"Disagree"* and a *low* level of knowledge. Based on these results, it is generally observed that the respondents had limited baseline knowledge of Mpox prior to the educational intervention.

The highest mean score was recorded for Item 1 *(Mean = 2.85, SD = 0.503)*, which stated that *"Monkeypox (Mpox) is primarily transmitted through direct contact with infected animals or humans."* This high mean suggests that students are relatively well-informed about the primary mode of transmission, likely due to increased public discourse and global reporting on Mpox cases.

Conversely, Item 10 registered the lowest mean score *(Mean = 1.05, SD = 0.323)*, which stated that *"Healthcare leaders can help prevent future Mpox outbreaks through regular public awareness campaigns."* This lower score suggests that while students may recognize the role of individual preventive practices, they may lack awareness of the broader role of healthcare leadership in long-term epidemic control. It indicates a potential gap in understanding the significance of strategic leadership and public health advocacy in disease prevention.

No.	Pre- Test	Mean	SD	Scale response	Qualitative Descriptor
1	Monkeypox (MPOX) is primarily transmitted through direct contact with infected animals or humans.	2.85	0.503	Agree	High
2	A common symptom of MPOX infection is a rash with lesions that eventually turn into scabs.	1.16	0.408	Strongly Disagree	Very low

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3	The incubation period for Monkeypox ranges from 5 to 21 days.	2.09	0.488	Disagree	Low
4	The smallpox vaccine is recommended for preventing MPOX.	1.94	0.289	Disagree	Low
5	Antiviral drugs such as tecovirimat are considered a first-line treatment for MPOX.	1.57	1.172	Disagree	Low
6	Young children and immunocompromised individuals are at higher risk of severe illness from MPOX.	1.20	0.617	Strongly Disagree	Very low
7	A person infected with MPOX should remain in isolation until all symptoms resolve and scabs fall off.	1.38	0.784	Strongly Disagree	Very Low
8	Strict isolation protocols are essential in healthcare settings to control the spread of MPOX.	1.97	0.424	Disagree	Low
9	Promoting hand hygiene and safe animal handling is a key public health measure in preventing MPOX spread.	2.03	0.293	Disagree	Low
10	Healthcare leaders can help prevent future MPOX outbreaks through regular public awareness campaigns.	1.05	0.323	Strongly Disagree	Very Low
Grand Mean		**1.725**	**0.5301**	Disagree	Low

Legend: *0.5-1.5 = Strongly Disagree, 1.51-2.5 = Disagree, 2.51-3.5 =Agree ,3.51-4.00 = Strongly Agree*

Post - Test

Respondents' Level of Knowledge and Awareness on Monkeypox (Mpox)

Table 2 presents the grand mean score of respondents' post-test responses regarding their knowledge and awareness of Monkeypox (Mpox). The grand mean was *3.066* with a standard deviation of *0.856*, corresponding to the scale response of *"Agree"* and a high level of knowledge. Based on these results, it is generally observed that the respondents experienced a significant improvement in their understanding of Mpox following the educational intervention.

The highest mean score was recorded for Item 5 *(Mean = 3.21, SD = 0.861),* which stated that *"Antiviral drugs such as tecovirimat are considered a first-line treatment for Mpox."* This high mean suggests that students effectively retained clinical treatment-related information presented during the webinar, indicating their reliance on updated, evidence-based guidelines discussed by the facilitators.

Conversely, the lowest mean score was noted in Item 3 *(Mean = 2.87, SD = 0.882),* which stated that *"The incubation period for Monkeypox ranges from 5 to 21 days."* Although this item still falls within the *"Agree"* range, its relatively lower mean suggests that students may find epidemiological data like incubation periods less impactful or more difficult to retain, potentially due to the technical nature of such content or limited practical application in their academic context.

No.	Post-test	Mean	SD	Scale response	Qualitative Descriptor
1	Monkeypox (MPOX) is primarily transmitted through direct contact with infected animals or humans.	3.15	1.018	Agree	High
2	A common symptom of MPOX infection is a rash with lesions that eventually turn into scabs.	3.02	0.753	Agree	High
3	The incubation period for Monkeypox ranges from 5 to 21 days.	2.87	0.882	Agree	High

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4	The smallpox vaccine is recommended for preventing MPOX.	3.12	0.832	Agree	High
5	Antiviral drugs such as tecovirimat are considered a first-line treatment for MPOX.	3.21	0.861	Agree	High
6	Young children and immunocompromised individuals are at higher risk of severe illness from MPOX.	3.15	0.772	Agree	High
7	. A person infected with MPOX should remain in isolation until all symptoms resolve and scabs fall off.	2.89	0.910	Agree	High
8	Strict isolation protocols are essential in healthcare settings to control the spread of MPOX.	3.09	0.811	Agree	High
9	Promoting hand hygiene and safe animal handling is a key public health measure in preventing MPOX spread.	3.09	0.856	Agree	High
10	Healthcare leaders can help prevent future MPOX outbreaks through regular public awareness campaigns.	3.07	0.865	Agree	High
Grand Mean		**3.066**	**0.856**	Agree	High

Legend: *0.5-1.5 = Strongly Disagree, 1.51-2.5 = Disagree, 2.51-3.5 =Agree ,3.51-4.00 = Strongly Agree*

CONCLUSION

This webinar indicates that students demonstrate a growing awareness and understanding of key concepts discussed, including critical thinking, collaboration, and the application of theoretical knowledge in real-world scenarios. It also highlights their active engagement and willingness to embrace innovative learning strategies that enhance both academic and personal growth.

The webinar concludes that incorporating interactive and student-centered learning approaches significantly boosts motivation, participation, and retention of knowledge. This suggests that educational institutions should continue to integrate such strategies into their curriculum to foster a more dynamic and effective learning environment.

RECOMMENDATION

Based on these findings, the study recommends that educators and institutions consistently implement interactive webinars, workshops, and group-based projects to promote collaborative learning and practical application of knowledge. Additionally, students should be encouraged to take an active role in their learning by engaging in reflective practices and peer-led discussions.

Further recommendations include the incorporation of technology-enhanced tools and platforms to support remote and hybrid learning models, ensuring accessibility, flexibility, and continuity of education. Continuous professional development for educators is also advised to keep pace with evolving pedagogical trends and digital competencies.

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