Original Paper

Quality Assessment of and User Engagement With Short Videos About Breast Cancer Screening on Douyin, Kuaishou, and TikTok: Cross-Sectional Content Analysis Study

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Abstract

Background: Breast cancer screening plays a critical role in early detection and mortality reduction. Short video platforms have become widely used channels for patient education, but the quality and reliability of breast cancer screening information on short video platforms remain unclear.

Objective: This study aimed to explore and compare the source, content characteristics, and quality of short videos on breast cancer screening across 2 major Chinese-language platforms (Douyin and Kuaishou) and the English-language platform TikTok.

Methods: Using the keyword “breast cancer screening,” this study retrieved and screened the top 100 short videos from each of the 3 platforms—Douyin, Kuaishou, and TikTok—resulting in a final sample of 258 eligible videos. Basic video information, user engagement metrics, and uploader characteristics were collected. A total of 3 breast disease specialists independently evaluated the content using 4 tools: the Patient Education Materials Assessment Tool for Audiovisual Materials (PEMAT-A/V), modified DISCERN (mDISCERN), Global Quality Score (GQS), and *Journal of the American Medical Association* benchmark criteria (*JAMA*-BC), which assess understandability and actionability, overall quality, educational value, and reliability, respectively. Statistical analyses included Kruskal-Wallis tests, Dunn-Bonferroni tests, chi-square tests, and Spearman correlation analysis.

Results: Videos on TikTok had significantly lower scores on the mDISCERN, GQS, and *JAMA*-BC than those on Douyin and Kuaishou, indicating poorer overall quality and reliability. The median mDISCERN scores were 1.50 (IQR 1.00-2.00) for TikTok compared to 3.00 (IQR 2.00-3.00) for both Douyin and Kuaishou (P<.001), the median GQS scores were 2.00 (IQR 2.00-3.00) for TikTok compared to 3.00 (IQR 2.50-4.00) (P<.001) for Douyin and 3.00 (IQR 3.00-3.50) (P<.001) for Kuaishou, and the median *JAMA*-BC scores were 10.00 (IQR 8.25-12.00) for TikTok compared to 12.00 (IQR 10.00-12.00) (P<.001) for Douyin and 12.00 (IQR 10.00-14.00) (P<.001) for Kuaishou. The PEMAT-A scores of Douyin and Kuaishou were also significantly lower on TikTok (Douyin vs TikTok: P=.002; Kuaishou vs TikTok: P=.02). Health care professionals were the main content creators on Douyin (49/66, 74.2%) and Kuaishou (56/69, 81.1%), while individual content creators dominated TikTok (33/72, 45.8%). Authentication rates were significantly lower on TikTok (9/72, 12.5%) than on Kuaishou (35/69, 50.7%) and Douyin (58/66, 87.9%). Viewer engagement metrics, including likes, comments, and collections, were nonsignificant or negatively correlated with video quality. For example, mDISCERN scores were negatively correlated with the number of likes per 30 days (P<.001).

Conclusions: This study reveals that high-quality videos on breast cancer screening tend to attract lower viewer engagement, highlighting platform-specific disparities and challenges in dissemination. It is recommended that short video platforms implement stricter review processes for health-related videos and uploaders. Additionally, governmental or related agencies should provide

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media training for health care professionals in public science communication to enhance the impact and effectiveness of health education via short videos.

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KEYWORDS

breast cancer screening; short video; health communication; video quality; health education

Introduction

Breast cancer is the most commonly diagnosed malignancy and the leading cause of cancer-related mortality among women globally. According to data from the World Health Organization (WHO), there were an estimated 2.4 million women diagnosed with breast cancer and 694,000 deaths globally in 2024 [1]. In China, breast cancer ranked second in the female cancer incidence spectrum in 2022, following only lung cancer [2]. Women are at risk of developing breast cancer at any age after puberty, with the incidence increasing with age. Notably, approximately half of breast cancer cases occur in women without identifiable risk factors beyond sex and age [1]. The WHO has emphasized the critical importance of breast cancer screening, which enables earlier medical consultation at the first sign of suspicion and prior to the progression to late-stage disease. A substantial body of evidence supports the effectiveness of breast cancer screening in increasing early detection rates and reducing breast cancer mortality [3]. Therefore, promoting breast cancer screening is of great significance to women's health and the well-being of families and society at large.

Although the Chinese government has prioritized breast cancer prevention and control, screening rates among Chinese women remain suboptimal. The National Health Commission has set a target of achieving an early detection rate exceeding 70% by the end of 2025. However, despite the availability of free screening services in some regions, participation remains low, with screening rates significantly lagging behind those of high-income countries and showing considerable regional disparities. For example, South Korea reported a breast cancer screening rate of 61.2% in 2015, and Japan reached 47.4% by 2019. In Germany, rates have approached 50% [4]. By contrast, in 2015, the 1-, 2-, and 3-year breast cancer screening rates among Chinese women aged 40 to 69 years were only 16.9%, 20.2%, and 21.4%, respectively [5]. The situation is even more concerning in low-resource regions [6,7].

A major contributor to the low screening rate is the lack of initiative and proactive attitudes among women. A 2022 cross-sectional study conducted in rural Jiangsu Province identified that women's attitudes and perceived social norms were significant determinants of screening behavior. The screening dilemma in low-resource areas is characterized by a lack of health knowledge and insufficient health-seeking initiative among women [8]. According to the Chinese Guidelines for Breast Cancer Screening in Women (2022 Edition), imaging is widely recognized, and educational outreach holds a similarly important role [9]. Alarmingly, the rate of delayed diagnosis of breast cancer in China is a cause for concern, with as many as 35% of cases occurring after a delay of 12 weeks or more from the first onset of symptoms to the initiation of definitive treatment [10]. A lack of awareness about breast cancer prevention and treatment is a significant contributing factor to this high rate [11]. Thus, public education on breast cancer screening is a critical strategy to overcome screening barriers.

China's national scientific development initiatives have emphasized, "Scientific innovation and science popularization should be given equal importance" [12]. As part of this innovation wave, China's "Internet plus health care" sector has been rapidly expanding, with science popularization through short videos emerging as a key component. As of June 2024, the number of internet users in China reached approximately 1.1 billion, with a mobile internet use rate of 99.7% and an internet penetration rate of 78%. The number of short video users reached 1.05 billion, accounting for 95.5% of all internet users [13]. Thus, short video platforms have become one of the most accessible and widely used channels for public engagement. In this context, the timely dissemination of breast cancer-related knowledge is urgently needed, as the internet and communication technologies are playing an increasingly vital role in health education.

In the era of media convergence, short video platforms are rapidly expanding into the knowledge dissemination domain, and the trend of "short-form science communication" has emerged as a new model of public education [14]. However, open short video ecosystems also create risks for health communication. Previous work has raised concerns about the reliability of health information on TikTok and about cancer-related misinformation online [15]. Although short video platforms have introduced related restrictions against this background, research has pointed to the proliferation of online misinformation, particularly concerning cancer-related topics [16], especially on Douyin [17]. According to the Douyin Community Medical and Health Convention, Douyin encourages creators with a medical professional background to publish educational information on health topics, preferably based on authoritative guidelines, evidence-based medicine, statistical facts, or professional consensus. With regard to content related to malignant tumors, the platform particularly encourages communication on prevention and early screening, which should be consistent with clinical guidelines. The platform prohibits unverified, unscientific, or potentially misleading medical information, as well as medical advertising, exaggerated efficacy claims, and improper patient referral or traffic diversion [18]. Government agencies and health care professionals have expressed concerns about the reliability of health information on TikTok [19,20], largely due to 2 factors: (1) the open nature of short video platforms allows virtually any user to upload content freely, and (2) platform oversight and content

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moderation are minimal, resulting in vast volumes of user-generated content with varying levels of quality. The overall quality of short videos focusing on breast cancer and screening remains underexplored.

Given this background, the study aims to explore and compare the source, content characteristics, and quality of short videos on breast cancer screening across major Chinese-language platforms (Douyin and Kuaishou) and the English-language platform TikTok. This study seeks to provide guidance for the public on accessing high-quality information on breast cancer screening, offer evidence-based recommendations for content creators, and deliver targeted suggestions for platform-level regulation and policymaking.

Methods

Search Strategy and Data Collection

This study selected 3 mainstream short video platforms: 2 Chinese-language platforms (Douyin [ByteDance Ltd] and Kuaishou [Kuaishou Technology]) and 1 English-language platform (TikTok; ByteDance Ltd). In terms of the Chinese active user base, Douyin and Kuaishou short video platforms firmly occupy the top tier of the industry. A national statistical report on internet use in China showed that the increase in users' time spent on Douyin accounted for more than half of the overall increase in time spent on online video platforms [13]. Data released by ByteDance Ltd indicated that in 2020, Douyin's daily active users exceeded 600 million, and the average daily video search volume surpassed 400 million [21]. Kuaishou's annual financial report released in 2023 also showed that Kuaishou's average daily active users reached 382.5 million, with each daily active user spending an average of 124.5 minutes online [22]. The top 5 global social media platforms are Facebook (Meta Platforms Inc), WhatsApp (Meta Platforms Inc), Instagram (Meta Platforms Inc), YouTube (Alphabet Inc), and TikTok. TikTok is the sole short video platform among these 5 platforms, and data showed that TikTok accounts for the largest share of user time on the Android (Alphabet Inc) platform [23].

The keyword "breast cancer screening" (or its equivalent in Chinese, "乳腺癌筛查") was used to conduct searches on each platform. The top 100 videos in the search results from each platform were retrieved for initial screening. To minimize algorithmic bias due to personalized content recommendations, new user accounts were registered on each platform specifically for this study, and any personalized recommendation features were disabled on Douyin and Kuaishou. All searches were conducted using the platforms' default sorting algorithms, and no additional filters were applied to the search criteria.

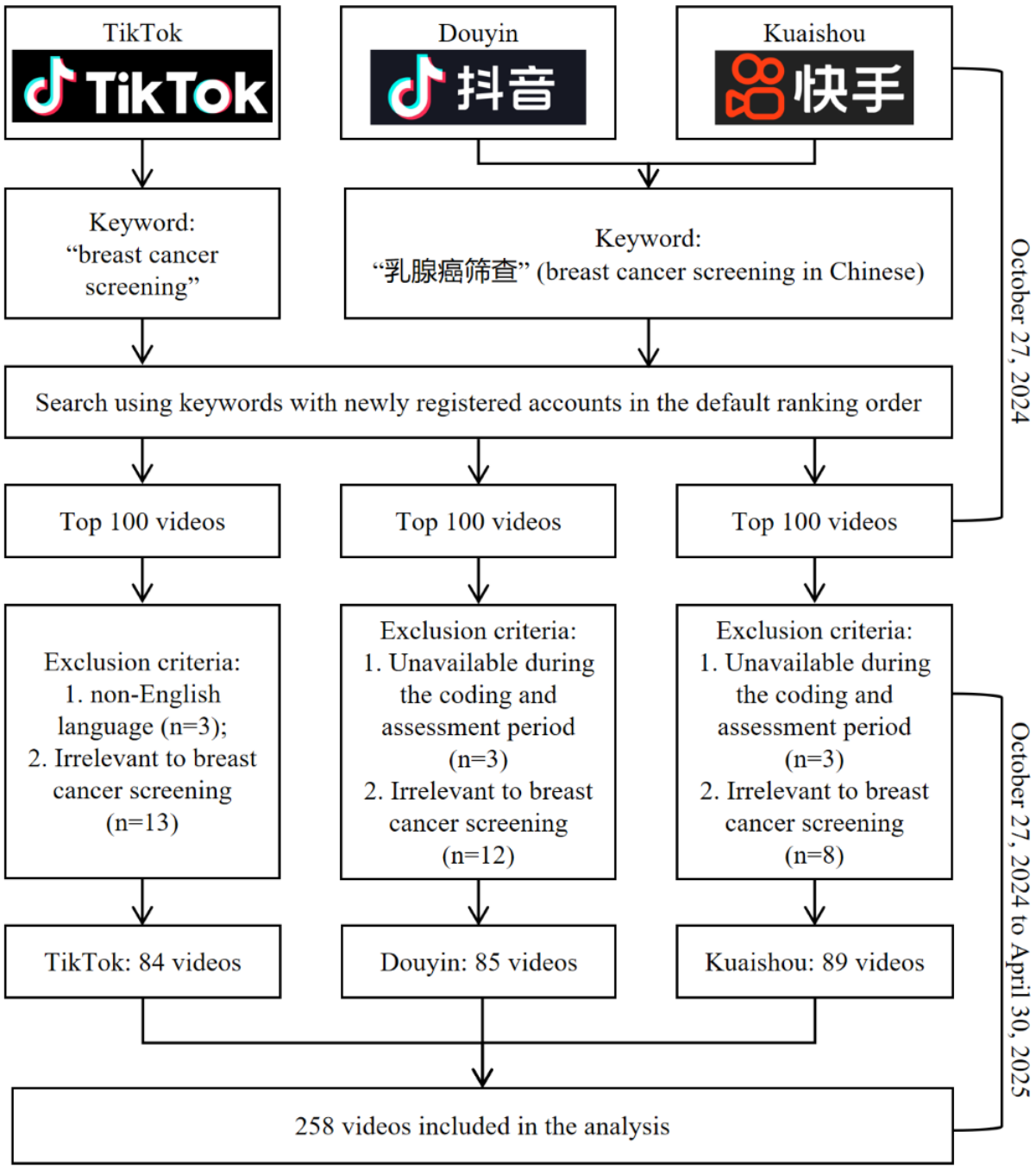
We retrieved the first 100 videos returned under each platform's default ranking before applying the eligibility criteria. This pragmatic retrieval cutoff followed precedents in health-related video research [24-26]. The focus on higher-ranked results was informed by the "least-effort rationale" discussed in previous research [27]. A fixed retrieval depth provided a consistent operational basis for cross-platform comparison and allowed independent screening and quality assessment within available resources.

Following the initial collection of 100 videos per platform (totaling 300 videos), sample cleaning was performed. On TikTok, 16 videos were excluded based on the following criteria: (1) a non-English language and (2) irrelevance to the topic of "breast cancer screening." On the Chinese platforms, videos were excluded based on the following criteria: (1) being unavailable during the coding and assessment period (October 27, 2024, to April 30, 2025) and (2) irrelevance to the topic. Specifically, 11 videos were excluded from Kuaishou and 15 from Douyin.

After retrieval, 3 trained experts with clinical backgrounds in breast medicine independently screened all videos against prespecified inclusion and exclusion criteria before content coding and quality assessment. Eligible videos substantively addressed breast cancer screening methods, recommendations, screening-related health education, or guidance on when and how to access screening services. Videos were excluded if they were not in the target language, lacked substantive screening-related information, or contained only an incidental mention of breast cancer. Examples of irrelevant content included discussions of cosmetic breast procedures, general oncology, or personal experiences without screening-related information. Screening disagreements were resolved through discussion among the 3 reviewers until consensus was reached. After exclusions, a total of 258 short videos were included in the final analysis. The screening and selection process is illustrated in Figure 1.

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Figure 1. Flowchart of the video retrieval and sample selection process for breast cancer screening videos on Kuaishou, Douyin, and TikTok.



Basic Video Information

For each video, the following metadata were collected: (1) video characteristics, including duration (in seconds) and days since publication; (2) account information, including the number of followers, whether the uploader was verified, and the type of verification; and (3) viewer engagement metrics, including the number of likes, comments, and collections. To account for differences in video lifespan, these metrics were normalized by calculating the average per 30 days (eg, likes/30 days, comments/30 days, and collections/30 days).

Video Coding

Coding of Basic Video Elements

Three trained research assistants with clinical backgrounds in breast medicine were recruited as coders. Each coder independently assessed whether the videos contained specific elements predefined by the study. Before coding, all coders underwent standardized training to ensure consistent interpretation and classification of video elements.

The basic video elements included the presence or absence of subtitles, (enhanced) on-screen text, spoken narration or voiceover, and background music. These elements were binary

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coded as 1="present" and 0="absent." The video format was categorized into performance, animated information, documentary, news, oral speech, and image-based slideshow formats [28]. Detailed coding criteria and operational definitions are provided in Multimedia Appendix 1.

Coding of Video Uploaders

Uploaders of breast cancer screening videos were classified into 2 main categories. Individual accounts were subdivided into health care professionals and independent content creators (self-media). Organizational accounts were subdivided into nonprofit organizations and for-profit organizations. Detailed definitions and coding instructions are presented in Table 1.

Table 1. Classification codes and examples of short video uploaders.

Account types	Description	Example
Health care professionals	Individuals who identify or present themselves as health care professionals	Physicians and nurses from breast surgery or other departments
Individual content creators	Individuals (or small teams) who create, publish, and disseminate content via online platforms	Community women participating in free screening events
Nonprofit organizations	Organizations operating for collective, public, or social welfare purposes	Public tertiary hospitals
For-profit organizations	Organizations pursuing commercial interests	Private hospitals

Short Video Quality Assessment Tool

Patient Education Materials Assessment Tool for Audiovisual Materials

The Patient Education Materials Assessment Tool for Audiovisual Materials (PEMAT-A/V) consists of 25 items designed to evaluate the understandability and actionability of short videos. The definition of "understandability" is that patient education materials are easy for consumers to understand when people from different backgrounds and with different levels of health literacy can understand and explain the main messages. "Actionability" indicates the extent to which patient education materials encourage action by enabling consumers of diverse backgrounds and varying levels of health literacy to identify what they can do based on the information presented [29]. Items 1 to 19 assess understandability, while items 20 to 25 evaluate actionability. Each item is rated as 1="agree", 0="disagree", or n/a="not applicable." The total score and subscores (understandability or actionability) are calculated using the formula: (score/total possible score)×100%. A higher score indicates better performance in terms of understandability or actionability, and results are presented as percentages.

Modified DISCERN

The DISCERN tool is widely used to evaluate the quality and reliability of health information in videos [30]. It has been extensively applied across various video-sharing platforms, including YouTube, TikTok, Kwai (Kuaishou Technology), and Bilibili (Bilibili Inc) [15]. In China, it has been used to assess breast cancer educational videos on the Xigua Video (ByteDance Ltd) platform [31]. This study used the modified DISCERN (mDISCERN) scale, which is more suitable for assessing health education in video format [32]. It includes 5 items, each rated as 1="agree" or 0="disagree." A higher total score reflects a higher level of educational quality in the video.

Global Quality Score

The Global Quality Score (GQS) assesses the educational value and overall quality of a video. Scores range from 1 to 5, with higher scores indicating better quality [33]. The scoring criteria are as follows: each item is rated as 1="poor," indicating poor quality and flow, with most information missing and limited usefulness for patients; 2="fair," indicating generally poor quality and flow, with some information provided but many important topics missing and limited usefulness for patients; 3="moderate," indicating moderate quality and suboptimal flow, with some important information adequately discussed and others poorly addressed and with some usefulness for patients; 4="good," indicating good quality and generally good flow, with most relevant information covered although some topics may be missing and with usefulness for patients; or 5="excellent," indicating excellent quality and flow and high usefulness for patient education.

The Journal of the American Medical Association Benchmark Criteria

The *Journal of the American Medical Association* benchmark criteria (*JAMA*-BC) focus on evaluating the reliability of videos and associated platforms [34]. The assessment consists of 4 dimensions, with each criterion rated from 0 to 4 points. A total score of 16 indicates high quality, while 0 suggests low quality. The 4 criteria are as follows: authorship, which assesses whether the video clearly identifies the authors and their affiliations, with institutional credentials provided; attribution, which assesses whether the video clearly cites all sources of information and references, including copyright statements; disclosure, which assesses whether the video discloses sponsorships, advertising, funding sources, or any potential conflicts of interest; and currency, which assesses whether the video clearly states the date of content creation and the most recent update. Each criterion is scored as follows: 0="Not met," 1 to 3="Partially met," and 4="Fully met."

Quality Assessment Procedure

Three experts with clinical backgrounds in breast medicine were recruited as raters to assess the quality of the included short videos. Before formal scoring, all raters underwent standardized training, which included an overview of breast cancer screening guidelines, detailed instructions on the scoring tools, and access

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to the official documentation and websites for each instrument. The 3 raters then synchronously evaluated a randomly selected 10% subset of videos to assess interrater variability and clarify scoring ambiguities. Formal scoring commenced after sufficient interrater reliability had been established. Interrater agreement was evaluated using the intraclass correlation coefficient (ICC) during this process. The ICC among the 3 raters was calculated for the 10% subset of samples. Once the ICC reached an acceptable level, the remaining video samples were randomly and equally distributed among the 3 raters for scoring. As shown in Multimedia Appendix 2, the instrument-specific ICC results for the pilot subset indicated that the ICC values for all tools were acceptable.

Statistical Analysis

Data were managed using REDCap (Vanderbilt University) and analyzed using SPSS (version 27; IBM Corp). Because viewer engagement metrics and quality scores were not normally distributed, continuous variables were summarized as medians and IQRs. Categorical data were summarized as frequencies (n) and percentages (%). Between-platform differences were tested using Kruskal-Wallis tests with Dunn-Bonferroni pairwise comparisons for continuous variables and chi-square or Fisher exact tests for categorical variables. Spearman rank correlation was used to evaluate the relationships between engagement metrics and quality scores. Statistical significance was set at α=.05.

Ethical Considerations

Ethics approval was not required for this study because it analyzed publicly accessible videos and nonidentifiable platform data, involved no interaction with users or intervene with human participants. All data were deidentified before analysis; usernames and other direct identifiers were not retained. Privacy and confidentiality were maintained throughout data collection, analysis.

Results

Descriptive Analysis of Breast Cancer Screening Short Videos

Regarding video length (seconds), the median duration of breast cancer screening short videos on TikTok was 34.00 (IQR 15.50-61.75) seconds, compared with 53.03 (IQR 25.38-75.97) seconds on Kuaishou and 69.07 (IQR 41.52-86.94) seconds on Douyin (Douyin vs TikTok: *P*<.001; Kuaishou vs TikTok: *P*=.007). Videos on Douyin were significantly longer than those on Kuaishou and TikTok. Concerning the date of posting (days since posting), the median values were 416 (IQR 175.00-720.50) days ago for Kuaishou, 404.50 (IQR 262.00-711.25) days ago for TikTok, and 247 (IQR 127.50-558.50) days ago for Douyin, indicating that videos on Douyin were significantly newer than those on Kuaishou and TikTok (Kuaishou vs Douyin: *P*=.014; Douyin vs TikTok: *P*=.009).

The subtitle use rate was 94.1% (80/85) on Douyin, while only 54.8% (46/84) of TikTok videos included subtitles. The use of enhanced text (eg, supplementary captions and keyword annotations) was similar on Kuaishou and Douyin (approximately 50%) but lower on TikTok (17/84, 20.2%). For voice-overs or dubbing, Douyin had the highest use rate (78/85, 91.8%), compared to 66.7% (56/84) on TikTok. The proportions of videos with background music on Kuaishou, Douyin, and TikTok were 64% (57/89), 68.2% (58/85), and 53.6% (45/84), respectively.

Regarding presentation format, verbal presentation or speaking was the most common video type across all 3 platforms, particularly on Kuaishou (70/89, 78.7%) and Douyin (47/85, 55.3%). TikTok exhibited greater diversity in video types, with proportions of documentary (20/84, 23.8%) and performance-based (13/84, 15.5%) content than those on the other platforms. Basic characteristics of the short videos are detailed in Multimedia Appendix 3.

Video Quality and Viewer Engagement Metrics

Kolmogorov-Smirnov tests indicated that viewer engagement metrics across the 3 platforms were nonnormally distributed (*P*<.001). The number of likes for searched breast cancer screening videos on Kuaishou was significantly lower than that on Douyin and TikTok. The median number of likes was 102 (IQR 20-424) for Kuaishou. The median numbers of likes for Douyin and TikTok were 334 (IQR 80-1755) and 634 (IQR 163.25-7651.50), respectively (*P*<.001). The median number of likes per 30 days for Kuaishou, Douyin, and TikTok were 10.30 (IQR 2.22-35.14), 40.57 (IQR 10.59-245.91), and 73.34 (IQR 13.08-361.61), respectively, indicating that the number of likes per 30 days on Kuaishou was significantly lower than that on Douyin and TikTok as well (*P*<.001). Similar trends were observed for comments and collections (including the corresponding per-30-days metrics), with Kuaishou's audience engagement data being significantly lower than those of the other platforms. For example, collections per 30 days on Kuaishou was significantly lower than that on Douyin and TikTok (Kuaishou vs TikTok: *P*<.001; Kuaishou vs Douyin: *P*<.001). Detailed viewer engagement metrics are presented in Multimedia Appendix 4.

Significant differences in video quality were observed among TikTok, Douyin, and Kuaishou. Video quality scores on TikTok were significantly lower than those on Kuaishou and Douyin. TikTok scored lower particularly on the mDISCERN, GQS, and *JAMA*-BC scales. The median mDISCERN score was 1.50 (IQR 1.00-2.00) for TikTok compared to 3.00 (IQR 2.00-3.00) for both Kuaishou and Douyin (*P*<.001). The median GQS score was 2.00 (IQR 2.00-3.00) for TikTok vs 3.00 for both Kuaishou (IQR 3.00-3.50) and Douyin (IQR 2.50-4.00; *P*<.001). The median *JAMA*-BC score was 10.00 (IQR 8.25-12.00) for TikTok, lower than the median scores of 12.00 for both Kuaishou (IQR 10.00-14.00) and Douyin (IQR 10.00-12.00; *P*<.001). TikTok's Patient Education Materials Assessment Tool for Audiovisual Materials–Actionability (PEMAT-A) scores was also significantly lower (Douyin vs TikTok: *P*=.002; Kuaishou vs TikTok: *P*=.02), as shown in Table 2.

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Table 2. Quality assessment of breast cancer screening short videos on Kuaishou, Douyin, and TikTok (N=258).

Quality assessment tools	Kuaishou (n=89)		Douyin (n=85)		TikTok (n=84)		*P* value		
	Score, median (IQR)	Score, range	Score, median (IQR)	Score, range	Score, median (IQR)	Score, range	K-D[a]	D-T[b]	K-T[c]
PEMAT-U[d]	0.75 (0.70-0.89)	0-1	0.71 (0.60-0.86)	0.2-1	0.67 (0.46-0.86)	0-1	.05	.19	.001
PEMAT-A[e]	0.67 (0.67-1.00)	0-1	0.67 (0.67-1.00)	0-1	0.67 (0.33-1.00)	0-1	.42	.002	.02
mDISCERN[f]	3.00 (2.00-3.00)	0-4	3.00 (2.00-3.00)	0-4	1.50 (1.00-2.00)	0-4	.09	<.001	<.001
GQS[g]	3.00 (3.00-3.50)	1-5	3.00 (2.50-4.00)	1-5	2.00 (2.00-3.00)	1-4	.82	<.001	<.001
JAMA-BC[h]	12.00 (10.00-14.00)	7-15	12.00 (10.00-12.00)	5-16	10.00 (8.25-12.00)	7-14	.30	<.001	<.001

[a]K-D: Kuaishou vs Douyin.

[b]D-T: Douyin vs TikTok.

[c]K-T: Kuaishou vs TikTok.

[d]PEMAT-U: Patient Education Materials Assessment Tool for Audiovisual Materials–Understandability.

[e]PEMAT-A: Patient Education Materials Assessment Tool for Audiovisual Materials–Actionability.

[f]mDISCERN: modified DISCERN.

[g]GQS: Global Quality Score.

[h]JAMA-BC: Journal of the American Medical Association benchmark criteria.

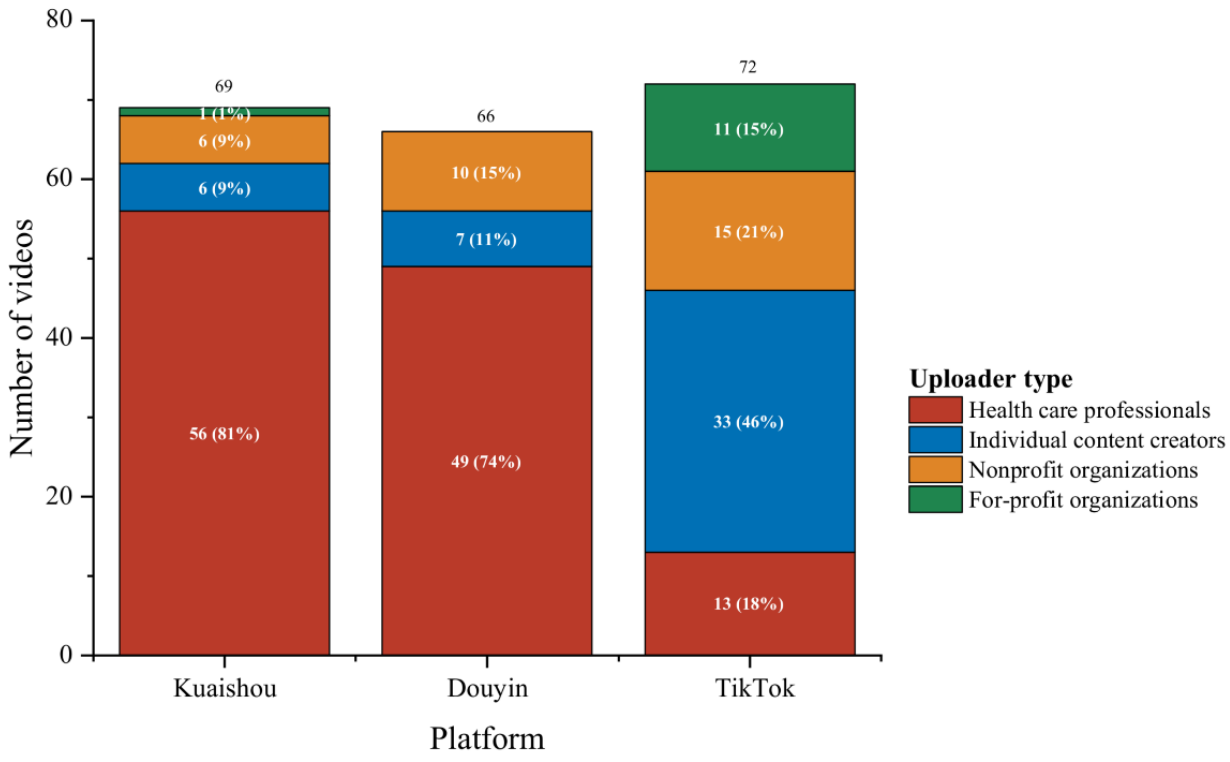
Video Uploader Characteristics

Uploader characteristics differed significantly across the 3 platforms. The median follower counts were 47,000 (IQR 11,000-201,000) for Kuaishou, 17,000 (IQR 2654-99,250) for Douyin, and 13,800 (IQR 1772-146,375) for TikTok. As some accounts on all 3 platforms do not display exact follower numbers, these figures are approximations.

Mann-Whitney *U* tests revealed no statistically significant differences in likes (P=.35), comments (P=.07), or collections (P=.10) between videos uploaded by verified and unverified authors (P≥.05) among all short videos. However, significant differences were found in quality scores for Patient Education Materials Assessment Tool for Audiovisual Materials–Understandability (PEMAT-U; P=.002), PEMAT-A (P<.001), mDISCERN (P<.001), GQS (P<.001), and *JAMA*-BC (P<.001), all favoring videos from verified uploaders. The number of verified uploaders on Douyin was 58 (87.88%), whereas only 9 (12.5%) were verified on TikTok. Regarding uploader type (self-proclaimed), the number of health care professionals among breast cancer screening video uploaders was 56 (81.2%) on Kuaishou and 49 (74.2%) on Douyin, while it was 13 (18.1%) on TikTok. The number of self-media uploaders on TikTok, Douyin, and Kuaishou was 33 (45.8%), 7 (10.6%), and 6 (8.7%), respectively (Figure 2). Detailed uploader characteristics are provided in Multimedia Appendix 5.

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Figure 2. Uploader type for breast cancer screening short videos on Kuaishou, Douyin, and TikTok.

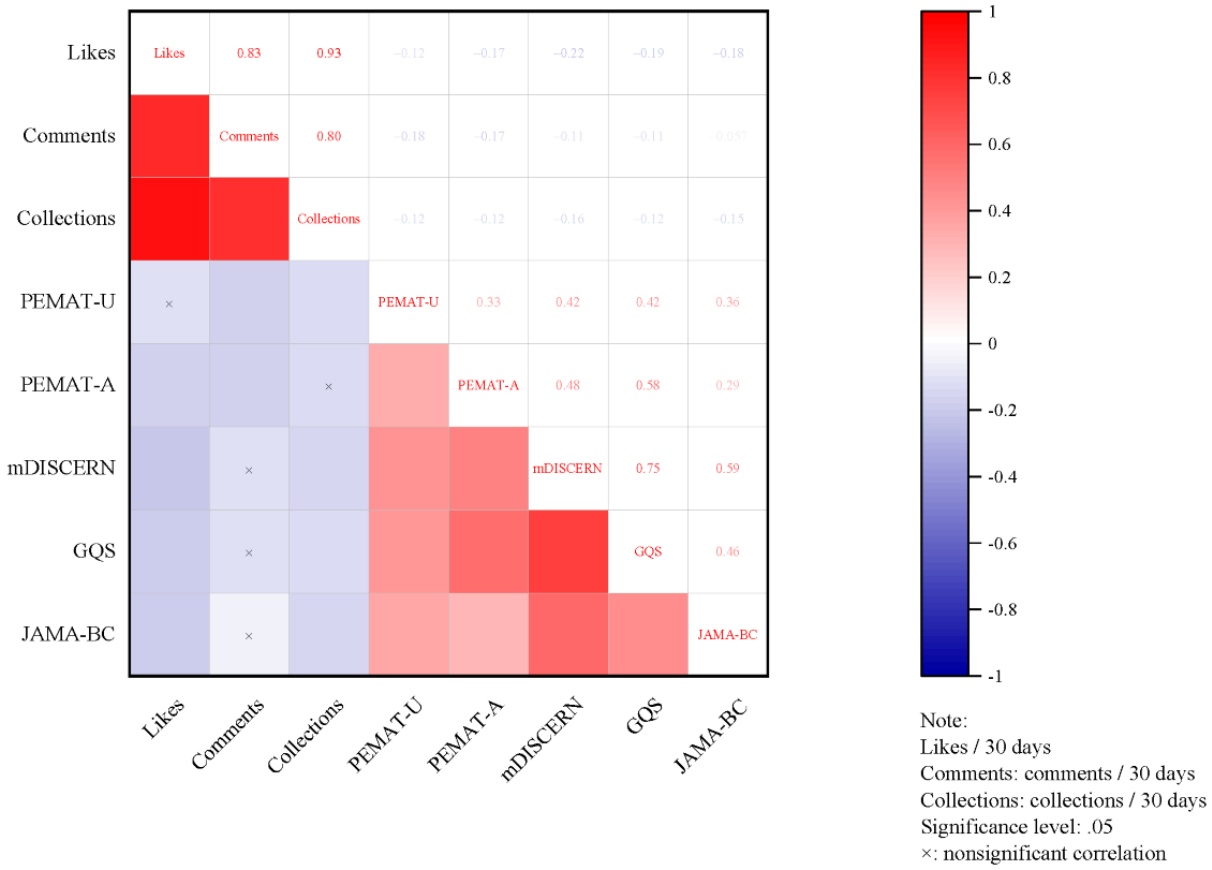


Correlation Analysis Between Video Quality and Viewer Engagement Metrics

Viewer engagement metrics (likes/30 days, comments/30 days, and collections/30 days) across the 3 platforms showed nonsignificant or negative correlations with video quality scores (PEMAT-U, PEMAT-A, mDISCERN, GQS, and *JAMA*-BC). Specifically, correlations between likes and PEMAT-U, comments and mDISCERN, GQS, and *JAMA*-BC, and collections and PEMAT-A were not statistically significant (all $P \geq .05$). The remaining correlations between audience engagement metrics and video quality scores were significantly negative, as shown in Figure 3. Independent analyses conducted across the 3 platforms also indicated similar results (Multimedia Appendix 6).

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Figure 3. Correlations between viewer engagement metrics and quality scores for breast cancer screening short videos on Kuaishou, Douyin, and TikTok. GQS: Global Quality Score; JAMA-BC: Journal of the American Medical Association Benchmark Criteria; mDISCERN: modified DISCERN; PEMAT-A: Patient Education Materials Assessment Tool for Audiovisual Materials–Actionability; PEMAT-U: Patient Education Materials Assessment Tool for Audiovisual Materials–Understandability.



Discussion

Principal Findings

This study provides a comprehensive cross-platform analysis of breast cancer screening short videos on TikTok, Douyin, and Kuaishou, revealing significant disparities in video characteristics, uploader profiles, quality, and viewer engagement. The key findings indicate that TikTok videos generally exhibited lower quality scores across multiple validated assessment tools (mDISCERN, GQS, and *JAMA*-BC) than their counterparts on Douyin and Kuaishou. Furthermore, uploader demographics differed substantially, with health care professionals dominating content creation on Douyin and Kuaishou, while self-media creators were more prevalent on TikTok. A critical and concerning finding across all platforms was the lack of a correlation—and often a negative one—between video quality and viewer engagement.

The inferior quality of breast cancer screening information on TikTok, as measured by standardized instruments, is a primary concern. These tools assess aspects such as information reliability and clarity, which are crucial for health communication. This discrepancy may be intrinsically linked to the divergent uploader ecosystems or retrieval weighting. The result shows that a majority of uploaders on Douyin (49/66, 74.2%) and Kuaishou (56/69, 81.1%) were health care professionals, whereas on TikTok, they constituted only 18.1% (13/72) of the sample. Instead, nearly half (33/72, 45.8%) of TikTok uploaders were self-media creators. Although self-media creators do not inherently produce lower-quality content, they may prioritize virality, entertainment value, or simplified messaging over scientific rigor and comprehensiveness, potentially at the expense of informational quality and comprehensiveness. This aligns with the observed platform differences in video types, where TikTok featured more diverse but potentially less informative formats such as documentaries and performances, whereas Douyin and Kuaishou were dominated by direct verbal presentations. Interrater reliability varied across assessment instruments (Multimedia Appendix 2). PEMAT-A (ICC 0.641) and GQS (ICC 0.712) showed acceptable and moderate reliability, respectively, whereas the remaining instruments showed good reliability (all ICCs>0.80). These differences should be considered when interpreting the findings, particularly those based on PEMAT-A and GQS, which may be more susceptible to variability between raters.

The contrast in uploader verification systems between the platforms offers a plausible explanation for the gap in professional creators and video quality. Douyin and Kuaishou require stringent documentation, such as medical practitioner qualification and practice certificates, which explicitly verify a user's medical credentials and are often displayed on their profile. This creates an environment conducive to participation

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by legitimate health professionals. In contrast, TikTok's verification process, while it grants a "verified" badge, is less specific to health care credentials and discloses limited professional details. This study found a mere 9 verified uploaders in the TikTok sample. Crucially, although verification status itself did not correlate directly with higher viewer engagement in our study, videos from verified accounts demonstrated significantly superior quality scores (PEMAT-U, PEMAT-A, mDISCERN, GQS, and *JAMA*-BC). This finding is consistent with prior research [35] and strongly suggests that platforms can foster higher-quality health information ecosystems by implementing robust verification processes that authenticate health care professional expertise and by algorithmically promoting content from these certified sources.

The most paradoxical finding of this study is the inverse relationship observed between video quality and viewer engagement across platforms. Higher-quality videos, as objectively assessed, did not translate into more likes, comments, or collections per 30 days. This phenomenon is not isolated; previous studies on other medical topics, such as gallstones [26], laryngeal carcinoma [24], and liver cancer [35], have reported similar null or negative correlations between quality and engagement on platforms such as YouTube, Bilibili, and TikTok. Our results reinforce this concerning trend across multiple platforms and linguistic contexts. This underscores a fundamental challenge in digital health communication: the factors driving algorithmic recommendation and user interaction on short video platforms—such as emotional appeal, entertainment value, narrative pacing, and trend adherence—may not align with, and can even run counter to, the principles of high-quality, evidence-based health information.

This misalignment creates a significant barrier to effective public health messaging. It implies that simply producing accurate and comprehensive content is insufficient for achieving broad reach and impact. Content creators, particularly health care professionals who are well-positioned to provide reliable information, should therefore be encouraged to develop skills and knowledge related to short video production and media communication. This involves skillfully blending scientific accuracy with compelling storytelling, high-quality visual production, and an understanding of platform-specific algorithms and user preferences. Fortunately, policy-driven initiatives in China have helped cultivate a substantial base of health professional creators on Douyin and Kuaishou. The next imperative step is to equip these professionals with targeted, multidisciplinary training that merges core public health communication principles with practical media production and digital marketing skills. Such interventions are essential to bridge the gap between quality and engagement, ensuring that the most credible health information can also become the most visible and influential.

Limitations

This study has several limitations. First, the comparison included 2 Chinese-language platforms and 1 English-language platform. These platforms differ in user populations, language context, platform governance, and country-specific screening recommendations; therefore, the findings should be interpreted as differences in observed platform information environments rather than direct comparisons of national guideline adherence. Second, the sample of the top 100 videos per platform was pragmatic and visibility-oriented rather than based on saturation or a formal sample size calculation. The sample reflects the specified search conditions, and differences in platform ranking mechanisms may affect which videos are included. Additionally, the video samples screened in this study were not tested repeatedly using multiple newly registered accounts but were obtained from a single standard data collection process. Although we made an effort to minimize the influence of external conditions and personalization factors, the random nature of the retrieval algorithm suggests that its reproducibility is limited. Third, although we coded selected content and presentation characteristics, evidence use, and uploader credentials, we did not systematically analyze specific screening messages against a defined clinical reference standard. Future mixed methods research should combine thematic analysis with guideline-based assessment of individual claims to examine these aspects. Furthermore, widely used tools such as mDISCERN, GQS, and *JAMA*-BC were not originally designed specifically for short-form audiovisual health communication, and some tools showed only moderate interrater reliability. For example, the *JAMA*-BC was developed for web-based health information [34], whereas the original DISCERN instrument was developed for written health information [30]. A scoping review on health video quality research also suggested that their ability to assess key elements unique to short videos, such as narrative logic, visual presentation, and interactive design, may be inadequate [15]. Finally, platform restrictions and privacy limitations prevented collection of some data, such as precise view counts and exact follower numbers for all accounts.

Conclusions

This study analyzed a total of 258 breast cancer screening short videos from 3 platforms (TikTok, Douyin, and Kuaishou), examining basic characteristics, viewer engagement metrics, video quality, and uploader characteristics. Overall, video quality on TikTok was significantly lower than that on Kuaishou and Douyin. Breast cancer screening videos on Douyin and Kuaishou were primarily uploaded by health care professionals, whereas TikTok content was dominated by self-media creators. The study highlights a key challenge common across the 3 platforms: higher-quality short videos were associated with lower viewer engagement (likes, comments, and collections). Platforms and/or policies should provide higher search visibility and greater traffic to creators with professional backgrounds. Furthermore, these creators urgently require targeted, multidisciplinary training and intervention integrating communication science and media skills.

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Data Availability

The datasets generated and/or analyzed during the current study are not publicly available because of account privacy protections but are available from the corresponding author on reasonable request.

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Generative AI Use

The authors declare that generative AI was not used in the preparation of this manuscript.

Conflicts of Interest

None declared.

Multimedia Appendix 1

Coding scheme and operational definitions of basic elements in short videos.
[DOCX File , 20 KB-Multimedia Appendix 1]

Multimedia Appendix 2

Interrater reliability (interclass correlation coefficient) among 3 evaluators for quality assessment of breast cancer screening videos.
[DOCX File , 19 KB-Multimedia Appendix 2]

Multimedia Appendix 3

Content characteristics of breast cancer screening short videos on Kuaishou, Douyin, and TikTok (N=258).
[DOCX File , 24 KB-Multimedia Appendix 3]

Multimedia Appendix 4

Characteristics of short videos about breast cancer screening on Kuaishou, Douyin, and TikTok (N=258).
[DOCX File , 22 KB-Multimedia Appendix 4]

Multimedia Appendix 5

Characteristics of uploaders of breast cancer screening short videos on Kuaishou, Douyin, and TikTok (N=207).
[DOCX File , 24 KB-Multimedia Appendix 5]

Multimedia Appendix 6

Correlation between viewer engagement metrics and quality assessment for breast cancer screening short videos on Kuaishou, Douyin, and TikTok.
[DOCX File , 132 KB-Multimedia Appendix 6]

References

1. Breast cancer. World Health Organization. URL: https://www.who.int/news-room/fact-sheets/detail/breast-cancer [accessed 2025-08-22]
2. Han B, Zheng R, Zeng H, Wang S, Sun K, Chen R, et al. Cancer incidence and mortality in China, 2022. J Natl Cancer Cent. Feb 2, 2024;4(1):47-53. [FREE Full text] [doi: 10.1016/j.jncc.2024.01.006] [Medline: 39036382]

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3. Oeffinger KC, Fontham ET, Etzioni R, Herzig A, Michaelson JS, Shih YC, et al. Breast cancer screening for women at average risk: 2015 guideline update from the American Cancer Society. JAMA. Oct 20, 2015;314(15):1599-1614. [FREE Full text] [doi: 10.1001/jama.2015.12783] [Medline: 26501536]
4. Katalinic A, Eisemann N, Kraywinkel K, Noftz MR, Hübner J. Breast cancer incidence and mortality before and after implementation of the German mammography screening program. Int J Cancer. Aug 01, 2020;147(3):709-718. [doi: 10.1002/ijc.32767] [Medline: 31675126]
5. Zhang M, Zhong Y, Bao H, Zhao Z, Huang Z, Zhang X, et al. Breast cancer screening rates among women aged 20 years and above - China, 2015. China CDC Wkly. Mar 26, 2021;3(13):267-273. [FREE Full text] [doi: 10.46234/ccdcw2021.078] [Medline: 34594864]
6. Chen ZC, Zhang QJ, Wang QY, Feng X. Coverage and associated factors of cervical and breast cancer screening among childbearing women in Jilin Province [Article in Chinese]. Chin J Public Health. 2017;33(8):1170-1173. [FREE Full text] [doi: 10.11847/zgggws2017-33-08-03]
7. Wu L, Chen GZ, Ma YZ, Li TT, Xia JH, Liu GC. Analysis of breast cancer screening status among women aged 35–64 years in Guangdong Province in 2021 [Article in Chinese]. Chin J Woman Child Health Res. 2023;34(7):51-58. [FREE Full text]
8. Sun Y, Yuan J, Liu W, Qin B, Hu Z, Li J, et al. Predicting rural women's breast cancer screening intention in China: a PLS-SEM approach based on the theory of planned behavior. Front Public Health. Apr 11, 2022;10:858788. [FREE Full text] [doi: 10.3389/fpubh.2022.858788] [Medline: 35480590]
9. Shen SJ, Sun Q, Huang X, Li Y, Li Y, Niu Z, et al. Breast cancer screening guideline for Chinese women (version 2022) [Article in Chinese]. Chin Res Hosp. 2022;9(02):6-13. [doi: 10.19450/j.cnki.jcrh.2022.02.003]
10. Richards MA, Smith P, Ramirez AJ, Fentiman IS, Rubens RD. The influence on survival of delay in the presentation and treatment of symptomatic breast cancer. Br J Cancer. Feb 1999;79(5-6):858-864. [FREE Full text] [doi: 10.1038/sj.bjc.6690137] [Medline: 10070881]
11. Shi S, Lu Q, Yang P, Pang D, Jin S. Patient delay among breast cancer patients: a review [Article in Chinese]. Chin J Nurs. 2015;50(4):468-471. [FREE Full text] [doi: 10.3761/j.issn.0254-1769.2015.04.020]
12. Jinping X. Striving to build a country strong in science and technology. World Association for China Studies. 2025. URL: https://en.wacs.org.cn/2025-07/15/c_188772.htm [accessed 2026-10-19]
13. The 54th statistical report on China's internet development. China Internet Network Information Center. 2024. URL: https://www.cnnic.com.cn/IDR/ReportDownloads/202411/P020241101318428715781.pdf [accessed 2026-10-07]
14. Xi Z, Li S, Shen L. Exploring new forms of science popularization and the transformation path of short video dissemination in science popularization journals [Article in Chinese]. Publ Panorama. 2022;09. [FREE Full text] [doi: 10.16491/j.cnki.cn45-1216/g2.2022.09.002]
15. Li B, Liu M, Liu J, Zhang Y, Yang W, Xie L. Quality assessment of health science-related short videos on TikTok: a scoping review. Int J Med Inform. Jun 2024;186:105426. [doi: 10.1016/j.ijmedinf.2024.105426] [Medline: 38531256]
16. Suarez-Lledo V, Alvarez-Galvez J. Prevalence of health misinformation on social media: systematic review. J Med Internet Res. Jan 20, 2021;23(1):e17187. [FREE Full text] [doi: 10.2196/17187] [Medline: 33470931]
17. Qu Y, Lian J, Pan B, Zhang J, Zhou Y. Assessing the quality of breast cancer-related videos on TikTok: a cross-sectional study. Digit Health. Aug 30, 2024;10:20552076241277688. [FREE Full text] [doi: 10.1177/20552076241277688] [Medline: 39224798]
18. Douyin community medical convention [Article in Chinese]. Douyin. Jan 23, 2025. URL: https://www.douyin.com/rule/policy?activeId=medical_convention#heading-0 [accessed 2026-08-26]
19. O'Sullivan NJ, Nason G, Manecksha RP, O'Kelly F. The unintentional spread of misinformation on 'TikTok'; a paediatric urological perspective. J Pediatr Urol. Jun 2022;18(3):371-375. [doi: 10.1016/j.jpurol.2022.03.001] [Medline: 35331640]
20. Bai G, Fu K, Fu W, Liu G. Quality of internet videos related to pediatric urology in Mainland China: a cross-sectional study. Front Public Health. Jun 15, 2022;10:924748. [FREE Full text] [doi: 10.3389/fpubh.2022.924748] [Medline: 35784238]
21. 2020 Douyin data report. ByteDance. 2020. URL: https://www.bytedance.com/zh/news [accessed 2026-10-19]
22. Annual report 2023. Kuaishou Technology. 2023. URL: https://ir.kuaishou.com/system/files-encrypted/nasdaq_kms/assets/2024/04/22/19-26-33/2023%20AR_EN.pdf [accessed 2026-10-07]
23. Singh A. Social media statistics (2026) – active users and demographics. DataRefs. URL: https://www.datarefs.com/statistics/social-media-statistics/ [accessed 2026-08-22]
24. Liu Z, Chen Y, Lin Y, Ai M, Lian D, Zhang Y, et al. YouTube/ Bilibili/ TikTok videos as sources of medical information on laryngeal carcinoma: cross-sectional content analysis study. BMC Public Health. Jun 14, 2024;24(1):1594. [FREE Full text] [doi: 10.1186/s12889-024-19077-6] [Medline: 38877432]
25. Gong X, Dong B, Li L, Shen D, Rong Z. TikTok video as a health education source of information on heart failure in China: a content analysis. Front Public Health. Dec 11, 2023;11:1315393. [FREE Full text] [doi: 10.3389/fpubh.2023.1315393] [Medline: 38146471]
26. Sun F, Zheng S, Wu J. Quality of information in gallstone disease videos on TikTok: cross-sectional study. J Med Internet Res. Feb 08, 2023;25:e39162. [FREE Full text] [doi: 10.2196/39162] [Medline: 36753307]

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27. Cloete L. Looking for information: a survey of research on information seeking, needs and behavior, 3rd ed. Online Inf Rev. 2013;37(3):483-484. [FREE Full text] [doi: 10.1108/OIR-04-2013-0089]
28. Li Y, Guan M, Hammond P, Berrey LE. Communicating COVID-19 information on TikTok: a content analysis of TikTok videos from official accounts featured in the COVID-19 information hub. Health Educ Res. Jul 12, 2021;36(3):261-271. [FREE Full text] [doi: 10.1093/her/cyab010] [Medline: 33667311]
29. Shoemaker SJ, Wolf MS, Brach C. Development of the Patient Education Materials Assessment Tool (PEMAT): a new measure of understandability and actionability for print and audiovisual patient information. Patient Educ Couns. Sep 2014;96(3):395-403. [FREE Full text] [doi: 10.1016/j.pec.2014.05.027] [Medline: 24973195]
30. Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. J Epidemiol Community Health. Feb 1999;53(2):105-111. [FREE Full text] [doi: 10.1136/jech.53.2.105] [Medline: 10396471]
31. Pan P, Yu C, Li T, Zhou X, Dai T, Tian H, et al. Xigua video as a source of information on breast cancer: content analysis. J Med Internet Res. Sep 29, 2020;22(9):e19668. [FREE Full text] [doi: 10.2196/19668] [Medline: 32883651]
32. Singh AG, Singh S, Singh PP. YouTube for information on rheumatoid arthritis--a wakeup call? J Rheumatol. May 2012;39(5):899-903. [doi: 10.3899/jrheum.111114] [Medline: 22467934]
33. Bernard A, Langille M, Hughes S, Rose C, Leddin D, Veldhuyzen van Zanten S. A systematic review of patient inflammatory bowel disease information resources on the World Wide Web. Am J Gastroenterol. Sep 2007;102(9):2070-2077. [doi: 10.1111/j.1572-0241.2007.01325.x] [Medline: 17511753]
34. Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the internet: caveant lector et viewor—let the reader and viewer beware. JAMA. Apr 16, 1997;277(15):1244-1245. [doi: 10.1001/jama.1997.03540390074039]
35. Zheng S, Tong X, Wan D, Hu C, Hu Q, Ke Q. Quality and reliability of liver cancer-related short Chinese videos on TikTok and Bilibili: cross-sectional content analysis study. J Med Internet Res. Jul 05, 2023;25:e47210. [FREE Full text] [doi: 10.2196/47210] [Medline: 37405825]

Abbreviations

GQS: Global Quality Score
ICC: intraclass correlation coefficient
JAMA-BC: Journal of the American Medical Association benchmark criteria
mDISCERN: modified DISCERN
PEMAT-A: Patient Education Materials Assessment Tool for Audiovisual Materials–Actionability
PEMAT-A/V: Patient Education Materials Assessment Tool for Audiovisual Materials
PEMAT-U: Patient Education Materials Assessment Tool for Audiovisual Materials–Understandability
WHO: World Health Organization

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