

Quality of Online Mastitis Management Information for Dairy Farmers: An Evaluation of YouTube Videos

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Abstract

YouTube has become a primary informal extension channel for livestock health information in India, yet quality is unregulated and algorithmically driven by popularity rather than accuracy. This study systematically evaluates the quality of Hindi language YouTube videos on Mastitis which is one of the most economically significant dairy diseases in India, using four validated instruments modified DISCERN (mDISCERN), JAMA benchmark criteria, Global Quality Scale (GQS), and a purpose-built Mastitis Content Score (MCS). We searched YouTube using the YouTube Data API v3 with four Hindi language queries on 6 March 2026, screened 200 videos, and analysed 63 that met inclusion criteria. Most videos were low quality: mean GQS was 1.98/5, mean JAMA was 1.21/4 and mean mDISCERN was 1.96/5. Independent creators produced 52% of videos and achieved the highest audience reach (Video Power Index: 2.32), yet scored lowest on clinical comprehensiveness. Veterinary professionals produced fewer videos but achieved the highest quality scores and engagement ratios (4.26), suggesting trust driven rather than algorithm driven audiences. A significant positive correlation between video duration and MCS ($r = 0.265$, $p = 0.036$) indicates that comprehensive content requires longer formats. These findings reveal a critical popularity-quality gap in digital veterinary extension and highlight the need to build digital communication capacity among field-level veterinarians.

Introduction

Mastitis is one of the common and most important diseases among dairy animals across the world and is an economically devastating disease affecting the livelihoods of the farmers in India and across the globe. Economic costs of mastitis for farmers are high which include decreased milk production, decreased milk quality, discarding milk, risks of culling and inputs for prevention¹. The monetary losses due to mastitis in India were estimated to be around \$15 per animal per lactation of which 49% of the losses were attributed to loss of value from milk, while 37% on account of veterinary expenses². Mastitis occurs in two forms, clinical and subclinical, with subclinical mastitis exhibiting a higher prevalence (45%) compared to clinical mastitis (15%) in India³. This high prevalence underscores the urgent need for timely, evidence based management information at the farmer level.

However, the delivery of critical information is generally hindered by the systematic bottlenecks in the extension system. The current farmer to extension worker ratio stand at 1:1162 as per the data of 2012 figure while the recommended are 1:400 for hilly area, 1:800 for irrigated areas and 1:1000 for dry land areas. While the ratio is broad for agriculture sector and the ratio is still low to in the emerging sectors like livestock⁴. Due to inherent limitations of the public extension system, particularly the shortage of adequate human resources, the adoption of Information and Communication Technologies (ICTs) for knowledge generation and dissemination has become increasingly important⁵. Furthermore, the use of ICTs can enhance the effectiveness of extension services by lowering costs and enabling the delivery of more customized information suited to the specific needs and conditions of farmers⁶.

Capitalizing on the digital shift, social media and in particular YouTube has become an important medium of communication in the informal and digital extension landscape. This transition is supported by rapid expansion of internet connectivity and mobile phone usage has significantly transformed information access in rural India. Rural India now account for substantial share of internet users, constituting approximately 57% of the total 950 million users in the country⁷. This digital transformation has accelerated the adoption of online platforms for accessing agricultural knowledge and advisory services. Among these platforms, YouTube has emerged as a prominent medium for information dissemination and learning, offering a vast repository of user generated content across diverse domains, including livestock health. Both public extension agencies and private stakeholders have increasingly leveraged YouTube to reach farmers. The platform's popularity among the farming community is reflected in the high engagement levels of agricultural content creators in India, with channels having subscriber bases of millions. In addition, several channels exclusively focus on veterinary and livestock related aspects. The platform enables flexible and inclusive learning allowing experts, educators and institutions to disseminate knowledge that is accessible anytime and anywhere⁸.

However, the increasing reliance on YouTube for agricultural and livestock information also raises important concerns. The platform operates in an unregulated environment where content is largely user generated and not subjected to formal peer review. Consequently, the accuracy, reliability, and quality of information available on YouTube remains uncertain. The rapid growth in livestock health and veterinary related content further amplifies the risk of dissemination of unverified, low quality or potentially misleading information. Additionally, YouTube's search algorithms prioritise content based on popularity, relevance, and user viewing history rather than scientific accuracy or informational quality⁹. This can be particularly disadvantageous for farmers, who may lack the necessary skills to critically evaluate and filter such information. Furthermore, while some content creators disseminate information with the intent of knowledge sharing, a substantial proportion may be driven by monetization incentives. As part of the broader creator economy, YouTube enables revenue generation through advertisements, promotions, affiliate marketing and other mechanisms, which may influence the nature and quality of content produced¹⁰.

In view of this, the present study adapts the established tools such as Modified DSCERN (mDISCERN), Journal of American Medical Association (JAMA) benchmark criteria, Global Quality Scale (GQS) to assess the quality of YouTube videos related to management of mastitis disease which is of economic importance. While these tools have been extensively used in various studies of human health domains¹¹⁻¹⁶, their application in the veterinary sciences remains unexplored. To the best of authors knowledge, this represents the first study to apply these tools to evaluate the quality of veterinary health information on YouTube. In addition, a Mastitis Content Score (MCS) was specifically developed to evaluate the comprehensiveness of the information presented by incorporating key aspects of mastitis like symptoms, diagnosis, treatment and Prevention. Mastitis was selected as the focus of the study due to its high prevalence, significant economic impact and its management sensitive nature which requires accurate and timely information for effective control. In this context, evaluating the quality of digital

information on mastitis is critical for ensuring informed decision making among dairy farmers and for improving the effectiveness of digital extension strategies.

Results

Average number of views for the videos was 174,385.5 median duration of the videos was 390 seconds (252–572), average number of likes was 2566 and on an average the videos got comments of about 84. Average Engagement Ratio and Video Power Index was found to be 2.72 and 1.51 respectively. In the quality aspect mDISCERN score was 1.96 ± 0.89 (Mean $\pm$ SD), the JAMA score was 1.21 ± 0.45 (Mean $\pm$ SD). While, the GQS and MCS tools recorded scores of 1.98 ± 0.71 (Mean $\pm$ SD), and 2.44 ± 1.90 (Mean $\pm$ SD) respectively (Table 2).

Table 2
Characteristics of all videos

Number of views	Mean (Standard Deviation)	Min-Max	Median (25th – 75th percentile)
	174,385.5 (371,109.2)	20 – 2,362,985	16,490 (693 – 198,151.5)
Video duration (Seconds)	450.71 (275.92)	125-1,893	390 (252–572)
Number of likes	2,566.1 (5,286.1)	0–35,587	341.5 (21.75-2,831.25)
Days since video uploaded (Days)	1,209.03 (726.22)	10 – 2,332	1,258 (500-1,820.5)
Number of comments	84.18 (145.06)	0-765	17.5 (2-102)
Video power index (Popularity)	1.51 (2.42)	0-15.34	0.38 (0.04–2.24)
Engagement ratio (Interaction)	2.72 (2.72)	0-13.79	1.78 (1.20–2.94)
mDISCERN (Possible Range: 0–5)	1.96 (0.89)	0-3.5	2 (1.5–2.5)
JAMA (Possible Range: 0–4)	1.21 (0.45)	1–3	1 (1–1)
GQS (Possible Range: 1–5)	1.98 (0.71)	1–4	2 (1.5–2.25)
MCS (Possible Range: 1–5)	2.44 (1.90)	0–8	2 (1-3.5)

Independent creators accounted for highest number (52.38%) of videos produced followed by paraveterinary professionals (23.81%), veterinary professionals (17.46%) and media houses or TV programmes accounted for 6.35 per cent of the total videos produced (Table 3). As presented in Table 4, videos produced by veterinary doctors had highest mean scores on mDISCERN (2.55 ± 0.72) and JAMA

(1.55 ± 0.69) tools. Media houses scored highest on GQS and MCS tools (Table 4). Comparison of producer groups across mean scores of the tools is presented in Fig. 2. Video Power Index (VPI) was highest 2.32 ± 2.99 (Mean ± SD) for the videos produced by independent creators while the engagement ratio was highest 4.26 ± 3.40 (Mean ± SD) for videos of veterinary doctors (Fig. 3).

Table 3
Distribution of videos by producers

Category	Frequency	Percentage
Veterinary professionals	11	17.46
Para vets	15	23.81
Media houses	4	6.35
Independent creators	33	52.38
Total	63	100

Table 4
Comparison of video quality scores across producer groups

Veterinary Doctors		mDISCERN	JAMA	GQS	MCS	VPI	ER
	Mean ± SD	2.55	1.55	2.32	3.59	0.98	4.26
		(0.72)	(0.69)	(0.72)	(1.93)	(1.16)	(3.40)
	Median	2.5	1	2	3.5	0.38	2.86
	(25th – 75th percentile)	(2–3)	(1–2)	(2–2.5)	(2–5.25)	(0.05–1.52)	(2.16–5.95)
Paraveterinarians	Mean ± SD	1.93	1.07	1.77	1.93	0.48	3.29
		(0.88)	(0.18)	(0.59)	(1.47)	(0.95)	(3.24)
	Median	2	1	2	2	0.05	2.81
	(25th – 75th percentile)	(1-2.75)	(1–1)	(1.25-2)	(0.75–2.75)	(0.02–0.40)	(1.50–3.74)
Media Houses	Mean ± SD	2.00	1.25	2.63	3.75	0.08	0.81
		(1.22)	(0.50)	(0.75)	(2.22)	(0.05)	(0.51)
	Median	2	1	2.5	4.5	0.08	0.57
	(25th – 75th percentile)	(1.63–2.38)	(1–1.25)	(2–3.13)	(3.5–4.75)	(0.05–0.11)	(0.53–0.85)
Independent creators	Mean ± SD	1.77	1.15	1.89	2.12	2.32	2.18
		(0.85)	(0.40)	(0.69)	(1.87)	(2.99)	(2.09)
	Median	2	1	2	1	1.63	1.58
	(25th – 75th percentile)	(1–2)	(1–1)	(1.5-2)	(1–3)	(0.12–4.02)	(1.08–2.23)
Effect size (η^2)		0.046	0.026	0.083	0.086	0.164	0.088
p		0.126	0.207	0.048	0.045*	0.005¥	0.042
*Veterinary Professional-Independent creator different							
¥ Para Vet-Independent creator different							

Results from the correlation analysis are presented in Table 5. Significant positive correlations were found between the scores of GQS, MCS and Duration of the videos. The correlation was in particular strong for MCS and duration of the videos ($r = 0.265$; $p = 0.036$). Significant positive association was also found between GQS and duration of the videos ($r = 0.236$; $p = 0.063$).

Table 5
Correlation between scores of the tools used & VPI, ER and Duration

mDISCERN-VPI	Correlation coefficient	p
	-0.197	0.121
mDISCERN-ER	0.155	0.227
mDISCERN-Duration	0.105	0.415
JAMA-VPI	-0.174	0.172
JAMA-ER	0.177	0.166
JAMA-Duration	0.170	0.183
GQS-VPI	-0.177	0.166
GQS-ER	0.185	0.147
GQS-Duration	0.236*	0.063
MCS-VPI	-0.159	0.214
MCS-ER	0.112	0.384
MCS-Duration	0.265**	0.036

Discussion

The present study provides a systematic evaluation of quality of Hindi language YouTube videos on mastitis management. To the best of our knowledge, this is among the first attempts to assess veterinary health information in the digital video domain, there by offering important baseline evidence on the current state of online extension content. Our analysis revealed that most of the videos were of low quality in terms of reliability (mDISCERN), transparency (JAMA), overall education value (GQS) for the farmers and comprehensiveness (MCS) of the content which is evident from the scores on the tools used. For instance, only a very small portion of the videos achieved high quality ratings (mDISCERN ≥ 4 in 0%, JAMA ≥ 3 in 3.2%, GQS ≥ 4 in 3.2% and MCS ≥ 8 in 1.6%). Almost 87% of the videos were of low quality on JAMA, GQS and MCS tools and on mDISCERN scores, 58.7% of the videos were of moderate quality. These results suggest that although digital platforms such as YouTube have increased the accessibility of information, they do not necessarily ensure the dissemination of good quality or comprehensive information to farming communities. Previous studies in medical and health fields have similarly reported a predominance of low quality information^{13,17,18}. The consistency of these findings across domains suggest that the issue of information quality is not discipline specific but rather intrinsic to user generated content platforms.

A key insight emerging from this study is the apparent tradeoff between scientific quality and audience reach. Videos produced by veterinary professionals and media organizations demonstrated relatively higher educational quality and content completeness, as reflected in their GQS and MCS scores (Table 4). Past research suggest that quality of health information produced by medical professionals is much higher compared to the content produced by non-medical professionals¹⁹. The videos produced by veterinary professionals typically addressed multiples dimensions of the disease including etiology, diagnosis, treatment, prevention etc. In contrast, independent content creators achieved significantly higher visibility as indicated by the Video Power Index (VPI), but tend to provide information which is less comprehensive and less educational value for farmers. These patterns may be attributed to differences in communication style, where independent creators potentially prioritize simplified messaging and visually engaging formats to appeal broader audience.

The relationship between popularity/reach and engagement further highlights the complexity of digital knowledge dissemination. Independent creators exhibited higher VPI values, indicating wider audience popularity. However, their engagement ratios were comparatively lower, suggesting more passive consumption of the content. Conversely, video produced veterinary professionals and paraveterinarians, despite having low popularity (VPI), demonstrated higher engagement ratios, reflecting a more interactive and possibly trust driven audience base. This distinction points to the existence of a “wide but shallow” versus “niche but deep” communication dynamic within the digital ecosystem.

From an extension perspective, these findings raise important concerns. The dominance of high reach/popular but low comprehensiveness content implies that farmers may be exposed primarily to partial or simplified information, particularly focusing on treatment aspects such as antibiotic use or ethnoveterinary remedies. The limited coverage of critical components such as subclinical detection, preventive management, transmission pathways and antimicrobial resistance could lead to incomplete understanding and suboptimal decision at the farm level. Such gaps especially critical in the context of mastitis, where improper management practices may have implications for animal health, milk quality and public health.

The correlation analysis (Table 5) provides further insight into the dynamics of digital content performance. The negative association observed between VPI and quality metrics (mDISCERN, JAMA, GQS and MCS) suggests that highly popular videos are not necessarily the most informative or reliable. It can be implied that in the current YouTube ecosystem for mastitis management, digital popularity is not a reliable indicator of clinical quality of the videos. This trend aligns with the popularity – quality gap reported by Garg et al. (2015), who observed that most frequently viewed videos often contained the misleading information while technically useful content garnered significantly lower reach²⁰. This divergence between popularity and quality creates an extension risk where the most visible content to a farmer is statistically likely to be the least technically comprehensive. In contrast, the positive relationship between engagement ratio and quality scores indicate that audiences may respond more actively to higher quality content when they encounter it. Additionally, the significant positive correlation between mastitis content score and video duration supports the notion that comprehensive information

delivery requires longer formats, which may be at odds with the short duration preference often encouraged digital platforms.

Taken together, these findings underscore the need for a more strategic approach to digital veterinary extension. While veterinary professionals possess the technical expertise and credibility required to produce high quality educational content, their limited reach highlights the need to adopt more effective digital communication strategies. Integrating scientific accuracy with audience centric presentation techniques may help bridge the gap between credibility and visibility in online platforms.

The acute shortage of human resources within the Indian Veterinary extension system necessitated an immediate strategic shift toward digital platforms as primary channels for communication and knowledge dissemination. There is a significant opportunity in empowering enthusiastic field level veterinarians and paraveterinarians who are already digitally active and possess rapport with the farming community. To maximize this potential, it is recommended that extension organizations facilitate sensitization workshops specifically for those active professional creators on various components of standard tools such as mDISCERNs, JAMA, GQS etc. as well as the basics of content creation. This can help them achieve more credibility, reach and mass appeal for videos in the digital space. Furthermore, field level professionals are uniquely positioned to bridge the observed divergence between clinical authority and digital reach as they can integrate localized language and relatable story telling with the technical rigour required for effective disease management. This strategic empowerment would effectively transform the digital extension ecosystem from a space of unverified viral advice into a standardized, reliable clinical resource, thereby achieving a sustainable multiplier effect in veterinary extension services across the country.

Limitations and future research

Three limitations of this study warrant acknowledgement. First, the search was restricted to Hindi language content on a single date, videos in English, regional languages, and content uploaded after 6 March 2026 are not represented, and quality patterns may differ. Second, the cross-sectional design captures only a snapshot. Video quality and audience metrics change over time as creators update content and the algorithm re-ranks results. Third, the MCS instrument is author developed based on inputs from professionals in the field of veterinary science to capture whether the most important topics of the disease discussed in the videos and has not been standardised. Fourth, although consistent differences were observed among the video sources, the relatively lower number of videos in media houses category may limit the robustness of subgroup comparisons. Therefore, the findings should be interpreted as indicative trends and warrant studies involving larger samples.

We believe that this study makes an important contribution by establishing baseline evidence on the quality of veterinary health information on YouTube and by demonstrating the applicability of standardized evaluation tools in this context. While this study evaluated the quality of information, further research is required to determine the impact on farm level practices. Future work should address

few specific gaps this study cannot. First a longitudinal study tracking the same videos over 12–24 months would test whether quality content can close the reach gap as the subscribers grow, or whether the algorithmic disadvantage is persistent. Second a demand side study pairing this content audit with farmer surveys would establish whether the information farmers actually report using from YouTube matches the low quality content that dominates the search results, or whether they self-select toward expert content when they find it. Future research should also investigate to understand how algorithmic factors (thumbnail psychology, title keywords, and narrative style) that drive the popularity of independent creators. Such insights will be instrumental in developing capacity development programmes for professionals and paraprofessionals, equipping them with the necessary technical video production skills.

Conclusion

This study highlights a critical “popularity-quality gap” in Hindi language YouTube content for mastitis management. While digital platforms have democratized the information access, a significance divergence exists where high reach content from independent creators often lacks the clinical vigour found in technically superior, yet less visible, veterinary professional led videos. It is a distribution problem, and distribution on YouTube is governed by engagement mechanics that reward brevity and entertainment over depth. Closing this popularity-quality gap requires deliberate investment in the form of training the veterinary professionals in digital communication and also by sensitizing veterinarians and paraveterinarians who are already active in content creation on the core components of quality tools like mDISCERN, JAMA and GQS. This approach may transform YouTube from a source of unverified advice into a reliable clinical source.

Materials and methods

Search Strategy and Data Collection

To identify the most prominent educational content regarding mastitis management in dairy cattle and buffaloes, a cross-sectional search was conducted on YouTube on 06 March, 2026. To eliminate the influence of personal search history and browser cookies (personalization bias), the YouTube Data API v3 was utilized via a custom Python script rather than a standard web browser. Four specific search queries in Hindi were used to simulate common searches by Indian dairy farmers: गाय/बछड़ा का दूध में सूजन (Mastitis in milch animals), गाय/बछड़ा का दूध में सूजन का इलाज (Mastitis in cows and buffaloes), दूध में सूजन (Mastitis disease), दूध में सूजन का इलाज (Treatment of mastitis). The script used the YouTube method with parameters specifically tuned for linguistic and geographic accuracy. Relevance Language was set to hi (Hindi) to isolate native-language content and region code set to IN (India) to prioritize localized search results. Result limit was set to the top 50 videos per query, ranked by the default YouTube “relevance” algorithm, yielding a total sample of 200 video results. And the search was limited to video to exclude playlists and channels from the ranking. Metadata like Channel title, video title, duration of the video, views, likes, comments of each video, channel subscribers was also extracted to for further analysis.

After removal of duplicates, 143 videos were retained. Videos with less than 2 minutes of duration were excluded from the analysis as the videos may not be comprehensive nature. Ninety videos were left after excluding the video with less than 2 minutes of duration. Videos of purely promotional nature and irrelevant videos (focussed on more than one disease, videos not intended for farmer use) were also excluded. After applying the exclusion criteria 63 videos were finally selected for further analysis. The systematic procedure for selection of videos is presented in Figure 1.

Quality assessment

The study has adapted three tools namely modified Quality Criteria for Consumer Health Information (mDISCERN), The Journal of the American Medical Association (JAMA) benchmark and Global Quality Score (GQS). The fourth tool Mastitis Content Score (MCS) was developed by the authors to assess the comprehensiveness of the videos.

Description of tools used in the study

The modified DISCERN scale is an abbreviated and adapted version of DISCERN scale which was originally developed by Charnock et al. to assess the reliability of videos related to health²¹ and Singh et al. restructured it into a five item format²². Quality of the information of the videos was assessed using the modified Quality Criteria for Consumer Health Information (mDISCERN) using five yes/no questions regarding objectives, source reliability, balance, additional sources and acknowledgement of uncertainty. The videos were categorized into three categories based on their scores. Videos with scores 0–1 were of low reliability, 2–3 were of moderate reliability and 4–5 are of high reliability and consistency.

Accountability and transparency was assessed using the The Journal of the American Medical Association (JAMA) bench mark which was developed by Silberg et al. JAMA benchmark uses four criteria i.e., authorship, references, currency and disclosure to assess the accountability and transparency²³. Each criterion was scored with 1 or 0 and the total scores of videos were categorized as fully adequate (4), partially adequate (2–3) or inadequate (0–1).

The global quality Scale (GQS) was developed by Bernard et al. which is used to assess the overall informational quality/educational value of videos on a scale of 1–5 and high scores on the scale indicate better overall quality and greater value²⁴ for farmers. Videos are categorized into high quality (4–5), moderate (3) and poor quality (1–2) based on the scores given.

To assess the comprehensiveness of the videos, a Mastitis Content Scoring Tool was employed. This tool included criteria covering key aspects such as types of mastitis, causes, symptoms, prevention, transmission pathways, diagnostic methods, treatment, impact of early treatment, responsible antibiotic usage, and mention of the withdrawal period. The criteria were developed by the authors based on consultations with veterinarians and a review of relevant literature. A score of 1 was assigned to each

criterion if the video addressed that specific aspect. Videos were categorized into limited coverage (0–4), partial coverage (5–7), and comprehensive (8–10).

Video Power Index (VPI) and Engagement Ratio (ER)

The video power index was calculated to evaluate video popularity based on the following metric introduced by Erdem and Karaca (2018)²⁵.

$$[(\text{likes} * 100 / (\text{likes} + \text{dislikes})) * (\text{views} / \text{day}) / 100].$$

Following YouTube's removal of public dislike counts, the formula is adapted utilize available data. The formula used to calculate VPI is as follows.

$$\frac{\text{Likes ratio} \times \text{Views ratio}}{100}$$

$$\text{Where Likes ratio} = \frac{\text{Total likes}}{\text{Total Views}}$$

$$\text{Views ratio} = \frac{\text{Total views}}{\text{No of days since the video uploaded}}$$

Viewer engagement was assessed using the Engagement Ratio (ER) which reflects proportion of viewers who actively interacted with the video content and was assessed using the following formula²⁶.

$$\frac{\text{Likes} + \text{Comments}}{\text{Views}} \times 100$$

Rater training and consistency testing

All the videos were independently evaluated by two experts in the fields of veterinary public health and dairy extension. Before the actual evaluation of the videos full length discussion were held between the raters to achieve clarity regarding scoring criteria and operational definitions of the tools. After achieving the full consensus and clarity regarding the tools and scoring pattern both the evaluators scored all the videos independently. To ensure scoring consistency intra class correlation coefficient (ICC) under a two way mixed effects models was used to assess the inter rater reliability. Excellent agreement was observed, with ICC values of 0.88 for mDISCERN, 0.88 for JAMA, 0.847 for GQS and 0.924 for MCS.

Statistical methods

Descriptive statistics for continuous variables were expresses as mean $\pm$ standard deviation, minimum-maximum and median. Frequency (n) and percentage (%) were used to present categorical variables. Shapiro-Wilk test was run to confirm if the data is normally distributed²⁷. For non normally distributed data, non parametric methods were used. The Kruskal-Wallis test was used to compare three or more groups²⁸ and Mann-Whitney U test was used for comparison of two groups²⁹. For the variables which

are found significant in the Kruskal-Wallis test, posthoc pairwise comparisons were performed using the Mann-Whitney test and Bonferroni correction was applied to adjust the significance level for multiple comparisons³⁰ and to minimize the risk of type 1 error. With four producer groups resulting six unique pairwise comparisons, the significance threshold was adjusted to $\alpha = 0.0083$ ($0.05/6$). Results were considered statistically significant only if the p-value was below this adjusted threshold.

Categorization of video sources

Videos were categorised into four distinct groups based on uploaders profile, channel description, and professional credentials presented in the content (Table 1).

Table 1
Description of content producer categories

Sl. No.	Category	Description
01.	Veterinary doctors	Individuals with veterinary degrees
02.	Paraveterinarians	Veterinary assistants, livestock inspectors or the field staff
03.	Media Houses	Formal news organizations, TV channels and digital journalism outlets
04.	Independent creators	Individual content producers who lack formal veterinary or institutional affiliations.

Declarations

Author contributions: DAKR and AC were involved in conceptualization of the study. The data was analyzed by DAKR and interpretation was collaboratively handled by DAKR and AC. DAKR and DB were involved in analysis of the videos. DB and RT contributed substantially through their critical review. All authors actively participated in refining the study and the manuscript.

Data availability

All the data generated has been incorporated into this article and if any further information is required readers may contact the corresponding author.

Additional information

Supplementary information

The authors declare no competing interests

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Figures

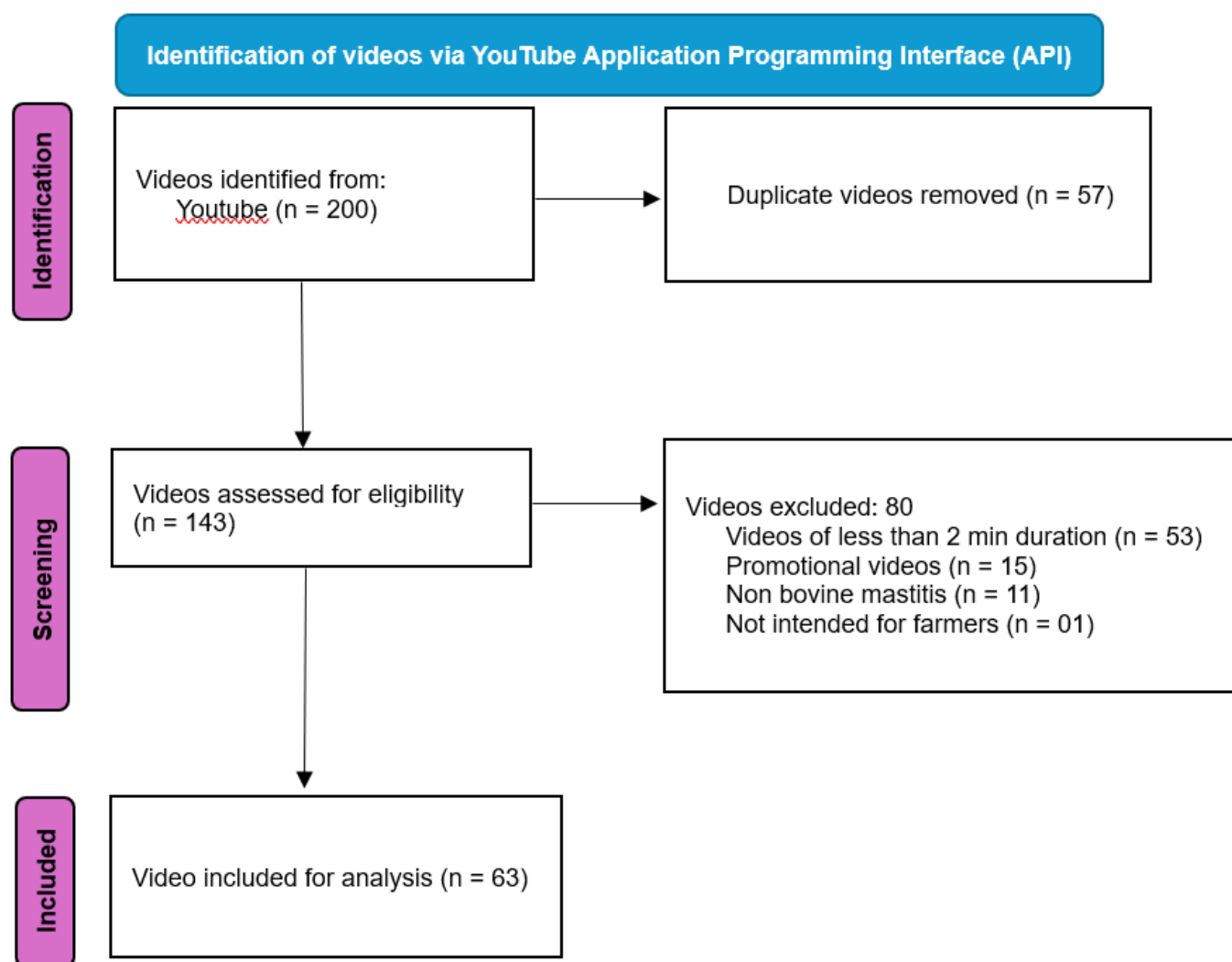


Figure 1

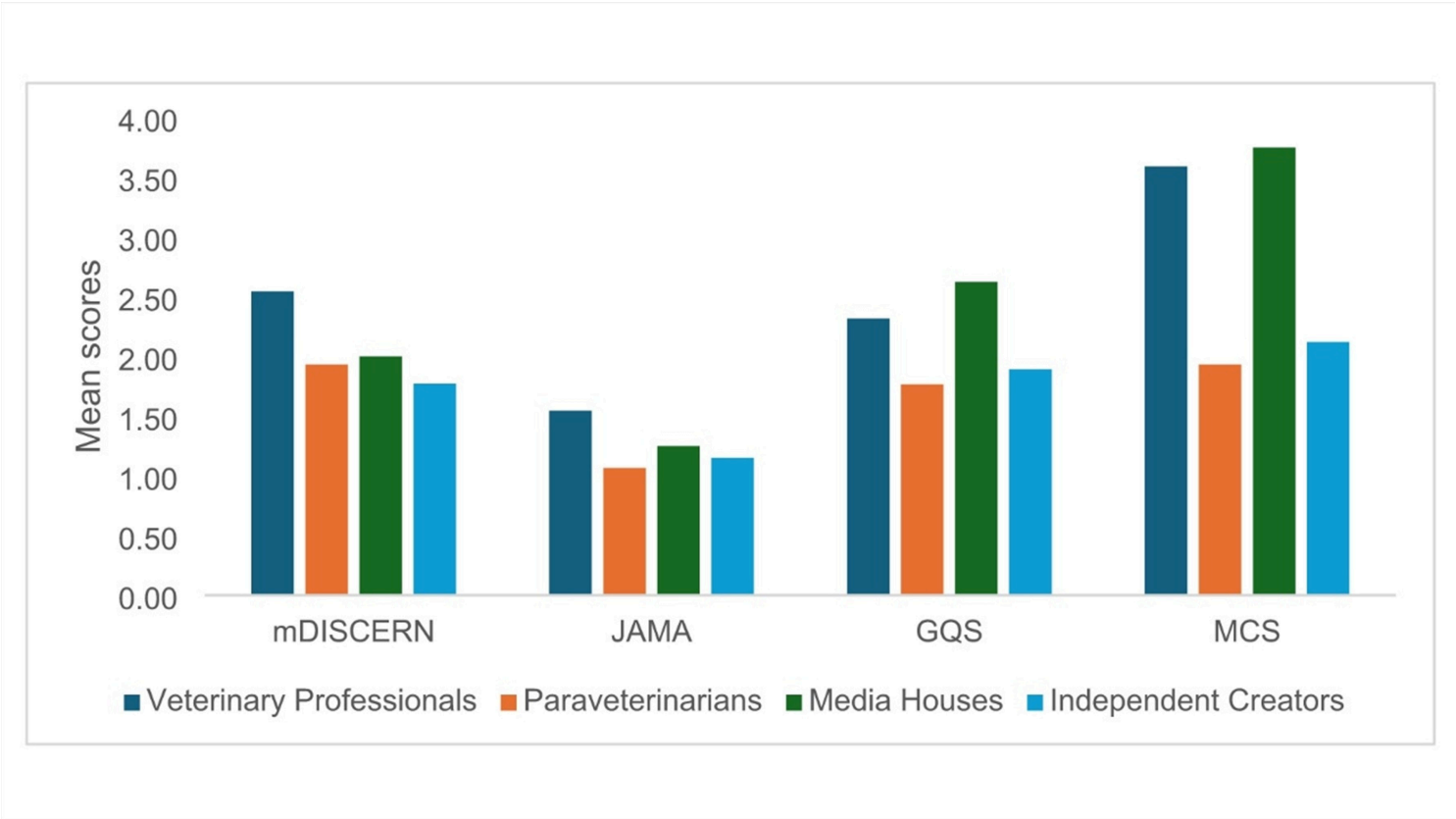


Figure 2

Comparison of mean scores of producer groups across various tools

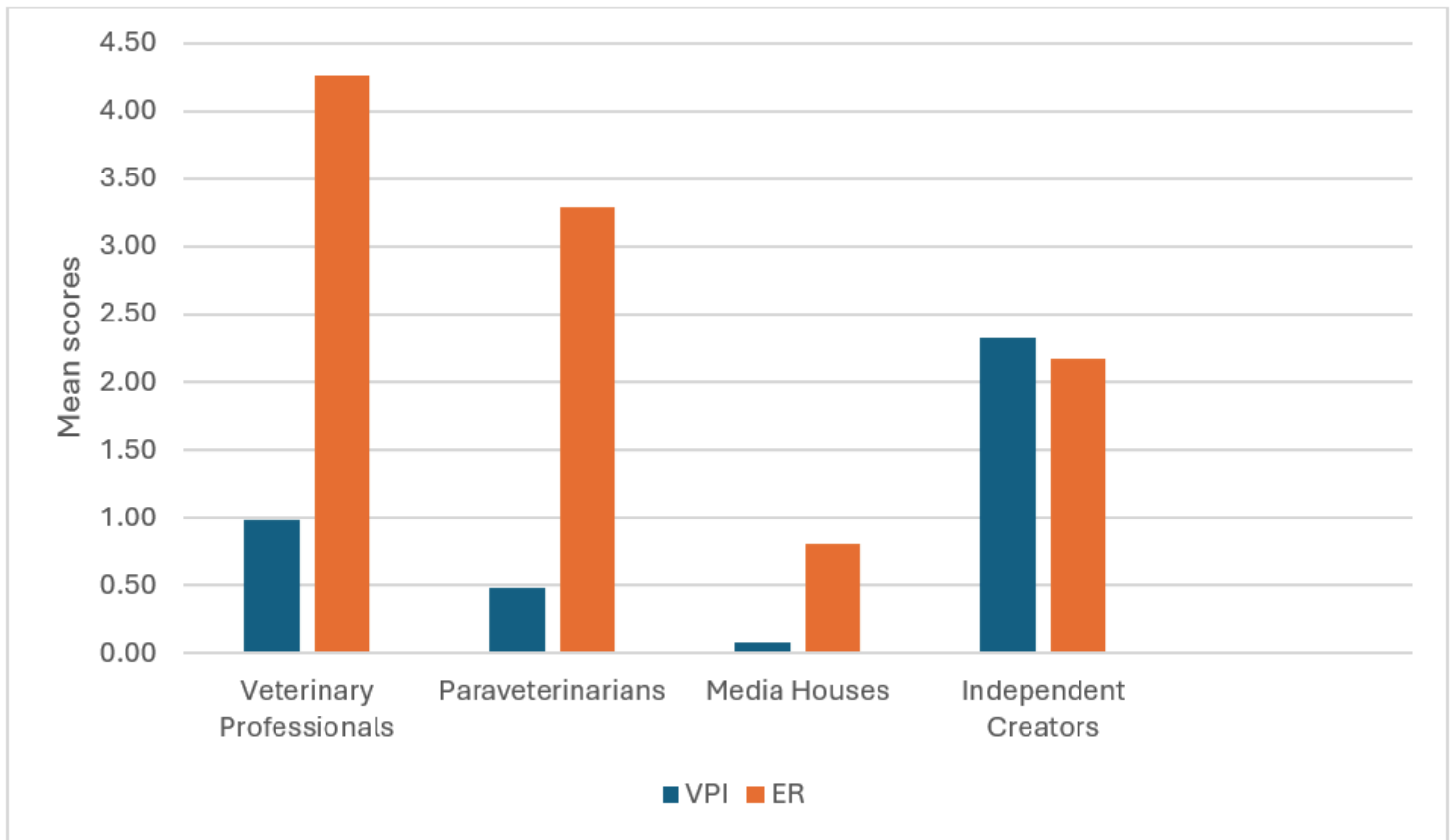


Figure 3

Comparison of VPI and ER across producer groups

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