

Brace yourself: a critical look at YouTube videos on pectus carinatum-is YouTube trustworthy for health info?

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ABSTRACT

Aims: YouTube is a widely accessed platform for health-related information, but the reliability and quality of its content remain questionable. This study aimed to evaluate the informational and overall quality of YouTube videos related to pectus carinatum using standardized scoring systems.

Methods: A systematic search was conducted in March 2025 using the keywords “pectus carinatum” and “pectus carinatum children”. Videos were filtered based on relevance, language (English), and content inclusion criteria. A total of 34 videos were analyzed. Two pediatric surgery specialists independently assessed the videos using the DISCERN and Global Quality Scale (GQS). Statistical analyses were performed to explore correlations between video characteristics and quality scores, as well as differences based on the source of upload.

Results: The mean DISCERN and GQS scores were 53.7 ± 16.46 and 3.47 ± 0.94 , respectively. Approximately 41% of videos were classified as high quality based on DISCERN, while 47% were considered high quality based on GQS. Videos uploaded by professional organizations had significantly higher scores than those by individual users ($p < 0.05$). There was no strong correlation between view counts or likes and the quality scores. Upload time was not significantly associated with video quality.

Conclusion: The quality and informational value of YouTube videos related to pectus carinatum vary significantly, with content from professional sources generally offering higher reliability. This underscores the importance of healthcare professionals and academic institutions taking an active role in producing scientifically accurate, unbiased, and up-to-date content on digital platforms.

Keywords: Pectus carinatum, YouTube, misinformation

INTRODUCTION

YouTube is one of the most widely used social media platforms globally. It is considered the second most popular search engine after Google and hosts millions of daily users.¹ Its accessibility and extensive reach have significantly contributed to its role in disseminating health-related information.² YouTube is known to be utilized in health research and by patients attempting self-diagnosis.³ The quality and reliability of health content on YouTube vary significantly across topics, raising concerns about its efficacy as an information source for patients.⁴

Pectus carinatum is the second most common chest wall deformity, characterized by the protrusion of the sternum and adjacent cartilage. This deformity is usually mild

during childhood but becomes more pronounced during adolescence. Conservative treatment with compression bracing can largely correct this condition.⁵

Patients with pectus carinatum may experience issues such as low self-esteem and social withdrawal.⁶ As the diagnosis relies entirely on clinical examination,⁷ the quality of YouTube content is important in helping patients evaluate themselves, access timely treatment and continue daily social activities through effective management. Thus, this study aimed to evaluate the quality of YouTube content on pectus carinatum as a health information resource using internationally recognized rating scales. To our knowledge, this is the first study to systematically evaluate the reliability and quality of

YouTube videos related to pectus carinatum, highlighting the need for evidence-based content and the crucial role of healthcare professionals in digital health communication.

METHODS

As this study analyzed publicly available YouTube videos, it did not involve human or animal experiments; hence, ethical approval was not required. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

In March 2025, searches were performed on YouTube (www.youtube.com) using the keywords “pectus carinatum” and “pectus carinatum children”. To minimize the influence of YouTube’s recommendation algorithm and ensure objective results, both viewing and search histories were cleared and paused prior to data collection. All searches were conducted in a new browser session with cleared cookies and cache. Additionally, videos were listed without applying any personalized ranking criteria or filters and only the default search results were analyzed.

Videos containing any relevant information on pectus carinatum were included in the analysis. Their universal applicability. Videos unrelated to pectus carinatum, repetitive content, or videos lacking any written or verbal information were excluded. Due to limited available content, videos of 29 seconds or longer were included in the analysis. Considering most users stop browsing after a certain page, videos beyond the 5th search results page were not analyzed.⁸ A total of 34 videos met the inclusion criteria.

Video details, including links, upload dates, duration, view count, like count, and uploader identity (individual or organization), were recorded. Two pediatric surgeons (>7 years of clinical experience) independently rated the videos using two scoring systems. Preliminary scoring on 10 videos revealed an intra-class correlation coefficient (ICC) of 0.92. Final scores represented the average ratings, and discrepancies exceeding 5 points did not occur, eliminating the need for a third evaluator. Videos were categorized based on uploader type: institutional, physician, and patient-generated. The DISCERN (standardized tool used to assess the reliability and quality of health information; 16 items, scores ranging from 15-80) scale, used for assessing written health information quality,⁹ and the Global Quality Scale (GQS, 5-point scale that evaluates the overall quality, flow, and usefulness of video content) for subjective video quality evaluation¹⁰ were utilized. DISCERN scores ≥ 60 indicated high quality, scores between 40-59 moderate, and scores <40 low quality. GQS scores ≥ 4 indicated high quality, scores between 2.5-3.5 moderate, and scores ≤ 2 low quality.

Statistical Analysis

Data were analyzed using SPSS 28.0 (IBM Inc., Armonk, NY, USA). Descriptive statistics were calculated for all variables initially. The Shapiro-Wilk test assessed data normality, and non-parametric methods were chosen for non-normally distributed data. Comparisons of DISCERN and GQS scores based on source type used the t-test for normally distributed data and Mann-Whitney U test for non-normally distributed

data. Relationships between video duration, views, likes, and DISCERN and GQS scores were analyzed using Spearman correlation. The same method assessed the relationship between video upload time (days) and scores. Multiple linear regression models, using log-transformed views and likes as independent variables and DISCERN and GQS scores as dependent variables, assessed the explanatory power of views and likes. A two-sided p-value <0.05 was considered statistically significant for all tests, and tables were generated.

RESULTS

A total of 34 YouTube videos related to pectus carinatum were analyzed. The mean duration of videos was 196.5 ± 123.5 seconds, with a median duration of 196 seconds. The average view count was $27,719 \pm 69,678$, ranging from 14 to 384,847 views. The median number of likes was 54.5, with an average of 231.4 ± 576.6 likes (Table 1). These findings indicate varying popularity among videos.

Table 1. Descriptive statistical characteristics of the analyzed YouTube videos

	Time (sec)	View count	Number of likes	DISCERN ¹	GQS ²
Mean	196.52	27719.08	231.35	53.7	3.47
Std	123.49	69677.96	576.6	16.46	0.94
Min	29	14	0	20	1.5
Max	612	384847	3200	76	5
Median	196	5157	54.5	54.5	3.5

1. A standardized tool used to assess the reliability and quality of health information. 2. A 5-point scale that evaluates the overall quality, flow, and usefulness of video content. GQS: Global Quality Scale, Min: Minimum; Max: Maximum

DISCERN scores ranged from 20 to 76, with an average score of 53.7 ± 16.46 . The average GQS score was 3.47 ± 0.94 (Table 1). This variability highlights significant quality differences between the videos.

Approximately 41% of videos were rated as high quality according to DISCERN scores, 35% as moderate, and 24% as low quality. According to GQS scores, about half (47%) of the videos were high quality, 38% moderate, and 15% low quality (Table 2). This distribution suggests varying quality levels, with overall moderate-to-high quality content and some low-quality videos.

Table 2. Distribution of video quality according to DISCERN and GQS scores

	DISCERN ¹		GQS ²	
Quality	Number of videos	%	Number of videos	%
High	14	41.17	16	47.05
Medium	12	35.29	13	38.23
Low	8	23.52	5	14.7

1. ≥ 60 indicated high quality, between 40-59 moderate and <40 low quality. 2. ≥ 4 indicated high quality, between 2.5-3.5 moderate and ≤ 2 low quality. GQS: Global Quality Scale

Analysis revealed a very strong positive correlation between views and likes ($r=0.98$), indicating popular videos also received more likes. Moderate positive correlations were found between video duration and DISCERN ($r=0.35$) and GQS scores ($r=0.33$), suggesting longer videos might not

always be more informative. Conversely, weak correlations were observed between views, likes, and DISCERN and GQS scores ($r \approx 0.09$ – 0.18), indicating popularity does not directly correlate with content quality (Table 3).

Table 3. Correlations between video characteristics and DISCERN and GQS scores

	Time (sec)	View count	Number of likes	DISCERN	GQS
Time(sec)	1	0.03	0.056	0.35	0.33
View count	0.03	1	0.97	0.17	0.14
Number of likes	0.05	0.97	1	0.13	0.08
DISCERN	0.35	0.17	0.13	1	0.97
GQS	0.33	0.14	0.08	0.97	1

GQS: Global Quality Scale

Significant differences in DISCERN and GQS scores based on uploader type were observed ($p < 0.05$). Institutionally uploaded videos demonstrated higher quality compared to those uploaded by individuals. Weak negative correlations were noted between upload date and DISCERN ($r = -0.23$; $p = 0.196$) and GQS scores ($r = -0.21$; $p = 0.237$), suggesting upload timing had minimal impact on content quality scores (Table 4).

Table 4. Comparison of DISCERN and GQS scores based on video source and upload time

Comparison	Statistical test	Test statistic	p-value
Institutional vs. individual-DISCERN score	Mann-Whitney U test	231.5	0.00
Institutional vs. individual-GQS score	Mann-Whitney U test	221	0.00
Upload date vs. DISCERN score	Spearman rank correlation	-0.22	0.19
Upload date vs. GQS score	Spearman rank correlation	-0.20	0.23

GQS: Global Quality Scale

DISCUSSION

In this study, YouTube videos related to pectus carinatum were evaluated using DISCERN and GQS. Our findings highlight substantial variability in content quality among the videos, reflecting inconsistency in the reliability of online health information. YouTube videos potentially influence patients' decision-making processes, yet the marked variability in content quality remains a critical concern.¹¹

The finding that only 41% of videos were classified as "high-quality" by DISCERN scoring indicates that patients should exercise caution when accessing health information online. Similarly, GQS scores revealed approximately 47% of videos to be high quality, whereas a significant portion remained moderate or low in quality. These findings, in line with previous studies conducted on various medical topics, indicate that the overall quality and reliability of YouTube videos remain suboptimal in certain areas of health-related content.^{4,12}

Another significant result from our study is the absence of meaningful relationships between views/likes and DISCERN/GQS quality scores. Correlation analyses demonstrated very weak relationships ($r \approx 0.09$ – 0.18), underscoring that a video's popularity on YouTube does not directly equate to its informational or educational quality. Although it is often assumed that users evaluate content primarily based on superficial factors such as entertainment value, visual appeal or popularity metrics, the findings of that study suggest otherwise. The results indicated that users do not generally consider view or like counts as indicators of quality. Instead, they tend to trust professional sources and frequently compare information across multiple videos in order to assess objectivity and reliability.¹³ One previous study noted that although view counts do not reliably reflect content quality, like and interaction ratios might partially indicate relevance.¹⁴ Likewise, a systematic review reported that there was no meaningful correlation between the number of views or likes and the quality of health-related videos.¹⁵ Therefore, relying solely on the metrics of views or likes as markers of content reliability or educational value can be misleading.

Moderate positive correlations were observed between video length and both DISCERN and GQS scores ($r = 0.35$ and $r = 0.33$, respectively), suggesting that longer videos generally offer more comprehensive and informative content. Findings from other studies also support the notion that increasing video duration can enhance overall quality scores.^{12,14} Nevertheless, the moderate strength of this correlation in our study suggests that increased length alone does not guarantee superior quality. Clearly structured, evidence-based, and unbiased presentation of information is equally as critical as video duration.

Analyses based on upload sources revealed significant differences in DISCERN and GQS scores ($p < 0.05$). Videos uploaded by institutional sources displayed notably higher quality compared to individual user-generated content. This finding indicates higher reliability and credibility associated with professional healthcare institutions, hospitals, and academic bodies. Consistent with our results, prior research assessing videos on celiac disease similarly reported higher quality from professional and institutional sources.¹⁶ Another study focusing on pediatric surgery identified potential misinformation risks in individual user-generated videos.¹⁷ Individual-uploaded content often exhibited poorer quality, potentially attributed to a lack of academic scrutiny, consequently increasing misinformation risk.¹⁸ Therefore, professionally sourced videos from credible organizations contribute positively to patient education and informed decision-making in healthcare settings.

Conversely, no significant relationship was detected between video upload date (days since upload) and content quality scores. Neither DISCERN nor GQS scores showed meaningful change or improvement over time, suggesting content recency alone is not a sufficient indicator of quality. This finding implies that users' preference for recently uploaded content may not necessarily lead them to accurate or reliable health information. Jana et al.¹⁹ demonstrated that even recently published videos addressing public health concerns such as



monkeypox infection predominantly featured low-quality and misleading content. Similarly, Mohamed and Shoufan¹³ argued that users often rely on inadequate criteria when favoring newer videos, disregarding critical assessments of content quality. Zhaksylyk et al.²⁰ emphasized that content recency alone does not assure reliability, underscoring the importance of ethically constructed and scientifically verified information.

Overall, findings from our study indicate YouTube's potential for disseminating valuable information on specific health conditions such as pectus carinatum. However, careful evaluation of content is essential. One study acknowledged YouTube's role as a complementary tool for patient education and medical students' training,²¹ although another highlighted the necessity of rigorous quality control mechanisms for health-related content.²² Furthermore, improvements in YouTube's recommendation algorithms, incorporating stricter regulatory and filtering mechanisms, are strongly recommended to ensure higher content reliability.

Limitations

The present study has some limitations. First, our analysis included only the initial set of videos identified through specific search keywords and did not account for YouTube's personalized recommendation algorithm, potentially limiting generalizability. Second, the evaluation process relied on subjective scales such as DISCERN and GQS, and despite assessments being conducted by trained evaluators, individual interpretive differences could affect the results. Lastly, limiting the analysis to English-language videos and performing assessments within a specific timeframe further constrain the applicability of our findings.

CONCLUSION

The quality and informational value of YouTube videos related to pectus carinatum vary significantly, with content produced by professional sources generally presenting higher quality. Increasing the visibility of healthcare professionals and academic institutions on digital platforms, alongside generating unbiased, scientifically grounded, and current content, would substantially enhance YouTube's potential as a public health resource. Additionally, expanding access to such content could reduce misinformation and assist patients in making informed health decisions.

To further improve the reliability of online health information, we propose the development of a "quality certification" system for health-related videos and recommend integrating peer-reviewed sources into YouTube's ranking algorithm.

Through this study, we aim to underscore the crucial role of healthcare professionals in shaping the quality of online health information. By actively producing evidence-based, trustworthy content and by embracing digital platforms as tools for public engagement, healthcare providers can play a pivotal role in counteracting misinformation and supporting informed health decisions.

ETHICAL DECLARATIONS

Ethics Committee Approval

As this study analyzed publicly available YouTube videos, it did not involve human or animal experiments; hence, ethical approval was not required.

Informed Consent

Since this study analyzed publicly available YouTube videos and did not involve human or animal experiments, informed consent was not required.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

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Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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