

Breast or Bottle: A Content Analysis of Infant Feeding Recommendation Videos on YouTube, Bilibili, and TikTok

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Submitted to: JMIR Pediatrics and Parenting
on: March 31, 2025

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Abstract

Background: Social media has become a primary source of infant feeding guidance, but content accuracy remains unverified. While World Health Organization (WHO) and American Academy of Pediatrics (AAP) endorse breastfeeding for its health benefits, formula feeding is frequently promoted as an alternative. This study evaluates the quality, engagement patterns, and feeding recommendations of infant-feeding videos on YouTube, Bilibili, and TikTok to inform platform content policies and viewer decision-making.

Methods: On November 1, 2024, searches were conducted with the terms "Breastfeeding" and "Formula Feeding" on YouTube, along with "母乳" (breastfeeding) and "奶粉" (formula feeding) on Bilibili and TikTok. The first 100 videos from each platform were collected based on the default sorting, with promotional and unrelated material excluded. Video details were documented, and their quality was measured using the Global Quality Score (GQS), the Video Information and Quality Index (VIQI), and a modified DISCERN (mDISCERN) tool.

Results: A total of 88 YouTube videos, 83 Bilibili videos, and 84 TikTok videos posted between September 2019 and November 2024 qualified for this study. TikTok clips drew the most audience interaction, while YouTube clips showed higher reliability based on mDISCERN ratings. No major differences emerged regarding feeding advice or the proportion of professional creators across platforms. However, professional content was of markedly higher quality and tended to favor breastfeeding, whereas non-professionals more often highlighted formula feeding. Additionally, formula-related videos generally attracted stronger engagement. Correlation tests revealed a clear positive association between engagement metrics and video quality on Bilibili, but this pattern was less pronounced on YouTube and TikTok.

Conclusions: Short-form platforms amplify formula-feeding narratives driven by algorithmic biases and unregulated commercial interests, often conflicting with WHO guidelines. Professional health entities predominantly share evidence-based breastfeeding guidance through less engaging long-form content. Systemic interventions are needed: Algorithmic prioritization of certified health content; WHO Code-compliant digital marketing regulations; AI-driven misinformation filters; Micro-influencer partnerships for breastfeeding advocacy. This multi-platform analysis highlights critical tensions between engagement-driven content ecosystems and public health priorities in infant nutrition. Keywords: Breastfeeding, Formula feeding, Social media, Public education, Public health, YouTube, Bilibili, TikTok

(JMIR Preprints 31/03/2025:75295)

DOI: <https://doi.org/10.2196/preprints.75295>

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Original Manuscript

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Abstract

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September 2019 and November 2024 qualified for this study. TikTok clips drew the most audience interaction, while YouTube clips showed higher reliability based on mDISCERN ratings. No major differences emerged regarding feeding advice or the proportion of professional creators across platforms. However, professional content was of markedly higher quality and tended to favor breastfeeding, whereas non-professionals more often highlighted formula feeding. Additionally, formula-related videos generally attracted stronger engagement. Correlation tests revealed a clear positive association between engagement metrics and video quality on Bilibili, but this pattern was less pronounced on YouTube and TikTok.

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Keywords: Breastfeeding, Formula feeding, Social media, Public education, Public health, YouTube, Bilibili, TikTok

List of abbreviations

WHO: World Health Organization

AAP: American Academy of Pediatrics

GQS: Global Quality Score

VIQI: Video Information and Quality Index

mDISCERN: modified DISCERN

1 Introduction

Social media now serves as a leading channel for health information, shaping how the public views and chooses among various medical and lifestyle options [1]. Within this sphere, infant feeding generates considerable debate, particularly concerning breastfeeding, formula feeding, and mixed approaches [2, 3]. Although organizations such as the World Health Organization (WHO) and the American Academy of Pediatrics (AAP) strongly endorse breastfeeding due to its well-established benefits for both infants and mothers [4], formula feeding remains widely accepted for its convenience and accessibility [5]. Many parents turn to online platforms in search of guidance when considering how best to feed their children.

YouTube, Bilibili, and TikTok rank among the most influential video-sharing services, each with unique features. YouTube, recognized worldwide as the largest video-hosting site, primarily accommodates long-form content and is commonly used for educational purposes, though it remains inaccessible within China. Conversely, Bilibili and TikTok are widely available in China: Bilibili includes both long and short videos with an active community, while TikTok presents short clips driven by a robust recommendation system. Though this system fosters wide reach and engagement, it can also raise questions about the depth and reliability of the information being shared [6].

Despite rising reliance on social media for infant feeding advice, relatively little is understood about the accuracy, quality, and biases found in these videos. Past research has highlighted concerns

regarding misinformation in health-related social media content, prompting discussions about whether online recommendations align with recognized medical guidelines [7]. Furthermore, engagement indicators—likes, comments, and shares—may not necessarily mirror the overall quality of the material, potentially amplifying less credible sources [8].

This study aims to systematically evaluate infant feeding recommendation videos on YouTube, Bilibili, and TikTok, focusing on content standards, viewer interaction, and feeding endorsements. By distinguishing between professional and non-professional uploaders, as well as breastfeeding, formula, and mixed-feeding stances, this work seeks to illustrate how social media influences public perceptions of infant feeding and to determine whether high-quality, evidence-based information is reaching audiences effectively.

2 Methods

2.1 Ethical considerations

All information was obtained from publicly released YouTube, Bilibili, and TikTok videos, and none of the data involved personal privacy concerns. Therefore, no ethics review was needed.

2.2 Video Collection

On November 1, 2024, a search was conducted on YouTube using the keywords “Breastfeeding” and “Formula Feeding,” while Bilibili and TikTok were searched using “母乳” (breastfeeding) and “奶粉” (formula feeding). The top 100 videos from each platform were collected based on the default sorting algorithm. To ensure data stability, videos that were advertisements, uploaded within the past seven days, or irrelevant to infant feeding were excluded. After screening, a total of 88 YouTube videos, 83 Bilibili videos, and 84 TikTok videos were included in the analysis (Supplementary table S1). The selected videos covered a time span from September 2019 to November 2024.

2.3 Video characteristics

Descriptive statistics were used to analyze video characteristics, including video length, number of likes, comments, shares, and collections. Notably, collections and shares were not accessible on YouTube.

2.4 Uploader characteristics

Video uploaders were categorized into three groups: professionals, official media, and self-media. Professionals included doctors certified by hospitals, ensuring their medical expertise. Official media consisted of government-recognized news or health organizations that provided regulated content. Self-media refers to independent creators who lacked formal medical or institutional certification. Both official media and self-media were classified as non-professionals.

2.5 Feeding recommendations

Each video was classified based on its feeding recommendation as promoting breastfeeding, formula feeding, or mixed feeding. Mixed feeding refers to videos that present both breastfeeding and formula feeding as acceptable options without favoring one over the other. These videos either recommend a combination of both methods or emphasize that the choice depends on individual circumstances, such as maternal health, infant needs, or lifestyle factors.

2.6 Quality assessment

The quality of the videos was assessed using three established tools: GQS, VIQI and mDISCERN. Each tool evaluates different aspects of video quality, including information accuracy, presentation style, reliability, and overall usefulness.

GQS provides a global assessment of the overall usefulness and credibility of a video. It is rated on a five-point scale, where 1 represents poor quality with misleading or unhelpful information, while 5 represents excellent quality with comprehensive, evidence-based content that is beneficial for viewers [9]. VIQI assesses video quality across four dimensions: information flow, accuracy, audiovisual elements, and title relevance [10]. Information flow measures how well the content is structured and whether it is easy to follow. Accuracy evaluates whether the information aligns with established medical knowledge. Audiovisual elements assess the use of images, animations, subtitles, and other features that enhance comprehension. Title relevance examines whether the video title accurately reflects its content. Each dimension is rated on a scale from 1 to 5, with higher scores indicating better quality. mDISCERN is a modified version of the DISCERN tool, specifically adapted for evaluating video content [11]. It consists of five criteria: clarity of purpose, reliability of information sources, balance in presenting different perspectives, inclusion of references or citations, and acknowledgment of uncertainties in medical information. Each criterion is scored as 0 (no) or 1 (yes), with higher total scores indicating greater reliability.

Two independent reviewers evaluated all videos, and discrepancies in scores were resolved through discussion or consultation with a third reviewer. These tools have been widely used in previous studies assessing the quality of health-related content on social media platforms [6–14].

2.7 Statistical analysis

All statistical analyses were performed using R version 4.2.2. Descriptive statistics were used to summarize video characteristics, including video length, number of likes, comments, shares, and collections. The Shapiro-Wilk test was conducted to assess the normality of continuous variables. Normally distributed variables were presented as mean $\pm$ standard deviation, while non-normally distributed variables were reported as median, min–max values, and 25–75 percentiles.

Comparisons between platforms (YouTube, Bilibili, and TikTok), uploader types (professional vs. non-professional) and feeding recommendations (breastfeeding, formula feeding, and mixed feeding) were conducted using the Mann-Whitney U test for continuous variables, as the data did not follow a normal distribution. Categorical variables, such as uploader type and feeding recommendation, were analyzed using the chi-square test or Fisher's exact test when expected frequencies were low. Pairwise comparisons were performed using the Mann-Whitney U test.

Spearman's rank correlation analysis was used to examine the relationship between video engagement (likes, comments, shares and collections) and video quality scores (VIQI, GQS, and mDISCERN). A positive correlation ($r > 0$) indicated that higher engagement was associated with higher video quality, while a negative correlation ($r < 0$) suggested that increased engagement was linked to lower video quality. Correlation strength was classified as follows: $|r| \leq 0.2$ (no correlation), $0.2 < |r| \leq 0.4$ (weak), $0.4 < |r| \leq 0.6$ (moderate), $0.6 < |r| \leq 0.8$ (strong), and $|r| > 0.8$ (very strong).

A p-value of less than 0.05 was considered statistically significant, with Bonferroni-adjusted thresholds applied for multiple comparisons.

3 Results

3.1 Video characteristics

A total of 88 YouTube videos, 83 Bilibili videos, and 84 TikTok videos were included in the analysis (Figure 1). All variables were continuous and did not follow a normal distribution.

Across different platforms, TikTok videos had the highest audience engagement, with significantly more likes, comments, shares, and collections compared to Bilibili and YouTube. Bilibili ranked second in audience engagement, while YouTube had the lowest interaction levels. Regarding video length, TikTok videos were the shortest, whereas there was no significant difference between YouTube and Bilibili (Table 1).

In terms of feeding recommendations, videos promoting formula feeding showed significantly higher audience engagement, receiving more likes and comments than videos recommending breastfeeding or mixed feeding. Interestingly, despite higher engagement, formula-feeding videos were the shortest in duration (Table 2).

3.2 Uploader characteristics

Among all videos, 41 were uploaded by official media, 138 by self-media, and 76 by professional individuals. When comparing across platforms, the proportion of professional uploaders did not differ significantly among YouTube, Bilibili, and TikTok. However, within non-professional uploaders, YouTube had the highest proportion of official media and the lowest proportion of self-media. In contrast, the distribution of official media and self-media on Bilibili and TikTok showed no significant difference (Table 3, Figure 2A).

3.3 Feeding recommendations

The distribution of feeding recommendations across platforms is shown in Table 4 and Figure 2B. There were no significant differences among YouTube, Bilibili, and TikTok in the proportion of videos recommending breastfeeding, formula feeding, or mixed feeding.

When comparing uploader types, professional individuals were more likely to recommend breastfeeding, with less than 10% of their videos promoting formula feeding. In contrast, non-professional uploaders were more inclined to recommend formula feeding compared to professionals, while there was no significant difference between the two groups in the proportion of videos endorsing mixed feeding. Self-media creators had the highest proportion of videos promoting formula feeding, whereas official media did not significantly differ from professionals in their feeding recommendations (Table 5, Figure 2B).

3.4 Video quality

The quality assessment across different platforms is presented in Table 6 and Figure 2C. When comparing across platforms, there was no significant difference in GQS scores between Bilibili and TikTok, but both were significantly higher than YouTube. For VIQI, TikTok had the highest total score, with all four subcategories (information flow, accuracy, audiovisual elements, and title relevance) scoring higher than the other two platforms. In contrast, mDISCERN scores were highest on YouTube, with a higher proportion of videos scoring 1 in categories 1, 2, 4, and 5 compared to Bilibili and TikTok. The total mDISCERN scores did not significantly differ between Bilibili and TikTok, though Bilibili outperformed TikTok in mDISCERN-1 (clarity of purpose) and mDISCERN-3 (balance of information), while TikTok had higher scores in mDISCERN-5 (discussion of uncertainty). There were no significant differences between Bilibili and TikTok in mDISCERN-2 (reliability) or mDISCERN-4 (citation of references).

Regarding uploader type, professional uploaders produced videos with significantly higher GQS and mDISCERN scores than non-professionals, while VIQI scores showed no significant difference between the two groups (Table 7, Figure 2C).

For feeding recommendations, videos promoting breastfeeding did not differ from those recommending mixed feeding in any of the quality assessments. However, both breastfeeding and mixed feeding videos had significantly higher GQS and mDISCERN scores compared to formula-feeding videos, while VIQI scores did not differ among the three groups (Table 8, Figure 2C).

3.5 Correlation analysis

The relationships between audience engagement metrics (likes, comments, shares, and collections) and video quality scores (VIQI, GQS, and mDISCERN) varied across platforms, as shown in Table 9 and Figure 2D.

On YouTube, there were no significant correlations between engagement metrics and video quality scores, except for a weak negative correlation between likes and VIQI scores. On Bilibili, likes, shares, and collections showed positive correlations with all three quality scores, with correlation strengths ranging from weak to strong. Notably, VIQI scores had a strong positive correlation with likes, shares, and collections. Comments, however, did not exhibit significant correlations with any of the quality scores. On TikTok, VIQI scores were strongly positively correlated with all engagement metrics. In contrast, neither GQS nor mDISCERN scores showed significant correlations with any engagement metric.

Table 1. Characteristics of videos about infant feeding recommendation across different platforms

Platform	YouTube (N1=88)			Bilibili (N2=83)			TikTok (N3=84)			P-value		
Characteristic	M	Min-Max	P2 5-P7 5	M	Min - Ma x	P2 5-P7 5	M	Min - Ma x	P25-P75	PY-B	PB-T	PY-T
Likes	8.5	0-791634	1-132	90	0-21000	19-402.5	352	3-71420	386.5-12124.5	<0.001	<0.001	<0.001
Comments	0.5	0-6273	0-7.25	176	6-888	70.5-466	638.5	0-14703	114.2-1746.5	<0.001	<0.001	<0.001
Collections	-	-	-	61	0-8234	17-281.5	2941	0-93095	279.7-11473.25	-	<0.001	-
Shares	-	-	-	52	0-7831	4-289.5	1133.5	0-27882	146-5178	-	<0.001	-
Video length (s)	159.5	6-2646	53.377	197	22-1554	108-354	82.5	19-409	55-117.75	0.321	<0.001	0.002

.5

Table 2. Characteristics of videos about infant feeding recommendation across different ways of feeding

Feeding	Breastfeeding (N1=112)			Formula feeding (N2=66)			Mixed feeding (N3=77)			P-value		
Characteristic	M	Min	P25- P75	M	Min- Max	P25- P75	M	Min	P2	PB- F	PB- M	PF- M
			Max					Max	P7 5			
Likes	129 .5	0- 410 56	8- 1946	504 .5	0- 7916 34	49.7 5- 6569 .5	81	3- 557 17	3- 16 63	0.0 04	0.6 47	0.0 05
Comments	90	0- 127 30	1- 468. 25	313 .5	0- 2788 2	11.2 5- 2231 .5	79	0- 670 1	1- 63 1	0.0 05	0.9 90	0.0 11
Video length (s)	139 .5	0- 127 30	1- 272. 75	93. 5	8- 1276	49.2 5- 197. 75	13 5	6- 107 0	71- 24 3	0.0 12	0.4 95	0.0 68

Table 3. Categorization of video uploaders about infant feeding recommendation across different platforms

Platform	YouTube (N=88)	Bilibili (N=83)	TikTok (N=84)	PY-B	PB-T	PY-T
Type of uploaders, n (%)						
Official media	33 (37.5%)	6 (7.2%)	2 (2.4%)	<0.001	0.269	<0.001
Self-media	32 (36.4%)	47 (56.6%)	59 (70.2%)	0.012	0.096	<0.001
Professional individuals	23 (26.1%)	30 (36.1%)	23 (27.4%)	0.212	0.294	0.990

Table 4. Categorization of recommended ways of infant feeding across different platforms

Platform	YouTube (N=88)	Bilibili (N=83)	TikTok (N=84)	PY-B	PB-T	PY-T
Ways of feeding, n (%)						
Breastfeeding	41 (46.6%)	40 (48.2%)	31 (36.9%)	0.955	0.187	0.257
Formula feeding	22 (25.0%)	17 (20.5%)	27 (32.1%)	0.602	0.125	0.385
Mixed feeding	25 (28.4%)	26 (31.3%)	26 (31.0%)	0.803	1.000	0.843

Table 5. Categorization of recommended ways of infant feeding across different types of uploaders

Uploader	Official media	Self-media (N=138)	Professional individuals	PO-S	PS-P	PO-P
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	(N=41)		(N=76)				
Ways of feeding, n (%)							
Breastfeeding	17 (41.5%)	48 (34.8%)	47 (61.8%)		0.551	<0.001	0.055
Formula feeding	9 (22.0%)	50 (36.2%)	7 (9.2%)		0.129	<0.001	0.103
Mixed feeding	15 (36.6%)	40 (29.0%)	22 (28.9%)		0.463	1.000	0.523

Table 6. Quality assessment of videos about infant feeding recommendation across different platforms

Platform	YouTube (N=88)			Bilibili (N=83)			TikTok (N=84)			P-value		
Scores	M	Min	P25	M	Min	P25	M	Min	P25	PY-B	PB-T	PY-T
		-Ma	-P75		-Ma	-P75		-Ma	-P75			
	x	x		x	x		x	x				
GQS	3	1-4	2-3	4	2-5	3-4	4	2-5	3-4	<0.001	1.000	<0.001
VIQI-sum	9	4-17	7-10	1	5-20	8-13	1	10-20	14-16	<0.001	<0.001	<0.001
VIQI-1	1	1-5	1-2	2	1-5	2-3	4	1-5	3-5	<0.001	<0.001	<0.001
VIQI-2	2	1-4	2-3	3	1-5	2-3	3	2-5	3-4	0.071	<0.001	<0.001
VIQI-3	2	1-4	1.75-3	3	0-5	2-3	3	1-5	3-3	0.012	0.004	<0.001
VIQI-4	2	1-4	2-3	3	2-5	2-3	5	3-6	5-5	<0.001	<0.001	<0.001
mDISCER N-sum	3	1-5	2-3	2	0-4	1-3	2	1-4	1-2	<0.001	1.000	<0.001
mDISCER N-1	64 (72.7%)			74 (89.2%)			84 (100.0%)			0.012	0.006	<0.001
mDISCER N-2	65 (73.9%)			20 (24.1%)			15 (17.9%)			<0.001	0.424	<0.001
mDISCER N-3	38 (43.2%)			49 (59.0%)			28 (33.33%)			0.055	0.001	0.242
mDISCER N-4	34 (38.6%)			8 (9.6%)			3 (3.6%)			<0.001	0.205	<0.001
mDISCER N-5	39 (44.3%)			4 (4.8%)			19 (22.6%)			<0.001	0.002	0.004

Table 7. Quality comparison of videos about infant feeding recommendation across different types of uploaders

Uploader	Non-professionals (N = 179)			Professionals (N = 76)			P-value
Scores	M	Min-Max	P25-P75	M	Min-Max	P25-P75	
GQS	3	1-5	3-4	4	2-5	3-4	0.032
VIQI-sum	11	4-20	8-15	12	6-20	9-15	0.220

VIQI-1	2	1-5	2-3	3	1-5	2-4	0.341
VIQI-2	3	1-5	2-3	3	1-5	2.75-4	0.016
VIQI-3	3	0-5	2-3	3	1-5	2-3	0.254
VIQI-4	3	1-6	2-5	3	1-5	2-5	0.724
mDISCERN-sum	2	0-5	1-3	3	0-4	2-3	0.001
mDISCERN-1	151 (84.4%)			71 (93.4%)			0.077
mDISCERN-2	62 (34.6%)			38 (50.0%)			0.031
mDISCERN-3	68 (38.0%)			47 (61.8%)			<0.001
mDISCERN-4	28 (15.6%)			17 (22.4%)			0.267
mDISCERN-5	50 (27.9%)			12 (15.8%)			0.056

Table 8. Quality comparison of videos about infant feeding recommendation across different ways of feeding

Platform	Breastfeeding (N=112)			Formula feeding (N=66)			Mixed feeding (N=77)			P-value		
	M	Min	P25	M	Min	P25	M	Min	P25	PB-F	PB-M	PF-M
		- Ma x	- P75		- Ma x	- P75		- Ma x	- P75			
GQS	4	1-5	3-4	3	1-5	2-4	3	1-5	3-4	<0.001	0.19	0.016
VIQI-sum	1	4-	9-	9	4-	8-15	1	4-	9-	0.328	0.99	0.367
VIQI-1	2	1-5	1-3.25	3	1-5	2-4	2	1-5	1-3	0.007	0.85	0.012
VIQI-2	3	1-5	2-4	3	1-5	2-3	3	1-5	2-4	0.006	0.98	0.012
VIQI-3	3	1-5	2-3	2	0-5	1.25-3	3	1-5	2-3	<0.001	0.54	0.002
VIQI-4	3	1-5	2-5	3	1-6	2-5	3	1-6	2-5	0.382	0.93	0.395
mDISCERN-sum	2	0-5	2-3	2	0-4	1-2	2	0-4	1-3	<0.001	0.09	0.004
mDISCERN-1	101 (90.2%)			53 (80.3%)			68 (88.3%)			0.102	0.86	0.275
mDISCERN-2	59 (52.7%)			12 (18.1%)			29 (37.7%)			<0.001	0.05	0.017
mDISCERN-3	60 (53.6%)			14 (21.2%)			41 (53.2%)			<0.001	1.00	<0.001
mDISCERN-4	24 (21.4%)			8 (12.1%)			13 (16.9%)			0.174	0.55	0.572
mDISCERN-5	27 (24.1%)			21 (31.8%)			14 (18.1%)			0.345	0.42	0.090

Table 9. Spearman correlation between video quality and audience engagement across different

platforms

r, P- value	YouTube (N=88)			Bilibili (N=83)			TikTok (N=84)		
	GQ S	VIQ I	mDISCE RN	GQS	VIQI	mDISCE RN	GQ S	VIQI	mDISCE RN
Likes	- 0.09 9, 0.35 7	- 0.22 1, 0.03 9	-0.011, 0.920	0.28 4, 0.00 9	0.66 6, <0.0 01	0.306, 0.005	0.08 4, 0.44 5	0.67 4, <0.0 01	0.021, 0.852
Comments	- 0.09 6, 0.37 4	- 0.11 4, 0.28 8	-0.080, 0.458	- 0.00 3, 0.98 1	0.11 5, 0.30 1	-0.082, 0.463	0.14 6, 0.18 4	0.60 1, <0.0 01	-0.046, 0.679
Collecti ons	-	-	-	0.32 3, 0.00 3	0.63 4, <0.0 01	0.360, <0.001	0.18 8, 0.08 6	0.70 2, <0.0 01	0.129, 0.242
Shares	-	-	-	0.35 8, <0.0 01	0.60 3, <0.0 01	0.423, <0.001	0.20 7, 0.05 8	0.71 2, <0.0 01	0.167, 0.129

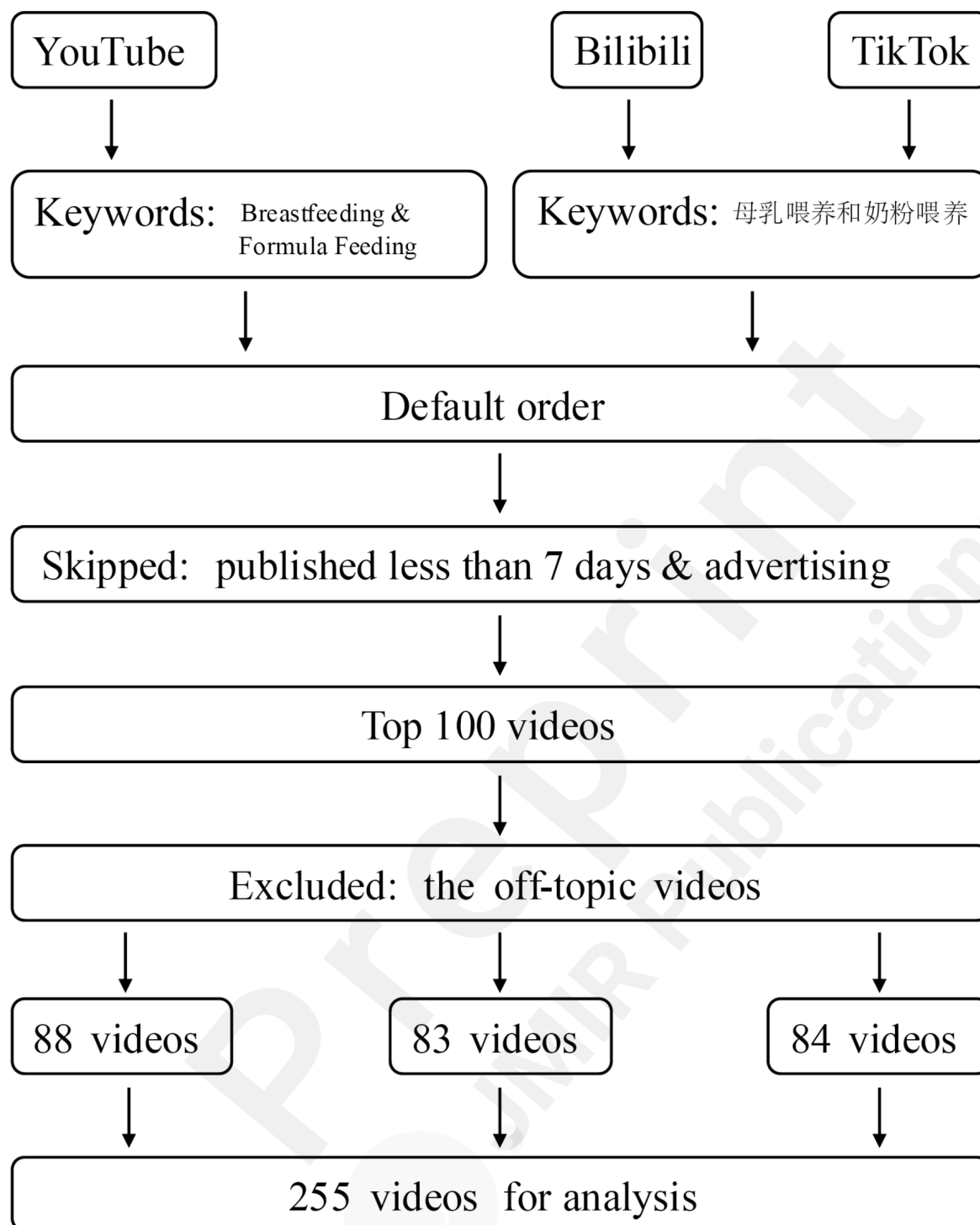


Figure 1. Search strategy for videos on infant feeding recommendations

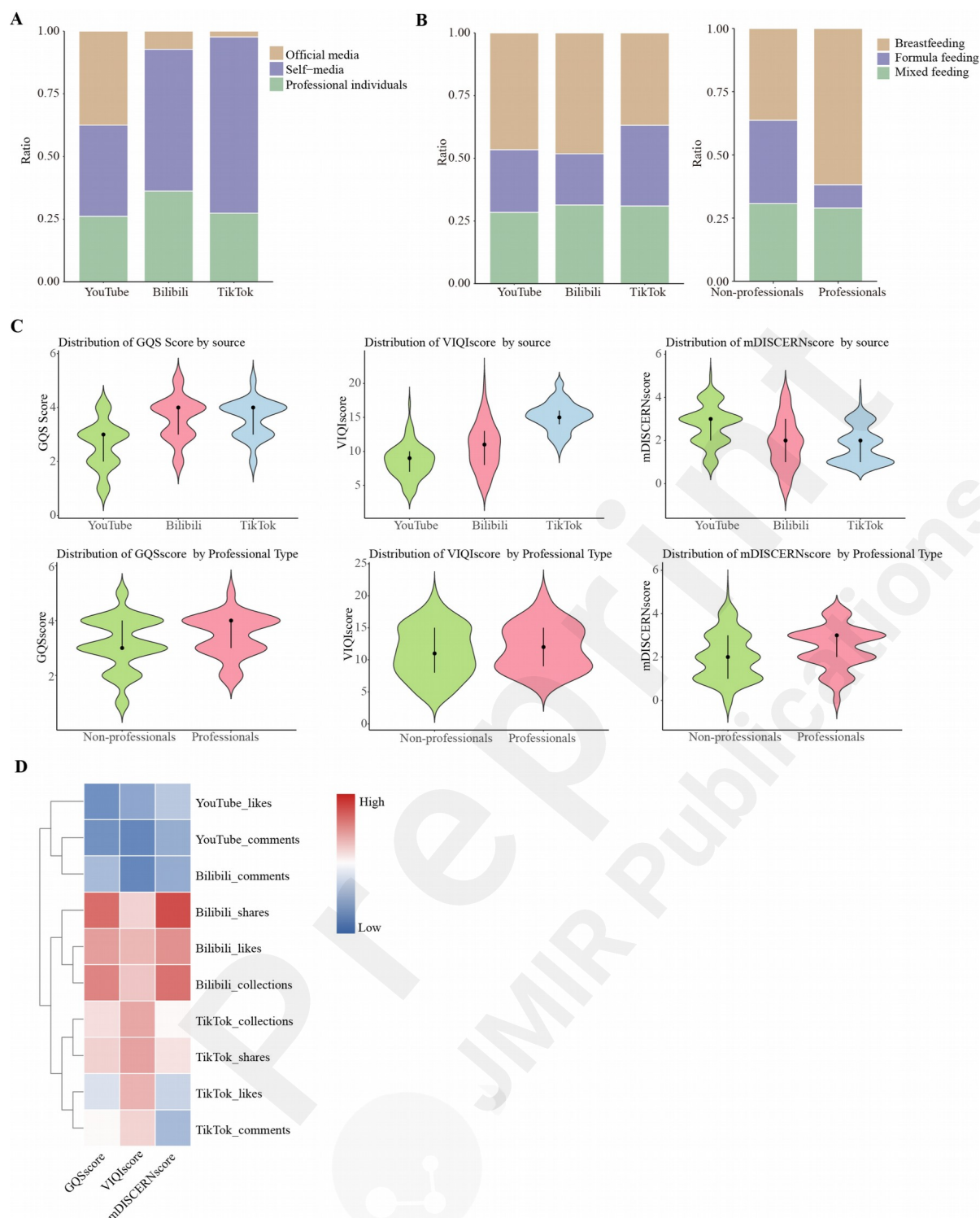


Figure 2. Characteristics, quality assessment and correlation analysis of infant feeding videos. (A) Stacked bar charts showing the distribution of uploaders across three platforms: YouTube, Bilibili, and TikTok, including official media, self-media, and professional individuals. (B) Stacked bar charts illustrating the proportion of videos recommending breastfeeding, formula feeding, and mixed feeding across different platforms, differentiated by uploader type (professional vs non-professional). (C) Violin plots showing the distribution of video quality scores (GQS, VIQI, mDISCERN) by platform (YouTube, Bilibili, TikTok) and uploader type (professional vs non-professional), highlighting the influence of platform and uploader type on video quality. (D) A heatmap showing the correlation between the three video quality scores (GQS, VIQI, mDISCERN) and audience engagement metrics (likes, comments, shares, collections), reflecting the relationship

between engagement and content quality across platforms.

4 Discussion

Social media has become a key source of health information, influencing public perceptions and decision-making on infant feeding [2, 15–18]. While health authorities routinely recommend breastfeeding for its documented benefits, formula feeding remains a common alternative, often highlighted for its convenience and ease of use. Given the millions who seek guidance on YouTube, Bilibili, and TikTok, questions arise as to whether these platforms present accurate, high-quality guidance on infant feeding. Recent work has increasingly scrutinized social media's health-related content, drawing attention to the spread of misinformation and the influence of platform algorithms on public understanding. In this investigation, we examined the characteristics, caliber, and engagement of feeding recommendation videos on these three platforms, noting differences linked to uploader type and feeding stance. We also explored whether popular content aligns with higher informational reliability by evaluating the relationship between viewer engagement and overall video quality.

A total of 88 YouTube, 83 Bilibili, and 84 TikTok videos were included, spanning September 2019 to November 2024. Among them, TikTok drew the highest viewer engagement, whereas YouTube scored highest for reliability using mDISCERN. Across platforms, neither feeding recommendations nor the proportion of professional uploaders showed marked differences. Compared with non-professional content, professionally produced videos stood out for their significantly higher quality and a greater emphasis on breastfeeding; non-professionals tended to highlight formula feeding. Furthermore, formula-focused videos prompted stronger audience interaction. Correlation analysis revealed a notable positive link between engagement and video quality on Bilibili, but this association was less pronounced on the other platforms.

Variations in viewer engagement across platforms likely stem from each platform's distinctive features and user demographics. TikTok, a short-video service driven by algorithmic feeds, emphasizes attention-grabbing, visually dynamic, and concise clips, which may account for its notably higher likes, comments, shares, and saves. Its format encourages swift content consumption and interaction, making it especially successful in propagating viral health-related posts [19]. In contrast, YouTube primarily hosts long-form content, where engagement often requires sustained viewer attention [20]. This additional cognitive investment may reduce the inclination to interact, resulting in comparatively lower engagement. Bilibili, which accommodates both short and extended content, registered an intermediate level of engagement, potentially reflecting a more balanced content consumption pattern [21]. The heightened engagement around formula-feeding videos, as opposed to breastfeeding or mixed-feeding content, may reflect factors such as convenience, maternal autonomy, and the hurdles that breastfeeding can present. These topics frequently invite more interaction, with viewers seeking support or entering debates [22, 23]. Additionally, the tendency for formula-related videos to be shorter could match viewers' desire for quick, straightforward information, further driving engagement. This observation underscores how video length and topic sensitivity together shape audience responses on social media.

A comparable percentage of professional contributors across platforms suggests that healthcare experts recognize social media's potential for sharing feeding information. However, they remain outnumbered by non-professional uploaders, possibly due to limited time or worries about professional standing. YouTube's relatively high number of official channels could stem from its reputation for more in-depth, structured content, making it a preferred venue for institutions such as

hospitals and public health agencies [24, 25]. Meanwhile, Bilibili and TikTok lean toward user-generated, interactive formats: TikTok's short-video style suits independent creators looking to attract wide attention, while Bilibili's culture emphasizes personal storytelling [8]. These trends indicate that platform-specific norms and audience expectations shape the distribution of uploader types, influencing how infant feeding information is shared and received.

The absence of notable differences in feeding recommendations across YouTube, Bilibili, and TikTok indicates that no single platform inherently supports one feeding approach over another. Instead, the mix of viewpoints appears to stem from each creator's perspective rather than explicit platform bias. Though platform algorithms often amplify engaging content, feeding recommendations may depend more on who is uploading the information than on the platform itself. Self-media creators, often independent influencers or parent bloggers may be more influenced by sponsorships from formula companies or personal experiences that resonate with a broad audience. Unlike professional uploaders who emphasize medical guidelines, self-media content often focuses on relatability and lifestyle factors, which may contribute to a more favorable portrayal of formula feeding [15]. In contrast, official media, despite being categorized as non-professional, did not significantly differ from professionals in their feeding recommendations, likely due to their institutional responsibility to align with established health guidelines [26]. These findings illustrate how an uploader's background can shape feeding advice. Professional channels typically reflect established medical standards, whereas self-media creators may add perspectives rooted in individual experiences, social influences, or commercial partnerships.

Quality differences across platforms reflect their unique content dynamics. YouTube's lower GQS scores suggest that longer videos do not always enhance viewer experience, while Bilibili and TikTok's engagement-driven environments may encourage better presentation. TikTok's highest VIQI scores highlight its emphasis on concise, visually appealing content, whereas YouTube's higher mDISCERN scores suggest greater reliability, likely due to a stronger focus on educational content [27, 28]. Bilibili and TikTok had similar mDISCERN scores, with Bilibili excelling in clarity and TikTok in discussing uncertainties [29]. Professional uploaders produced higher-quality content in GQS and mDISCERN but did not differ from non-professionals in VIQI, suggesting production quality is driven more by engagement strategies than expertise. Formula-feeding videos had lower GQS and mDISCERN scores than breastfeeding and mixed-feeding videos, likely due to their prevalence among self-media creators who prioritize relatability over evidence-based information. However, VIQI scores did not differ across feeding recommendations, indicating that production quality remains consistent regardless of stance.

The correlation between video quality and engagement varied across platforms, reflecting differences in content consumption and algorithmic influence. On YouTube, engagement was largely unrelated to quality, with a weak negative correlation between likes and VIQI scores, suggesting that highly engaging videos may prioritize accessibility over structured information [30]. On Bilibili, likes, shares, and collections were positively correlated with all quality scores, especially VIQI, indicating that well-structured and visually appealing content attracts more interaction [31]. However, comments showed no significant correlation, suggesting they may be driven more by personal opinions than video quality. TikTok's strong positive correlation between VIQI scores and all engagement metrics highlights the platform's emphasis on high production quality [32]. However, the lack of correlation between engagement and GQS or mDISCERN scores suggests that reliability and overall informativeness are not primary drivers of audience interaction, emphasizing the challenge of aligning engagement with content accuracy on social media.

5 Limitation

This study has several limitations. First, the analysis was limited to videos available at a specific time, and social media content is constantly evolving. Future studies could incorporate longitudinal data to assess trends over time. Second, we only included videos in English and Chinese, which may not fully represent global perspectives on infant feeding recommendations. Expanding to other languages could provide a more comprehensive understanding. Third, while we categorized uploaders as professional or non-professional, we did not assess individual credentials beyond hospital certification, meaning variations in expertise within each category were not accounted for. Fourth, engagement metrics such as likes and shares do not necessarily indicate information absorption or behavioral impact, and future studies could explore user perception and decision-making. Finally, platform algorithms influence video visibility, but we did not analyze how recommendation systems affect content exposure, which could be an important factor in shaping public perceptions of infant feeding.

6 Conclusion

In conclusion, this study analysed infant feeding recommendation videos on YouTube, Bilibili, and TikTok, evaluating their content quality, audience interaction, and feeding advice. The results indicate that short-video platforms like TikTok attract more audience engagement but have lower content quality. In contrast, professional videos on YouTube are of higher quality and mostly recommend breastfeeding, while non-professional videos tend to favour formula feeding. The study highlights the significant role of platform characteristics and uploader background in influencing video quality and audience interaction. To improve information quality, it is recommended that social media platforms optimise their recommendation algorithms to prioritise evidence-based health content and strengthen the filtering of misinformation. Furthermore, in terms of medical knowledge dissemination, it is suggested that healthcare professionals collaborate more with non-professionals to make the content more engaging and readable. Additionally, platforms should further screen short videos involving medical knowledge to prevent the spread of incorrect or inappropriate information to the public.

7 Acknowledgements

We would like to thank all the short video creators involved in this study.

8 Authors' contributions

Conceptualization: LG, YH and ZW. Funding acquisition: YH and JD. Project administration: LH and JD. Supervision: YG. Validation: RW, XW and WF. Visualization: ZLG and YH. Writing-original draft: LG and YH. Writing review and editing: LH and JD. This work was carried out in collaboration among all authors. All authors contributed to the article and approved the submitted version

9 Funding

This work was financially supported by the Nursing Research Special Fund of the First Affiliated Hospital of Zhengzhou University (No. HLKY2023015); the [Guizhou Provincial Health and Wellness Commission] under Grant [gzwkj 2021-102]; The National Natural Science Foundation of China (No. 82260084); Guizhou Provincial Science and Technology Agency Project (Qian Ke He Foundation ZK [2023] General 217); and Support by Key Advantageous Discipline Construction Project of Guizhou Provincial Health Commission in 2023.

10 Ethics approval and consent to participate

Not applicable

11 Consent for publication

Not applicable

12 Availability of data and materials

All data generated or analysed during this study are included in this published article [and its supplementary information files].

13 Competing interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary Files