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Quality and reliability of pediatric pneumonia related short videos on mainstream platforms: cross-sectional study

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Abstract

Background Pediatric pneumonia remains a major global health concern, accounting for one of the leading causes of mortality among children under five years of age. With the prevalence of COVID-19, public attention to pediatric pneumonia has significantly increased. In recent years, short video platforms such as Bilibili, TikTok, and Kwai—boasting billions of global users—have emerged as critical channels for disseminating and accessing health-related information. This study systematically evaluates the quality and reliability of pediatric pneumonia-related short videos on the aforementioned three platforms.

Methods We employed the Chinese keyword "Pneumonia in Children" to conduct searches on Bilibili, TikTok, and Kwai, selected the top 100 recommended related videos of each platform, and extracted and recorded the title, website, publisher, content, duration, days since published, and audience engagement metrics (Likes, Comments, Saves) of each video. The Global Quality Scale (GQS), modified DISCERN (mDISCERN), and Medical Quality Video Evaluation Tool (MQ-VET) were used to evaluate video quality and reliability. Finally, statistical analyses were conducted to compare quality differences among different platforms, different types of publishers, and different video content.

Results Significant variations in audience engagement metrics (likes, comments, and saves) were observed across the three platforms ($p < 0.01$), with TikTok demonstrating the highest values for all metrics. The categorization of video content and publisher types exhibited statistically significant heterogeneity among the platforms ($p < 0.001$). Videos created by medical professionals exhibited significantly elevated quality and reliability assessment scores in comparison to content generated by non-medical practitioners ($p < 0.001$). Bilibili consistently achieved the highest scores across all evaluation tools (GQS, mDISCERN, and MQ-VET scores; $p < 0.001$), particularly for content produced by medical professionals. Compared with News and reports, videos focused on disease Disease knowledge and Treatment and prevention received significantly higher scores ($p < 0.001$). Notably, a negative correlation was identified between video quality scores and audience engagement metrics($p < 0.05$).

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Conclusion The overall quality of video content on the three platforms Bilibili, TikTok, and Kwai is average, with low reliability, among which Bilibili's video quality and reliability are higher than the other two platforms. Meanwhile, videos published by medical professionals have better quality and higher reliability.

Keywords Pediatric pneumonia, Short videos, Quality and reliability, Cross-sectional study, Bilibili, Tiktok, Kwai

Introduction

Pneumonia, also referred to severe lower respiratory tract infection, is one of the most commonly encountered infectious diseases among children. Pneumonia has a high risk of mortality and a range of adverse effects, thereby increasing the clinical and socio-economic burden [1, 2]. Furthermore, research has indicated that early childhood pneumonia predisposed individuals to heightened susceptibility to chronic respiratory conditions, notably Chronic Obstructive Pulmonary Disease (COPD), during later-life stages [3].

The global public health landscape has witnessed pneumonia gain renewed epidemiological prominence during the COVID-19 era, paradoxically coinciding with reduced global prevalence of respiratory infections attributable to widespread implementation of stringent non-pharmaceutical interventions (NPIs) [4–9]. However, in recent years, particularly in the post-pandemic era, an increasing number of studies have demonstrated remarkable changes in the global prevalence of respiratory virus infections [10–17], such as alterations in seasonal patterns or the emergence of abnormal peaks [11, 15–17]. The changing patterns of respiratory pathogen prevalence have posed new challenges to the prevention and treatment of pediatric respiratory infectious diseases.

The proliferation of digital communication infrastructure has precipitated a paradigm shift in health information acquisition, with social media platforms emerging as the predominant health information-seeking modality globally. A study conducted in China revealed that during the COVID-19 pandemic, the Internet was the most frequently utilized source of COVID-19 knowledge among research participants [18]. Compared to traditional online media, short videos have increasingly played an indispensable role due to their short duration, rich content, high acceptance, and striking visual impact. Short video platforms such as TikTok, Bilibili, and Kwai have gradually become the most frequently accessed sources of information for internet users. In 2022, Bilibili has 92.8 million daily active users, 326 million monthly active users, and a daily average of 3.4 billion video views [19]. Similarly, TikTok had 250 million active users [20], and the daily active users of the Kwai reached 376 million in the second quarter of 2023, with an average daily usage time of 117 min [21]. Despite of restrictions on accessing foreign websites such as Facebook and Twitter for Chinese users, China still ranks among the top 10 countries in terms of social media activity worldwide [22].

While web-based social health networks have enhanced patient health literacy and facilitated active health management, this digital empowerment has been accompanied by excessive public interference in medical decision-making, which is not limited to the proactive demand for unnecessary medical interventions or even treatments that have been proven to be ineffective or harmful (e.g. inappropriate antibiotic prescriptions) [23–25]. Concurrently, health-related misinformation is pervasive across various social media platforms, which to some extent increases the risk for patients who may make health decisions based on inaccurate information [26, 27]. Study has found that misinformation regarding vaccines on social media can exacerbate vaccine hesitancy, impede the progress of vaccine-induced herd immunity, and potentially increase the number of infections associated with novel COVID-19 variants [28]. Sometimes these seemingly individual decisions can have broader implications for the entire society and economy, particularly in the context of preventing or controlling the emergence and re-emergence of infectious diseases at an early stage [29]. The high population-attributable mortality risk resulting from misinformation about COVID-19 disseminated by celebrities further underscored the existence of this impact [30]. During the pandemic, some medical professionals also disseminated extensive, inaccurate, and potentially harmful information, highlighting the considerable difficulty the public faced in discerning and accessing reliable health information [31].

Given the distinct physiological and developmental characteristics of pediatric populations, the management and prognosis of childhood diseases are uniquely dependent on parental comprehension and decision-making [32, 33]. However, owing to limited professional knowledge and discernment, parents' perceptions can be easily influenced by complex and varying quality of online information, thus affecting the effectiveness of childhood disease management to some extent. Consequently, ensuring the accuracy and reliability of digital health information has emerged as a critical public health priority.

With the growing popularity of short videos, the number of videos related to medical and health topics has also been increasing. Several studies have analyzed the quality of short videos on various platforms spanning diverse disease categories, including the respiratory, digestive, cardiovascular, nervous, endocrine-metabolic systems and orthopedics surgeries [34–44], with oncology-related

content receiving disproportionate scholarly focus [35, 45–48]. The results indicated that the overall quality of these videos is generally unsatisfactory [32, 34, 35, 39, 41–43, 45, 47–50]. Despite the study having highlighted that the TBI rehabilitation -related videos on YouTube are of medium quality, the quality of all videos still required improvement [51]. Additionally, a study on pancreatic neuroendocrine tumors revealed that, from 2020 to 2024, although the number of videos on social media platforms increased annually, there was no significant improvement in video quality [52]. This persistent mismatch between quality of videos and popularity of social media platforms emphasizes the urgent need for standardized quality assessment in digital health communication. However, the recent research shows that interventions based on social media (like the liver cancer prevention program on Kakao Talk) can encourage HBV monitoring and liver cancer prevention [53]. In the future, it is necessary to systematically evaluate the efficacy and potential limitations of disseminating health information via short video formats on social media platforms.

As a leading cause of pediatric morbidity and mortality, pneumonia has become a prominent topic of health communication on social media platforms, where numerous videos related to pediatric pneumonia are available without critical quality assessments. To address this gap, this study represents the first systematic evaluation of pediatric pneumonia-related videos quality on dominant short-video platforms in China (TikTok, Bilibili, and Kwai) by employing validated assessment tools (GQS, mDISCERN and MQ-VET), from which we hope to inform strategies for improving health information quality on social media while guiding the public toward more reliable sources for pediatric pneumonia knowledge.

Methods

Search strategy and data collection

In order to alleviate the potential bias caused by personalized recommendation algorithms, we have set up and activated new accounts on each platform and used these new accounts to search for the keyword "儿童肺炎"("Pediatric pneumonia" in Chinese)on the Chinese versions of Tiktok, Bilibili, and Kwai on September 6, 2023. All videos were searched within a 24-hour period. And the search results were displayed in their default order. Two independent reviewers (F.H. and J.L.) screened all retrieved videos and excluded irrelevant videos about children's pneumonia, non-Chinese videos, and repeating content videos following the exclusion criteria: (1) Irrelevant videos: the topic of the videos was categorized as Disease knowledge, Treatment and prevention, and News and Reports. Videos not covering any of these topics were deemed irrelevant, (2) non-Chinese videos: all videos presented in languages other than Chinese were excluded from the analysis, (3) repeating content videos: if two videos are completely the same or edited from the same resource, the one uploaded by a certified account remains. If neither video was certified, the one uploaded first remains. We finally screened the top 100 system-default recommended videos which accorded with the inclusive criteria for further data extraction and analysis (Fig. 1), for existing researches show that the top 100 videos can represent all relevant videos in this field on each platform [35, 45]. We extracted and recorded the basic information of each video, including title, website, publisher, content, duration, days since published, and audience recognition (Likes, Comments, Saves), into Microsoft Excel 2021.

Measures

As shown in Table 1, the videos were categorized into two groups: Medical Practitioners and Non-Medical Practitioners. The medical practitioner group comprised three subcategories: (1) Respiratory Specialists, (2) Other Medical Specialists, and (3) Traditional Chinese Medicine Practitioners. Non-medical practitioners were stratified into: (1) Science Communicators and (2) Patients and others. Video content was similarly categorized into three distinct groups: (1) Disease Knowledge, (2) Treatment and Prevention, and (3) News and Reports.

Video assessment

The videos were independently scored by two pediatric clinical specialists (D.T and J.L.), with discordant assessments adjudicated by (Z.F). All evaluators possessed 15 + years of front-line clinical experience in tertiary pediatric institutions. The three experts comprehensively evaluated the overall quality and reliability of the videos using Global Quality Scale (GQS), modified DISCERN (mDISCERN), and Medical Quality Video Evaluation Tool (MQ-VET), which are the most widely used tools for evaluating the quality of health information and have been widely applied on several short video platforms, such as YouTube, TikTok, and Bilibili [35, 38, 45, 54–56].

The Global Quality Scoring (GQS) was used to assess the accuracy, usability, flow, and practical value of online information. The GQS is a five-point scale rating system designed to evaluate the quality of videos in patient education and has been widely employed in multiple studies [40, 45], with scores ranging from 1 to 5, where higher scores indicate superior video quality [45].

The modified DISCERN (mDISCERN), an enhanced version of the DISCERN instrument, was used to evaluate the reliability and completeness of information. The DISCERN is a reliable and effective tool for accessing the quality of written consumer health information, enabling patients and healthcare professionals to differentiate among the vast amount of variable-quality information

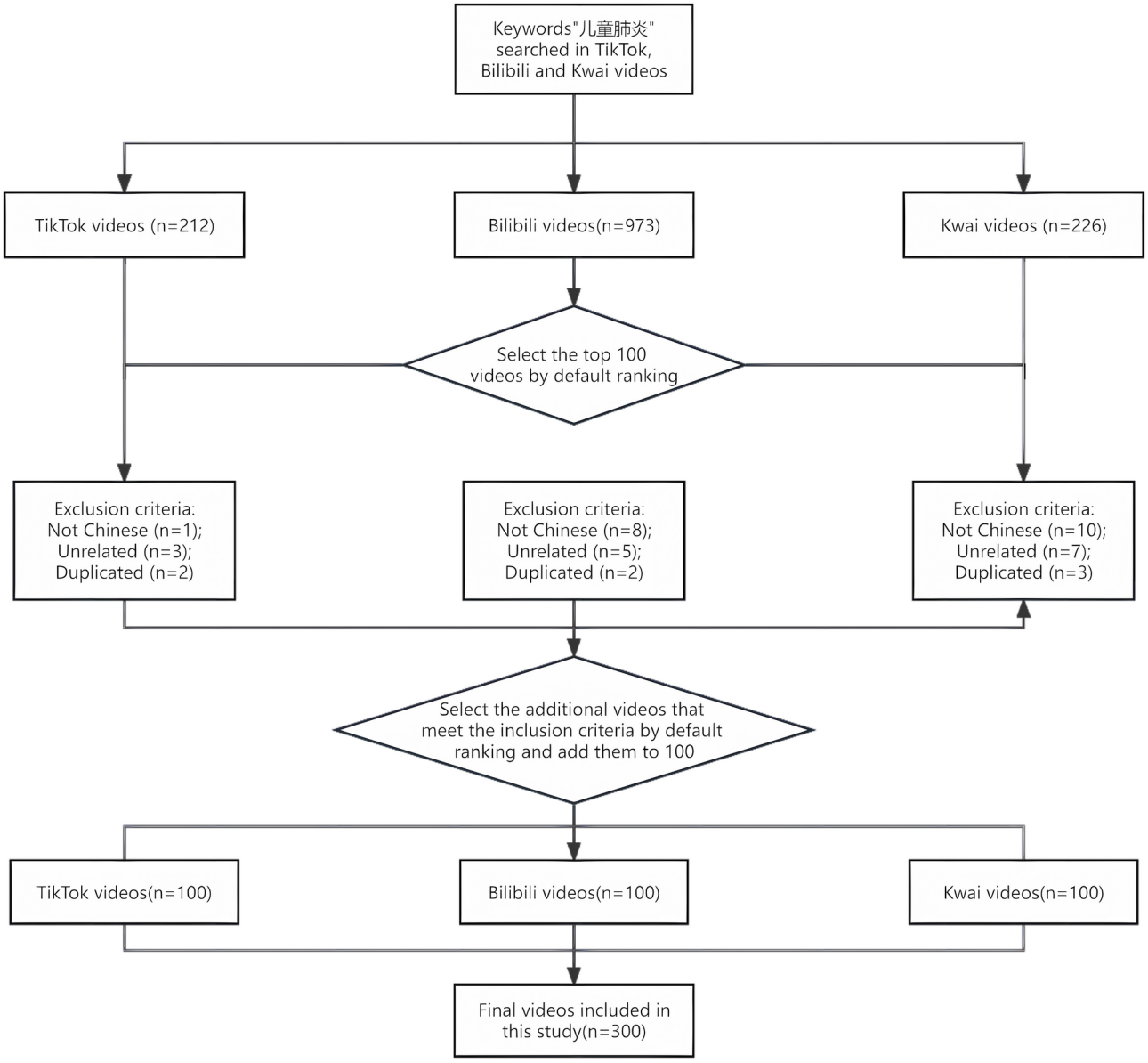

Fig. 1 Search strategy and video screening procedure on childhood pneumonia

Table 1 Detailed content of classification

Video Source	
Doctors in respiratory disease	Including specialists in respiratory medicine and pediatric medicine.
Doctors in other disease areas	Including other specialists in surgery, internal medicine, emergency medicine, imaging and other areas of modern medicine.
Traditional Chinese doctors	Doctors specializing in Chinese traditional medicine.
Science communicators	Including official media, individual science communicators, non-profit organizations/institutions.
Patients and others	Including pneumonia children, family members of pneumonia children, other individuals.
Video Content	
Disease knowledge	Including manifestation, anatomical, pathological, epidemiological, and basic research related to childhood pneumonia.
Treatment and prevention	Any knowledge related to childhood pneumonia treatment and prevention
News and Reports	News related to childhood pneumonia, Patient Reports and Patient Clinic Videos

[57, 58]. Studies have shown that the mDISCERN also exhibited good applicability and has been extensively applied in numerous studies [34, 35, 46, 47]. The mDISCERN score consists of five questions, each scored as 1 point for an affirmative response ("yes") and 0 points for a negative response ("no") [59]. Each "yes" response is awarded 1 point, while each "no" response receives 0 points and higher scores indicate greater reliability of the video [60].

Additionally, the Medical Quality Video Evaluation Tool (MQ-VET) scale was applied to evaluate video quality. Introduced by Guler, M.A. and E.O. Aydın in 2021, the MQ-VET scale has been widely adopted in recent studies due to its comprehensive evaluation system [61–63]. The MQ-VET scale comprises four sections with 15 questions in total, each scored on a scale of 1 to 5. The cumulative total score is calculated, with higher scores indicating greater reliability of the video.

The detailed scoring criteria of GQS, mDISCERN, and MQ-VET are provided in supplementary materials (Supplemental Tables 1–3). The three experts discussed the details of the scoring system, reached a consensus, and strictly followed the clinical practice guidelines for bacteria in infants and children by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America when during the scoring process.

Statistical analysis

The Shapiro Wilk test was applied to check the normality of the data. Non-normally distributed data are presented by the median (IQR) (upper and lower quartiles), and count data are presented by frequency and percentage. Spearman correlation analysis was used to evaluate the relationship between non-normally distributed continuous variables. The chi-square test was employed to compare categorical variables, the Mann-Whitney U test was used to compare two groups of non-normally distributed continuous variables, and the Kruskal Wallis test and Dunn's test were used for comparisons of three or more groups. For analyses employed in multiple comparisons (e.g. Dunn's test and correlation analysis among multiple groups), we used the Benjamini-Hochberg method (False Discovery Rate (FDR) correction) to control the FDR, with the significance threshold set at $\alpha = 0.05$.

The Kappa consistency test was used to evaluate the consistency of GQS scores and mDISCERN scores between the two raters, with Cohen $\kappa \geq 0.75$ indicating good consistency. In addition to Cohen's Kappa, we also calculated the intraclass correlation coefficient (ICC, two-way random-effects model, absolute agreement) to assess the consistency of continuous data for GQS and mDISCERN scores. Both Kappa and ICC values were reported with 95% confidence intervals. To further control for bias, all raters received standardized training and calibrated their standards through a pilot study before independent rating. All statistical analyses and data visualizations were conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines and completed using R software (version 4.0.3), with statistical significance set at $P < 0.05$.

Results

Video characteristics

Based on the predefined inclusion and exclusion criteria, we ultimately selected 100 videos from each platform for further data extraction and analysis. The baseline characteristics of the study sample are presented in Table 2. It is worth noting that significant differences in video duration were observed across the three platforms ($P < 0.001$). Bilibili had the longest videos (median duration, 187 s), while Kwai had the shortest (median duration, 35 s). The audience engagement metrics, including Likes, Comments, and Saves, varied across the three platforms ($P < 0.01$). TikTok led in audience interaction, showing the highest number of likes, comments, and saves.

Video content categorization

The analysis of video content is presented in Table 2. Videos related to disease knowledge had the highest proportion on all three platforms, with Bilibili at 66%, TikTok at 58%, and Kwai at 50%. Videos related to treatment and prevention had the highest proportion on TikTok (29%), while news and reports-related videos had the highest proportion on Kwai (31%).

Publisher characteristics

Among the included video publishers, 185 individuals (62%) were medical practitioners. We further categorized medical practitioners into three types: (1) Doctors in respiratory disease, (2) Doctors in other disease areas, and (3) Chinese traditional doctors. Non-medical practitioners were divided into two categories: (1) Science communicators and (2) Patients and others. There were statistically significant differences in the number of publishers across the five categories on all three platforms ($P < 0.001$) (Table 2). TikTok had the highest proportion of doctors (doctor in respiratory disease (39%), doctors in other disease areas (24%)), while Kwai had the highest proportion of Chinese traditional doctors at 34%, compared to 10% in Bilibili and 14% in TikTok. Additionally, Bilibili had the highest proportion of science communicators (36%), and Kwai had the highest proportion of patients and others (24%).

Video quality and reliability assessment

The consistency of GQS, mDISCREN and MQ-VET scores between two raters was excellent, with Cohen's

Table 2 Patient demographics and baseline characteristics

Characteristic	Platform			*p*-value[2]
	1, *N* = 100[1]	2, *N* = 100[1]	3, *N* = 100[1]	
Likes				< 0.001
Median (IQR)	7 (1, 23)	2,154 (325, 8,602)	498 (196, 2,328)	
Comments				< 0.001
Median (IQR)	0 (0, 2)	282 (29, 1,074)	61 (11, 199)	
Saves				< 0.001
Median (IQR)	7 (2, 24)	329 (55, 1,663)	118 (49, 551)	
Days since published				< 0.001
Median (IQR)	776 (245, 1,182)	149 (2, 626)	293 (103, 581)	
Duration				< 0.001
Median (IQR)	187 (102, 307)	52 (24, 80)	35 (7, 70)	
GQS				< 0.001
Median (IQR)	3.00 (2.00, 3.00)	3.00 (2.00, 3.00)	2.00 (2.00, 3.00)	
mDISCERN				< 0.001
Median (IQR)	2.00 (2.00, 3.00)	2.00 (1.00, 2.00)	1.00 (1.00, 2.00)	
MQ-VET				< 0.001
Median (IQR)	48.0 (46.0, 50.0)	47.0 (44.0, 50.0)	43.0 (40.0, 48.0)	
Content				< 0.001
1	66 (66%)	58 (58%)	50 (50%)	
2	29 (29%)	23 (23%)	19 (19%)	
3	5 (5%)	19 (19%)	31 (31%)	
Publisher				< 0.001
1	33 (33%)	39 (39%)	16 (16%)	
2	8 (8%)	24 (24%)	7 (7%)	
3	10 (10%)	14 (14%)	34 (34%)	
4	36 (36%)	17 (17%)	19 (19%)	
5	13 (13%)	6 (6%)	24 (24%)	

Note 1(platform), Bilibili; 2(platform), Tiktok; 3(platform), Kwai. 1(content), Disease knowledge; 2(content), Treatment and prevention; 3(content), News and Reports. 1(publisher), Doctors in respiratory disease; 2(publisher), Doctors in other disease areas; 3(publisher), Traditional Chinese doctors; 4(publisher), Science communicators; 5(publisher), Patients and others. IQR, Interquartile Range. [1]n (%),[2]Kruskal-Wallis rank sum test; Pearson's Chi-squared test

kappa values of 0.906 and 0.95 respectively, and ICC value of 0.996. The GQS, mDISCERN, and MQ-VET scores of videos on the three platforms are shown in Table 2. Overall, Bilibili hosted the highest-quality videos, as evidenced by statistically significant superiority in GQS and mDISCERN scores, along with the highest median MQ-VET score. Videos created by medical practitioners achieved higher GQS, mDISCERN, and MQ-VET scores than those created by non-medical practitioners, with statistically significant differences ($P < 0.001$) (Fig. 2A-C). And videos created by medical practitioners on Bilibili had the highest GQS, mDISCERN, and MQ-VET scores, which were higher than those of TikTok videos (only statistically significant for mDISCERN scores, $P < 0.001$) and Kwai videos ($P < 0.01$, $P < 0.001$, $P < 0.001$) (Fig. 3D-F). As shown in Fig. 2G-I, videos created by physicians, whether covering respiratory or other diseases, outperformed in GQS, mDISCERN, and MQ-VET scores. It should be noticed that the mDISCERN and MQ-VET scores of videos created by doctors in respiratory disease were higher than those by traditional Chinese medicine practitioners ($P < 0.05$, $P < 0.001$). Furthermore, videos focusing on disease knowledge, treatment, and prevention scored significantly higher compared to news and reports ($P < 0.001$), though no statistically significant difference was observed between disease knowledge and treatment and prevention-related videos (Fig. 2D-F).

Correlation analysis

Given that all variables followed a non-normal distribution, Spearman's correlation coefficient was employed to analyze the relationships between variables (Fig. 4). Video rank and Days since published exhibited a positive correlation ($r = 0.365$, $p < 0.05$), indicating that recently uploaded videos were more likely to be prioritized in recommendations. The following variables showed negative correlations, ranked by the strength of correlation: Duration and Comments (r=-0.414, $p < 0.05$), Likes (r=-0.408, $p < 0.05$), Saves (r=-0.308, $p < 0.05$); Days since published and Likes (r=-0.198, $p < 0.05$), Comments (r=-0.196, $p < 0.05$), Saves (r=-0.181, $p < 0.05$). Of particular concern is the negative correlation between video quality scores and audience engagement: mDISCERN scores and Comments (r=-0.371, $p < 0.05$), Likes (r=-0.332, $p < 0.05$), Saves

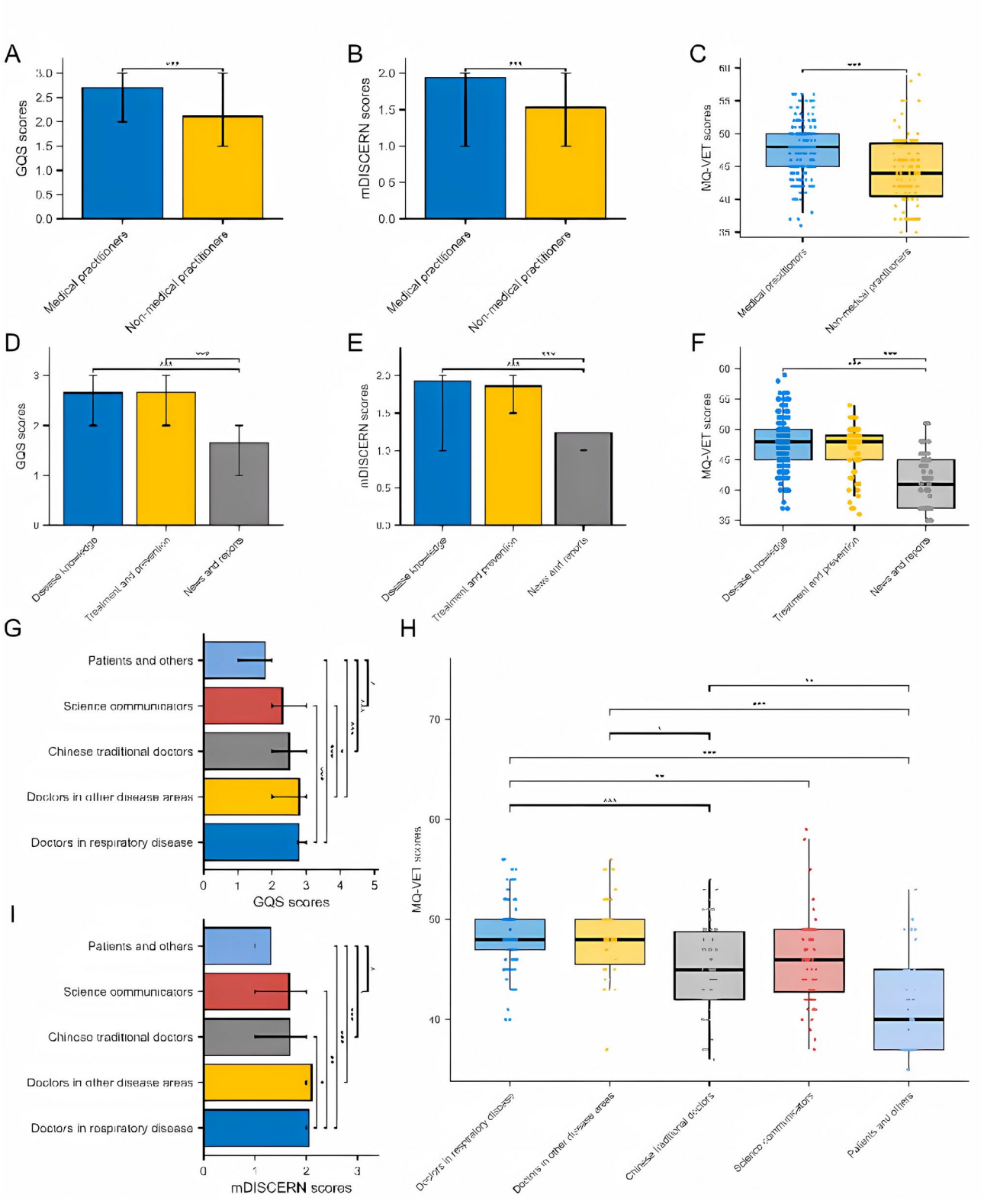

Fig. 2 Quality scores among different contents and publishers. (**A-C**) GQS (**A**), mDISCERN (**B**) and MQ-VET (**C**) of Medical practitioners and Non-medical practitioners. (**D-F**) GQS (**D**), mDISCERN (**E**) and MQ-VET (**F**) of different contents. (**G-H**) GQS (**G**), mDISCERN (**I**) and MQ-VET (**H**) of different publishers. *Note* $^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$

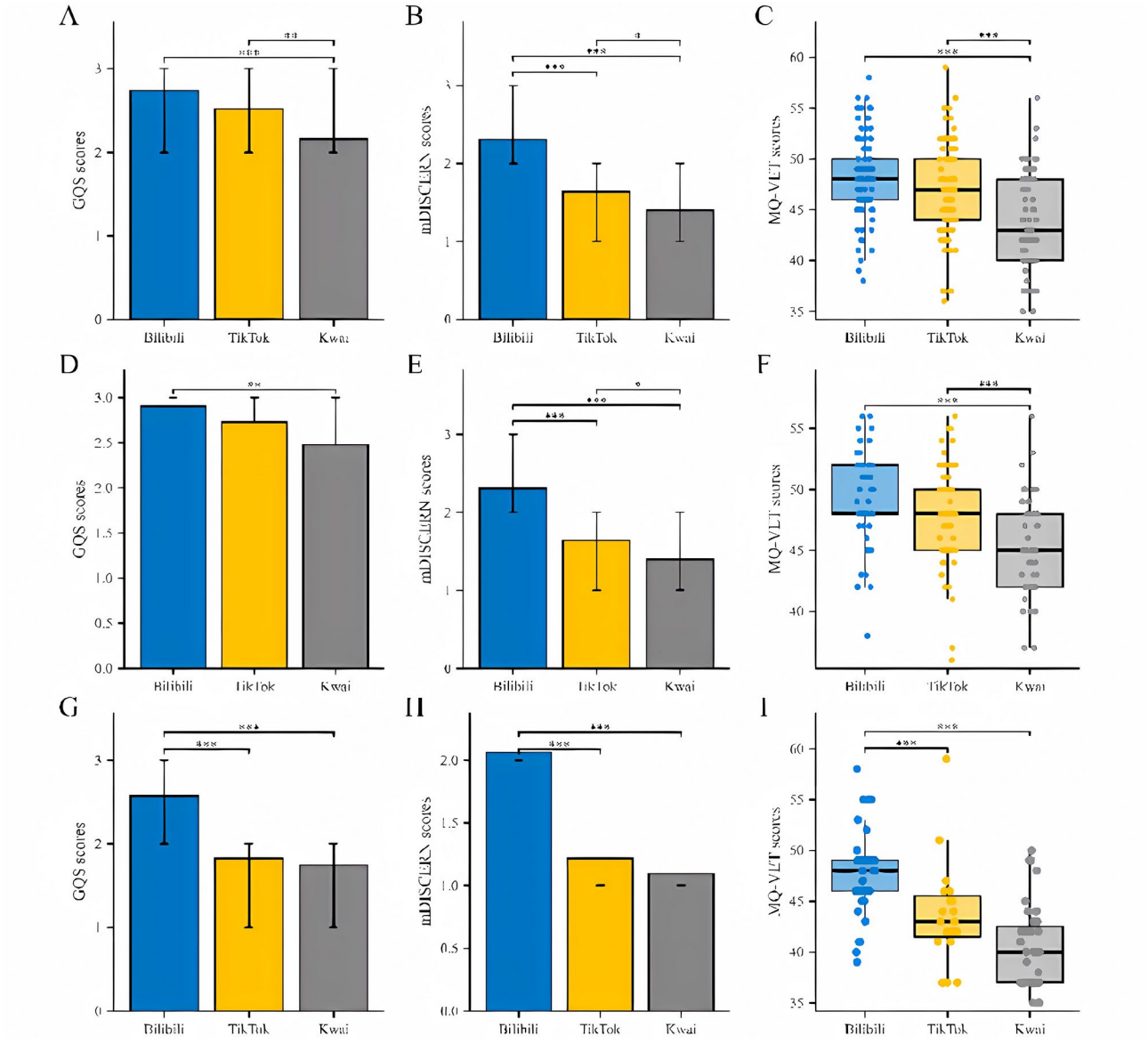

Fig. 3 Quality scores among medical and non-medical practitioners on three platforms. (**A-C**) GQS (**A**), mDISCERN (**B**) and MQ-VET (**C**) of all publishers. (**D-F**) GQS (**D**), mDISCERN (**E**) and MQ-VET **(F)** of Medical practitioners. (**G-I)** GQS (**G**), mDISCERN (**H**) and MQ-VET (**I**) of No-medical practitioners. *Note* $^{*}P<0.05$; $^{**}P<0.01$; $^{***}P<0.001$

(r=-0.26, $p<0.05$); MQ-VET scores and Likes (r=-0.133, $p<0.05$), Comments (r=-0.187, $p<0.05$).

Discussion

Video content and publisher distribution

In this cross-sectional study, we reviewed videos related to pediatric pneumonia on three popular short video platforms in China (Bilibili, TikTok, and Kwai). Content analysis revealed that disease knowledge constituted the primary focus across all platforms, with Kwai hosting a comparatively higher proportion of news and reports. Nearly all types of publishers tend to share disease knowledge, with the proportion of disease knowledge related videos published by medical practitioners as high as 72%. Short videos exhibit higher addictive potential [64], primarily due to their rapid consumption and dissemination characteristics, making them an important source of fragmented information and a channel for news reporting. However, we noticed that a significant proportion of health-related news videos are published by unverified publishers. For exaggerated visuals, the credibility and accuracy of those videos are compromised. Despite these quality concerns, such content frequently achieves disproportionately high viewership and engagement metrics. To mitigate misinformation risks, platforms should

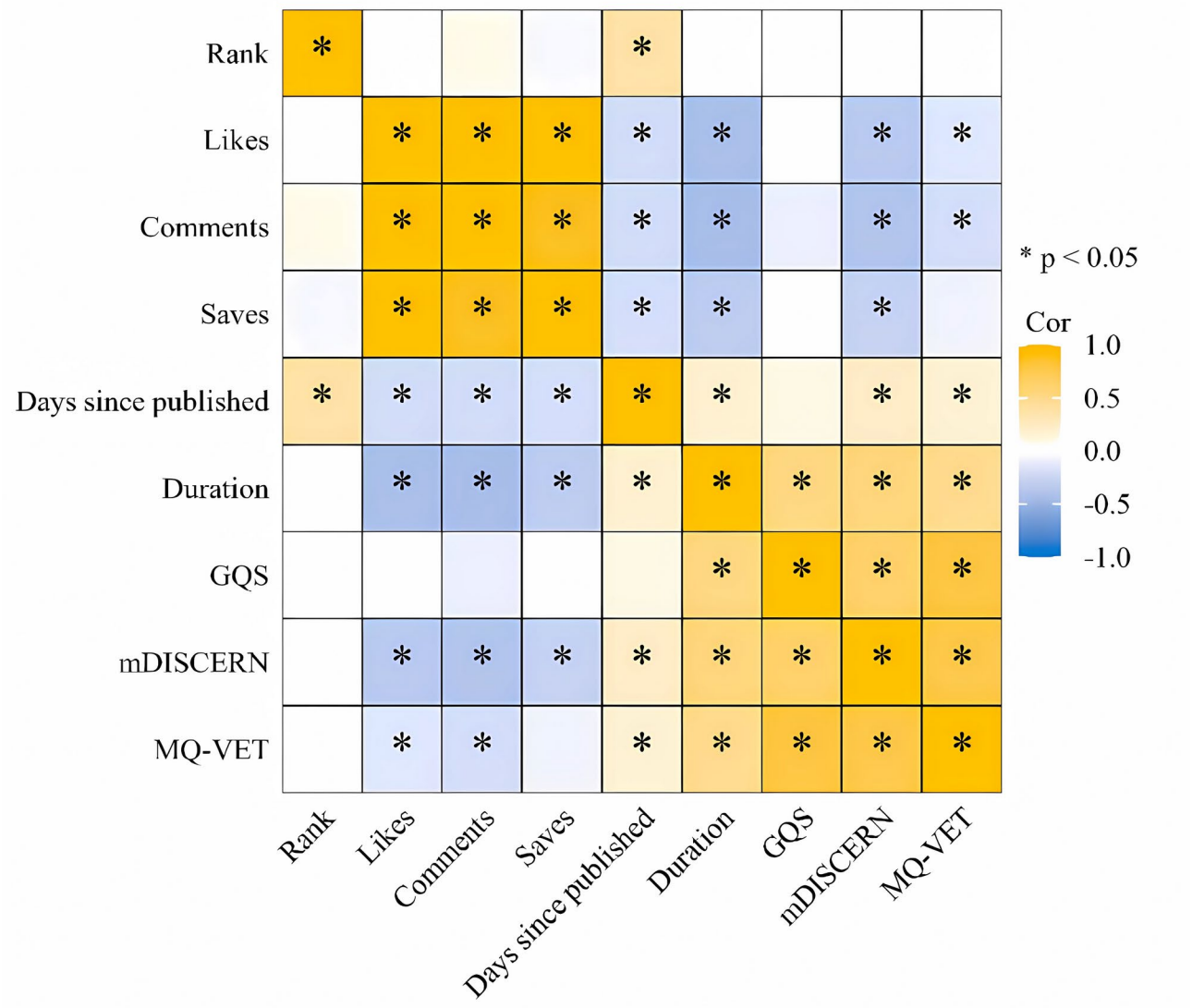

Fig. 4 Correlation among video rank, likes, comments, saves, duration, days, GQS, mDISCERN, and MQ-VET

implement stricter publisher verification processes and restrict content scope based on user expertise.

Our analysis revealed that Bilibili has significantly longer video content compared to the other two platforms. These extended videos, predominantly produced by medical educators and students, typically employ PPT-style lectures to deliver comprehensive disease-related information. However, they have lower viewership metrics compared to short videos, consistent with previous studies [48]. While most creators attempted to cover multiple clinical aspects (including presentation, diagnosis, treatment, and prevention) within single videos, the constrained duration often compromised the depth of knowledge dissemination. This highlights a persistent challenge for content creators: balancing conciseness and informational completeness to deliver high-quality medical content effectively.

Current educational videos on pediatric pneumonia, while covering diverse topics, exhibit notable deficiencies in both timeliness and comprehensiveness. A critical example is the inadequate discussion of macrolide-resistant Mycoplasma pneumoniae (MRMP), despite its emergence as a significant public health concern. Although macrolides remain first-line therapy for pediatric Mycoplasma pneumonia [65], there has been a rise in macrolide-resistant Mycoplasma pneumoniae (MRMP) in several countries in recent years [66–69], with the highest resistance rates observed in Asia, ranging from 90–100% [67]. Although the clinical severity of MRMP and macrolide-sensitive Mycoplasma pneumoniae (MSMP) infections does not differ significantly, antibiotic resistance may potentially worsen disease outcomes [70], and the use of macrolides in treating patients with MRMP infections significantly increases the risk of

fever lasting > 48 h [71]. The absence of this critical information in available video content may lead parents to make treatment decisions based on incomplete or anecdotal evidence, potentially delaying appropriate management of atypical cases, and increasing the risk of severe or necrotizing pneumonia. Furthermore, the clinical significance of fiberoptic bronchoscopy, an important measure in diagnosing and treating bronchopneumonia [72, 73], has not been thoroughly explained in existing videos. Otherwise, the current videos only introduce the pneumococcal conjugate vaccine (PCV vaccine) with limited or no coverage of other pneumonia-related immunizations, such as COVID-19 vaccines. These findings underscore the need for more comprehensive educational content that addresses current epidemiological trends, advanced diagnostic approaches, and complete preventive strategies. Future videos on childhood pneumonia should prioritize addressing these knowledge gaps to enhance the educational value and clinical relevance of childhood pneumonia-related videos.

Quality and reliability of short videos on pediatric pneumonia

This cross-sectional study evaluated the quality and reliability of pediatric pneumonia-related content on three dominant Chinese short-video platforms (Bilibili, TikTok, and Kwai) using three validated assessment tools: GQS, mDISCERN, and MQ-VET. The results revealed that the overall quality of video content is general, the reliability is low, and the overall quality of the videos is not as good as expected, which is consistent with finding from studies of Idiopathic Pulmonary Fibrosis, laryngeal carcinoma, gastric cancer and so on [34, 36, 41, 47, 48, 59]. Our research shows that there is no significant difference in video quality and reliability between the three platforms. However, studies targeting platforms such as YouTube, TikTok, and Bilibili have demonstrated significant variability in quality metrics across disease categories and platforms. For instance, videos related to laryngeal cancer on YouTube were of higher quality [47], whereas those related to gastric cancer on YouTube were of lower quality compared to the other two platforms [48]. This discrepancy may be attributed to differences in the incidence and attention given to various diseases in different regions. The quality of short videos may be limited to some extent by the video platform. Future research should incorporate a broader range of platforms and disease categories to provide more comprehensive insights into digital health information quality.

Significant variations in the quality of videos were observed across different content types. Videos categorized as "Disease Knowledge" and "Treatment and Prevention" show higher quality and reliability compared to those classified as "News and Reports." This may due to that news and reports mainly introduce the current season's prevalent pneumonia pathogens and outpatient statistics, with limited emphasis on educational value or knowledge dissemination.

In addition, the quality and reliability of videos posted by doctors are significantly higher than those of non-doctors, which is consistent with the findings of study on the quality of short videos related to liver cancer and acute pancreatitis health information [45, 74]. Among them, there is no significant difference in the quality and reliability of videos posted by experts in respiratory diseases and non-respiratory disease-related experts, while the quality evaluation scores of videos posted by traditional Chinese medicine experts have significantly reduced, consistent with prior research [45, 48]. Our study reveals that videos posted by traditional Chinese medicine (TCM) practitioners predominantly feature clinical consultations and case-specific documentation rather than health information. Consequently, these videos exhibit limited objectivity and comprehensiveness as health education resources. This limitation may explain the relatively lower quality of videos posted by TCM practitioners compared with those by other medical professionals. However, despite this limitation, the videos demonstrate significant dissemination potential, primarily due to their use of accessible language and relatable content. These findings suggest that content creators can enhance public engagement by prioritizing accessible language and relatable narratives.

Videos created by patients and their families—often characterized by limited professional medical knowledge and emotional bias—demonstrates the lowest quality scores, which could carry a heightened risk of disseminating inaccurate health information. These videos mainly concern on their children's medical conditions or their treatment experiences. For their empathetic appeal, these videos often achieve high viewership and engagement, which tend to attract higher levels of discussion and potentially exacerbate risks in doctor-patient communication.

At present, various video platforms lack the ability to review professional medical content, and permit the upload of videos with extremely poor reliability. And some videos may sacrifice the quality of their content to cater to the audience's preference for fragmented information. The accessibility and rapid dissemination characteristics of social media necessitate enhanced management of video content through moderating content or optimizing algorithms to guide users toward reliable health information.

The relationship between video quality, ranking and audience recognition

Correlation analysis shows that there is no significant correlation between video quality and video ranking, and the scores of GQS, mDISCERN, and MQ-VET are not independent influencing factors of the ranking. This result indicates that default algorithmic rankings on short-video platforms do not reflect the quality and reliability of contents, thus limiting the audience's ability to obtain high-quality information. Interestingly, there is a slight negative correlation between video quality and user engagement metrics, consistent with the research conclusions of Sun and Mueller [35, 75], which may be related to the audience's insufficient ability to evaluate video quality. However, some studies suggest that there is a positive correlation between video quality and audience approval [45, 76]. The difference in conclusions may be due to the audience's different abilities to discern different diseases, and more researches on different diseases may be needed to comprehensively assess this correlation. Platforms should enhance supervision and optimize algorithms to promote high-quality health content instead of recommending videos rely solely on view counts and likes, which is crucial for ensuring that audiences receive accurate and reliable health information.

Current applications of artificial intelligence in health information dissemination

The rapid advancement of artificial intelligence (AI) has positioned Chatbots, such as ChatGPT, as key sources of information. Over the past decades, these tools have transformed human-technology interactions, with increasing reliance on platforms like ChatGPT for health-related information [77, 78]. Lee et al. compared ChatGPT's colonoscopy answers with those on patient information websites (e.g., hospital web pages) and revealed comparable accuracy between AI- and human-generated materials, though ChatGPT outputs demonstrated superior readability [79]. Although ChatGPT may offer a novel tool to provide patients with potentially reliable and accurate health information [80, 81], its responses may lack completeness in critical areas such as evidence-based diagnostic and therapeutic guidance, necessitating more explicit recommendations [82, 83]. Moreover, chatbots may inadvertently hinder scientific rigor through hallucinated citations and fabricated references [84]. The review evaluating ChatGPT's reliability in endodontic local anesthesia found that its outputs were reliable in 50% of cases compared to peer-reviewed evidence [85]. And the research in ophthalmology has demonstrated the utility of chatbots for disease diagnosis. Despite achieving high pass rates on medical examinations, GPT-4's inconsistent accuracy, variable performance, and challenges posed by diverse healthcare policies and knowledge systems currently limit its suitability for medical education [86]. As large language models like ChatGPT become increasingly indispensable in healthcare, issues surrounding data protection, patient privacy, and ethical implications are becoming more prominent [87–89]. The future role of chatbots in the medical and health field remains an open question, warranting further multidisciplinary exploration [90].

Practical significance and future suggestions

In recent years, short videos have sparked a wave of enthusiasm, providing a platform for both the public and healthcare professionals to access health information during fragmented periods. Research has shown that high-quality health education videos significantly improve patients' clinical outcomes [91], while certain domains exhibit a low quality of short videos [92–94]. It is undeniable that high-quality short videos enable viewers to comprehend various aspects of a particular disease within a limited time, such as disease prevention during an epidemic season, early clinical manifestations recognition, as well as common symptomatic and etiological treatments. However, assessing the quality of health information on social media poses a significant challenge for parents/caregivers, as negative information (including misinformation or false information) is more prevalent and spreads faster than positive information [1, 26, 27, 76]. The immature immune system in children and the rapid changes in diseases underscore the risks posed by low-quality health information, including delayed or inappropriate disease management. Therefore, the development and application of quantitative methods such as evaluation tools to assess content quality and reliability represent an urgent public health priority.

Based on these findings, the following recommendations are proposed to improve the quality and reliability of future short videos. For social medias, firstly, short video platforms should implement rigorous account verification processes to restrict content publication based on expertise and collaborate with qualified medical practitioners to rigorously review health-related video content, substantially ensuring authenticity and minimizing the dissemination of erroneous information. Secondly, platforms should develop distinct categorization systems for health education content and optimize recommendation algorithms to prioritize high-quality, and reliable videos, thereby enhancing user access to accurate health information. For content creators, they should ensure videos strive for simplicity and clarity, explaining medical jargon to enhance audience receptivity. At the same time, they should innovate content formats to balance educational value with audience engagement, thereby increasing viewership while maintaining quality. Some researchers have proposed the Concise Medical

Information Cines (CoMICs) model to reduce misinformation spread, through simplifying medical concepts and using short, understandable videos to make medical knowledge easier to grasp [95]. The study on PCOS and thyroid diseases have confirmed the effectiveness of creating accurate medical information via CoMICs for social media [96]., indicating a protentional tool to ensure video information accuracy. Otherwise, governments, professional organizations, and experts should actively combat misinformation and disseminate high-quality health-related information on social media. The public should be encouraged to critically evaluate video quality and consult reliable sources for health information, and researchers should share their findings on short-form video quality through social media, empowering users to make informed decisions.

Limitations

This study has several limitations. Firstly, the analysis was restricted to Chinese-language videos on the most commonly used social media platforms in China (TikTok, Bilibili, and Kwai), excluding international platforms like YouTube, which contribute to geographical limitations. These geographical and linguistic constraints highlight the need for cross-platform, multilingual studies to validate and extend these findings. Additionally, with the continuous development of the Internet, an increasing number of platforms have launched sections dedicated to short videos, such as WeChat and Rednote, for which more studies should focus on continuously expanding the range of platforms in order to comprehensively analyze the quality of disease-related short videos. Secondly, the analysis was limited to the top 100 pediatric pneumonia-related videos on each platform. While this sample size is considered sufficient to reflect the quality of videos in this domain [35, 45], broader sampling may enhance generalizability. Thirdly, despite employing three validated assessment tools and utilizing a panel of three trained clinicians with extensive experience, potential systematic biases cannot be entirely avoided. Future efforts should focus on developing a video quality assessment tool which will be more suitable for Chinese videos based on existing tools and apply it in subsequent research. Although false discovery rate (FDR) correction was applied, multiple comparisons may still influence result interpretation, underscoring the need for larger sample sizes to enhance robustness. Lastly, this is a cross-sectional study, and the relevant videos on short video platforms may change over time with platform content updates, which indicates the importance of paying attention to the updates in content moderation and management measures of social media platforms, and continuously analyzing the quality of health-related videos on social media, in conjunction with new media dissemination methods and relevant policies.

Conclusion

This study presents a comprehensive evaluation of pediatric pneumonia-related video content across three major social media platforms (Bilibili, TikTok, and Kwai), offering evidence-based guidance for the public, content creators, and platform operators. While short-video platforms represent a potential source of pediatric pneumonia-related knowledge, our analysis revealed suboptimal overall quality and low reliability across the three platforms (Bilibili, TikTok, and Kwai), with Bilibili demonstrating marginally superior performance, who had less flow but provided more information. Videos produced by medical professionals consistently achieved higher quality and reliability metrics. Content creators currently grapple with the challenge of balancing educational value with audience engagement metrics. The adoption of structured frameworks like the CoMICs model could enhance content effectiveness while maintaining accessibility. Platforms should establish partnerships with domain experts to implement multidisciplinary review panels, and enhance algorithmic transparency in content moderation to mitigate misinformation dissemination. And there is also a need for Parents and caregivers to continuously enhance their ability to discern internet information. As artificial intelligence (AI) technologies become increasingly integrated into healthcare information, rigorous evaluation of AI-generated health information quality emerges as a critical research priority.

Supplementary Information

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Supplementary Material 1

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Author contributions

J.L., M.Y. and T.G. designed the study. T.G. and F.H. collected the data. D.T. and J.L. scored all the videos. F.H. and T.G. drafted the early version of the manuscript. F.H. and M.Y. completed the revision of the manuscript. J.M. and T.Y. conducted a vocabulary and grammar correctness check on the manuscript. F.H. finished the data analysis and images. D.Z. and S.L. improved the quality of the images and counted the relevant clinical information of the dataset used. D.T. supervised the study. All authors were involved in writing the paper and had final approval of the submitted and published.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval
This declaration is "not applicable".

Consent for publication
Consent for publication was not required in this study.

Competing interests
The authors declare no competing interests.

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References
1. Wang Y, et al. Systematic literature review on the spread of Health-related misinformation on social media. Soc Sci Med. 2019;240:112552.
2. Kang L, et al. Geographic disparities in pneumonia-specific under-five mortality rates in Mainland China from 1996 to 2015: a population-based study. Int J Infect Dis. 2017;59:7–13.
3. Hayden LP, et al. Childhood pneumonia increases risk for chronic obstructive pulmonary disease: the COPDGene study. Respir Res. 2015;16(1):115.
4. Agca H, et al. Changing epidemiology of influenza and other respiratory viruses in the first year of COVID-19 pandemic. J Infect Public Health. 2021;14(9):1186–90.
5. Danino D, et al. Decline in Pneumococcal disease in young children during the coronavirus disease 2019 (COVID-19) pandemic in Israel associated with suppression of seasonal respiratory viruses, despite persistent Pneumococcal carriage: A prospective cohort study. Clin Infect Dis. 2022;75(1):e1154–64.
6. Kışlal FM, et al. The disappearance of respiratory syncytial virus and influenza viruses in children during the second year of the COVID-19 pandemic - are non-pharmaceutical interventions as effective as vaccines? Eur Rev Med Pharmacol Sci. 2023;27(8):3777–83.
7. Boehm AB, et al. Wastewater concentrations of human influenza, metapneumovirus, parainfluenza, respiratory syncytial virus, rhinovirus, and seasonal coronavirus nucleic-acids during the COVID-19 pandemic: a surveillance study. Lancet Microbe. 2023;4(5):e340–8.
8. Ye Q, Wang D. Epidemiological changes of common respiratory viruses in children during the COVID-19 pandemic. J Med Virol. 2022;94(5):1990–7.
9. Li ZJ, et al. Broad impacts of coronavirus disease 2019 (COVID-19) pandemic on acute respiratory infections in China: an observational study. Clin Infect Dis. 2022;75(1):e1054–62.
10. Liu P, et al. Impact of COVID-19 pandemic on the prevalence of respiratory viruses in children with lower respiratory tract infections in China. Virol J. 2021;18(1):159.
11. Zhu L, et al. Epidemiological characteristics of respiratory viruses in hospitalized children during the COVID-19 pandemic in Southwestern China. Front Cell Infect Microbiol. 2023;13:1142199.
12. Posada MJG, et al. Not all respiratory infections were SARS-CoV-2 during the pandemic, analysis in a clinic on the Colombian Caribbean Coast. J Infect Public Health. 2023;16(9):1403–9.
13. Amar S, et al. Prevalence of common infectious diseases after COVID-19 vaccination and easing of pandemic restrictions in Israel. JAMA Netw Open. 2022;5(2):e2146175.
14. Kim YK, et al. Shift in clinical epidemiology of human parainfluenza virus type 3 and respiratory syncytial virus B infections in Korean children before and during the COVID-19 pandemic: A multicenter retrospective study. J Korean Med Sci. 2022;37(28):e215.
15. Jiang ML, et al. Changes in endemic patterns of respiratory syncytial virus infection in pediatric patients under the pressure of nonpharmaceutical interventions for COVID-19 in Beijing, China. J Med Virol. 2023;95(1):e28411.
16. Ye Q, Liu H. Impact of non-pharmaceutical interventions during the COVID-19 pandemic on common childhood respiratory viruses - An epidemiological study based on hospital data. Microbes Infect. 2022;24(1):104911.
17. Ren L, et al. Epidemiological and clinical characteristics of respiratory syncytial virus and influenza infections in hospitalized children before and during the COVID-19 pandemic in central China. Influenza Other Respir Viruses. 2023;17(2):e13103.
18. Wang H, et al. Factors influencing COVID-19 knowledge-gap: a cross-sectional study in China. BMC Public Health. 2021;21(1):1826.
19. Bilibili annualreport. 2022 [cited 2022; Available from: https://ir.bilibili.com/media/rwafkhml/annual-and-transition-report-of-foreign-private-issuers-sections-13-or-15-d.pdf]
20. *Douyin Group Corporate Social Responsibility Report*. 2022 [cited 2022; Available from: https://www.bytedance.com/zh/corporate]
21. *Kwai annual report.*. 2022 [cited 2022; Available from: https://ir.kuaishou.com/static-files/fcf0037b-ac32-45d6-b0a9-68e5639650ef]
22. Yeung AWK, et al. Medical and Health-Related misinformation on social media: bibliometric study of the scientific literature. J Med Internet Res. 2022;24(1):e28152.
23. Grosberg D, et al. Frequent surfing on social health networks is associated with increased knowledge and patient health activation. J Med Internet Res. 2016;18(8):e212.
24. Fletcher-Lartey S, et al. Why do general practitioners prescribe antibiotics for upper respiratory tract infections to Meet patient expectations: a mixed methods study. BMJ Open. 2016;6(10):e012244.
25. Thorpe A, et al. Effect of information on reducing inappropriate expectations and requests for antibiotics. Br J Psychol. 2021;112(3):804–27.
26. Suarez-Lledo V, Alvarez-Galvez J. Prevalence of health misinformation on social media: systematic review. J Med Internet Res. 2021;23(1):e17187.
27. Kbaier D, et al. Prevalence of health misinformation on social Media-Challenges and mitigation before, during, and beyond the COVID-19 pandemic: scoping literature review. J Med Internet Res. 2024;26:e38786.
28. Muric G, Wu Y, Ferrara E. COVID-19 vaccine hesitancy on social media: Building a public Twitter data set of antivaccine content, vaccine misinformation, and conspiracies. JMIR Public Health Surveill. 2021;7(11):e30642.
29. Kyabaggu R, et al. Health literacy, equity, and communication in the COVID-19 era of misinformation: emergence of health information professionals in infodemic management. JMIR Infodemiology. 2022;2(1):e35014.
30. Hahn RA. Estimating the COVID-Related deaths attributable to president Trump's early pronouncements about masks. Int J Health Serv. 2021;51(1):14–7.
31. Sule S, et al. Communication of COVID-19 misinformation on social media by physicians in the US. JAMA Netw Open. 2023;6(8):e2328928.
32. Bosley H, et al. A systematic review to explore influences on parental attitudes towards antibiotic prescribing in children. J Clin Nurs. 2018;27(5–6):892–905.
33. Mutagonda RF, et al. Determinants of misuse of antibiotics among parents of children attending clinics in regional referral hospitals in Tanzania. Sci Rep. 2022;12(1):4836.
34. Cui N, et al. Quality assessment of TikTok as a source of information about mitral valve regurgitation in China: Cross-Sectional study. J Med Internet Res. 2024;26:e55403.
35. Sun F, Zheng S, Wu J. Quality of information in gallstone disease videos on TikTok: Cross-sectional study. J Med Internet Res. 2023;25:e39162.
36. Chen Y, et al. The quality and reliability of short videos about thyroid nodules on bilibili and TikTok: Cross-sectional study. Digit Health. 2024;10:20552076241288831.
37. Abedin T, et al. YouTube as a source of useful information on diabetes foot care. Diabetes Res Clin Pract. 2015;110(1):e1–4.
38. Bai G, et al. Quality assessment of YouTube videos as an information source for testicular torsion. Front Public Health. 2022;10:905609.
39. Song S, et al. Short-Video apps as a health information source for chronic obstructive pulmonary disease: information quality assessment of TikTok videos. J Med Internet Res. 2021;23(12):e28318.
40. Bernard A, et al. A systematic review of patient inflammatory bowel disease information resources on the world wide web. Am J Gastroenterol. 2007;102(9):2070–7.
41. Goobie GC, et al. YouTube videos as a source of misinformation on idiopathic pulmonary fibrosis. Ann Am Thorac Soc. 2019;16(5):572–9.

42. Kong W, et al. TikTok as a health information source: assessment of the quality of information in Diabetes-Related videos. J Med Internet Res. 2021;23(9):e30409.
43. Liang Y, et al. Video quality assessment and analysis of gastroesophageal reflux disease on TikTok and bilibili: Cross-Sectional study. J Multidiscip Healthc. 2024;17:5927–39.
44. Kunze KN, et al. Quality of online video resources concerning patient education for the meniscus: A YouTube-Based Quality-Control study. Arthroscopy. 2020;36(1):233–8.
45. Zheng S, et al. Quality and reliability of liver Cancer-Related short Chinese videos on TikTok and bilibili: Cross-Sectional content analysis study. J Med Internet Res. 2023;25:e47210.
46. Liu H, et al. Assessment of the reliability and quality of breast cancer related videos on TikTok and bilibili: cross-sectional study in China. Front Public Health. 2023;11:1296386.
47. Liu Z, et al. YouTube/ Bilibili/ TikTok videos as sources of medical information on laryngeal carcinoma: cross-sectional content analysis study. BMC Public Health. 2024;24(1):1594.
48. Wang M, et al. Bilibili, TikTok, and YouTube as sources of information on gastric cancer: assessment and analysis of the content and quality. BMC Public Health. 2024;24(1):57.
49. Li B, et al. Quality assessment of health science-related short videos on TikTok: A scoping review. Int J Med Inf. 2024;186:105426.
50. Zhang R, et al. Analyzing dissemination, quality, and reliability of Chinese brain tumor-related short videos on TikTok and bilibili: a cross-sectional study. Front Neurol. 2024;15:1404038.
51. Engin O, Songür K. Evaluation of YouTube videos as a source of information in traumatic brain injury rehabilitation: A cross-sectional study. Med (Baltim). 2024;103(32):e39254.
52. Niu Z, et al. Quality of pancreatic neuroendocrine tumor videos available on TikTok and bilibili: content analysis. JMIR Form Res. 2024;8:e60033.
53. Hong YA, et al. Social media-based intervention to promote HBV screening and liver cancer prevention among Korean Americans: results of a pilot study. Digit Health. 2022;8:20552076221076257.
54. Buyuk SK, Alpaydın MT. Quality of information on YouTube™ about rapid maxillary expansion. Turk J Orthod. 2021;34(2):116–21.
55. Eksi Ozsoy H. Evaluation of YouTube videos about smile design using the DISCERN tool and journal of the American medical association benchmarks. J Prosthet Dent. 2021;125(1):151–4.
56. Bai G, et al. Quality of internet videos related to pediatric urology in Mainland China: A Cross-Sectional study. Front Public Health. 2022;10:924748.
57. Rees CE, Ford JE, Sheard CE. Evaluating the reliability of DISCERN: a tool for assessing the quality of written patient information on treatment choices. Patient Educ Couns. 2002;47(3):273–5.
58. Charnock D, et al. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. J Epidemiol Community Health. 1999;53(2):105–11.
59. MacLeod MG, et al. YouTube as an information source for femoroacetabular impingement: a systematic review of video content. Arthroscopy. 2015;31(1):136–42.
60. Guler MA, Aydın EO. Development and validation of a tool for evaluating YouTube-based medical videos. Ir J Med Sci. 2022;191(5):1985–90.
61. Huchel S, et al. Quality assessment of YouTube videos on complementary and alternative medicine (CAM) for Cancer using a newly developed tool. Integr Cancer Ther. 2024;23:15347354241293417.
62. Rodriguez-Rodriguez AM, et al. AI-Enhanced evaluation of YouTube content on post-surgical incontinence following pelvic cancer treatment. SSM Popul Health. 2024;26:101677.
63. Wu H, et al. Comparative analysis of NAFLD-related health videos on TikTok: a cross-language study in the USA and China. BMC Public Health. 2024;24(1):3375.
64. Lu L, et al. Adolescent addiction to short video applications in the mobile internet era. Front Psychol. 2022;13:893599.
65. Bradley JS, et al. The management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the pediatric infectious diseases society and the infectious diseases society of America. Clin Infect Dis. 2011;53(7):e25–76.
66. Lanata MM, et al. Macrolide-Resistant Mycoplasma pneumoniae infections in children, Ohio, USA. Emerg Infect Dis. 2021;27(6):1588–97.
67. Pereyre S, Goret J, Bébéar C. Mycoplasma pneumoniae: current knowledge on macrolide resistance and treatment. Front Microbiol. 2016;7:974.
68. Waites KB et al. Macrolide-Resistant Mycoplasma pneumoniae in the united States as determined from a National surveillance program. J Clin Microbiol. 2019;57(11).
69. Yang TI, et al. Mycoplasma pneumoniae in pediatric patients: do macrolide-resistance and/or delayed treatment matter? J Microbiol Immunol Infect. 2019;52(2):329–35.
70. Lee H, et al. Antimicrobial therapy of macrolide-resistant Mycoplasma pneumoniae pneumonia in children. Expert Rev Anti Infect Ther. 2018;16(1):23–34.
71. Chen YC, Hsu WY, Chang TH. Macrolide-Resistant Mycoplasma pneumoniae infections in pediatric Community-Acquired pneumonia. Emerg Infect Dis. 2020;26(7):1382–91.
72. Baselski VS, Wunderink RG. Bronchoscopic diagnosis of pneumonia. Clin Microbiol Rev. 1994;7(4):533–58.
73. Goussard P, et al. Pediatric bronchoscopy: recent advances and clinical challenges. Expert Rev Respir Med. 2021;15(4):453–75.
74. Mao T, et al. Evaluation of TikTok videos on acute pancreatitis: content quality and reliability analysis. BMC Public Health. 2024;24(1):1216.
75. Mueller SM, et al. Fiction, falsehoods, and few facts: Cross-Sectional study on the Content-Related quality of atopic Eczema-Related videos on YouTube. J Med Internet Res. 2020;22(4):e15599.
76. Zhaksylyk A, et al. YouTube as a source of information on public health ethics. J Korean Med Sci. 2024;39(7):e61.
77. Shahsavar Y, Choudhury A. User intentions to use ChatGPT for Self-Diagnosis and Health-Related purposes: Cross-sectional survey study. JMIR Hum Factors. 2023;10:e47564.
78. Battineni G, et al. Factors affecting the quality and reliability of online health information. Digit Health. 2020;6:2055207620948996.
79. Lee TC, et al. ChatGPT answers common patient questions about colonoscopy. Gastroenterology. 2023;165(2):509–e5117.
80. Yeo YH, et al. Assessing the performance of ChatGPT in answering questions regarding cirrhosis and hepatocellular carcinoma. Clin Mol Hepatol. 2023;29(3):721–32.
81. Sabaner MC et al. Opportunities and challenges of chatbots in ophthalmology: A narrative review. J Pers Med. 2024;14(12).
82. Mishra V, et al. Evaluation of prompts to simplify cardiovascular disease information generated using a large Language model: Cross-Sectional study. J Med Internet Res. 2024;26:e55388.
83. Sciberras M, et al. Accuracy of information given by ChatGPT for patients with inflammatory bowel disease in relation to ECCO guidelines. J Crohns Colitis. 2024;18(8):1215–21.
84. Taloni A, et al. Comparative performance of humans versus GPT-4.0 and GPT-3.5 in the self-assessment program of American academy of ophthalmology. Sci Rep. 2023;13(1):18562.
85. Reader A, Drum M. A review of ChatGPT as a reliable source of scientific information regarding endodontic local anesthesia. J Endod. 2025. https://doi.org/10.1016/j.joen.2025.02.002
86. Liu M, et al. Performance of ChatGPT across different versions in medical licensing examinations worldwide: systematic review and Meta-Analysis. J Med Internet Res. 2024;26:e60807.
87. Temsah MH, et al. ChatGPT surpasses 1000 publications on pubmed: envisioning the road ahead. Cureus. 2023;15(9):e44769.
88. Kanter GP, Packel EA. Health care privacy risks of AI chatbots. JAMA. 2023;330(4):311–2.
89. Uddin J, Feng C, Xu J. Health communication on the internet: promoting public health and exploring disparities in the generative AI era. J Med Internet Res. 2025;27:e66032.
90. Lee P, Bubeck S, Petro J. Benefits, limits, and risks of GPT-4 as an AI chatbot for medicine. N Engl J Med. 2023;388(13):1233–9.
91. Armstrong AW, et al. Online video improves clinical outcomes in adults with atopic dermatitis: a randomized controlled trial. J Am Acad Dermatol. 2011;64(3):502–7.
92. Kılınç DD. Is the information about orthodontics on Youtube and TikTok reliable for the oral health of the public? A cross sectional comparative study. J Stomatol Oral Maxillofac Surg. 2022;123(5):e349–54.
93. Cassidy JT, et al. YouTube provides poor information regarding anterior cruciate ligament injury and reconstruction. Knee Surg Sports Traumatol Arthrosc. 2018;26(3):840–5.
94. Celik H, et al. Assessment of the quality and reliability of the information on rotator cuff repair on YouTube. Orthop Traumatol Surg Res. 2020;106(1):31–4.
95. Emily, Warmington, D.S.A.P.K. A place for CoMICs in medical education. Endocrinologist Available from: https://www.endocrinology.org/endocrinologist/139-spring-2021/features/a-place-for-comics-in-medical-education/

96. Elhariry M, et al. A SIMBA comics initiative to cocreating and disseminating Evidence-Based, Peer-Reviewed short videos on social media: mixed methods prospective study. JMIR Med Educ. 2024;10:e52924.

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