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Content accuracy and reliability of myocarditis-related information on short-video platforms: A cross-sectional study of BiliBili and TikTok

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Research Article

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Abstract

Background

Short-video platforms are increasingly used by the public to access medical information, yet the quality and educational value of myocarditis-related content remain insufficiently studied. This study evaluated the quality, reliability, understandability, actionability, and dissemination characteristics of myocarditis-related short videos on Bilibili and TikTok, with comparisons across platforms, video formats, and uploader types.

Methods

A cross-sectional content analysis was conducted on February 5, 2026. Videos were identified on Bilibili and TikTok using the Chinese term "□□□." After screening, 253 eligible videos were included. Data on video characteristics, engagement metrics, uploader identities, and thematic coverage were extracted. Video quality was assessed using GQS, JAMA benchmark criteria, mDISCERN, VIQI, and PEMAT. Group comparisons and Spearman correlation analyses were performed.

Results

Of the 253 videos, 121 were from Bilibili and 132 from TikTok. Expert monologues were the most common format (51.0%). Significant differences in quality-related scores were observed across video formats. Course- and literature-based videos achieved higher GQS, VIQI, and JAMA scores, whereas expert monologues showed relatively higher mDISCERN scores. TikTok videos had higher mDISCERN and JAMA scores and greater engagement, while Bilibili videos were longer and more understandable according to PEMAT-U. Videos uploaded by medical professionals generally performed better in quality and reliability assessments than those uploaded by nonprofessionals. Engagement indicators were strongly intercorrelated but showed limited correlation with quality measures. Prevention, complications/prognosis, and long-term follow-up or recovery guidance were insufficiently addressed.

Conclusions

Myocarditis-related short videos on Bilibili and TikTok showed considerable variation in dissemination performance but generally limited quality and reliability. High popularity did not necessarily correspond to high informational value. Greater involvement of healthcare professionals, improved source transparency, and platform-tailored communication strategies may help enhance the quality and usefulness of myocarditis-related health information.

Introduction

Myocarditis is an inflammation of the myocardium, produced by numerous agents, such as infections with viruses [1], autoimmune disbalance [2, 3], pharmacological agents [1], toxins, among other factors. The clinical manifestations are very diverse, including nonspecific signs and symptoms like chest pain, palpitations, dyspnea and fatigue [4] to severe forms of acute heart failure, malignant arrhythmias [5], cardiogenic shock and even sudden cardiac death [6–8]. After the acute stage, myocarditis is also closely related to the genesis and progression of dilated cardiomyopathy and chronic heart failure, possibly leading to the long-term loss of cardiac performance [9, 10]. Fulminant myocarditis should be paid special attention to not only because it starts quickly, develops rapidly and has a bad outcome [7], but also because it poses a significant burden to patients, families and healthcare systems. Since initial signs and symptoms of myocarditis may be non-specific in majority of cases [11], the population knowledge of red flags, reasons to seek immediate medical assessment, and convalescent period care is minimal, which can result in a late detection, delayed treatment, and inadequate responses. To sum up, enhanced awareness regarding myocarditis amongst the public is of utmost importance to ensure early diagnosis and prompt medical care delivery [4].

Due to an exponential rise of the digital media space, the short-video platforms have now become a major avenue through which health information can be accessed. In comparison with traditional means of health communication, short videos are more rapidly spread, have a high visual attractiveness, can offer high interactivity, and target large audiences, so their presence is growing as a factor influencing the education on diseases and behavior to seek healthcare [12, 13]. Bilibili and TikTok has become the main social media platforms where users can get information about some diseases and medical knowledge. With conditions such as myocarditis, which might present gradually but may accelerate quickly in other cases, the time available to clinicians is usually reduced. Short video content that is concise, easily visible and straightforward can help people identify symptoms and seek medical care soon after onset [8]. Nonetheles, the content of health information on short-video platforms is inconsistent. As it has been reported in previous studies, although the short videos on myocardial infarction [14], liver cancer [15], and chronic obstructive pulmonary disease [12] have been successfully well-disseminated and engaged, they do not tend to be highly reliable and educative overall. These constraints are mostly observed in lack of proper disclosure of sources, inadequate evidential backing, disorganized information, and simplification of complex medical problems, which can lead to the misinterpretation of the risk of disease, its management, and its outcomes by the populace. It is important to note that people who are looking to get information related to myocarditis not only need to know the symptoms of the condition but should also know what to look out as warning signs of severe illness, manage the recovery phase and the importance of follow-up over a long term. However, there are very few systematic assessments of the quality and reliability of short-video material regarding the topic of myocarditis.

The research was carried out through a cross-sectional survey of short videos of myocarditis on Bilibili and TikTok in order to assess their engagement features, theme diversity, informational value, reliability, readability, and actionability [15]. Inter-platform differences in addition to the differences in the type of video and its uploader identity were also compared. This paper seeks to identify the main issues and possible threats with respect to current distribution

of myocarditis-related short video material and demonstrate that the evidence will help clinicians in providing educational materials to patients and streamline the dissemination of health messages on the platform to improve digital health communications strategies.

Methods

Study design

The paper is based on the cross-sectional content analysis with the purpose of assessing the quality, reliability, understandability, actionability and dissemination features of short videos concerning myocarditis in Bilibili and TikTok.

Search Strategy and Video Selection

Data retrieval and recording were done on February 5, 2026 (Beijing time) in mainland China. Searches involved searching on Bilibili and TikTok with Chinese keyword, "□□□" which is used as a standardized medical term and a frequently used phrase by people alike. In order to reduce the effect of personalized recommendation algorithms and to do the data collection at the same time newly registered accounts without history of browsing were used and the search/browse was done in incognito/ private mode. The first sample was filtered based on set inclusion and exclusion parameters. Exclusion criteria included:(1) redundant videos, either repeated within the platform or cross-reposted between platforms;(2) videos that do not relate to myocarditis sufficiently, including those talking about only myocardial injury or cardiac inflammation or another cardiovascular disease but not specifically myocarditis;and(3) commercial ads. Finally, 253 videos were used, consisting of 121 videos in the Bilibili platform and 132 videos in the TikTok platform. The entire screening procedure is described in Fig. 1.

Data Extraction

There were six main features extracted by the author of each included video, including: fans of video uploaders, video length, number of likes, collections, comments, and shares, and days since upload. Also, sources of platforms, kind of videos, identity of the uploader was documented. It has been grouped into several types of video types such as Courses and Literature, Expert Monologues, Outpatient Scenarios, News Reports, Science Communication and Patient Vlogs. The identity of uploaders was separated into four groups of cardiovascular medical professionals, non-cardiovascular medical professionals, individual users and organizational accounts. Moreover, the themes of the contents covered in each video were noted, which include screening, epidemiology, etiology/risk factors, symptoms, clinical assessment, diagnosis, differential diagnosis, treatment, prevention, and complications/prognosis.

Quality Assessment

Myocarditis related videos were rated by two researchers, both having medical knowledge backgrounds (MTW and PPZ) using uniform criteria. Before the official rating, these raters received training and consistency calibration, which involved interpreting the assessment instruments, defining operational concepts, and pilot rating to increase inter-rater reliability. The tools used as part of the assessment that will be used to evaluate the quality of videos in general are as follows; the Global Quality Scale (GQS), Journal of the American Medical Association (JAMA) benchmark criteria, Video Information and Quality Index (VIQI), modified DISCERN (mDISCERN), and Patient Educational Materials Assessment Tool for Audiovisual Materials (PEMAT). Every disagreement of the two raters were addressed by discussing them until a common ground was obtained.

Because of the fact that short videos may contain data related to the uploader, in particular, a verification badge or the name of an institution, total blinding was not practical. To address this, various approaches have been initiated with a view to reducing assessment bias as far as possible: interaction metrics (likes, comments, collections, shares) were hidden when scoring; video sequence was randomized; and raters were to make ratings depending on what was shown in videos and not other information about uploaders. All other differences were addressed by discussing it out.

It is a 5-point scale that is used to measure the overall quality, flow and usefulness of health information, and higher scores reflect a better overall quality. The assessment of transparency and reliability of health information by the JAMA benchmark criteria focuses on authorship, references, disclosure and currency, and the higher scores represent higher transparency and reliability of information. The mDISCERN is a variation of the DISCERN instrument tailored to online health information and is applied to determine reliability, and higher scores suggest more reliability. VIQI considers the overall quality of video in terms of information flow, information accuracy, audiovisual quality and consistency between title and video content, and higher VIQI are associated with higher-quality videos. Finally, PEMAT is employed to measure the understandability and actionability of audiovisual health education materials. PEMAT-U stands to mean the ease of understanding the material whereas PEMAT-A means the ability of the viewer to discern specific and actionable advice based on the video. A combined PEMAT score is also obtained where a score that indicates a good level of understandability and actionability is given high ratings. Details are provided in the supplementary materials.

Statistical analyses

R (version 4.3.0) was used to conduct statistical analyses, and GraphPad Prism (version 10) was used to create figures. Normality and homogeneity of variance among continuous variables were evaluated. Mean ± standard deviation (SD) is used to represent continuous variables when the conditions of parametric testing were met; otherwise, the median (interquartile range [IQR]) was used. Comparisons across groups were done through either parametric or non-parametric tests depending on the frequency distribution (e.g., student t-test, Mann-Whitney U-test in two group comparison and one way ANOVA, or Kruskal-wallis H test in comparison of more than two groups). To assess the relationships between engagement statistics (video length, likes, comments, collections, and shares) and quality/reliability indicators (GQS, mDISCERN, JAMA, VIQI, PEMAT and thematic coverage items), the Spearman rank correlation was employed. The tests were all two-tailed and a P-value of lower than 0.05 was considered statistically significant.

Results

1. Sample Characteristics and Descriptive Findings

All told there were 253 videos in the research, which were 121 videos on Bilibili and 132 videos on TikTok. Expert monologues were the most common type of video overall (n = 129, 51.0%) followed by courses and literature (n = 36, 14.2%), science communication (n = 32, 12.6%), and news reports (n = 32, 12.6%). Outpatient scenarios (n = 13, 5.1) and patient vlogs (n = 11, 4.3) were significantly smaller portions (Fig. 2A). The distribution of video types in each of the platforms is depicted in Fig. 2B.

The distribution of uploader identities differed among platforms (Fig. 2C). On TikTok, the video uploade was mostly cardiovascular medical professionals and organizational accounts, but on Bilibili, users uploaded the video in most cases as individual users and non-cardiovascular medical professionals. Overall, there have been a total of 87 (34.4) videos uploaded by cardiovascular healthcare workers, 62 (24.5) non-cardiovascular healthcare workers, 66 (26.1) individual users, and 38 (15.0) organizational accounts (Fig. 2D).

Figure 2 presents the distribution of video types and uploader identities in the included sample. Panel A shows the overall composition of video types across all videos. Panel B shows the distribution of video types stratified by platform. Panel C presents the distribution of uploader identities on TikTok and Bilibili. Panel D shows the overall composition of uploader identities in the full sample. Video types were classified as courses and literature, expert monologues, science communication, news reports, outpatient scenarios, and patient vlogs. Uploader identities were classified as cardiovascular healthcare professionals, non-cardiovascular healthcare professionals, individual users, and organisational accounts.

Figure 3 also elaborates on the content topic distribution as per uploader identity where panel A indicates TikTok, panel B represents Bilibili, and panel C is the general sample. Overall, the thematic distribution varied among groups of uploaders. Medical practitioners specializing in cardiovascular care covered a wider range of topics compared to non-cardiovascular medical practitioners, individual users and organizational accounts that usually focused on a smaller set of topics.

The radar charts illustrate the distribution of content coverage across nine dimensions: screening, epidemiology, etiology/risk factors, symptoms, differential diagnosis, clinical assessment, treatment, prevention, and complications/prognosis. (A) TikTok. (B) Bilibili. (C) Comparison between TikTok and Bilibili.

- **2.Differences across video types**

All of the evaluation domains showed very significant differences between the video types. With regard to their quality of information, GQS, mDISCERN, VIQI and JAMA, scores were significantly different among the groups (all $p < 0.001$). The highest scores among the courses and literature are as follows (GQS) [3.50 (3.00–4.00)] (VIQI) [11.50 (10.0015.50)], and (JAMA) [3.00 (2.00–3.00)], whereas the scores of the expert monologues are relatively high (mDISCERN) [3.00 (2.00–3.00)]. Regarding the level of understandability and actionability, there were also considerable differences in PEMAT-A, PEMAT-U, and overall PEMAT scores in different groups (all $P < 0.001$). Courses and literature and monologues by experts had both higher total PEMAT scores [12.00 (10.38 -14.00) and 12.00 (11.00 -13.50)], but outpatient scenarios and news reports got less [each scored 8.50 (7.50–10.00)].

Video characteristics: Video length and fans of video uploaders were significantly different in various types of videos (P 0001). Courses and literature videos were found the most prolonged, with an average of [1273.50 (793.75–1948.00) seconds] and news reports had the largest fans of video uploaders, which was averaged to be [319.00 (5.88-1584.70) x10,000]. To sum up, in terms of engagement indicators, there were considerable differences in likes, collections, comments and shares ($P = 0.016$ on collections; all others $P < 0.001$) where the general trend was that patient vlogs and expert monologues had more engagement levels. Detailed results are presented in Table 1.

Table 1
Characteristics, quality, and reliability of myocarditis-related short videos by different video content on TikTok and Bilibili

Variables	Total (n = 253)	Courses and Literature (n = 36)	Expert Monologues (n = 129)	Outpatient scenarios (n = 13)	News reports (n = 32)	Science communication (n = 32)	Patient Vlogs (n = 11)	*P*
General information								
Likes, M (Q_1, Q_3)	262.00 (50.50, 1655.25)	20.50 (11.50,56.25)	431.50 (101.00,2746.25)	171.50 (89.50,356.25)	441.00 (123.50,2946.50)	256.00 (27.75,2001.50)	386.00 (166.00,12838.50)	<
Collections, M (Q_1, Q_3)	90.50 (28.50, 398.25)	51.50 (23.75,83.75)	132.50 (31.00,1283.75)	48.00 (29.00,96.00)	118.50 (29.00,368.25)	134.00 (19.75,396.00)	181.00 (51.00,524.50)	**0.**
Comments, M (Q_1, Q_3)	11.00 (1.00, 93.00)	0.00 (0.00,3.00)	21.00 (3.00,197.00)	12.00 (9.00,18.00)	34.00 (4.00,101.75)	4.00 (0.00,56.00)	33.00 (1.50,670.50)	<
Shares, M (Q_1, Q_3)	68.50 (14.25, 616.00)	11.00 (4.00,23.00)	141.50 (31.00,1137.50)	36.00 (16.00,81.00)	65.00 (14.00,345.50)	57.00 (15.00,525.00)	154.00 (6.50,712.00)	<
Video length(seconds), M (Q_1, Q_3)	124.00 (70.00, 247.00)	1273.50 (793.75,1948.00)	102.00 (68.00,174.00)	71.00 (48.00,85.00)	58.50 (26.75,144.00)	135.00 (98.75,252.25)	202.00 (176.00,338.00)	<
Fans of video uploaders(ten thousand), M (Q_1, Q_3)	4.10 (0.82, 51.30)	1.55 (0.39,3.93)	5.60 (1.50,56.40)	4.10 (1.70,51.30)	319.00 (5.88,1584.70)	2.80 (0.82,15.15)	0.31 (0.00,6.50)	<
Quality and reliability								
GQS, M (Q_1, Q_3)	3.00 (2.00, 3.00)	3.50 (3.00,4.00)	3.00 (2.50,3.00)	2.00 (2.00,2.50)	1.50 (1.50,2.00)	2.50 (2.00,3.00)	2.00 (1.50,2.00)	<
mDiscern Score, M (Q_1, Q_3)	2.00 (2.00, 3.00)	2.00 (2.00,4.00)	3.00 (2.00,3.00)	2.00 (2.00,2.00)	2.00 (1.00,2.00)	2.00 (2.00,2.00)	2.00 (1.00,2.00)	<
VIQI score, M (Q_1, Q_3)	10.00 (9.00, 11.50)	11.50 (10.00,15.50)	10.50 (10.00,11.50)	9.00 (8.00,10.50)	8.50 (8.00,10.00)	10.00 (9.38,11.12)	7.25 (7.00,8.00)	<
JAMA score, M (Q_1, Q_3)	2.00 (1.00, 3.00)	3.00 (2.00,3.00)	2.00 (2.00,3.00)	2.00 (2.00,2.00)	1.00 (1.00,2.00)	2.00 (1.00,2.00)	1.00 (1.00,2.00)	<
Pemat-A score, M (Q_1, Q_3)	2.00 (0.50, 2.50)	1.75 (0.00,2.50)	2.00 (1.50,3.00)	0.50 (0.00,1.00)	0.25 (0.00,2.00)	2.00 (0.50,2.50)	1.00 (0.62,1.88)	<
Pemat-U score, M (Q_1, Q_3)	10.00 (8.50, 10.50)	11.00 (10.00,12.00)	10.00 (9.50,10.50)	8.50 (7.50,9.00)	8.00 (7.00,8.75)	9.50 (9.00,10.62)	7.50 (7.00,8.00)	<
PEMAT score, M (Q_1, Q_3)	11.50 (10.00, 13.00)	12.00 (10.38,14.00)	12.00 (11.00,13.50)	8.50 (7.50,10.00)	8.50 (7.50,10.00)	10.75 (10.00,12.12)	8.25 (8.00,9.75)	<

3.Differences between Platforms

A number of important distinctions have been made in respect to Bilibili and TikTok. The quality of information of videos on TikTok scored better on mDISCERN and JAMA than those on Bilibili (P = 0.007 and P < 0.001, respectively). Nevertheless, there were no statistically significant differences between both platforms with regards to GQS and VIQI (P = 0.778 and P = 0.089, respectively). In terms of understandability and actionability, the video ratings of the platform were greater in the case of Bilibili videos than those of TikTok videos, with the results presented as [10.00 (9.00-11.12) and 9.50 (8.0010.50), P = 0.003]. However, there was no difference in PEMAT-A and total PEMAT scores between the two platforms (P = 0.121 and P = 0.399).

Regarding the properties of the videos, Bilibili videos had more time than TikTok videos, with averages of [190.00 (100.00-482.00) and 89.00 (62.00-161.50) seconds respectively, P < 0.001). Conversely, the number of followers on TikTok was significantly higher with values of [13.45 (2.65-171.75) vs 2.60 (0.36–7.60) x10,000, P < 0.001]. Lastly, in regards to engagement results, TikTok videos gained a much greater number of likes, favourites, comments and shares compared to Bilibili videos (all, P < 0.001). Detailed results are presented in Table 2.

Table 2
General information, quality, and reliability scores of myocarditis-related short videos on TikTok and Bilibili.

Variables	Total (n = 253)	Bilibili (n = 121)	Tiktok (n = 132)	*P*
General information				
Likes, M (Q_1, Q_3)	262.00 (50.50, 1655.25)	61.50 (18.25, 355.75)	577.50 (174.75, 4098.75)	**< .001**
Collections, M (Q_1, Q_3)	90.50 (28.50, 398.25)	58.50 (18.75, 158.00)	169.00 (40.00, 1161.50)	**< .001**
Comments, M (Q_1, Q_3)	11.00 (1.00, 93.00)	1.00 (0.00, 9.00)	43.00 (10.50, 299.00)	**< .001**
Shares, M (Q_1, Q_3)	68.50 (14.25, 616.00)	20.50 (5.00, 128.75)	191.00 (42.50, 1894.75)	**< .001**
Video length(seconds), M (Q_1, Q_3)	124.00 (70.00, 247.00)	190.00 (100.00, 482.00)	89.00 (62.00, 161.50)	**< .001**
Fans of video uploaders(ten thousand), M (Q_1, Q_3)	4.10 (0.82, 51.30)	2.60 (0.36, 7.60)	13.45 (2.65, 171.75)	**< .001**
Quality and reliability				
GQS, M (Q_1, Q_3)	3.00 (2.00, 3.00)	3.00 (2.00, 3.00)	3.00 (2.00, 3.00)	0.778
mDiscern Score, M (Q_1, Q_3)	2.00 (2.00, 3.00)	2.00 (2.00, 3.00)	2.75 (2.00, 3.00)	**0.007**
VIQI score, M (Q_1, Q_3)	10.00 (9.00, 11.50)	10.50 (9.50, 11.50)	10.00 (9.00, 11.00)	0.089
JAMA score, M (Q_1, Q_3)	2.00 (1.00, 3.00)	2.00 (1.00, 2.00)	2.00 (2.00, 3.00)	**< .001**
Pemat-A score, M (Q_1, Q_3)	2.00 (0.50, 2.50)	2.00 (0.38, 2.50)	2.00 (1.00, 2.50)	0.121
Pemat-U score, M (Q_1, Q_3)	10.00 (8.50, 10.50)	10.00 (9.00, 11.12)	9.50 (8.00, 10.50)	**0.003**
PEMAT score, M (Q_1, Q_3)	11.50 (10.00, 13.00)	11.50 (10.00, 13.50)	11.50 (9.00, 13.00)	0.399
Video length(seconds), M (Q_1, Q_3)	124.00 (70.00, 247.00)	190.00 (100.00, 482.00)	89.00 (62.00, 161.50)	**< .001**

4.Differences by uploader identity

The identity of the up-loader had a significant relationship with various outcome measures. When it comes to information quality, the GQS, mDISCERN as well as JAMA scores were highly different between the uploader groups (P < 0.001, P < 0.001, and P = 0.004, respectively), where the videos uploaded by cardiovascular medical professionals as well as non-cardiovascular medical professionals were in general rated better. With respect to understandability and actionability, the PEMAT-A, PEMAT-U, and overall PEMAT scores were also found to be very different between the different identities of uploading (P < 0.001, P = 0.029, and P = 0.001 respectively). organisational accounts showed moderate low PEMAT-A scores [1.00 (0.002) and lowest low PEMAT-U scores [8.00 (7.50-10.38]. Concerning video attributes, major differences between groups were seen both in terms of video length and time of upload (all, P < 0.001). The videos uploaded by individual users were the longest (297.50 (126.75-1122.50) seconds in duration) and earliest (1055.50 (647.25-1142.75) days) upload dates. When it came to the engagement indicators, there was a significant difference between the groups (P = 0.002, P < 0.001, and P = 0.005 respectively) with the difference in the number of collections not being statistically significant (P = 0.522). The VIQI scores were not significantly different between the uploader identities (P = 0.136). Detailed results are presented in Table 3.

Table 3
Characteristics, quality, and reliability of myocarditis-related short videos by different uploaders on TikTok and Bilibili.

Variables	Total (n = 253)	Cardiovascular medical professionals (n = 87)	organizational accounts (n = 38)	Individual users (n = 66)	Non-Cardiovascular medical professionals (n = 62)	*P*
General information						
Likes, M (Q_1, Q_3)	279.00 (52.00, 1789.00)	263.00 (83.00,1015.50)	398.50 (73.50,3639.25)	63.50 (18.50,501.00)	503.50 (101.00,3997.50)	**0.002**
Collections, M (Q_1, Q_3)	92.00 (29.00, 432.00)	89.00 (28.00,470.00)	118.50 (30.00,329.00)	64.50 (30.75,223.75)	139.50 (27.75,1465.25)	0.522
Comments, M (Q_1, Q_3)	11.00 (1.00, 93.00)	14.00 (3.00,65.00)	24.00 (2.25,108.50)	2.00 (0.00,16.25)	22.50 (2.00,236.00)	**< .001**
Shares, M (Q_1, Q_3)	72.00 (15.00, 658.00)	123.00 (28.00,639.50)	70.00 (10.75,566.50)	21.00 (5.25,234.75)	123.50 (24.75,1884.00)	**0.005**
Video length(seconds), M (Q_1, Q_3)	124.00 (70.00, 247.00)	98.00 (68.00,170.50)	80.50 (29.75,221.25)	297.50 (126.75,1122.50)	105.00 (67.00,179.25)	**< .001**
Day since upload, M (Q_1, Q_3)	489.00 (297.00, 1126.00)	413.00 (300.00,850.50)	269.00 (195.25,1133.00)	1055.50 (647.25,1142.75)	394.50 (316.75,742.75)	**< .001**
Quality and reliability						
GQS Score, M (Q_1, Q_3)	3.00 (2.00, 3.00)	3.00 (2.50,3.00)	2.00 (1.50,3.00)	2.50 (2.00,3.00)	3.00 (2.50,3.00)	**< .001**
mDiscern Score, M (Q_1, Q_3)	2.00 (2.00, 3.00)	3.00 (2.00,3.00)	2.00 (2.00,2.75)	2.00 (2.00,2.00)	2.00 (2.00,3.00)	**< .001**
VIQI Score, M (Q_1, Q_3)	10.00 (9.00, 11.50)	10.00 (9.50,11.00)	9.00 (8.00,11.00)	10.00 (9.00,11.50)	10.50 (10.00,11.00)	0.136
JAMA Score, M (Q_1, Q_3)	2.00 (1.00, 3.00)	2.00 (2.00,3.00)	2.00 (1.00,2.00)	2.00 (1.00,2.00)	2.00 (2.00,3.00)	**0.004**
PEMAT-A Score, M (Q_1, Q_3)	2.00 (0.50, 2.50)	2.00 (1.00,3.00)	1.00 (0.00,2.00)	1.00 (0.00,2.00)	2.00 (1.12,2.50)	**< .001**
PEMAT-U Score, M (Q_1, Q_3)	10.00 (8.50, 10.50)	10.00 (9.00,10.50)	8.00 (7.50,10.38)	10.00 (8.50,11.00)	10.00 (9.12,10.50)	**0.029**
PEMAT Score, M (Q_1, Q_3)	11.50 (9.88, 13.00)	12.00 (10.00,13.50)	10.00 (7.50,13.12)	10.50 (9.00,12.50)	12.00 (11.00,13.00)	**0.001**

The figure also demonstrates how the quality related indicators are distributed depending on the uploader identity in Fig. 4. Overall trends of the visual presentation do not differ much with the results given in the table in terms of statistics. Particularly, the medical videos created by the cardiovascular and non-cardiovascular specialists were usually more effective in GQS, mDISCERN and JAMA scores than the organizational ones did in PEMAT-A and PEMAT-U. This figure is intended in particular to show distributional tendencies among groups and the official meaning needs to be based on the statistical tests which are represented in the table. It should be noted that whereas a difference in VIQI can be observed in the picture, the intergroup difference was statistically insignificant (P = 0.136).

5. Correlation Analysis

The correlation structure of TikTok (panel A) is almost comparable to that of Bilibili (panel B) as indicated in figure 5. Engagement indicators strongly correlated and the correlations between the likes and collections were 0.97 and 0.90 on TikTok and Bilibili respectively. Also, it has been found that PEMAT-related indicators had high positive correlations. Specifically, the relationship between PEMAT-U and overall PEMAT was 0.95 in TikTok and 0.90 in Bilibili, respectively. Moreover, there was an average positive correlation of GQS with total PEMAT in either platform.

Discussion

Principal findings

As part of this cross-sectional study of short films on Bilibili and TikTok related to myocarditis, we have observed high levels of diversity in dissemination performance, topic focus, and other aspects of quality such as information quality (measured via GQS, mDISCERN, JAMA and VIQI) and patient-centered communication (assessed based on understandability and actionability according to PEMAT). Despite the growing use of short video services to search for health information, it was determined that the total reliability and education value of the myocarditis-themed materials in our sample were less than desirable. This highlights the importance of quality improvement and a stronger clinical orientation of the message[14, 16]. It has clinical relevance because myocarditis can present in a heterogeneous manner and some of the patients may become worse very quickly which would require correct risk communication that can lead to actionable guidance[4, 16]

Engagement characteristics and dissemination potential

The noted differences in engagement indicate that such features of platforms and the form of content can impact how myocarditis-related information spreads. According to the general trend, TikTok videos were commonly viewed by people with high follower counts along with high engagement rates, which means that this platform probably has a higher information diffusion capacity [17]. The video types of patient vlogs and expert monologues received more engagement and it indicates that first-person narratives and direct expert explanations are very popular among viewers in order to grab their attention. In medical conditions such as myocarditis that are not only complicated but also uncertain in clinical terms, individuals may find information more appealing when it provides a clear case scenario, a symptom experience, and emotional connection. Consequently, the potential of diffusion of videos with a stronger narrative structure and contextual relevance may be higher[18].

Nonetheless, our results also suggest that the amount of dissemination is not always an indicator of the level of information quality [14, 19, 20]. Certain videos (relatively popular) had weaker performance in terms of quality-related measures, e.g., GQS, mDISCERN, JAMA, VIQI, pointing to the gap between the popularity of the platform and its medical utility. The fact agrees with other literature studies of this field indicating that short-video users are more prone to come across emotionally shaped stories, personal stories or simplified versions of information instead of formally organized, evidence-driven medical knowledge [21]. This mismatch can have important practical consequences when discussing myocarditis. Overemphasis on personal experiences in videos and lack of focus on symptoms of danger, diagnostic principles, or treatment options are likely to misrepresent the perception of disease severity among the public and the medical assessment that is required. Consequently, recommendation systems that rely mostly on engagement might not be enough to guarantee that the disseminated myocarditis-related information is of high quality. To plug this hole, actions on the platform level could play a role, such as source verification, quality labels, and favoring professional-generated content [14].

Content coverage and clinically important gaps

There is a large variety of topics covered in the current short video on myocarditis, such as screening, epidemiology, etiologys or risk factors, symptoms, diagnosis, differential diagnosis, treatment, prevention, and complications or prognosis. Nevertheless, these topics are distributed in a highly unbalanced manner. Unlike the more open and easily shared themes like etiologys, symptoms and diagnosis, information about preventive actions, managing complications, prognostic assessments, and long-term care remains limited. There has been previous evidence suggesting that videos posted by cardiovascular healthcare providers have an extensive range of themes [20], whereas other sources of information provide less coverage of topics that are simpler to understand or that are popular with the masses [14].

Such a trend in distribution of content could be extremely important concerning myocarditis prevention and treatment. When the general population is mainly being informed about the recognition of the disease and some initial information, but not about the clinically vital data like early indicators of severe illness, emergency treatment criteria, physical restrictions at the stage of recovery, regular check-ups, and long-term outlook, the population cannot develop full comprehension of the risks involved with the disease. As a result, it might negatively affect the choices made towards seeking care and self-management. The next wave in health communication associated with myocarditis must thus not focus merely on disease recognition but ensure that the emphasis is shifted more toward alerts on complications and severe conditions, guidelines on behavior during recovery, and long term follow-up recommendations [22].

Platform differences in quality, reliability, and understandability

We found important disparities in short-video platforms with respect to the distribution of information and educational achievement [20, 23]. Namely, TikTok had higher results on the mDISCERN [14] and JAMA scales; on the contrary, the PEMAT-U score and the length of video were higher in Bilibili. This indicates that TikTok performs well in the aspects of source presentation and reliability-related dimensions, and the lengthy video form of Bilibili might be better in communicating in-depth information, and improving consumer comprehension. The lack of statistically significant differences among platforms in GQS, VIQI, PEMAT-A, and overall PEMAT does not preclude further improvement of information quality and educational value of patient care provided by these means. In the case of myocarditis, which necessitates not only early risk recognition but also additional behavioral guidance, a simple increase in content visibility alone will probably not be enough. More attention needs to be paid to the level of content depth, the openness of sources, and the intelligibility of practical suggestions.

Uploader identity and implications for content optimisation

The identity of the uploader was also a significant factor in determining the quality of the video. The current research found that the videos made by health care professionals scored highest on the GQS, mDISCERN and JAMA measures and thus highlighted the importance of professional background in order to achieve accuracy and reliability of content [16]. On the other hand, the organizational accounts (mainly news media accounts in our sample) did not demonstrate any obvious benefit with regards to understandability or actionability. Such kind of content can focus more on timeliness, event-orientation, and dissemination effect, and it may not focus on giving systematic information about the background of the disease, diagnostic thinking and long-term treatment. Although this form of communication might maximize the audience size, the educational worth of patients can remain relatively low.

Crucially, it was found by medical practitioners who had uploaded videos that there is still a lot of scope regarding general quality and patient focus. It means that existing myocarditis-related short videos are still lacking in information completeness, recommendation clarity, and medical professionalism/lay accessibility balance [20]. Future optimization methods might then have to be tailored to the characteristics of uploaders. In the case of medical professionals, the emphasis must be laid on both scientific correctness and increasing risk messages and actionable directions. In the case of organizational accounts, along with making sure the impact of dissemination is achieved, more focus should be put on source disclosure, evidence-based

framing, and specific management advice. To a non-professional creator, content templates that are standardized, expert-reviews and platform-based prompts can help address problems of missing information and inaccurate expression. At the same time, such mechanisms of professional account verification and high-quality content promotion can be further strengthened by platforms to make reliable myocarditis-related information more visible.

Correlation analysis and the dissemination–quality relationship

The correlation analysis also supports the key results of this research article. Likes, collections, comments, and shares have a high positive correlation [19, 24] implying that all these measures are indicators of total user involvement and distribution capabilities. The relationship between engagement measures and quality or reliability measures, however, was modest, which is why high dissemination was not always synonymous with high-quality content [18]. Moreover, there has been no observable constant relationship between video time and engagement measures which indicates that video length alone can not be a determinant of how much audience participates in the videos. Rather, the nature of the platform, the type of content and the manner through which it is presented might have a more significant effect on dissemination performance.

It is important to note that the duration of a video showed some form of correlation with the chosen quality and reliability indicators. It could be explained in this way because longer videos provide more chances to explain more complicated information, offer more complete details on disease management, and add crucial context-specific information. Nevertheless, length itself is not an indicator of quality, quality is determined first and foremost by the method of presentation, use of evidence-based information, and narrative clarity. The high correlations noted amongst the indicators of the PEMAT, and between the PEMAT and GQS indicate that overall higher quality videos are also likely to be easier to understand and more valuable to use in patient education. This result points to the fact that attempts to maximize short videos on myocarditis need to focus on being correct as well as clear and practically useful as regards clinically relevant data like when to get medical help, how to spot symptoms and what steps to take during the recovery process.

Practical implications

The current results are very important practically. Since short-videos are now becoming popular sources of getting information about diseases [25], it is necessary to boost the accuracy, dependability, and regulation of information on myocarditis. Considering the possible criticality of myocardiopathy, the perception of the population to information available online has a direct effect on the timeliness of medical assessments as well as risk identification and recovery management [24]. We conclude that further upgrades will require concerted actions by platforms, content producers and audience. In particular, platforms would need to improve professional vetting mechanisms and perfect recommendation engines and quality prompts to increase the prominence of high-quality content. Health care professionals and institutional authors should maintain the scientific rigor, writing in simple language, and provide effective solutions. At the same time, audiences should be motivated to become more critical of the information source credibility, content completeness, and scientific legitimacy to reduce any risks related to misinformation. Better balancing of dissemination effectiveness and medical precision in short-video formats is crucial to the full realization of the potential value of short-video platform use in myocarditis-related healthcare communication.

Limitations

Various shortcomings must be kept in mind upon reading the results reported in this paper. Firstly, this is a cross-sectional study that took a snapshot of the myocarditis-related short-video material at one particular moment; hence, it is impossible to make inferences about causes and effects, and the evolution of the material produced over time, the governance of the platforms, and their usage by the users has not been addressed. Secondly, the fact that we concentrated on Chinese-language videos posted on Bilibili and TikTok might restrict the external validity of our results to other languages, cultures, and global websites. Third, even though we used standardized and commonly recognized measurement tools and trained assessors, a certain measure of bias is unavoidable during rating the quality of the information, its accessibility as well as actionability. Blinding could not be totally achieved, since the identification of the uploader along with the contextual clues can be perceived in videos, which can introduce a bias in assessing them. In turn, the sample size was small, and some of the subgroups (e.g., particular types of videos or uploader groups) consisted of a limited number of videos, so any comparison between the subgroups should be viewed with a precaution since estimates might not be reliable. Fifth, the recommendation algorithms of a specific platform and the default ranking systems might favor more visible or trending videos, making it more likely to incorporate high-exposure videos and bias in the selection process. Finally, existing evaluation tools still have limited coverage of the unique dissemination characteristics of short videos and may not fully reflect the complexity of information related to myocarditis. Future research could expand the sample size, include more platforms and linguistic contexts, and integrate longitudinal designs with user behavior data to more comprehensively assess the dissemination patterns of high-quality health information on myocarditis and its impact on public perception and healthcare-seeking behavior. Additionally, exploring evaluation frameworks better suited to the characteristics of short videos could further validate and extend the findings of this study.

Conclusions

Short videos on Bilibili and TikTok related to myocarditis have been characterized by large differences between them in dissemination performance, focus on the topic, level of information, reliability, understandability, and actionability. On balance, the educational value and the overall quality of the existing information is low-quality, and high engagement does not necessarily indicate high-quality information. The potential of dissemination was higher in TikTok videos, whereas there were more successful results of understandability in Bilibili videos. It was noted that clinically significant topics such as prevention, managing complications and prognosis, and guidance in long-term follow-up and recovery were poorly represented.

These findings suggest that future efforts should focus on increasing the involvement of medical professionals, enhancing the transparency of information sources, and optimizing content design and dissemination strategies in line with the characteristics of different platforms, in order to improve the accuracy, reliability, and practicality of health information related to myocarditis.

Abbreviations

GQS
Global Quality Scale
mDISCERN
Modified DISCERN
JAMA
Journal of the American Medical Association
VIQI
Video Information and Quality Index
PEMAT
Patient Education Materials Assessment Tool for Audiovisual Materials
PEMAT-A
Patient Education Materials Assessment Tool for Audiovisual Materials – Actionability
PEMAT-U
Patient Education Materials Assessment Tool for Audiovisual Materials – Understandability
IQR
Interquartile Range

Declarations

Ethics approval and consent to participate

The research used an online open source analysis of data, which did not include personal communication with people, and so there was no need to have ethical approval and consent.

Clinical trial number

not applicable

Consent for publication

Not applicable

Availability of data and materials

The data that is produced and/or analyzed in the course of the present research are accessible to any of the respective authors on a reasonable request. It is not publicly available because of the limitations set by the platform used and it could contain personally identifiable information about the online accounts.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

The role of MTW included conceptualization, methodology, software, visualization, data curation, and writing original draft. PPZ was in charge of data curation and writing original draft. HHC supervised and wrote reviews and edited them. Each of the authors has made a contribution to the article and approved the accepted version.

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Figures

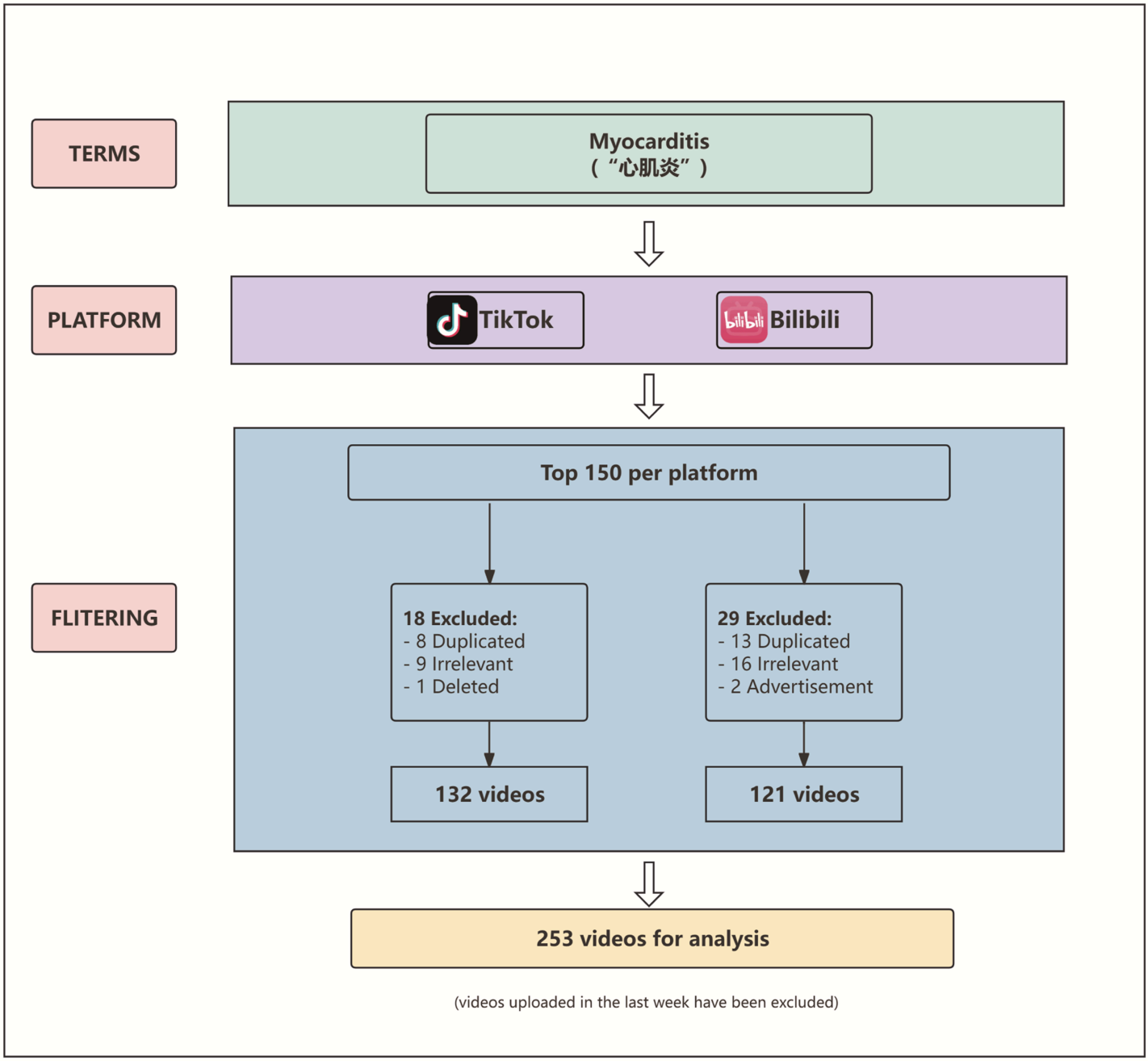


Figure 1

Flowchart of video screening

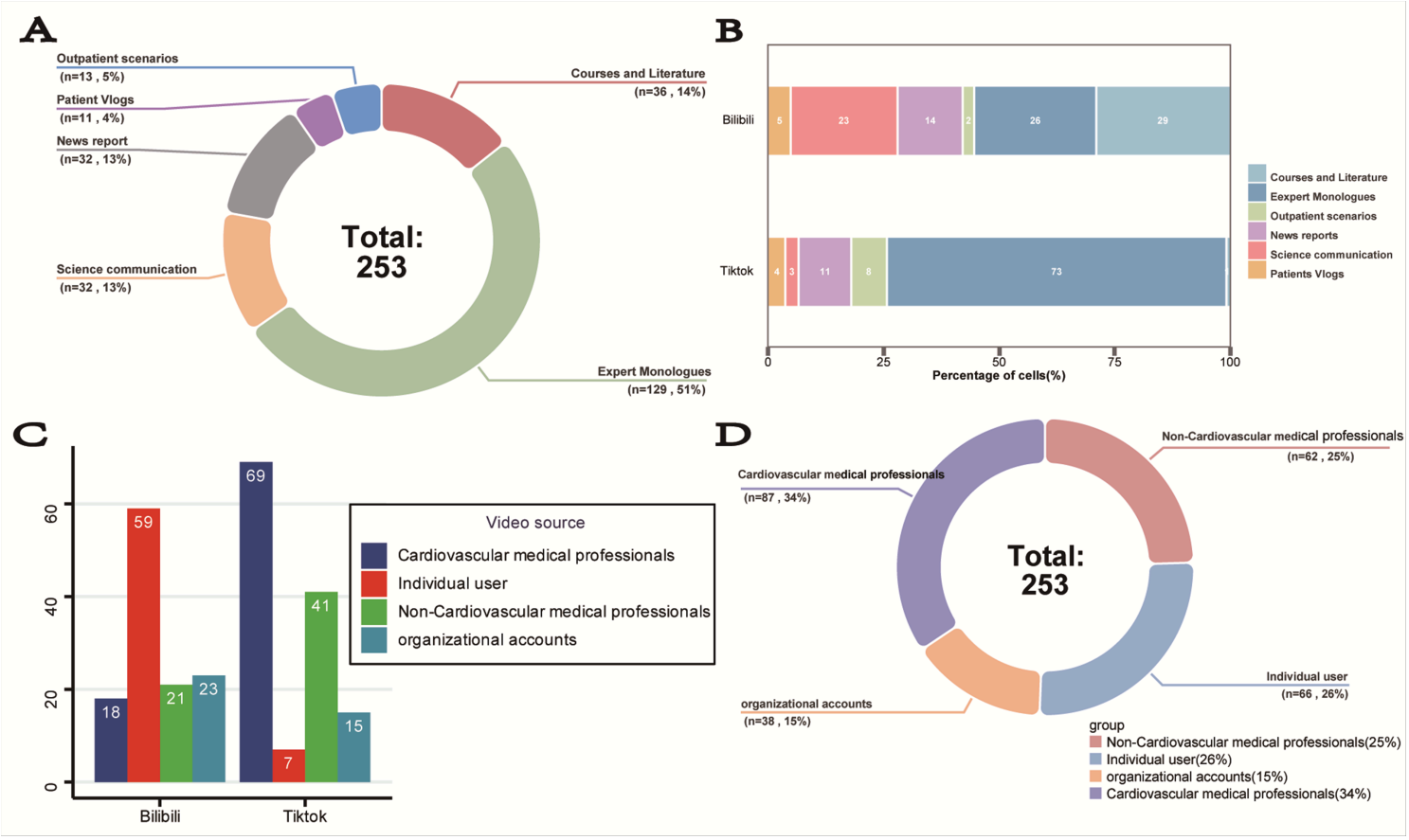


Figure 2

Distribution of video types and uploader identities across platforms

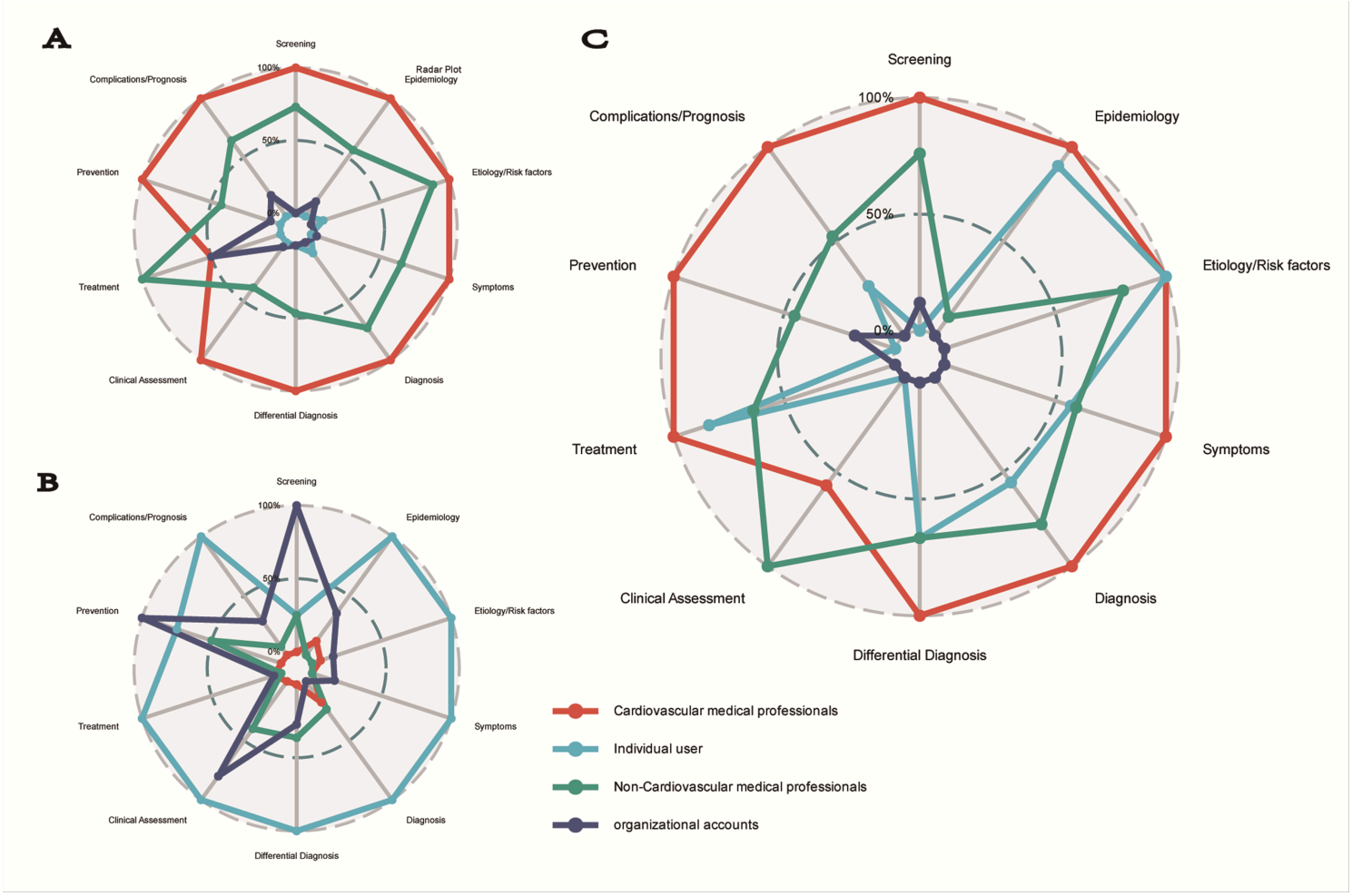


Figure 3

Content coverage across nine dimensions on TikTok and Bilibili.

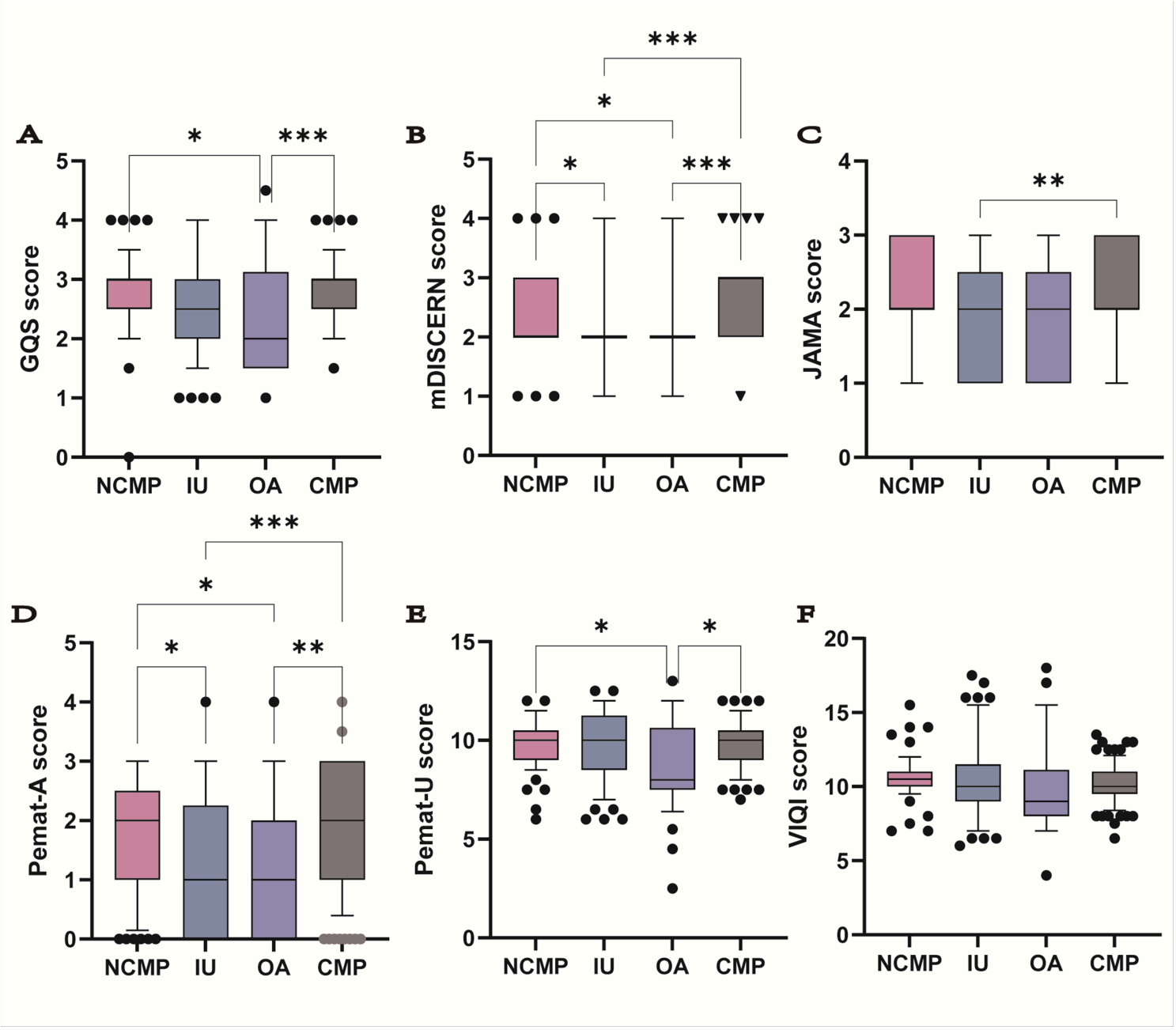


Figure 4

Comparison of video quality scores among different uploader types.

(A) GQS score; (B) modified DISCERN (mDISCERN) score; (C) JAMA score; (D) PEMAT-A score; (E) PEMAT-U score; (F) VIQI score. Significance levels: *P ≤ .05; **P ≤ .01; ***P ≤ .001; ****P ≤ .0001. GQS = Global Quality Score; JAMA = Journal of the American Medical Association benchmark criteria; PEMAT-A = Patient Education Materials Assessment Tool for Audiovisual Materials, understandability; PEMAT-U = Patient Education Materials Assessment Tool for Audiovisual Materials, actionability; VIQI = Video Information and Quality Index; NCMP = non-cardiovascular medical professionals; IU = individual users; OA = organizational accounts; CMP = cardiovascular medical professionals.

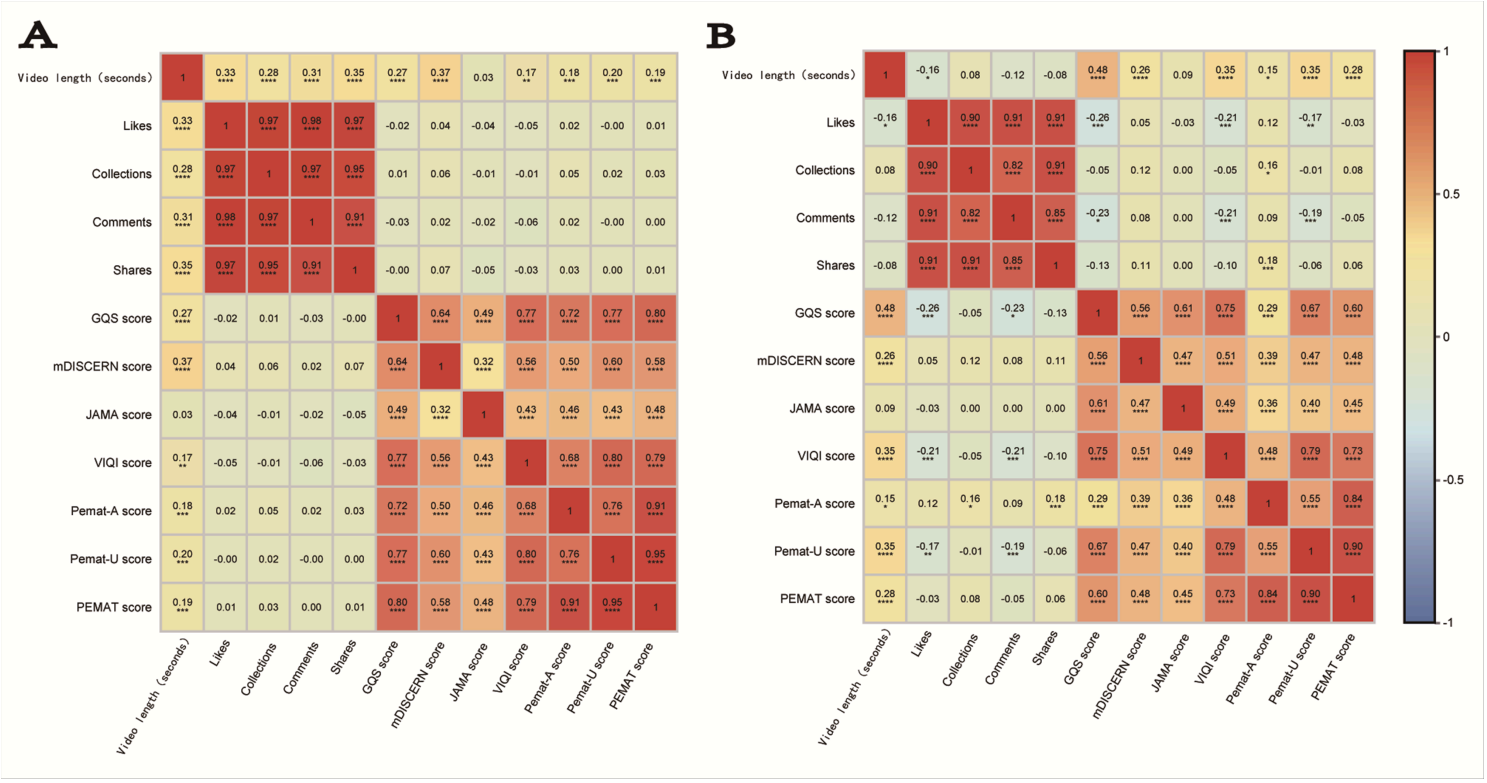


Figure 5

Correlation analysis between basic video characteristics and quality scores.(a) TikTok; (b) Bilibili.

Supplementary Files

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