Internal Medicine Section

Quality of Reliability of Information on H3N2 Influenza in Youtube: A Cross-sectional Study

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ABSTRACT

Introduction: Influenza is a highly communicable viral respiratory illness known to cause outbreaks, such as the current H3N2 outbreak in India. YouTube is one of the most popular sources to obtain information regarding symptoms, treatments, and prevention of diseases like influenza in the general public.

Aim: To assess the quality and reliability of information related to H3N2 influenza using the Global Quality Score (GQS) and reliability score, respectively.

Materials and Methods: A cross-sectional study was conducted to evaluate the type of information, quality, and reliability of videos about Influenza H3N2 on YouTube using the GQS and the Reliability Score (DISCERN) scale, respectively. The Kruskal-Wallis test was used to assess differences in quality and reliability depending on the type of uploader.

Results: The study found that 85% of videos focused on prevention/vaccination, 83.3% discussed the cause/aetiology of influenza, while only 31.7% covered investigations/tests. News agencies uploaded the most videos (46.7%), followed by doctors (18.3%), with minimal contribution from hospitals (8.3%). News agencies had the highest Video Power Index (VPI) compared to other groups, and there were no significant differences in GQS score across different groups.

Conclusion: Verified information from proper resources should be uploaded by responsible healthcare professionals like doctors and health organisations. The videos should have an exceptional reliability score and Global Quality Index. The quality of content should be easy to understand for the general public and should provide additional sources of information, educating the viewer to contact his/her physician concerning the diagnosis and further evaluation of the same.

INTRODUCTION

Influenza is an acute viral respiratory illness that affects children and adults worldwide. In majority of cases, it presents as a mild, self-limiting disease involving the upper respiratory tract. However, it can lead to more severe manifestations such as pneumonia and death, especially in high-risk groups such as children, the elderly, pregnant women, and immunocompromised individuals. It is highly communicable and can cause seasonal outbreaks, such as the current H3N2 outbreak in India, and global pandemics, such as the H1N1 strain in 2009 [1]. The internet and social media, being cheap and accessible, are increasingly being used to acquire health-related information by patients who do not have quick and easy access to healthcare [2]. They are also used by healthcare workers and facilities to provide patient education and for the promotion of their services [3]. YouTube, a popular and freely accessible social media platform, can be used by users to obtain and/or convey information regarding symptoms, treatments, and prevention of diseases. However, videos on YouTube are not promoted based on scientific and medical accuracy, and the information conveyed through some videos is unverified and often misleading [4]. The existing gaps in the literature involve a lack of comprehensive scrutiny of health information dissemination on popular social media channels, emphasising the necessity of this study to bridge the gap and contribute valuable insights into the reliability of public health information online. The study addresses a critical need for a systematic evaluation of influenza-related information on social media platforms, specifically YouTube, and introduces novelty by assessing the quality, reliability, and characteristics of such content.

MATERIALS AND METHODS

The observational study (cross-sectional) was conducted virtually in March 2023. Since this study was performed to assess data on a social media platform and did not involve humans, ethical committee approval was not sought.

YouTube, a well known social media platform, was used to collect data using the search terms "influenza," "influenza treatment," "influenza vaccine," "influenza virus," "influenza 2023," and "H3N2"; one search by each of the six authors. Each author had to search and scrutinise 15 appropriate YouTube videos based on the following criteria.

Inclusion criteria: YouTube videos relevant to the topic "influenza," video length between 1-20 minutes, and the language being English or Hindi.

Exclusion criteria: YouTube videos not relevant to the topic "influenza," video length less than one minute or more than 20 minutes, and languages other than English or Hindi; or duplicate videos.

These YouTube videos were assessed based on various parameters: Baseline characteristics of YouTube videos such as the number of views, comments, likes, channel subscribers, video duration, and the age of the video. The type of information about influenza in the video included symptoms, vaccination, diagnosis, prevention, treatment, and patients sharing their experience.

The popularity of the video was assessed using the VPI values calculated according to the formula: VPI=like count/(like count+dislike count)×100 [5].

Quality and reliability of YouTube videos were assessed using the GQS and the DISCERN score, respectively [5]. The GQS score ranges from 1-5, where 1 indicates very poor quality and 5 indicates very good quality. The DISCERN score has five questions related to reliability. "Yes" is scored as 1 and "no" as 0. The total score is added up to get a final score [5].

STATISTICAL ANALYSIS

The statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) software, IBM Corp, Version 21.0, released in 2012, Armonk, NY. The Kruskal-Wallis test was used to assess the difference in quality and reliability depending on the type of uploader.

RESULTS

A total of 90 videos were assessed by all authors, out of which 60 videos meeting the inclusion criteria were considered for this study. The total number of views was 4,617,419. Present study revealed that a large number of videos (85%) provided information about prevention/vaccination, while very few videos (31.9%) discussed investigations/tests of Influenza.

[Table/Fig-1] displays the characteristics of the analysed videos. The maximum number of videos was uploaded by news agencies (46.7%), with fewer from doctors (18.3%) and minimal contribution from hospitals (8.3%). Around 35% of the videos were uploaded in the last week, while approximately 33.33% were uploaded over a year ago.

Characteristics	
Time since uploaded	
Last one week	21 (35.0%)
More than a week to one month (7-30-day-old)	10 (16.7%)
More than a month to six months (31-180-day-old)	06 (10.0%)
More than six months to last one year (180-365 days)	03 (5.0%)
More than one year (>365 days)	20 (33.3%)
Popularity	
Total no. of views	4617419
Total no. of likes	54176
Total no. of dislikes	4041
Total no. of comments	8241
Type of uploader	
Doctor	11 (18.3%)
Hospital	05 (08.3%)
Healthcare organisation	07 (11.7%)
News agencies	28 (46.7%)
Others	09 (15.0%)

[Table/Fig-1]: Characteristics of analysed YouTube videos.

[Table/Fig-2] illustrates the type of information circulated about influenza. 85% of the videos contained information about prevention/

Information	n (%)
Symptoms	48 (80.0)
Cause/Aetiology	50 (83.3)
Investigations/Tests	19 (31.7)
Prevention/Vaccines	51 (85.0)
Treatment	37 (61.7)
Mortality	34 (56.7)
Rehabilitation	9 (15.0)
Support groups	0
People/patient's sharing their own experience	11 (18.3)
Parent sharing their experience with their family members	05 (08.3)
Promotional content by pharmaceutical company or by doctors	07 (11.7)

[Table/Fig-2]: Influenza-related information provided by the YouTube videos.

vaccination, and 83.3% included information about the cause/aetiology of influenza.

[Table/Fig-3] presents the comparison of GQS, reliability score, and VPI based on the type of uploaders-doctors, hospitals, healthcare organisations, news agencies, and others (patients or family members of patients, pharmaceutical agencies, uploaders whose identity could not be verified, etc.). The results indicate a significant difference in the VPI of the different uploaders compared in the study (p-value <0.001). The videos uploaded by news agencies had the highest VPI compared to other groups, indicating the highest reach among viewers. There was significant difference in reliability score (DISCERN) between the groups.

DISCUSSION

This study aimed to assess the quality and reliability of YouTube videos providing information about the influenza virus. A total of 60 videos were analysed, of which 35% were uploaded within the last week and 33.3% were uploaded more than a year ago. Despite the videos being uploaded within several weeks to a year, there is a significant amount of reach among the viewers, with a total number of views amounting to 4,617,419. The number of likes totaled 54,176, and there were 8,241 comments in total. The different types of uploaders whose videos were analysed included doctors, hospitals, healthcare organisations, news agencies, and others. The maximum number of videos (46.7%) was uploaded by news agencies, compared to the 18.3% uploaded by doctors. Unfortunately, videos uploaded by hospitals accounted for only about 8.3%, despite viewers considering them to be a more reliable source compared to news agencies.

Social media serves as a public space for open discussion, acknowledging its potential for spreading rumours and misinformation during pandemics. While it serves as a platform for sharing health information, experts emphasise the need for health professionals to control and counteract false beliefs about communicable diseases [6-8]. This study revealed that about 85% of the videos contained facts about the vaccines, while Garcia HI and Giménez JT, reported that 59% of their videos mentioned the benefits of the influenza vaccine [9]. This signifies that several videos are conveying information about influenza vaccines, which can significantly impact the viewer's opinions about vaccines. Therefore, it is necessary to ensure that correct information is available on YouTube [10]. In present study, 80% of the videos were successful in imparting knowledge about the symptoms, in contrast to the study by Parabhoi L et al., where it was 4.01% in a sample size of 349 videos [11]. Present study found that 83.3% of the videos provided details about the cause and aetiology of influenza, while the study by Pandey A et al., revealed that they found only 61.3% of the videos useful [12]. This difference could be due to the different methods of selecting videos in the two studies.

This study revealed that there was no significant difference in the quality of YouTube videos uploaded by doctors, hospitals, news agencies, and others. However, the difference in reliability (DISCERN) was statistically significant. In contrast, a study by Kallur A et al., indicated that only the videos by healthcare professionals like doctors had the highest credibility, as opposed to videos by alternative medicine practitioners [13]. Similarly, in present study, videos posted by doctors had a high DISCERN score. Akyol Onder EN and Ertan P reviewed 43 videos and concluded that the videos uploaded by doctors, health organisations, and the government had higher quality and the ability to disseminate accurate, reliable, and useful health-related information to the general public, which was a similar finding to present study [14]. The variability in different studies

Scale	Doctors (n=11) Median (IQ1, IQ3)	Hospitals (n=5) Median (IQ1, IQ3)	Healthcare organisation (n=7) Median (IQ1, IQ3)	News agencies (n=28) Median (IQ1, IQ3)	Others (n=9) Median (IQ1, IQ3)	p-value and test used Test used: Kruskal-Wallis Test
VPI	27.85 (8.16, 113.85)	21.27 (10.24, 58.94)	25.79 (14.90, 56.31)	618.07 (147.75, 2544.41)	24.99 (6.87, 307.39)	<0.001

| GQS | 5.00 (4.00, 5.00) | 4.00 (3.00, 5.00) | 4.00 (3.00, 5.00) | 4.00 (3.00, 4.00) | 4.00 (2.50, 5.00) | 0.337 |
| DISCERN score | 4.00 (3.00, 4.00) | 3.00 (2.50, 3.50) | 4.00 (3.00, 4.00) | 3.00 (3.00, 3.75) | 4.00 (3.50, 5.00) | 0.031 |

[Table/Fig-3]: Comparison of GQS, reliability score and VPI based on type of uploader.

can be attributed to chance or regional differences in the information presented in the videos, or different methodologies used.

A study by Chan C et al., found that 35% of videos provided data about vaccine efficacy and 28% about vaccine side-effects [15]. However, in present study, 85% of the videos provided information about prevention measures and vaccines.

Healthcare professionals perceive virtual communities as valuable sources of clinically relevant and high-quality information, empowering them to make more informed decisions in their practice [16-18]. To combat misinformation, healthcare professionals should first receive training on misinformation and social media, including building their social media presence [16,19,20]. They can combat misinformation on social media using a two-phased conceptual model. The first phase involves authentication, where professionals verify the accuracy of social media posts through internal and external processes. If misinformation is identified, the second phase, correction, includes preparation (reflection, revelation, relation, respect) and dissemination (private priming, public priming, public rebuttal, private rebuttal). This model offers practical guidance for healthcare professionals and health authorities in identifying and correcting health misinformation on and off social media [19].

Limitation(s)

The present study had several limitations. Firstly, it is estimated that more than 100 hours of video are uploaded every minute, and the number of likes, dislikes, and comments are also expected to change daily. However, the present study only reviewed 60 videos, and the time period of the study was only one day. The reason for selecting 60 videos was based on an individual's capacity to view no more than 60 videos a day. Interobserver bias can also be attributed as a limitation in terms of GQS and reliability score.

CONCLUSION(S)

The videos uploaded by the news agency had a significantly higher reach (VPI) compared to other uploaders. There was a statistically significant difference in the reliability (DISCERN) of videos based on uploaders, but not in the quality (GQS). Continuous scrutiny of healthcare information on social media platforms is necessary to ensure correct decision-making. Healthcare organisations and government agencies should come together to plan a strategy to ensure that accurate and reliable healthcare-related information is available on social media.

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