

## PAPER DETAILS

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# Quality, reliability and content evaluation of YouTube videos associated monkeypox

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## ABSTRACT

**Aim:** Human monkeypox (HMPX) is a re-emerging infectious disease. YouTube is an effective tool for disseminating health-related information. Considering that dissemination of information about the ways of transmission and prevention of infectious diseases in public is very important. The aim of this study is to evaluate the information content and reliability of the videos about MPX on the popular and widely used video-sharing platform YouTube.

**Material and Method:** YouTube (<http://www.youtube.com>) was searched using the keyword 'monkeypox'. The number of views, likes, comments, and duration of the videos were recorded. The videos were analyzed blindly by an infectious diseases and microbiology (virology) specialist. The content was rated out of 10 points. The videos are grouped according to the uploaded source by the news agency and Physicians /Public cooperation. A DISCERN tool and the Global Quality Scale (GQS) were used to evaluate the reliability and quality of the videos.

**Results:** Of the 100 videos screened, 44 that met the inclusion criteria were included in the study. Our study shows that video reliability (DISCERN) and Quality Scale (GQS) of YouTube videos related to MPX uploaded by physicians and health institutions were statistically significantly higher than news agencies. In terms of content, we are on the aspect that all videos contain useful information. Cohen Kappa scores indicating inter-observer agreement were 0.802, 0.827, and 0.858 for the Content, DISCERN and the GQS scores, respectively (95% confidence interval (CI)).

**Conclusion:** HMPX, especially during the global disease epidemic, the quality and reliable publication of useful YouTube content by Physicians /Public cooperation can help reduce and control the spread of the disease.

**Keywords:** Monkeypox, quality, content, reliability, YouTube

## INTRODUCTION

Human monkeypox (HMPX) is a re-emerging infectious disease. Monkeypox (MPX), is an Orthopoxvirus, a genus that includes camelpox, cowpox, vaccinia, and variola viruses. Clinically, it is difficult to distinguish from smallpox. The most important distinguishing clinical characteristic that distinguishes MPX from smallpox is lymph node enlargement, which usually occurs at the onset of fever. The rash usually appears 1-3 days after the fever and lymphadenopathy have started. Usually, the rash first appears on the peripheral area of the body (face) but can cover the entire body during a serious illness. The lesions often present as first macular, then papular, then vesicular, and pustular (1).

Isolation of the virus from the lesions in the laboratory is the gold standard for the diagnosis of the disease (2). MPX

is transmitted through respiratory droplets, direct contact, or fomites (3).

Pneumonia, encephalitis, sight-threatening keratitis, and bacterial infections are all possible complications of HMPX (4). Mortality rates are 1%-10% (5).

Those exposed to MPX, should be monitored for 21 days as this is the accepted upper limit of incubation period. Contagiousness is consistent with symptom onset; therefore, close contacts do not need to be isolated while asymptomatic (6).

MPX was first isolated and described in 1958 in Singapore when monkeys became ill. However, in 1970, the virus was found in a child in the Democratic Republic of the Congo. This was the first confirmed case of the virus in a person.

Although first described in monkeys, available data suggest that African rodents are natural reservoirs. Infections have occurred in squirrels, rats, mice, monkeys, and humans. Cases outside Africa were detected in post-travel, with sporadic clusters in Ghana in 2003, Nigeria in 2018, Singapore in 2019, and the United Kingdom in 2021 (7).

Until now reported in at least 75 countries outside of Africa. The increasing number of confirmed cases in countries outside of Central and West Africa, where the virus is endemic, and the globalization of MPX are of concern to medical and public health officials (8,12).

A significant portion (if not all) of the cases described were in men who had sexual intercourse with men (MSM), and most of these cases were diagnosed in sexually transmitted infection (STI) clinics. This shows that some of those who carry the virus communicate through certain social networks and this causes the spread (9).

Social media platforms are used as a frequently used information source about health, they have a significant impact on human attitudes, behaviors, and decisions (10).

One of the most frequently used social media platforms, YouTube is an effective tool for disseminating health-related information (11).

Especially in global public health emergencies, It is important to promote accurate and reliable information through such platforms, which may contribute to preventing the spread (13).

Considering that dissemination of information about the ways of transmission and prevention of infectious diseases in public is very important in terms of preventing the spread of the disease and to our knowledge, the quality, reliability and content of MPX videos on YouTube is valuable because it is the first research article in the literature.

The aim of this study is to figure out how accurate and useful the information is in the MPX videos on YouTube, which is a popular site for sharing videos.

## MATERIAL AND METHOD

YouTube (<http://www.youtube.com>) was searched using the keyword "Monkeypox" between July 20, 2022 - July 23, 2022. The YouTube "relevance" filter has been applied to the default Search, as most viewers do. All selected videos have been added to the YouTube library database for further analysis.

The videos that met the inclusion criteria were analyzed in more detail (Universal resource locators (URLs), total video time, total number of comments, likes, and upload date).

The videos were analyzed blindly by an infectious diseases and microbiology (virology) specialist. Any discrepancies between the authors were resolved by reconsideration and consensus.

The videos are grouped according to the uploaded source by the news agency, health institution/physician. Videos that met the inclusion criteria were evaluated for reliability (DISCERN), quality (GQS), and content.

Video reliability was evaluated using the DISCERN tool. Each question was scored as yes or no, and the score was assigned as 1 or 0 points, with the total DISCERN score ranging from 0 to 5. Higher scores indicate greater reliability. The five-point Global Quality Scale (GQS), which has been used in many YouTube studies, was used to measure the overall quality of the videos. Higher scores indicate better video quality.

The content was rated out of 10 points. (microbiology, epidemiology, forms of transmission, symptoms, clinical, diagnostic testing, complications, treatment, prognosis, prevention methods (vaccine etc)). If a parameter was deemed sufficient, it received one point; if it was deemed insufficient, it received zero points.

## Statistical Analysis

Inter-observer agreement was evaluated with Cohen's Kappa coefficient. All statistical tests were performed using IBM SPSS Statistics software (version 26.0). "p" value less than 0.05 was considered statistically significant. Shapiro-Wilk test was performed to assess the normality of the data. Not normally distributed DISCERN, GQS, and content were analyzed with Mann Whitney U.

## Ethical Statement

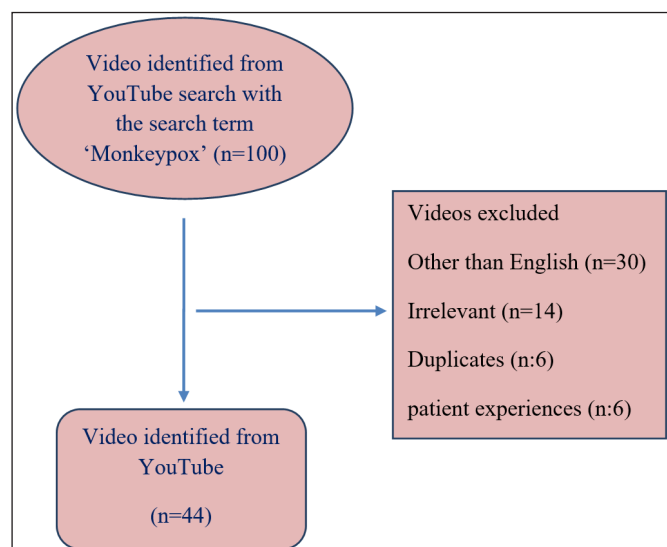
No human participants or animals were included in the study. Publicly available YouTube videos were analyzed, and for that reason, ethical approval was not needed for other similar YouTube studies (14,15).

## RESULTS

Thirty of the 100 videos reviewed were in languages other than English, 14 were irrelevant, six were duplicates, and six were the experiences of patients who had contracted with MPX but were excluded from the study. As a result, 44 videos met the inclusion criteria and were analyzed in more detail. (**Figure 1**)

Cohen Kappa scores indicating inter-observer agreement were 0.802, 0.827, and 0.858 for the Content, DISCERN and the GQS scores, respectively (95% confidence interval (CI)).

The authors got the title, upload date, length, number of views, number of views per day, likes, and comments from the video.



**Figure 1.** Criteria of including and excluding of YouTube videos

A total of 44 videos were included for analysis. Baseline features of the analyzed .(Table 1).

Table 1. Baseline features of the analyzed videos	
Variables	Videos (n=44)
Video Content (point)	7* (2-10)
Number of views	51* (1-474)
Number of likes	527* (6-16000)
Screen time (minutes)	229* (13-2329)
Number of comment	646* (13-6868)
Source of upload	
News	n=16 36.3%
Physicians, Public cooperation	n=28 63.7%
Target audience	
Public	n=38 86.3%
Healthcare professionals	n=6 13.7%
*Data presented as median (minimum-maximum) values	

The first of the countries with the most uploaded videos was the United States of America (50%).

The videos uploaded by academic Physicians / Public cooperation had higher DISCERN and GQS scores than Newsletter video sources, and the difference was statistically significant ( $p < 0.005$  for both) **Table 2**.

Table 2. Quality, Reliability and Content of YouTube videos according to source			
	Physician /Public cooperation n:28 63.7%	Newsletter n:16 36.3%	P
Video Content (point)	9(2-10)	7(2-10)	0.073
DISCERN	5(2-5)	4(2-5)	0.030
GQS	5(2-5)	4(2-5)	0.042
*Mann Whitney U, Data presented as median (minimum-maximum), Values of $p < 0.05$ were accepted as significant and marked in bold			

## DISCUSSION

Our study shows that video reliability (DISCERN) and Quality Scale (GQS) of YouTube videos related to MPX uploaded by physicians and health institutions were found to be statistically significantly higher than news agencies. In terms of content, we are on the aspect that all videos contain useful information.

In studies evaluating, Ebola-related internet videos on YouTube, most of the videos were described as helpful. It was emphasized that YouTube appears to be a generally useful source of information about the epidemic and that increased efforts to disseminate scientifically accurate information are needed to avoid unnecessary panic (16,19).

Similar trends in our study were seen in the past during evaluations of YouTube's role as a source of information for H1N1 influenza and Ebola virus outbreak (17,18).

A recent study about information and misinformation on COVID-19 revealed conversely, that social media channels were the most important source of misinformation (20,21).

The production and transmission of information on the health-related topic are increasing at an exponential rate in this age.

Until now the outbreak has continued to grow, and there are now more than 16 thousand reported cases from 75 countries and territories, and five deaths. A public health emergency was declared by the World Health Organization (WHO) on 23 July 2022.

Government organizations and educational institute should recognize and utilize YouTube as a strong platform for sharing health information with public and for educating future health-care providers (22).

This study has a cross-sectional design. It is only available on YouTube and other social media platforms in English. However, we believe that this research article will to contribute the literature highlight the significance of sharing higher-quality education videos, and provide a new perspective for future research.

## CONCLOUSION

HMPX, especially during the global disease epidemic, the quality and reliable publication of useful YouTube content by Physicians /Public cooperation can help reduce and control the spread of the disease.

## ETHICAL DECLARATIONS

**Ethics Committee Approval:** This study was conducted as a YouTube research, there is no need for ethics committee approval.

**Informed Consent:** This study was conducted as a YouTube research, there is no need for informed consent.

**Referee Evaluation Process:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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