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A Quality, Reliability, and Dissemination Characteristics of Pneumoconiosis-Related Videos on TikTok and Bilibili: A Cross-Sectional Study

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Abstract

Background

Leveraging short-form videos to disseminate health information is a powerful innovation. Yet, we still do not know if the current wave of pneumoconiosis videos actually delivers accurate, high-impact knowledge to the public.

Objective

To evaluate the quality, reliability, and dissemination of pneumoconiosis videos on TikTok and Bilibili, correlating quality metrics with user engagement. The aim is to optimize social media health communication and secure more reliable, highly accessible channels for public access to occupational disease guidance.

Methods

On December 16, 2025, we queried TikTok and Bilibili for 'pneumoconiosis' using newly registered accounts. From the top 100 default-sorted videos per platform, we excluded duplicates, advertisements, and irrelevant content, leaving 166 videos (77 Bilibili, 89 TikTok) for analysis. For each, we documented engagement metrics, duration, age, uploader category, themes, and formats, and evaluated quality via mDISCERN, GQS, JAMA, and VIQI.

Results

Overall, the median mDISCERN, GQS, JAMA, and VIQI scores were 2, 3, 3, and 12, respectively. Compared with Bilibili, TikTok has higher likes and comments, but shorter video duration and lower video age(all $P < 0.05$).Bilibili had higher mDISCERN, GQS, and VIQI scores, while TikTok had higher JAMA scores (all $P < 0.05$).Self-media creators account for the largest proportion on Bilibili (53.2%), while physicians take the highest proportion on TikTok(66.3%). The engagement and quality scores (mDISCERN, JAMA, VIQI) differed among the creator types(all $P < 0.05$). Content on Bilibili is mainly case reports/news and disease knowledge, while content on TikTok is mainly treatment and disease knowledge. Prevention related content is insufficient on both platforms. On Bilibili, VIQI moderately correlated with likes, saves, shares, and comments ($\rho = 0.485–0.605$, all $P < 0.05$); on TikTok, GQS yielded weak-to-moderate negative correlations with likes, shares, and comments (ρ=-0.244 to -0.312, all $P < 0.05$).

Conclusion

Pneumoconiosis video quality remains moderate, lacking robust reliability and evidence sourcing. Bilibili's audience prefers high-quality in-depth educational content, while TikTok has a traffic-quality mismatch: higher engagement goes with poorer content quality. To solve this problem, health campaigns need to adjust content to fit each platform's features, and require strict evidence labeling, peer review and danger disclaimers for viral medical content.

Introduction

Pneumoconiosis stands as a leading and highly severe occupational lung disorder worldwide[1]. The disease stems from chronic inhalation of respirable industrial particulates, particularly crystalline silica and coal dust, whose deep pulmonary entrapment incites progressive, irreversible diffuse fibrosis[2]. In China, this disease has long ranked first among reported cases of occupational diseases[3]. Given that there is currently no specific cure available, the focus of prevention and control has shifted to a full-chain intervention approach—including dust regulation at the source, early screening, standardized diagnosis and treatment, and comprehensive, long-term follow-up. For high-risk frontline workers exposed to dusty environments, providing accessible, accurate, and actionable health education and information has become a critical strategy for halting disease progression and alleviating public health pressures.

With the rapid development of digital healthcare and the mobile internet, the public's sources of medical information have shifted from traditional print media and specialized medical websites to online platforms, primarily social media. Among these, short videos—which are characterized by rapid dissemination, high visual appeal, and low barriers to use—have become an important channel for the public to access health information. TikTok and Bilibili, as China's two most influential video-sharing platforms, have hundreds of millions of active users.

While short videos facilitate the rapid dissemination of health information, they also pose risks that cannot be ignored. Since most short-video platforms lack rigorous peer review and content moderation mechanisms for medical content, any individual—including non-medical professionals and patients—can freely post health-related content, resulting in inconsistent quality of medical information on these platforms. In recent years, numerous social media studies on cancer[4], chronic diseases[5], and obstetric and gynecological conditions[6] have shown that short-video platforms are rife with low-quality, unreliable, and even misleading medical information. For patients with pneumoconiosis—a specific group affected by occupational diseases—blindly adopting unorthodox therapies or misleading health information that lack evidence-based medical support not only tends to delay proper clinical intervention but may also accelerate the decline in lung function and the progression of the disease, thereby leading to irreversible health damage and exacerbating the financial burden of the disease on patients' families.

To date, the quality, reliability, and content characteristics of short videos related to pneumoconiosis on the TikTok and Bilibili platforms remain unknown. To address this research gap, this study aims to systematically evaluate the quality and reliability of videos related to pneumoconiosis on China's mainstream short-video platforms through a cross-sectional analysis. This study used multiple tools—including the modified DISCERN (mDISCERN)[7], the Global Quality Score (GQS) [8], the JAMA benchmark[9], and the Video Information and Quality Index (VIQI)[10]—to compare the basic characteristics, uploader demographics, content themes, presentation formats, and quality scores of videos on the two platforms. It also explored the relationship between quality scores and user engagement, with the aim of providing a basis for public health education on occupational diseases and platform governance.

Methods

Study Design and Ethics

This cross-sectional analysis utilized only public TikTok and Bilibili videos, completely bypassing clinical diagnostics, biological samples, or active interventions. The data analysis and results are presented in aggregate form; no identifiable account names, video links, or screenshots are disclosed, and therefore meet the criteria for exemption from ethical review.

Video Retrieval and Filtering

On December 16, 2025, we searched for 'pneumoconiosis' on TikTok and Bilibili using clean, newly registered accounts. To dodge recommendation bias, we blocked all prior engagement—refraining from follows, likes, or comments. We retrieved the first 100 videos from both platforms with default sorting settings, then included videos that play normally with main content related to pneumoconiosis and excluded duplicate, highly similar, advertising, and irrelevant videos. After screening, 23 videos from Bilibili and 11 from TikTok were excluded; finally, 77 videos from Bilibili and 89 from TikTok were included, with a total of 166 videos **(**Fig. 1**).**

Data Extraction and Classification

For each harvested clip, we logged engagement metrics (likes, saves, shares, and comments), duration, and video age at retrieval. Titles and URLs served strictly for internal deduplication, leaving them entirely out of the published results. Based on public profile details, we binned uploader into five categories: doctors (sub-classified by stated specialty), lawyers, patients, self-media creators, and official media outlets.

We sorted video content into six thematic buckets: case reports/news, diagnosis, dual diagnosis/treatment, general disease knowledge, prevention, and treatment. Similarly, presentation style fell into seven formats: animation/action, clinical scenarios, PPT/class, questions and answers, solo narrations, TV/documentaries, and others. If a video straddled multiple themes or formats, we mapped it to the single category occupying the lion's share of its runtime or core message.

Information Quality Evaluation

Post-extraction, two assessors (Zhang and Yuan) independently graded the clips between December 16, 2025, and January 6, 2026, using four established health communication scales (mDISCERN, GQS, JAMA, and VIQI). A third reviewer (Pang) stepped in to arbitrate any scoring clashes and lock in the final dataset. (The scoring rubrics for these quality assessment tools are outlined in the Supplementary Material.)

Statistical Analysis

We conducted all statistical procedures in R (v4.5.0). Shapiro–Wilk tests determined normality; consequently, non-normal continuous features are expressed as medians (interquartile ranges), with categorical items summarized as frequencies [n (%)]. Platforms were compared via Mann–Whitney U tests, while Kruskal–Wallis tests mapped variance across uploader types. To link quality scores to user engagement, we calculated Spearman's rank correlations. Cohen's κ coefficient mapped inter-rater reliability, with values of $\kappa < 0.20$, 0.21–0.40, 0.41–0.60, 0.61–0.80, and > 0.80 signaling poor, fair, moderate, good, and excellent reliability. Significance was locked at a two-sided $P < 0.05$. Crucially, these correlations remain strictly exploratory and do not imply causal pathways.

Results

Video Screening Results and Overall Characteristics

The final dataset consisted of 166 pneumoconiosis videos (77 Bilibili, 89 TikTok) and engagement metrics showed median likes, saves, shares and comments were 310, 106, 60 and 33 respectively. Videos averaged 133 seconds in median length and 447 days since upload. For quality, median scores (interquartile range, IQR) were mapped as follows: mDISCERN, 2 (2–2); GQS, 3 (2–4); JAMA, 3 (2–3); and VIQI, 12 (10–13) **(**Table 1**).**

Table 1
Overall Characteristics of the Videos Included in the Study (N = 166).

Variable	**Total (N = 166)**		
	Median	**Min-Max**	**P25-P75**
Likes (counts)	310	1-150000	75-1661
Saves (counts)	106	1-27000	33–458
Shares (counts)	60	0-11000	16–268
Comments (counts)	33	0-4453	7-196
Video length (s)	133	8-8505	60–402
Duration (day)	447	4-2636	244–1168
mDISCERN scores	2	0–4	2–2
GQS scores	3	1–5	2–4
JAMA scores	3	1–4	2–3
VIQI scores	12	6–18	10–13

Comparison of Video Features and Quality Scores Across the Two Platforms

TikTok videos received more likes ($P < 0.05$) and comments ($P < 0.05$) than Bilibili videos. Bilibili clips were older and longer in duration (both $P < 0.05$). Quality-wise, Bilibili outperformed TikTok across mDISCERN, GQS, and VIQI, whereas TikTok captured higher JAMA scores (all $P < 0.05$) **(**Table 2, Fig. 2**).**

Table 2
Comparison of Video Features and Quality Scores Between Bilibili and TikTok.

Platform	Bilibili (N = 77)			TikTok (N = 89)			*p*-value
Variable	**Median**	**Min-Max**	**P25-P75**	**Median**	**Min-Max**	**P25-P75**	
Likes (counts)	150	1-15000	12-3403	299	7-26000	116–1141	0.018
Saves (counts)	130	3-27000	27–533	69	1–2141	26–148	0.543
Shares (counts)	34	0-5434	13–190	35	0-2417	10–158	0.198
Comments (counts)	12	0-4453	1-203	38	0-2445	14–138	0.002
Video length (s)	429	44-8505	193–1174	66	9-602	46–122	< 0.001
Duration (day)	1128	4-2636	576–1457	365	122–1826	199–548	< 0.001
mDISCERN scores	2	1–4	2–3	2	0–3	2–2	< 0.001
GQS scores	3	1–5	3–4	3	1–5	2–4	0.012
JAMA scores	2	1–4	2–3	3	1–4	3–3	0.003
VIQI scores	12	7–18	11–15	11	6–15	9–12	< 0.001

Note: *p*-values were calculated using the Mann–Whitney U test.

Uploader Types by Platform

Uploader types contrasted starkly by platform. Self-media creators dominated Bilibili (53.2%), whereas physicians drove TikTok content (66.3%). Clinically, TikTok's physicians largely represented respiratory and occupational medicine, while Bilibili drew more radiology specialists. Finally, patients uploaded a mere three videos—all exclusively on TikTok **(**Table 3**).**

Table 3
Distribution of uploader types by platform.

Platform	Bilibili (N = 77)	TikTok (N = 89)
Type of uploaders, n (%)		
Doctor	21(27.3%)	59(66.3%)
lawyer	2(2.6%)	6(6.7%)
Patient	0(0.0%)	3(3.4%)
Self-media	41(53.2%)	10(11.2%)
official media	13(16.9%)	11(12.4%)
Doctor (Radiology)	10(13.0%)	2(2.2%)
Doctor (Respiratory Medicine)	3(3.9%)	23(25.8%)
Doctor (Occupational Medicine)	4(5.2%)	17(19.1%)
Doctor (Cardiothoracic Surgery)	0(0.0%)	9(10.1%)
Doctor (Pneumoconiosis)	0(0.0%)	4(4.5%)
Doctor (Other specialists)	4(5.2%)	4(4.5%)

Video Engagement and Quality Scores Across Uploader Types

Engagement metrics (likes, favorites, shares, and comments) varied significantly across uploader categories (all $P < 0.05$). While patient-uploaded clips (n = 3) generated the highest median engagement, this tiny sample precludes generalization. Uploader types also significantly altered mDISCERN, JAMA, and VIQI scores (all $P < 0.05$)), leaving GQS unaffected ($P > 0.05$). We omitted post-hoc pairwise comparisons given the extreme sample size imbalances **(**Table 4, Fig. 3**).**

Table 4
Video Engagement and Quality Scores Across Uploader Types.

Variable	*Doctor (N = 80)*	*Lawyer (N = 8)*	*Patient (N = 3)*	*Self-media (N = 51)*	*Official media (N = 24)*	*p*-value
Likes, median (IQR)	186.0 (60.2–679.8)	131.0 (53.0–18177.8)	11000.0 (6309.5–15500.0)	465.0 (72.5–7004.5)	1094.0 (354.5–3258.5)	**0.003**
Saves, median (IQR)	76.5 (34.0–167.5)	51.0 (9.8–1244.8)	1327.0 (762.0–1614.5)	181.0 (24.0–1124.5)	152.5 (48.5–682.2)	**0.035**
Shares, median (IQR)	34.0 (15.0–103.2)	14.5 (7.0–663.8)	826.0 (475.0–2603.5)	68.0 (18.5–295.5)	200.0 (65.2–514.8)	**0.004**
Comments, median (IQR)	16.0 (4.5–79.5)	71.5 (15.8–457.8)	1374.0 (873.5–2539.5)	51.0 (6.5–262.5)	90.0 (34.2–297.5)	**0.002**
mDISCERN scores, median (IQR)	2.0 (2.0–3.0)	2.0 (2.0–2.0)	2.0 (2.0–2.0)	2.0 (2.0–2.0)	2.0 (2.0–2.0)	**0.007**
GQS scores, median (IQR)	3.0 (3.0–4.0)	3.5 (2.0–4.0)	3.0 (3.0–3.5)	3.0 (2.0–4.0)	3.0 (2.0–3.2)	0.169
JAMA scores, median (IQR)	2.0 (2.0–3.0)	3.0 (2.8–3.0)	3.0 (3.0–3.0)	3.0 (3.0–3.0)	3.0 (3.0–3.0)	**0.027**
VIQI scores, median (IQR)	12.0 (11.0–15.0)	13.5 (12.5–14.2)	11.0 (10.5–12.0)	11.0 (9.0–12.0)	12.0 (9.8–12.0)	**< 0.001**

Note: *p*-values were calculated using the Kruskal–Wallis test.

Video Content Themes

The thematic distribution varied widely between platforms. Case reports/news (37.7%) and disease knowledge (36.4%) were favored on Bilibili while treatment (38.2%) and disease information (30.3%) were favored on TikTok. This split created mirror-image fourfold discrepancies: TikTok quadrupled Bilibili's treatment share, whereas Bilibili quadrupled TikTok's case/news coverage. Conversely, preventive content languished across both channels at just 1.3% and 5.6%, respectively **(**Fig. 4**).**

Distribution of video presentation formats by platform

In terms of video presentation formats, the content on Bilibili mainly included TV shows, documentaries and lectures (41.6%), as well as PPT and class (23.4%). The TikTok videos were mainly characterized by solo narrations (29.2%), medical scenarios (23.6%), and question-and-answer (16.9%). Thus, the proportions of PPT and class were higher on Bilibili, while TikTok had a greater prevalence of medical scenarios, solo narrations and question-and-answer **(**Fig. 5**).**

The Correlation Between Video Quality Scores and User Engagement

Bilibili's VIQI scores were moderately to positively correlated with all user interactions (ρ = 0.485–0.605, P < 0.001), and GQS scores weakly opposed this trend, with negative correlations with likes (ρ = −0.238, P = 0.037). Conversely, the GQS scores of TikTok were inconsistent with likes, shares and comments, which showed weak-to-moderate negative correlations (ρ = -0.296, -0.244, -0.312, respectively; all P < 0.05). Similarly, JAMA scores for TikTok also were lower than comments (ρ = -0.245, P < 0.05), while VIQI scores were positively associated with saves (ρ = 0.233, P = 0.028) **(**Table 5**).**

Table 5
Spearman's correlation analysis of video quality scores and user engagement metrics across the two platforms.

r-value p-value	Bilibili				TikTok			
	mDISCERN scores	GQS scores	JAMA scores	VIQI scores	mDISCERN scores	GQS scores	JAMA scores	VIQI scores
Likes(counts)	-0.192	-0.238	-0.185	0.485	-0.089	-0.296	-0.151	0.155
	0.094	0.037*	0.107	< 0.001*	0.407	0.005	0.159	0.147
Saves(counts)	0.022	-0.009	-0.087	0.605	-0.107	-0.199	-0.134	0.233
	0.853	0.935	0.454	< 0.001	0.320	0.062	0.211	0.028*
Shares(counts)	0.113	0.129	0.032	0.601	-0.050	-0.244	-0.194	0.200
	0.328	0.265	0.783	< 0.001*	0.644	0.021*	0.068	0.060
Comments(counts)	-0.165	-0.210	-0.136	0.490	-0.041	-0.312	-0.245	0.086
	0.151	0.067	0.239	< 0.001	0.701	0.003*	0.021*	0.424

Discussion

As short-video platforms have become a primary channel for the public to access health information, assessing the quality of disseminated content regarding specific occupational diseases is now particularly urgent[11]. As far as we know, no prior cross-sectional study has systematically compared the quality, reliability, and outreach of pneumoconiosis videos on TikTok and Bilibili. The results we gathered show that while overall quality hovers around a mediocre level, a severe bottleneck exists in information reliability, with the median mDISCERN score settling at a mere 2 points. This finding brings a major issue to light: most uploaders are still failing to cite medical evidence or mention standard uncertainties. This aligns closely with recent data on social media content for brain tumors[5], thyroid nodules[7], and cervical cancer[8]. Ultimately, we find that online medical education faces a broad-based systemic challenge with limited evidence-based support and a profound lack of professional depth.Overall, Bilibili has a clear advantage over TikTok in terms of video quality and content reliability, but TikTok

wins out in terms of reach, engagement metrics, and physician participation.Most importantly, this study points to a disturbing communication paradox that we cannot afford to ignore: poor-quality accounts based on individual patient experiences are attracting a disproportionate amount of eyeballs, while high-quality, professional medical content is trapped in a classic ‘low-visibility’ trap. This dynamic illustrates that on social media, the videos that the public really should be watching the most are often the ones that are struggling the hardest to reach an audience.

General Video Profiles and Differences in Positioning Between Bilibili and TikTok

The baseline features of pneumoconiosis videos vary widely depending on which platform you look at. Broadly speaking, these clips are doing well at gathering surface-level attention like views and likes, but they fall short when trying to spark deep engagement—specifically in bookmarks, shares, and comment section activity. This tells us that online outreach is currently staying on the surface. To make matters worse, the lackluster quality scores across the board show that the standard of these educational videos urgently needs to be pushed to a higher level. In terms of the number of likes and comments, the TikTok platform significantly outperforms Bilibili. This is primarily due to TikTok’s shorter video format and its real-time recommendation system based on user interests; this “swipe up or down to watch” model lowers the barrier to interaction, making it easy for users to casually like or comment in a very short amount of time[7,12]. However, there is no significant difference between TikTok and Bilibili in terms of the two metrics—saves and shares. This suggests that when it comes to deep engagement with content and the willingness to share it further, the behavior of audiences on both platforms is actually very similar[13,14,15]. Videos on Bilibili stick around on the platform for much longer and pack a lot more runtime. This points to Bilibili's real strength as a 'long-term knowledge bank,' making it perfect for holding heavy science content that needs a solid, step-by-step logical layout[16]. On the flip side, TikTok relies on an algorithm-fueled feed that chases immediate eyeball hits. This setup naturally favors rapid, high-impact loops over slow-burn learning, turning the platform into a venue for fast medical alerts rather than deep-dive education[17]. TikTok’s medical content is run almost entirely by bedside specialists, with an alignment that matches clinical practice by focusing heavily on core diagnostic departments like respiratory, occupational, and cardiothoracic medicine. Clearly, TikTok has turned into a fast-paced hub for busy clinicians to drop quick, practical advice. In stark contrast, Bilibili runs on a creator-first engine where the doctor community is mostly anchored in radiology. Because of this, Bilibili’s medical videos naturally trend toward specialized instructional content—like reading a chest CT—while grassroots self-media creators step in to handle the ABCs of health education. It is also clear that while official media handles things with a balanced presence across both platforms, TikTok has won over a scattering of lawyers and actual patients. Bilibili completely misses this patient voice, meaning TikTok walked away with a far more diverse and realistic multi-stakeholder dialogue[18].

Disparities Between Video Information Quality and Public Engagement

The results of the quality assessment show that Bilibili significantly outperformed TikTok in terms of mDISCERN, GQS, and VIQI scores. What this tells us is that Bilibili’s longer video format acts as a fertile ground for structured thinking. Creators aren't tied down by tight time limits, so they can roll out complete logical arguments and back them up with a heavy dose of data charts and visual materials. This approach naturally secures a far wider scope and deeper level of medical information than what you would normally find in a fast-scrolling feed[19]. In contrast to its lower quality scores elsewhere, TikTok managed a solitary win when it came to the JAMA criteria. This edge makes total sense when you look at TikTok’s aggressive rollout of physician verification systems over the

last few years—such as the real-name “Doctor Yellow V' badge” By making sure viewers know exactly who is behind the mic and where their credentials come from, this policy gave the platform a solid boost in content traceability, which directly paid off in higher JAMA scores[20]. When sorting by creator groups, lawyers grabbed the highest scores on VIQI and JAMA benchmarks, a direct byproduct of their career training in citing strict statutes and concrete proof. On the flip side, doctors showed a strong professional output by hitting the upper limits of mDISCERN and GQS, yet their median JAMA scores stalled. This bottleneck stems partly from their rigid, formulaic scripts for medical storytelling that cramp their creative freedom. But here is the irony: regardless of how solid their content is, both professional camps are facing a severe traffic drought, with user interaction staying at a baseline low. In a complete flip from the icy reception professional groups got, actual patients locked down a monopoly on all interaction metrics, sweeping likes, saves, shares, and comments alike. Irony strikes again, though, as their median VIQI scores were the worst of the lot. To understand why, we have to look at the baseline reality: Pneumoconiosis is a chronic occupational illness that primarily affects workers from lower socioeconomic rungs. Consequently, their video content skips the clinical jargon to rely on 'emotional narratives'—spinning stories around personal struggles, raw pain, or fights for workplace justice that naturally pull at the public's heartstrings[14,21]. This kind of storytelling easily hits home for users sharing the same socioeconomic struggles, which in turn trips the platform's compounding recommendation algorithms into high gear. But here is the problem: these high-traffic clips usually skimp on evidence-based medicine, often floating unverified home remedies or heavy negative biases. If this 'viral but low-quality' trap takes over, high-risk workers can easily be led down the wrong path—delaying real clinical treatment or putting off legitimate occupational disease assessments until it's too late. These real-world data tell us one thing loud and clear: regulatory bodies cannot just sit back; they must step in and crack this communication paradox by forcing platforms to rewire their recommendation algorithm weights.

Shifting to how users fight back with clicks and comments, TikTok’s interactive feedback loops present a troubling picture. We found a sticky inverse correlation between how good a video is and how much the audience flirts with it; simply put, dumbed-down or sensationalized clips are the ones winning the traffic race. This behavior isn't an anomaly—prior work confirms that non-rigorous content loaded with emotional outbursts or wild health claims spreads like wildfire, easily leaving dry, evidence-based science communication buried in the feed[14]. In contrast, Bilibili exhibits a relatively healthy feedback ecosystem: the higher the production quality of a video and the richer its content, the higher the overall user engagement—which indicates that the platform’s audience is more receptive to in-depth, long-form science popularization content[22]. However, this study also found that even on Bilibili, high-quality videos that are too ambitious or lean toward traditional academic lecturing styles still struggle to elicit superficial engagement (such as “likes”) from the general public[23]. Ultimately, One-dimensional and stiff medical delivery is a dead end for sustaining public attention. This realization leaves digital health creators with a tough puzzle to crack: they must learn to balance raw scientific rigor with real-world public engagement, turning cold clinical data into something the average viewer actually wants to watch[21].

Content Imbalance and Video Style Disparity

The two platforms exhibit distinctly different content orientations. Bilibili doubles down on deep-dive disease breakdowns and basic medical science, built mostly around case reports, hot topics, and clinical updates. This meatier, highly narrative format fits hand in glove with the platform's long-form culture, giving users the patience to unpack complex pathological processes[24]. TikTok, on the flip side, cuts straight to clinical guidance and quick fixes, throwing all its weight behind treatment methods. This setup hooks right into the minds of short-video

swipers who just want snappy, actionable medical tips during their stray pockets of time[25]. Short formats force TikTok to chop diagnosis and treatment apart, leaving a clear void in comprehensive, 'all-in-one' content, while Bilibili clings to a thin slice of it. Even so, across these structural divides, 'disease knowledge' stays locked in as a top-two anchor on both networks. Media landscapes shift, but the demand for core medical facts stays rock-solid. Yet, pneumoconiosis prevention is almost entirely wiped out from the feed, with creators spending their prime real estate on 'disease awareness' and 'end-game treatment.' Because this pathology causes permanent, diffuse pulmonary fibrosis with no cure, cutting dust exposure at the source is the only strategy that actually works to save public health resources[26]. By putting treatment before prevention, current short-video setups miss the mark for high-risk workers like miners and construction crews, offering them little to no real-world, proactive health interventions[23,27]. The data show Bilibili split between a broadcasting studio and an academic seminar, with documentaries, televised specials, and PowerPoint lectures locking down over 60 percent of its feed. This massive reliance on formal setups clearly underscores that Bilibili's infrastructure rewards creators who deliver granular, systematic health education[28]. Conversely, TikTok bets big on personal branding and raw user intimacy. The platform crowds its feed with face-to-face monologues and medical scenarios—simulated or not—leaving next to no room for traditional, faceless health broadcasting[29]. Blending real-world scenarios with sharp question-and-answer allows health uploaders to tear down the psychological barrier between doctors and patients, accelerating knowledge flow. Yet, a clear dilemma emerges: live-action skits offer flair without depth, while PowerPoint lectures secure factual reliability but drop the ball on audience engagement. As a result, uniform production is obsolete. Platform-tailored content balances clinical accuracy with popular appeal. On Bilibili, creators have to simplify video logic, beautify slide aesthetics, and cite authoritative sources to meet the demand of an audience seeking systematic, in-depth health education. On TikTok, creators need to weaponize personalized storytelling and everyday medical skits to capture attention. Crucially, they must sneak 'disease prevention' and 'basic medical facts' into these high-interaction feeds, directly plugging the current black hole in preventive public health education ·

Clinical and Public Health Implications

Based on above research, healthcare professionals, public health authorities and short-video platforms need to cooperate to optimize online health education and communication strategies for occupational chronic diseases like pneumoconiosis, and this study puts forward three key strategic recommendations:

1. Tailor Content to Platform Niches to Smash the Communication Wall

Digital health campaigns cannot rely on cross-platform cloning; creators must tailor content to distinct channel ecosystems and audience habits. Concurrently, clinicians must dismantle internal cognitive biases during narrative delivery, resisting the blind spot that conflates deep, long-term personal expertise with baseline public understanding. To close the communication gap, doctors must shed their rigid professional detachment and study the toolkits of patients and media creators. Mastering their narrative staging, emotional empathy, and dynamic aesthetics allows physicians to translate clinical abstractions into relatable, accessible public health knowledge[23.]

On TikTok, content strategies must center on micro-videos—driven by solo monologues or realistic clinical staging—that zero in on basic pneumoconiosis prevention and early screening. Harnessing the platform's organic

traffic pool allows these feeds to aggressively push daily protective habits into high-risk labor groups in a sharp, empathetic style.

On Bilibili, institutions must weaponize the platform’s long-form video advantage and sticky traffic to drop a systemic 'Long-Term Pulmonary Rehabilitation Course for Pneumoconiosis.' To polish visual presentation and boost VIQI score, creators should add animations and neat charts. Meanwhile, keeping an eye on authoritative medical guidelines and literature citations will guarantee a bulletproof mDISCERN score, and transform these deep dives into a practical, on-demand 'digital prescription' to patient communities.

2. Reset Traffic Algorithms to Tie Recommendation Rules to Public Health Quality

Short-video spaces must stop chasing eyeballs at all costs. In the life-and-death arena of healthcare, networks must shoulder real responsibility and rewrite their recommendation logic to favor certified clinicians. Instead of feeding users sensational or bizarre clickbait, algorithms must make 'verified medical licensure' and 'scientific accuracy' the ultimate gatekeepers for video distribution[14]. This layout boosts the reach of high-quality content from licensed clinicians and official outlets, while choking off fabricated or false medical videos right at the source. The viral explosion of unverified folk remedies demands immediate platform intervention. For unclinical content, networks have to impose conspicuous warning tags (e.g., “unverified,” “health hazard”) directly on the clip. This systemic tagging prevents copycat behavior that endangers patient safety and postpones timely, formal hospital treatments[30.]

3. Launch Cross-Disciplinary Sci-Comm to Build an Integrated Medical-Legal Intervention System

Pneumoconiosis involves both clinical care and social security issues like injury verification, hazard assessment, and legal advocacy. Although legal content is scarce (TikTok: 6.7%, Bilibili: 2.6%), its high quality leads in JAMA and VIQI scores. Additionally, Bilibili’s 13.2% radiology creators fit the need for CT-based screening. Future campaigns should therefore unite pulmonology, occupational health, imaging, and legal experts[31]. This alliance can address workers' immediate pain points—from early self-defense to legal disputes—creating a full safety net spanning prevention, diagnosis, rehabilitation, and rights protection.

3.5 Limitations

Several limitations are present. First, our cross-sectional sample relied on default search rankings of “pneumoconiosis”; this sample, though using clean accounts to eliminate personalized bias, is limited by geography and time. Second, our findings are limited in generalizability because we only included TikTok and Bilibili.. Second, restricting the scope to TikTok and Bilibili caps the generalizability of our findings. Third, dynamic engagement swings over time, and the lack of granular view counts or completion rates blocked the calculation of standardized dissemination indices. Fourth, uneven creator categories—with a drastically small patient sample —mean the Kruskal–Wallis test merely catches overall variances without post hoc pairwise resolution. Fifth, while mDISCERN, GQS, JAMA, and VIQI capture structural transparency and presentation flair, they cannot substitute for line-by-line clinical guidelines accuracy checks or measure actual downstream patient behavioral shifts. Finally, our exploratory correlation spikes demand future validation in independent cohorts

Conclusion

Ultimately, this study confirms that digital health information on this condition is all over the place, triggering a sharp split in platform ecosystems. Bilibili rewards accounts that dive into structured, long-form narratives, though securing clicks remains tied to sleek audiovisual packaging. In reverse, TikTok thrives on specialist docs dropping treatment tips via direct monologues, securing high dissemination efficiency at the cost of clinical depth—a mismatch that invites traffic-quality inversions. Meanwhile, raw patient-perspective diaries reliably trigger viral explosions on both channels. Consequently, future public health campaigns must play a split game based on platform algorithms. While anchoring baseline reliability, the priority for Bilibili is upgrading slide aesthetics, whereas short-video networks must enforce strict regulatory oversight to clean up the noise of viral, low-quality health feeds.

Declarations

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Authors' contributions

Conception and design: JL.Z.

Data collection and analysis: JL.Z., JQ.Y. and PY.P.

Manuscript writing:JL.Z.

Critical revision of the article: JQ.Y., PY.P., D.W., PJ.X. and J.Z.

Final approval of the article: JL.Z.,JQ.Y., PY.P. , D.W., PJ.X. and J.Z.

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Availability of data and materials

The datasets generated during and/or analysed during this study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

The Ethics Committee of the Yibin Center for Disease Control and Prevention exempted the study from ethical review and waived informed consent. All authors confirm compliance with relevant guidelines and the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Figures

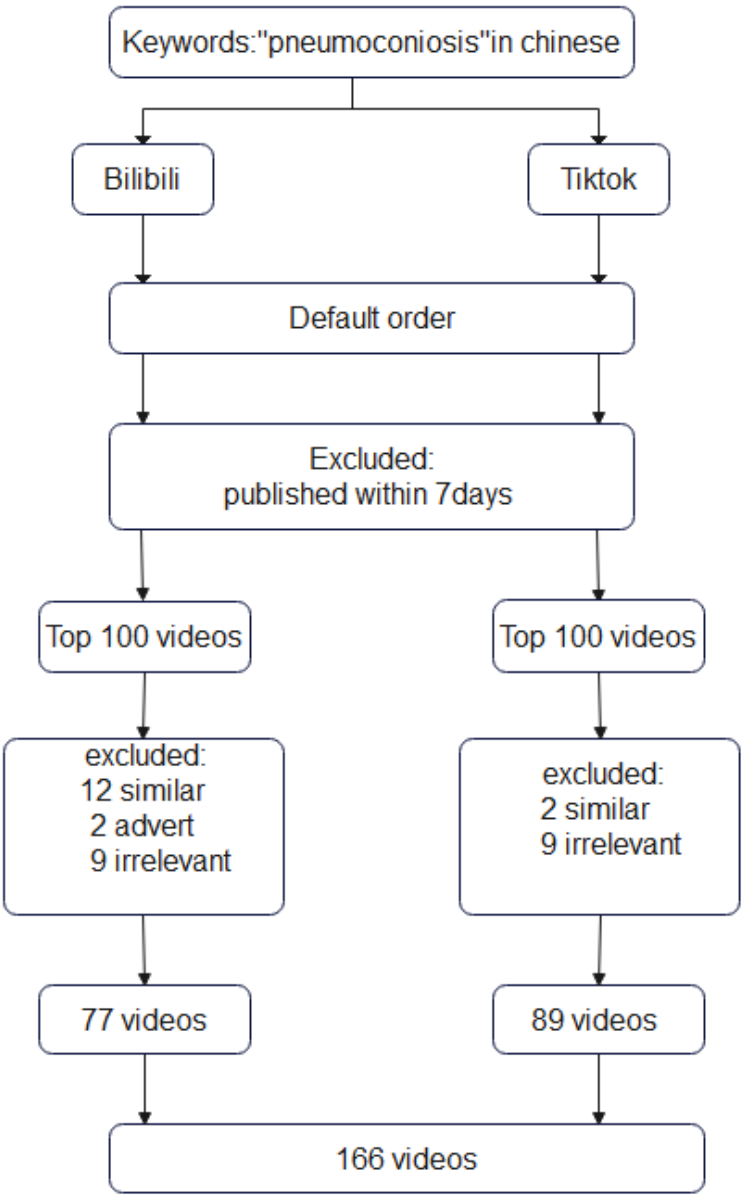


Figure 1

Video Retrieval and Filtering Process

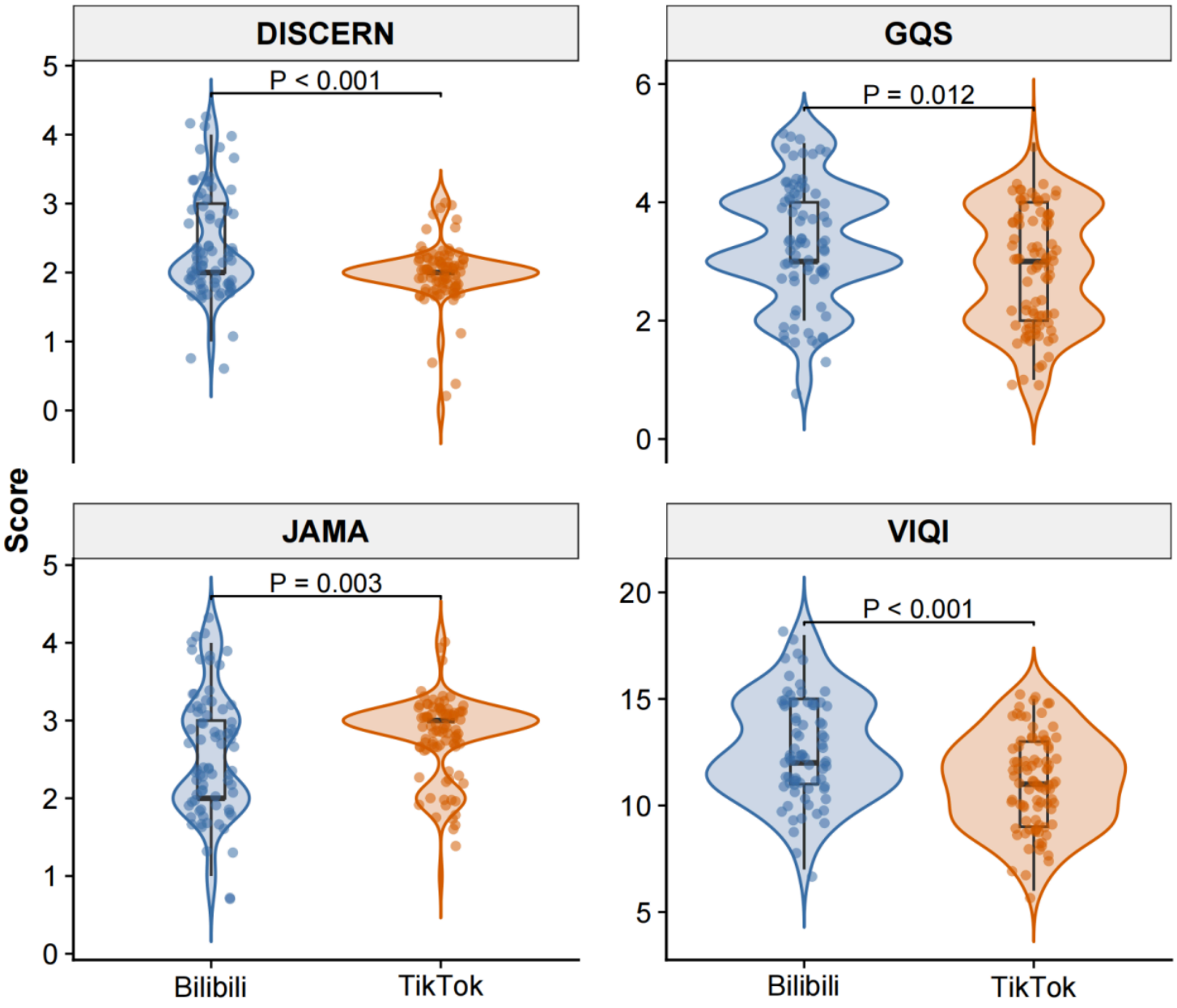


Figure 2

Video quality comparison across platforms.

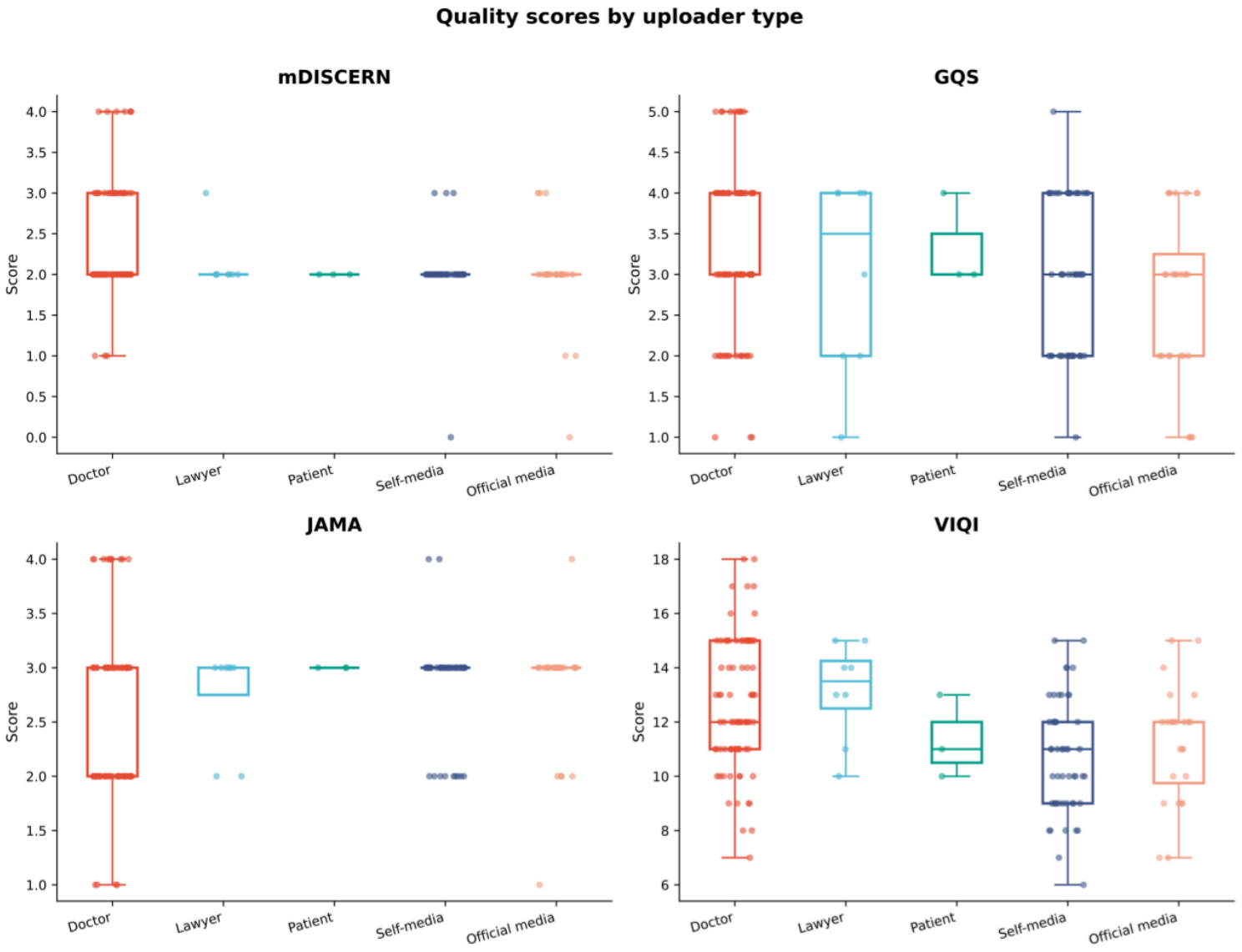


Figure 3

Video quality scores by uploader type.

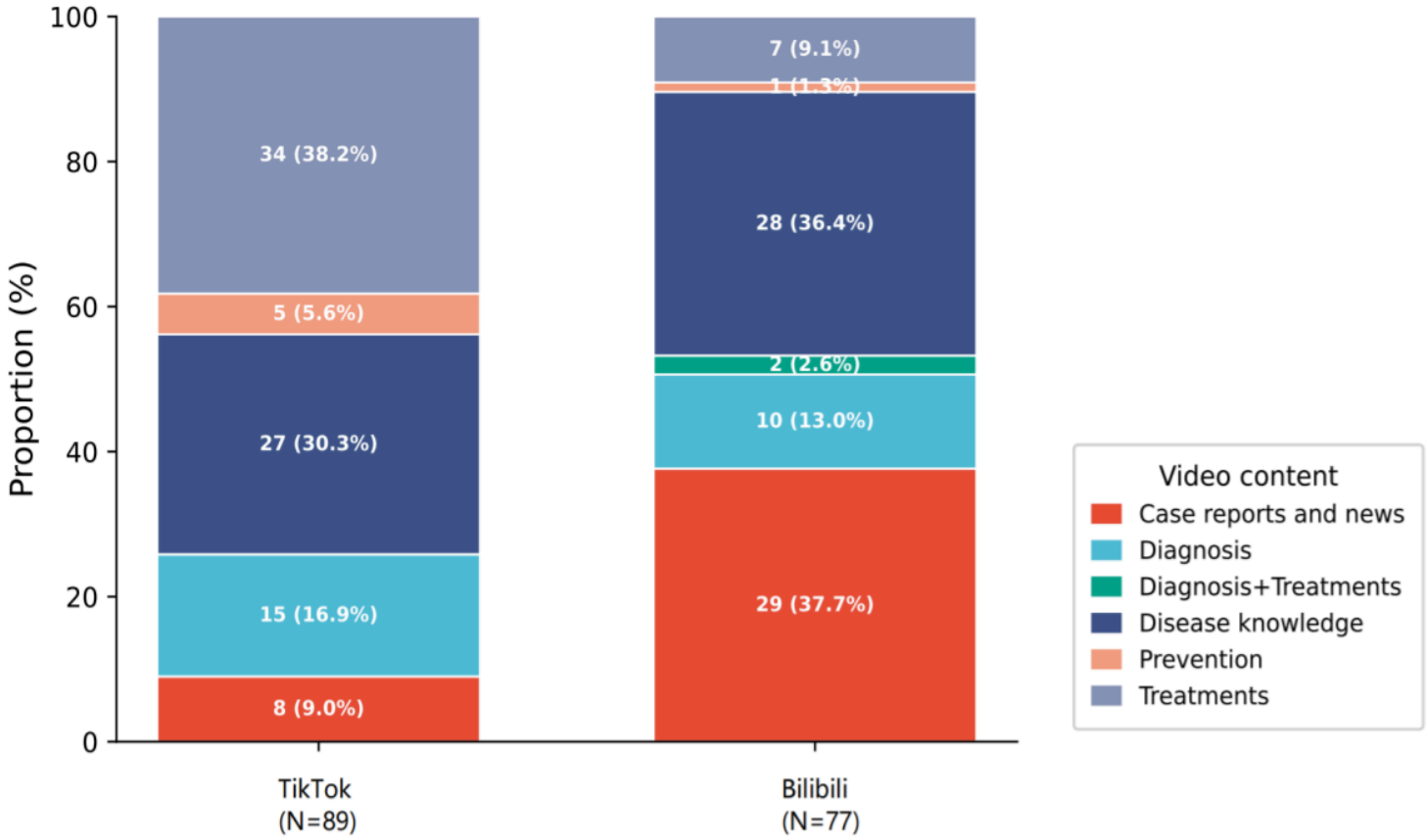


Figure 4

Distribution of video content themes

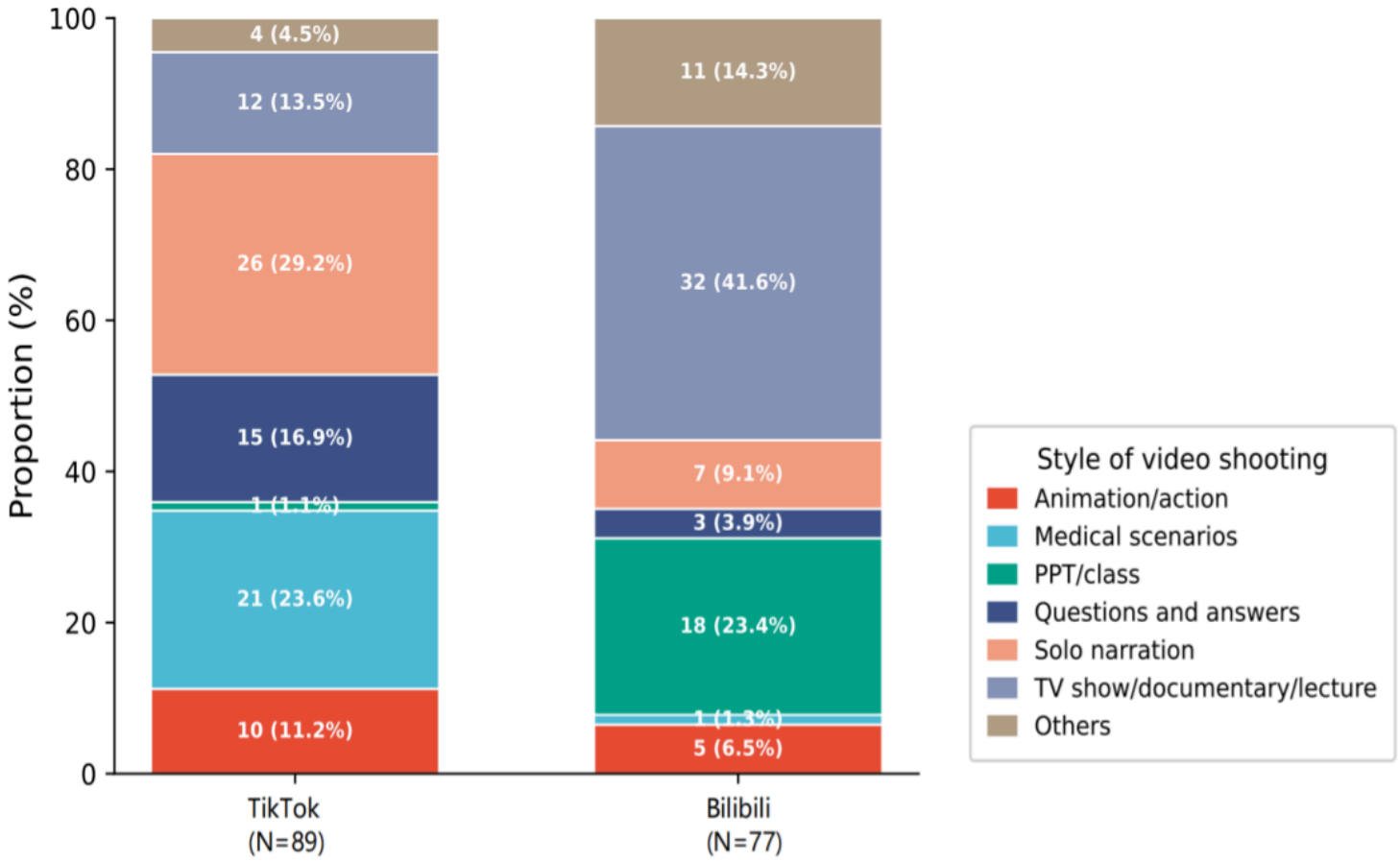


Figure 5

Distribution of video presentation formats by platform

Supplementary Files

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