

Quality and reliability of Youtube videos on percutaneous ablation of thyroid nodules

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ABSTRACT

Aim: We aimed to assess the quality and reliability of YouTube videos on percutaneous ablation of thyroid nodules (PATN) to evaluate their utility as educational tools for patients and healthcare professionals.

Materials and Methods: This cross-sectional study analyzed 76 YouTube videos identified through keyword searches ("percutaneous ablation of thyroid nodules", "thyroid radiofrequency ablation", and "thyroid microwave ablation") on November 10, 2024. Videos were categorized by type (informative, technical, personal experience, and news), duration (≤ 4 minutes, > 4 minutes), upload source (professional healthcare providers, non-professionals, or independent users), and target audience (patients or healthcare professionals).

Quality and reliability were assessed using the Journal of the American Medical Association (JAMA) criteria, the Global Quality Score (GQS), and the modified DISCERN (mDISCERN). Statistical analyses, including the Kruskal-Wallis and Spearman correlation tests, were conducted.

Results: A total of 76 videos were evaluated. Informative videos scored significantly higher on quality metrics (GQS, 2.85 ± 0.15 , $p = 0.002$; mDISCERN, 2.13 ± 0.16 , $p = 0.008$). Videos > 4 minutes demonstrated higher quality scores ($p = 0.001$). No statistically significant differences in popularity metrics (likes, comments, view rates) were observed across groups ($p > 0.05$). No significant correlations were found between quality scores (JAMA, GQS, mDISCERN) and popularity metrics ($R^2 = -0.019$ to 0.147).

Conclusion: While informative and longer videos exhibited higher quality, popularity metrics were not reliable indicators of video quality. These findings highlight the need for healthcare professionals to produce engaging and accurate content for platforms like YouTube to improve public education about PATN.

Keywords: YouTube, percutaneous ablation, thyroid nodule, video quality, patient education

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INTRODUCTION

Percutaneous ablation of thyroid nodules (PATN) has recently received significant attention as a minimally invasive option for the treatment of benign thyroid nodules. Compared to traditional surgical approaches, ablation procedures offer numerous advantages, including preservation of thyroid function, shorter recovery times, and fewer complications. These benefits have increased popularity among clinicians and patients seeking less invasive management options (1).

With the rise of digital technology, the Internet has become a primary source of health-related information for patients. Video-sharing platforms such as YouTube play an important role in this shift by providing easily accessible and engaging visual content about medical procedures. Studies have shown that patients increasingly use YouTube to learn about new treatment options and understand procedures, outcomes, and potential risks (2).

However, the quality and reliability of health-related content on YouTube remain a significant concern. Unlike peer-reviewed medical literature, content uploaded to video-sharing platforms is not subject to quality-control, allowing the spread of inaccurate, biased, or incomplete information that can mislead patients and influence treatment decisions (3). As a result, patients face challenges distinguishing between reliable guidance and misinformation.

Given the increasing interest in thyroid RFA and the widespread use of YouTube as a patient education tool, it is essential to assess the quality and reliability of videos on this procedure. In this study, we aimed to evaluate the reliability and quality of YouTube videos on PATN to provide accurate information to patients and healthcare professionals.

MATERIALS AND METHODS

This cross-sectional study evaluated the quality and reliability of YouTube videos related to PATN on November 10, 2024; the keywords "percutaneous ablation of thyroid nodules", "thyroid radiofrequency

ablation", and "thyroid microwave ablation" were searched on YouTube. Searches were conducted in incognito mode to avoid algorithmic biases, and the default relevance-based sorting filter was applied. Videos were included if they were in English, provided visual or verbal explanations of thyroid ablation techniques, and had a resolution of at least 360p. Videos that were advertisements, unrelated to the topic, or exceeded 30 minutes in length were excluded. After sorting the videos by relevance, 76 of them met the inclusion criteria and were included in the analysis.

Two physicians independently reviewed the videos, recording the upload date, duration (minutes), total views, number of likes and comments. The viewing rate was calculated as the number of views per day since the video was uploaded. Videos were categorized by the source of upload as those uploaded by professional healthcare providers, non-professional individuals, and independent users. The target audience was also classified as healthcare professionals/doctors or patients and their relatives (4).

The quality and reliability of the videos were evaluated using three validated tools (Figure 1). The modified DISCERN (mDISCERN) score assessed the reliability of the information on a scale of 0 to 5, with higher scores indicating better reliability (5). The Global Quality Scale (GQS) was used to evaluate the videos' overall educational value and organization on a 5-point scale (6). The Journal of the American Medical Association (JAMA) benchmark criteria were applied to assess authorship, attribution, disclosure, and currency, with a maximum score of 4 indicating high reliability (7).

The Shapiro-Wilk test was applied to assess the normality of the data distribution. Non-parametric tests were used as the data did not follow a normal distribution. The Kruskal-Wallis test was applied to analyze differences in scores across groups, while the Spearman correlation test was used to evaluate associations between continuous variables. Interobserver agreement was assessed using the linear weighted Kappa statistic. A p-value of less than 0.05 was considered statistically significant. All statistical analyses were conducted using SPSS software, version 24.

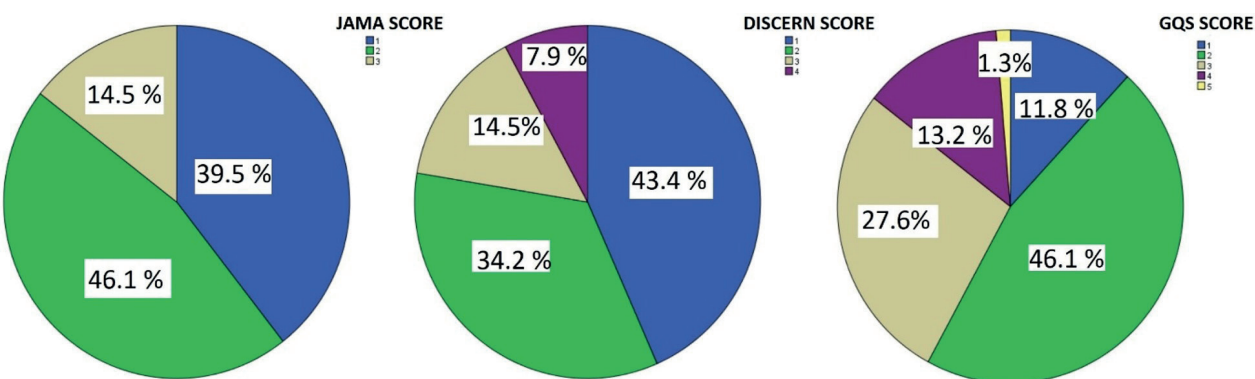


Figure 1. Distribution of JAMA, mDISCERN, and GQS scores across all analyzed YouTube videos.

RESULTS

A total of 76 YouTube videos were analyzed and categorized based on their characteristics. The mean number of views was 6,730.86, with a mean of 70.92

likes, 12.08 comments, and a viewing rate of 7.08 views per day. Among the analyzed videos, 71.1% (n=54) were uploaded by professional healthcare providers, 15.8% (n=12) by non-professional individuals, and 13.2% (n=10) by independent users. Regarding the

Modified DISCERN	
1. Is the aim clear, concise, understandable?	
2. Are sources of information reliable? (Cited publication, speaker is specialist in thyroid ablation procedure)	
3. Is the information presented balanced and unbiased? (Any reference to other treatment choices)	
4. Are additional sources of information listed?	
5. Does the video address areas of uncertainty?	
JAMA	
Authorship	Authors, partnerships and contributors, their affiliations and relevant credentials should be provided
Attribution	References and resources used for the content and a copyright statement should be listed clearly
Currency	Sponsorship, advertising, commercial financing, potential conflicts of interest should be prominently and fully disclosed
Disclosure	Dates when content was posted and updated should be indicated
GQS	
1	Poor quality, poor flow, most information missing, not useful for education
2	Generally poor quality and flow, of limited use to patients because only some information is present but many important topics missing.
3	Moderate quality, suboptimal flow, somewhat useful for patients as some important information is adequately discussed but others poorly discussed.
4	Good quality, generally good flow, useful to patients because most relevant information is covered but some topics not covered.
5	Excellent quality and flow, highly useful to patients.

Figure 2. Modified DISCERN, JAMA and GQS score.

JAMA: Journal of American Medical Association; GQS: Global Quality Score.

Table 1. Descriptive characteristics of the YouTube videos included in the analysis

Characteristic Features of Videos	Number (Percentages)
Video Type	
Informative	39 (51.3 %)
Technique	12 (15.8 %)
Personal Experience	24 (31.6 %)
News Update	1 (1.3 %)
Duration	
0-4 minutes	49 (64.5 %)
>4 minutes	27 (35.5 %)
Upload time	
0-6 months	8 (10.5 %)
6-12 months	6 (7.9 %)
>12 months	62 (81.6 %)
Upload Source	
Independent Users	10 (13.2 %)
Professional Health Care Providers	54 (71.1 %)
Non-professional	12 (15.8)
Target Population	
Patients and Relatives	62 (81.6 %)
Health Care Professionals	14 (18.4 %)
Popularity	Mean (Range)
Total number of views	6730.86 (53- 81218)
Total number of likes	70.92 (0-1000)
Total number of comments	12.08 (0-346)
View Rate	7.08 (0.13-59.05)

target audience, 81.6% (n=62) of the videos were aimed at patients and their relatives, while 18.4% (n=14) targeted healthcare professionals (Table 1).

The videos were evaluated for quality and reliability using the JAMA benchmark criteria, the GQS, and the mDISCERN score (Figure 2). Two interventional radiologists performed the assessments independently, and interobserver agreement was found to be strong, with a linear weighted Kappa value of 0.920 ± 0.056 .

Informative videos demonstrated significantly higher mean GQS and mDISCERN scores compared to other video types, with GQS scores of 2.85 ± 0.145 (range 1–5, median 3) and mDISCERN scores of 2.13 ± 0.161 (range 1–5, median 2). No statistically significant differences were observed in the scores of other video types (Table 2).

When videos were categorized by target audience, those aimed at patients and relatives had significantly higher GQS and mDISCERN scores than those targeting healthcare professionals. The GQS scores were 2.60 ± 0.116 (range 1–5, median 2) for patients and relatives versus 1.86 ± 0.177 (range 1–3, median 2) for healthcare professionals. Similarly, the mDISCERN scores were 1.98 ± 0.121 (range 1–4, median 2) for patients and relatives versus 1.36 ± 0.199 (range 1–3, median 1) for healthcare professionals.

Shorter videos (< 4 min) had significantly lower scores on all three assessment tools compared to longer videos (> 4 min).

No statistically significant correlation was found between the total number of views and the scoring systems. The correlation coefficients for the mDISCERN, JAMA, and GQS scoring systems were $R^2 = -0.019$, $R^2 = 0.147$, and $R^2 = 0.147$, respectively.

There was no statistically significant difference between the groups and popularity metrics such as likes, comments, and view rates ($p > 0.05$).

DISCUSSION

Numerous studies have investigated the safety and efficacy of percutaneous ablation techniques in the treatment of benign thyroid nodules. These minimally invasive procedures offer shorter recovery times and fewer complications compared to surgical alternatives. With the increasing number of treatment options for thyroid nodules, patients need to have access to accurate educational resources to make informed decisions about their care.

Table 2. Comparison of video quality scores by video characteristics using three validated scoring systems

	JAMA		GQS		DISCERN	
	Mean (Min-Max/Median)	P value	Mean (Min-Max/Median)	P value	Mean (Min-Max/Median)	P value
Video type						
Informative	1.79 (1-3/2)	0.382	2.85 (1-5/3)	0.002	2.13 (1-4/2)	0.008
Technique	1.50 (1-2/1.5)		1.83 (1-2/2)		1.17 (1-2/1)	
Personal Experience	1.83 (1-3/2)		2.17 (1-4/2)		1.83 (1-3/2)	
News Update	1 (1-1)		2 (2-2/2)		3 (3-3/3)	
Duration						
0-4 minutes	1.61 (1-3/2)	0.043	2.20 (1-4/2)	0.001	1.63 (1-4/1)	0.009
>4 minutes	2.00 (1-3/2)		2.93 (1-5/3)		2.30 (1-4/2)	
Upload time						
0-6 months	1.88 (1-3/2)	0.816	2.75 (1-5/2.5)	0.806	2.25 (1-4/2)	0.191
6-12 months	1.67 (1-2/2)		2.33 (2-3/2)		1.33 (1-2/1)	
>12 months	1.74 (1-3/2)		2.44 (1-4/2)		1.87 (1-4/2)	
Upload Source						
Independent Users	2.00 (1-3/2)	0.177	2.60 (2-4/2)	0.389	1.70 (1-3/2)	0.940
Professional Health Care Providers	1.76 (1-3/2)		2.50 (1-5/2)		1.91 (1-4/2)	

Social media platforms, especially YouTube, have become primary sources of health information, providing patients with accessible, visual, and engaging content. However, the uncontrolled nature of these platforms raises serious concerns about the quality and reliability of such videos as a source of health information (8).

Several studies analyzing YouTube as a source of health information have highlighted significant variability in video quality and reliability (9,10). Factors such as the number of views, likes, and comments often reflect popularity rather than educational value, making it difficult for patients to identify accurate content.

Studies evaluating the quality and reliability of YouTube videos on various medical topics have shown that videos uploaded by healthcare professionals generally receive higher DISCERN and GQS scores compared to non-professional sources (4,11-14). Specific studies, such as studies on neonatal sepsis and sports mouthguards, further confirm these findings,

showing that videos uploaded by professional sources are generally more reliable but also inadequate as stand-alone educational tools (15,16). A study on uterine fibroid embolization found that although some content achieved higher DISCERN scores, the overall quality were average or poor, with no correlation between video popularity and reliability (17).

Analyses of musculoskeletal ultrasound, intragastric balloon procedures, and orthodontic aligners also found that professional videos were higher quality but represented only a small portion of the content. Furthermore, non-professional videos were often less reliable but more visually engaging, leading to higher popularity metrics such as views and likes (14,18).

Contrary to other studies, although the majority of videos in our study were uploaded by professional healthcare providers (71.1%), no significant difference was observed in all scoring metrics compared to non-professional users. Instead, our study highlights the critical role of content type and video duration in

determining quality and reliability, as informative and longer videos scored higher on all metrics. Therefore, healthcare professionals should create longer, more detailed, and engaging content to address gaps in patient education. However, the highly specialized and emerging nature of PATN videos results in a smaller pool of content, emphasizing an even greater disparity between professional and non-professional contributions. As with other studies, there is a disconnect between popularity metrics and content quality, highlighting the challenge of promoting accurate, high-quality information in niche areas. These findings reinforce the need for healthcare professionals to create detailed, accessible, and patient-centered content to address gaps in public education, particularly for new medical procedures such as PATN.

A notable observation in this study is the association between video duration and quality scores. Longer videos provided more comprehensive information, addressing key aspects such as procedure indications, benefits, risks, and alternatives. This pattern aligns with findings from studies on clear aligners and intragastric balloons, where detailed content correlated with higher DISCERN and GQS scores (13,14). However, the general audience's preference for shorter, more engaging content may limit the accessibility and visibility of longer, higher-quality videos.

Additionally, popularity metrics, such as views and likes, were not consistently correlated with video quality. This disconnect raises concerns about the influence of non-credible but visually appealing content on patient decision-making. As seen in evaluations of videos on skin cancer screening and the Zika virus pandemic, misleading or low-quality videos often garner more attention, which can propagate misinformation (4,19).

To address these challenges, healthcare professionals and organizations must create and promote high-quality educational content on platforms like YouTube. Incorporating elements such as engaging visuals, clear messaging, and comprehensive explanations can help improve the quality and reach of such content. Furthermore, collaboration with platforms to integrate quality indicators or certifications for health-related videos could guide users toward more reliable sources.

This study has several limitations. First, only English-language videos were included, which may introduce language bias and limit the generalizability of the findings to non-English-speaking populations. Second, the cross-sectional nature of the study, based on a single-day search, may not capture temporal changes in video content, popularity metrics, or search engine algorithms. As YouTube content is dynamic and constantly evolving, the results may not reflect long-term trends or newly uploaded videos. Third, while validated tools such as the mDISCERN, GQS, and JAMA scores were used to assess video quality and reliability, the study did not evaluate the factual accuracy or clinical correctness of the information presented in the videos. Therefore, a video could receive a high-quality score based on structure and presentation while still containing misleading or incorrect medical information. Future research should incorporate content validation by subject-matter experts as well as multilingual and longitudinal analysis to enhance the robustness of findings.

CONCLUSION

While YouTube offers significant opportunities for patients to learn about PATN, the variability in quality and reliability highlights the need for greater professional engagement and platform oversight. By adding verification systems, professional endorsements, and quality-focused algorithms, YouTube can serve as a more credible source of patient education. These efforts are essential to support informed patient decision-making and to promote a better understanding of emerging procedures such as PATN.

Ethical approval

This study has been approved by the Ethics Committee of Bolu Abant İzzet Baysal University (approval date 19.11.2024, number 2024/291). Written informed consent was obtained from the participants.

Author contribution

Concept: SG; Design: SG; Data Collection or Processing: ST, ZNB; Analysis or Interpretation: YY, HÖ; Literature

Search: SG, HÖ; Writing: SG, YY. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest.

REFERENCES

- Che Y, Jin S, Shi C, et al. Treatment of Benign Thyroid Nodules: Comparison of Surgery with Radiofrequency Ablation. *AJNR Am J Neuroradiol*. 2015; 36(7): 1321-5. [\[Crossref\]](#)
- Madathil KC, Rivera-Rodriguez AJ, Greenstein JS, Gramopadhye AK. Healthcare information on YouTube: A systematic review. *Health Informatics J*. 2015; 21(3): 173-94. [\[Crossref\]](#)
- Syed-Abdul S, Fernandez-Luque L, Jian WS, et al. Misleading health-related information promoted through video-based social media: anorexia on YouTube. *J Med Internet Res*. 2013; 15(2): e30. [\[Crossref\]](#)
- Reinhardt L, Steeb T, Mifka A, Berking C, Meier F, German Skin Cancer Council. Quality, Understandability and Reliability of YouTube Videos on Skin Cancer Screening. *J Cancer Educ*. 2023; 38(5): 1667-74. [\[Crossref\]](#)
- Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. *J Epidemiol Community Health*. 1999; 53(2): 105-11. [\[Crossref\]](#)
- Légaré F, Ratté S, Stacey D, et al. Interventions for improving the adoption of shared decision making by healthcare professionals. *Cochrane Database Syst Rev*. 2010; (5): CD006732. [\[Crossref\]](#)
- Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the Internet: Caveant lector et viewor-Let the reader and viewer beware. *JAMA*. 1997; 277(15): 1244-5.
- Osman W, Mohamed F, Elhassan M, Shoufan A. Is YouTube a reliable source of health-related information? A systematic review. *BMC Med Educ*. 2022; 22(1): 382. [\[Crossref\]](#)
- Drozd B, Couvillon E, Suarez A. Medical YouTube Videos and Methods of Evaluation: Literature Review. *JMIR Med Educ*. 2018; 4(1): e3. [\[Crossref\]](#)
- Basch CH, Hillyer GC, MacDonald ZL, Reeves R, Basch CE. Characteristics of YouTube™ Videos Related to Mammography. *J Cancer Educ*. 2015; 30(4): 699-703. [\[Crossref\]](#)
- Çapar SH, Şenkaya D, Ertürk P, Çetin Kara H. Quality and Reliability of YouTube Videos in the Dix-Hallpike Test. *European Archives of Medical Research*. 2023; 39(3): 153-8. [\[Crossref\]](#)
- Kara M, Ozduran E, Mercan Kara M, Hanci V, Erkin Y. Assessing the quality and reliability of YouTube videos as a source of information on inflammatory back pain. *PeerJ*. 2024; 12: e17215. [\[Crossref\]](#)
- Calisir A, Ece I. Assessment of the Quality and Reliability of Intra-gastric Balloon Videos on YouTube. *Obes Surg*. 2022; 32(4): 1157-63. [\[Crossref\]](#)
- Cesur E, Tuncer K, Sevgi D, Balaban BC, Arslan C. Evaluation of the Quality and Reliability of YouTube™ Videos Created by Orthodontists as an Information Source for Clear Aligners. *Turk J Orthod*. 2024; 37(1): 44-9. [\[Crossref\]](#)
- Hakyemez Toptan H, Kizildemir A. Quality and Reliability Analysis of YouTube Videos Related to Neonatal Sepsis. *Cureus*. 2023; 15(5): e38422. [\[Crossref\]](#)
- Gezer I, Saygili S, Gunver MG, Kasimoglu Y, Tuna-Ince EB. Quality and Reliability of YouTube Video Contents About Sports Mouthguards: A Cross-Sectional Study. *Dent Traumatol*. 2025; 41(1): 118-27. [\[Crossref\]](#)
- Gad B, Shanmugasundaram S, Kumar A, Shukla P. Quality and Reliability of YouTube Videos on Uterine Fibroid Embolization. *J Am Coll Radiol*. 2022; 19(7): 905-12. [\[Crossref\]](#)
- Cüzdan N, Türk İ. Evaluation of quality and reliability of musculoskeletal ultrasound videos on YouTube. *Mod Rheumatol*. 2022; 32(5): 999-1005. [\[Crossref\]](#)
- Bora K, Das D, Barman B, Borah P. Are internet videos useful sources of information during global public health emergencies? A case study of YouTube videos during the 2015-16 Zika virus pandemic. *Pathog Glob Health*. 2018; 112(6): 320-8. [\[Crossref\]](#)