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Are YouTube Videos on Root Canal Retreatment Reliable Sources of Information?

Oğuz Tavşan, Seden Kara Ongun

Department of Endodontics, Uşak University Faculty of Dentistry, Uşak, Türkiye

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Abstract

Background: The objective of this study is to systematically evaluate the quality, reliability, and patient education potential of YouTube videos addressing root canal retreatment, and to investigate the interrelationships among the assessment tools applied.

Methods: The first 200 videos retrieved using the keyword "retreatment" on the YouTube platform up to March 2025 were screened according to predefined inclusion criteria, and a total of 58 videos were included in the study. Video content was assessed using the Global Quality Scale (GQS), the Modified DISCERN tool, and a usefulness score. Additionally, parameters such as video duration, like ratio, interaction index, and view rate were analyzed. Statistical analyses included the Mann–Whitney U test, independent samples t-test, and Spearman correlation analysis.

Results: The mean scores of the evaluated videos were low for the Global Quality Scale (1.88 ± 0.92), Modified DISCERN (2.26 ± 1.02), and usefulness score (2.50 ± 1.14). None of the videos were classified as having high content quality. A strong positive correlation was found between video duration and both GQS (r=0.487, P < .001) and usefulness score (r=0.361, P=.005). Additionally, a moderate negative correlation was observed between the interaction index and the number of days since the video was uploaded (r=–0.53, P < .001).

Conclusion: Most YouTube videos of root canal retreatment are characterized by low content quality and reliability. This poses a risk of exposing patients to inaccurate or insufficient information. It is essential for healthcare professionals to produce and recommend scientifically grounded, high quality, and reliable content to support patient education effectively.

Keywords: Endodontics, internet, retreatment, root canal therapy, social media

What is already known on this topic?

- *YouTube is widely used as a source of health-related information, including dental procedures, but the quality and accuracy of its content are highly variable.*
- *Several studies have evaluated the reliability of YouTube videos on general root canal treatment, revealing major concerns regarding their educational value.*
- *Despite the clinical significance and common application of nonsurgical root canal retreatment, no studies to date have specifically evaluated the quality and reliability of related content on YouTube.*

What this study adds on this topic?

- *To the best of the authors' knowledge, this is the first study to conduct a systematic evaluation of the content quality, reliability, and educational value of YouTube videos specifically focused on root canal retreatment.*
- *The study reveals that none of the evaluated videos were classified as high-quality in terms of educational content, posing a risk of misinformation for patients.*
- *Significant positive correlations were found between video duration, usefulness, and quality scores, highlighting key characteristics of more informative videos.*

INTRODUCTION

Oral and dental health is an integral component of overall health and is crucial in enhancing individuals' quality of life. Tooth loss, on the other hand, is a significant health problem that negatively affects not only chewing and speaking functions but also psychological well-being, aesthetic appearance, and social interaction.[1] With the changing societal structure and increasing aesthetic expectations of patients, the growing demand for the preservation of natural teeth has led to root canal treatment becoming a more popular and preferred dental procedure.[2,3] As a widely practiced dental intervention, root canal treatment aims to preserve natural teeth and prevent reinfection by eliminating bacteria and thoroughly cleaning the infected root canal system.[4]

Corresponding author: Oğuz Tavşan
e-mail: oguz.tavsan@usak.edu.tr

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Despite the high success rates reported for endodontic treatments, post-treatment disease may still occur.[5] Failed root canal treatments can be retreated nonsurgically via the orthograde approach or apical surgery. Both methods are predictable procedures with favorable clinical outcomes.[6] Nonsurgical root canal retreatment can be defined simply as removing previous filling materials from the root canal system, followed by reshaping, disinfection, and obturation of the canals in a hermetic manner. Retreatment procedures are considered technically challenging, and interventions performed during the initial endodontic treatment may negatively influence the outcome of the retreatment.[7]

Oostering et al[8] reported that patients feared endodontic treatment the most among various dental procedures. For many patients, visiting the dentist for endodontic treatment is a source of discomfort, often driven by fear of the unknown and anxiety related to anticipated pain.[6] Retreatment procedures tend to evoke even greater concern than initial root canal treatments, primarily due to patients' previous negative treatment experiences.[9]

Today, social media and online networks have become integral to individuals' daily lives. With the widespread use of the internet, access to information on virtually any topic has become highly convenient and readily available through computers and smartphones.[10] Traditionally, access to information in health-related fields such as medicine and dentistry was limited to face-to-face consultations with healthcare professionals; however, individuals can now obtain such information through online sources.[11] Since 2005, an increasing number of videos, including medical content, have been shared on the YouTube platform. It has become a prominent tool used by content creators to educate patients, share professional experiences, and promote themselves. Additionally, the ability of users to leave comments supports interactive communication and knowledge exchange.[12] However, the scientific validity and overall quality of health-related information available online remain highly inconsistent. The open-access nature of content creation raises concerns that some videos may be produced solely for financial gain. Considering the inadequacy of current quality control mechanisms, evaluating the reliability, accuracy, and content quality of health information presented on platforms like YouTube is of great importance.[13-15]

Although there are studies that question the reliability and accuracy of information presented in YouTube videos related to root canal treatment,[4] evaluate the content of such videos for patient education,[11] and examine the information regarding the risks of root canal treatment,[16] no study to date has systematically analyzed the quality and reliability of videos specifically dedicated to root canal retreatment, according to the current review of the literature. The continuous advancement of technology and the dynamic nature of online information highlight the need to revisit this topic. This study was designed to systematically evaluate the reliability and informational quality of YouTube videos on root canal retreatment, to provide a current perspective on the nature of the content, and to analyze the correlations among the assessment instruments utilized.

MATERIALS AND METHODS

As in previous similar studies,[4,17,18] this study did not involve human participants and was conducted using a publicly accessible website; therefore, ethical approval was not required. To avoid any influence from prior search history, a new YouTube account was created for conducting video searches using the keyword "retreatment." Through this account, English-language videos related to root canal retreatment uploaded up to March 2025 were reviewed without altering YouTube's default settings or applying any filters. According to the literature, 95% of users tend to view videos ranked between the first 60 and 200 in YouTube search results.[19,20] Accordingly, the first 200 videos retrieved using the specified keyword were included in the evaluation, and a watchlist was created. Previous studies have also shown that videos longer than 15 minutes are less likely to capture the attention of YouTube users.[21,22] Accordingly, only videos shorter than 15 minutes were included in this study.

At the study's outset, videos that were not in English, unrelated to nonsurgical root canal retreatment, duplicate content, or irrelevant to the search topic (e.g., advertisements or financially driven content) were excluded. The study included informative videos about root canal retreatment that were presented in English, created by clinicians or individuals/patients, and had an acceptable video quality (240p or higher). All videos that met the eligibility criteria and were included in the watchlist on the first day of data collection were independently evaluated by a specialist in endodontics between March 10 and 17, 2025.

Each video was evaluated based on the number of views, duration (in minutes), total number of "likes" and "dislikes," number of comments, number of days since upload, interaction index, and view rate. Viewer engagement and video view rate were calculated using the following formulas:[17]

- Interaction Index (%) = (Number of Likes – Number of Dislikes) / Total Number of Views × 100
- View Rate (%) = (Total Number of Views / Number of Days Since Upload) × 100

These calculations are intended to provide comparative data on user engagement and the daily viewing performance of the videos.

The Video Power Index (VPI) was used to assess the popularity level of the videos. The VPI was calculated using the following formula:[18]

- Video Power Index (VPI) (%) = (Like Ratio × View Rate) / 100

In this formula:

- Like Ratio (%) = Number of Likes / (Number of Likes + Number of Dislikes) × 100
- View Rate = Total Number of Views / Number of Days Since Publication

A standardized scoring table was used to assess the level of information (usefulness score) provided in the videos regarding root canal retreatment procedures.[15,23] Each video was evaluated and scored based on 8 criteria outlined in the scoring table. Usefulness scores were determined according to the presence of content related to the definition of the treatment, indications, contraindications, advantages of retreatment, treatment procedure, cost, prognosis, and potential complications. The total score ranged from 0 to 8, and based on the overall content score, the videos were categorized into 3 groups: low content (0-2 points), moderate content (3-5 points), and high content (6-8 points).

The Global Quality Scale (GQS) was used as an additional evaluation tool to assess the overall quality of the videos from a patient perspective. The GQS is a 5-item assessment scale scored out of 5 points. Each video was rated according to this scale, and the total GQS score was calculated for analysis. Videos with a total GQS score of ≤3 were classified as having "low" or "poor quality," while those scoring >3 were categorized as ranging from "good" to "excellent quality." To evaluate the reliability and accuracy of the videos, the Modified DISCERN (Mod DISCERN) index, which consists of 5 items, was used as the scoring system.[24] Each score was assigned based on criteria including conciseness, reliability, objectivity, source citation, and acknowledgment of uncertainty. Higher scores indicate greater reliability and accuracy (Table 1).

Statistical Analysis

Data analysis was performed using ISTABOT (Istabot by E-istatistik, Samsun, Türkiye), a cloud-based statistical analysis platform built on the R programming language (V 4.4.1) (The R Foundation for Statistical Computing, Vienna, Austria). This platform provides a wide range of statistical methods including descriptive statistics, parametric and nonparametric tests, regression, multivariate analyses, meta-analysis, bibliometric analysis, health-specific statistical tests, sample size calculation, power analysis, and effect size determination. Normality was assessed using Kolmogorov–Smirnov and Shapiro–Wilk tests. Pairwise comparisons of variables not normally distributed were performed using the Mann–Whitney *U* test, while those with a normal distribution were analyzed using the independent samples *t*-test. Associations between non-normally distributed variables were assessed with Spearman's rank correlation coefficient. Numerical data are presented as mean ± SD and median (minimum–maximum). The significance level was set at $P < .05$.

RESULTS

A total of 58 videos that met the inclusion criteria were selected from the initial 200 videos screened. Exclusions were made for the following reasons: 51 videos were not related to nonsurgical root canal retreatment, 5 had turned off like/dislike features, 18 were not in English, 24 exceeded 15 minutes in length, 5 were duplicates, 4 had comments turned off, 32 lacked a video description, and 3 had poor video quality. Table 2 presents the descriptive statistics, including the analyzed data's mean, SD, median, minimum, and maximum values. The following average values were observed for the included videos: Mean number of views 126 959.67 ± 796 713.28, video duration 4.92 ± 3.81 minutes, number of likes 474.26 ± 2041.84, number of dislikes 10.40 ± 34.47, number of comments 21.17 ± 30.74, total views

Table 1. Assessment Tools Used to Evaluate the Reliability (Modified DISCERN), General Quality (Global Quality Scale), and Usefulness Scores of Root Canal Retreatment Videos on the YouTube Platform[24]

Modified DISCERN (If the Answer is "Yes," 1 Point is Awarded for Each Question)	
1. Is the aim clear, concise, understandable?	
2. Are sources of information reliable? (Cited publication, video content were from valid studies, dentists, endodontists)	
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?	
GQS	**Description**
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.
Usefulness Score (If the Answer is "Yes," 1 Point is Awarded for Each Question)	
1. Definition of root canal retreatment	
2. Indications for root canal retreatment	
3. Contraindications for root canal retreatment	
4. Advantages of root canal retreatment	
5. Procedure steps of root canal retreatment	
6. Cost of root canal retreatment	
7. Prognosis of root canal retreatment	
8. Possible complications during root canal retreatment	

GQS, Global Quality Scale.

Table 2. Descriptive Statistics of Videos

	Mean ± SD	Median	Minimum	Maximum
Number of views	126 959.672 ± 796 713.281	10 467	65	6 083 378
Video duration (minutes)	4.919 ± 3.809	3.215	0.35	14.43
Days since upload	2201.276 ± 1468.157	2061.5	9	6092
Number of likes	474.259 ± 2041.841	76	1	15 552
Number of dislikes	10.397 ± 34.472	3	0	256
Number of comments	21.172 ± 30.736	8.5	0	151
Interaction Index	1.473 ± 1.425	0.931	0.097	5.539
Usefulness Score	2.5 ± 1.143	3	1	5
Like ratio	96.271 ± 5.761	98.779	72.727	100
View rate	201.204 ± 1435.125	5.421	0.052	10 941.327
Video Power Index (VPI)	197.824 ± 1411.901	5.324	0.052	10 764.14
Modified DISCERN	2.259 ± 1.018	2	1	5
GQS	1.879 ± 0.919	2	1	5

GQS, Global Quality Scale.

per day 20 120.43 ± 143 512.48, interaction index 1.47 ± 1.43, usefulness score: 2.50 ± 1.14, like ratio 96.27% ± 5.76, view rate 201.20 ± 1435.13, VPI: 197.82 ± 1411.90, Modified DISCERN score: 2.26 ± 1.02, and GQS score 1.88 ± 0.92 (Table 2). According to the analysis, none of the videos received a usefulness score within the high-content range of 6-8 points.

Based on the GQS scores, 50 videos were classified as low quality, while only 8 were categorized as high quality. When videos were categorized based on their GQS scores, a statistically significant difference emerged solely in the usefulness scores among the evaluated parameters ($P < .049$). Higher-quality videos demonstrated significantly greater usefulness scores compared to lower-quality ones. No significant differences were observed across the remaining parameters ($P > .05$) (Table 3).

According to the evaluation based on usefulness scores (Table 4), 34 videos were classified as low and 24 as moderate. None of the evaluated videos were categorized as high content. When grouped by usefulness score, videos in the moderate content category had significantly higher values compared to those in the low content group in terms of Modified DISCERN score ($P < .001$), GQS score ($P < .001$), and video duration ($P = .004$).

The evaluation based on the GQS revealed that high-quality video content was associated with significantly higher Modified DISCERN scores ($r = 0.745$, $P < .001$), usefulness scores ($r = 0.678$, $P < .001$), and longer video durations ($r = 0.487$, $P < .001$). The analysis revealed a statistically significant moderate inverse relationship between the interaction index and the time elapsed since video upload ($r = -0.53$, $P < .001$). In this study, the Spearman rank correlation coefficients between video parameters are presented in Table 5.

DISCUSSION

Today, the internet has become a widespread source of information. According to various survey studies, many individuals experiencing health problems turn to online sources to

Table 3. Comparison of Videos Parameters According to Global Quality Scale Values

	GQS ≤ 3 (n = 50)	GQS > 3 (n = 8)	
	Median (Min-Max)	Median (Min-Max)	*P*
Number of views	8940.5 (65-6 083 378)	106 005 (26 812-185 198)	.077[x]
Video duration (minutes)	3.61 (0.35-14.43)	2.52 (2.52-2.52)	.456[x]
Days since upload	2008.5 (9-6092)	3803.5 (3654-3953)	.120[x]
Number of likes	70 (1-15 552)	276 (162-390)	.250[x]
Number of dislikes	3 (0-256)	5.5 (3-8)	.510[x]
Number of comments	8.5 (0-151)	18.5 (0-37)	.831[x]
Interaction Index	0.974 (0.097-5.539)	0.392 (0.209-0.574)	.153[x]
Usefulness Score	3 (1-5)	4 (4-4)	**.049**[x]
Like ratio	98.779 (72.727-100)	97.265 (95.294-99.237)	.645[x]
View rate	4.513 (0.052-10941.327)	27.094 (7.338-46.85)	.225[x]
Video Power Index (VPI)	4.471 (0.052-10764.14)	26.742 (6.992-46.492)	.241[x]
Modified DISCERN	2 (1-5)	3.5 (3-4)	.082[x]

GQS, Global Quality Scale.
[x]Mann–Whitney *U* Test., *Values shown in bold indicate statistical significance.*

Table 4. Comparison of Videos According to Usefulness Groups

	Low (n=34)	Moderate (n=24)	
	Median (Min-Max)	Median (Min-Max)	*P*
Number of Views	7792 (130-6083378)	12 652 (65-185198)	.786[x]
Video Duration (minutes)	2.26 (0.35-9.59)	5.795 (1.02-14.43)	**.004**[x]
Days Since Upload	1880.615 ± 1224.765	2461.813 ± 1611.61	.135[y]
Number of Likes	42.5 (1-15552)	82 (1-1668)	.919[x]
Number of Dislikes	3.5 (0-256)	3 (0-63)	.590[x]
Number of Comments	5 (0-105)	9.5 (0-151)	.342[x]
Interaction Index	0.927 (0.097-5.071)	1.028 (0.107-5.539)	.490[x]
Like Ratio	98.579 (72.727-100)	98.932 (81.818-100)	.981[x]
View Rate	7.202 (0.052-10941.327)	4.513 (0.249-46.85)	.380[x]
Video Power Index (VPI)	6.659 (0.052-10764.14)	4.471 (0.249-46.492)	.415[x]
Modified DISCERN	1 (1-3)	3 (1-5)	**<.001**[x]
GQS	1 (1-3)	2 (1-5)	**<.001**[x]

GQS, Global Quality Scale.
[x]Mann–Whitney *U* test.
[y]Independent *t*-test.*Values shown in bold indicate statistical significance.*

access health-related information.[14] YouTube is the second most visited website globally and, due to its easily accessible nature, offers users information on a wide range of topics. It also allows individuals to share content related to their personal opinions and experiences. However, since the content on YouTube is generally not subject to expert review, the reliability and educational quality of health-related videos have become a significant concern.[25] Therefore, it is necessary to analyze health-focused videos shared on YouTube regarding their reliability and content quality. Indeed, several previous studies have investigated the content quality of videos related to root canal treatments.[4,11,16] However, no study in the existing literature has specifically focused on analyzing videos related to root canal retreatment, one of the most frequently performed endodontic procedures following initial treatment. Accordingly, this study aims to systematically evaluate the content and quality of videos related to root canal retreatment available on the YouTube platform.

Studies examining the content of online videos often rely on assessment tools developed initially for evaluating written materials, and it is recommended that appropriate methods and scales be designed specifically for the evaluation of visual content.[26] Therefore, in this study, the GQS and Modified DISCERN scoring systems were used to assess the content and quality of the videos.

This study demonstrated that video duration was positively and significantly correlated with both usefulness and GQS scores, implying that longer videos were more likely to be rated as informative and of higher quality. Conversely, a non-significant weak negative association was observed between view count and usefulness score. A previous study reported a positive correlation between the interaction index and video duration.[17] Consistent with this observation, this study identified a robust and statistically significant positive association between the interaction index and the length of the video content. More comprehensive videos may tend to be longer in duration. In the study by Fidan,[18] a negative correlation was reported between the interaction index and the number of days since the video was uploaded. This result also aligns with the findings, as a strong negative correlation was observed between the interaction index and the number of days since upload. This supports the view proposed by Nason et al[11] that videos uploaded earlier tend to receive more views. These findings may be explained by the fact that internet users show interest not only in newly uploaded content but also in previously published videos.

In this study, when videos were grouped according to GQS scores, it was found that high-quality videos had significantly higher usefulness scores compared to low-quality ones. This finding indicates that improvements in video quality are also reflected in content quality. The results are consistent with previous studies and have been similarly reported in the literature.[27,28] This highlights that users can access more reliable information when they prioritize the accuracy and quality of content rather than focusing solely on a video's visual appeal or popularity. Indeed, Madathil et al[14] emphasize that the quality of health-related YouTube content should be assessed independently of view counts.

Several studies evaluating videos in terms of usefulness have reported varying distributions of content quality across high, moderate, and low-quality categories.[18,29] However, many studies have also noted the absence of videos with high-quality content.[4,30] These findings are consistent with the results of the research, highlighting that despite being visually or technically watchable, many videos available on the YouTube platform demonstrate significant deficiencies in terms of clarity, reliability, and content quality.

These findings suggest that videos with moderately useful content tend to be longer and rated higher in terms of quality,

Table 5. Correlation Between Parameters

		1	2	3	4	5	6	7	8	9	10	11	12
1.Number of views	*r* *P*												
2.Video duration (minutes)	r *P*	0.144 .282											
3.Days since upload	r *P*	0.269* **.041**	−.075 .576										
4.Number of likes	r *P*	0.844*** **<.001**	0.426** **<.001**	−.006 .964									
5.Number of dislikes	r *P*	0.806*** **<.001**	0.249 .059	0.260* **.049**	0.741*** **<.001**								
6.Number of comments	r *P*	0.685*** **<.001**	0.550** **<.001**	0.104 .435	0.847*** **<.001**	0.557** **<.001**							
7.Interaction Index	r *P*	−.330* **.012**	0.453** **<.001**	−.531** **<.001**	0.180 .176	−.217 .103	0.233 .078						
8.Usefulness Score	r *P*	0.116 .385	0.361* **.005**	0.193 .147	0.142 .289	0.008 .951	0.198 .136	0.045 .739					
9.View rate	r *P*	0.809*** **<.001**	0.201 .130	−.219 .099	0.802*** **<.001**	0.639*** **<.001**	0.637*** **<.001**	−.055 .682	−.001 .992				
10.Video Power Index (VPI)	r *P*	0.800*** **<.001**	0.202 .128	−.234 .078	0.802*** **<.001**	0.623*** **<.001**	0.639*** **<.001**	−.042 .755	0.006 .967	0.999*** **<.001**			
11.Modified DISCERN	r *P*	−.042 .754	0.469** **<.001**	0.159 .234	0.111 .406	0.038 .170	0.183 .170	0.304* **.020**	0.580** **<.001**	−.136 .309	−.141 .292		
12.GQS	r *P*	0.050 .712	0.487** **<.001**	−.014 .918	0.138 .302	−.004 .978	0.150 .260	0.172 .197	0.678*** **<.001**	0.029 .829	0.029 .831	0.745*** **<.001**	

GQS, Global Quality Scale.
*Indicates a weak correlation.
**Indicates a moderate correlation.
***Indicates a strong correlation.*Values shown in bold indicate statistical significance.*

indicating a potential link between video duration and perceived educational value. Similarly, Jamleh et al[30] reported in their evaluation of YouTube videos related to periradicular surgery that videos with moderate content had higher duration and view count values than those with low content. In another study, Fidan et al[18] investigated videos on tooth whitening and found that content scores also rose significantly as video duration increased. In this regard, the findings are in accordance with previous literature that highlights a positive association between content quality and video duration. Video duration is a significant factor in content depth, as longer videos are more likely to provide detailed and explanatory information. Such insights may support the advancement of educational material development, especially in health-related fields.

Several limitations should be acknowledged. Foremost, the evaluation was confined to the top 200 search results in English available at the time of data collection. However, the YouTube platform hosts various videos in different languages and content types. As it is not feasible to systematically review all available videos, this study was limited to a selected sample. Additionally, the video search used only the keyword "retreatment." In practice, patients seeking information about root canal retreatment may use different search terms, which could influence the videos retrieved and, consequently, the findings obtained. In future research, a more comprehensive and strategic selection of keyword combinations may enhance the scope and relevance of the study. Furthermore, YouTube is a dynamic and continuously evolving platform, with users uploading new content regularly. This study evaluated only the videos uploaded up to March 2025; content uploaded thereafter may potentially alter the outcomes. Another notable limitation is the reliance on a single evaluator for video analysis, which may have introduced subjective bias and should be considered when interpreting the results. For future investigations, it is recommended that the selected videos be assessed by multiple experts in the field to increase inter-rater variability and strengthen the methodological rigor of the study.

YouTube videos related to root canal retreatment were found to have generally low content quality and reliability. Therefore, it is essential for professionals to provide more accurate and trustworthy video content to reduce the risk of misinformation among viewers. Identifying high-quality videos on YouTube by dental professionals and recommending them to patients when appropriate may facilitate a better understanding of the retreatment procedure and help alleviate patient anxiety.

Data Availability Statement: The data underlying this article will be shared on reasonable request to the corresponding author.

Ethics Committee Approval: This study did not involve human participants and was conducted using a publicly accessible website; therefore, ethical approval was not required.

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