

Original Research Article

Evaluation of The Releability of Fiber Post Videos on Youtube

Youtube'daki Fiber Post Videolarının Güvenilirliğinin Değerlendirilmesi

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ABSTRACT

Aim: This study analyzed the quality and adequacy of YouTube videos about fiber posts.

Material and Methods: YouTube was searched for the phrase "fiber post." From an initial sample of 216 videos, only 123 met all inclusion criteria and were subjected to the content quality assessment. After identifying the videos' characteristics, their viewership data were noted. Content quality was assessed using the Video Information Quality Index (VIQI) and the Global Quality Scale (GQS). Statistical analyses were performed with the Shapiro–Wilk, Mann–Whitney U, and Fisher's exact tests.

Results: Most of the selected videos were uploaded by healthcare professionals (69%). The most common topic was materials (84%), followed by cavity preparation type (72%). The vast majority of the videos were categorized as "low content" (90%). High-content videos obtained higher VIQI and GQS scores. Positive correlations were found between the total content score and the VIQI and GQS scores. Another notable finding is a positive correlation between the VIQI and GQS scores ($p<0.001$).

Conclusion: YouTube videos about fiber posts do not constitute an adequate source of information, offering generally poor-quality content. Healthcare professionals should strive to upload higher-quality videos to allow patients to access more accurate and quality information.

Keywords: Content quality; Fiber post; GQS; VIQI; YouTube

ÖZET

Amaç: Bu çalışma, YouTube'da yer alan fiber post ile ilgili videoların kalite ve yeterliliğini analiz etmeyi amaçlamaktadır.

Gereç ve Yöntem: YouTube'da "fiber post" anahtar kelimesi ile arama yapıldı. Başlangıçta 216 videodan oluşan bir örneklemeden, tüm dahil etme kriterlerini karşılayan yalnızca 123 video içerik kalitesi değerlendirildi. Videoların özellikleri belirlendikten sonra izlenme verileri kaydedildi. İçerik kalitesi Video Bilgi Kalitesi Endeksi (VIQI) ve Küresel Kalite Ölçeği (GQS) kullanılarak değerlendirildi. İstatistiksel analiz için Shapiro-Wilk, Mann-Whitney U ve Fisher's Exact Ki-Kare testleri kullanıldı.

Bulgular: Videoların %69'u sağlık profesyonelleri tarafından yüklendiği bulundu. En yaygın bahsedilen konu "materyal" (%84) ve bunu kavite hazırlama türü (%72) takip ediyordu. Videoların %90'ı "düşük içerikli" olarak kategorize edildi. "Yüksek içerikli" videoların VIQI ve GQS puanları daha yüksekti. Toplam içerik puanı ile VIQI ve GQS puanları arasında pozitif korelasyon bulundu. Dikkat çeken bir diğer bulgu ise VIQI ve GQS puanları arasındaki pozitif korelasyondur ($p<0.001$).

Sonuç: Fiber post ilgili YouTube videoları, genellikle düşük kaliteli içerikli olduğu için yeterli bir bilgi kaynağı oluşturmamaktadır. Sağlık profesyonelleri, hastaların daha iyi bilgilere erişebilmesi için daha yüksek kaliteli videolar yüklemeye çalışmalıdır.

Anahtar kelimeler: Fiber post; İçerik kalitesi; GQS; VIQI; YouTube

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INTRODUCTION

Endodontically treated teeth (ETT) often have weakened coronal tooth structures. Such teeth, therefore, require specific restorative treatment to assist with coronal restoration.¹ In ETT restorations, intracanal posts are recommended for the final restoration.²⁻⁴ Fiber posts have a modulus of elasticity that is close to dentin's, allowing them to absorb forces during trauma, minimizing fracture formation, and increasing clinical success.⁵⁻⁹ Furthermore, the longevity of a fiber-post restoration depends on the effectiveness of long-term bonding between the post, dentin, and the adhesive resin cement.¹⁰

YouTube had approximately 2.1 billion users worldwide as of 2020, with over one billion hours of videos viewed daily and about 500 videos uploaded per minute. This usage makes YouTube the second most popular social media site globally.¹¹ In addition, YouTube's use as an alternative educational platform is expanding among educators.^{12,13}

Recently, people seeking medical information have increasingly turned to websites, due to increased internet access and their demands for knowledge about their diseases.¹⁴

However, viewers may not evaluate whether the information provided in videos is correct or the content quality is high.^{15,16} Therefore, posters should be selective about the information they share and be careful not to mislead the audience as YouTube videos do not have to adhere to quality standards despite being watched by 80% of internet users.¹⁷

In particular, the prevalence of uploading health-related videos to YouTube is increasing consistently and researchers have emphasized the impact of this trend.¹² Studies in the literature have reported on the quality of health-related content and whether open-access platforms such as YouTube benefit individuals.¹⁸ In a previous study that examined the content of YouTube videos about dental implants, the overall quality of the videos was reportedly low.¹⁹ Likewise, Koller et al.²⁰ found that the vast majority of YouTube videos were poor quality. In contrast, 95% of surveyed dental students reported that YouTube videos were a useful learning resource for clinical practice.²¹ With technological development, the use of internet-based video applications between health

professionals, students, and patients has increased, and investigating and improving the quality of the health information presented online on various topics has become important.

To the current authors' knowledge, this is the first study to evaluate the content quality of YouTube videos on fiber posts. This study sought to evaluate whether the content, quality, and adequacy of YouTube videos regarding fiber posts benefit patients, companies providing health services, laypeople, and health professionals.

MATERIALS AND METHOD

The first step to acquiring the research sample was to identify the most frequently used keyword for the study topic. This was "fiber post," which was determined by analyzing Google Trends data (Google Trends 2022). This English phrase was searched on YouTube (www.YouTube.com; Google, San Bruno, California, USA). To avoid any restrictions due to user history, the computer was first cleared of cookies and search history, and the search was limited to the "last five years." The search was conducted on YouTube on July 23rd, 2022, with only relevance and date filters applied. As this study involved only publicly available data and required no human subjects, institutional review was not required.

Previous research has reported that YouTube users generally (95%) focus on the first three pages of search results and noted that a user does not need to watch more than the "first 60 to 200" videos.^{12, 22} Therefore, the search results for the current study were limited to the first 216 videos. Subsequent videos were also checked initially but were not included in the sample as many irrelevant videos were found beyond the initial 200 hits. The resultant set of videos was converted into a YouTube playlist to ensure consistency across researchers.

The videos were viewed and categorized separately by two researchers (Y.E.H.; Endodontics specialist, 7 years of experience, and G.Y.; Prosthodontics specialist, 7 years of experience). Multi-episode videos were considered a single video. Any disagreement between the researchers regarding the evaluation of the videos was resolved with a consensus meeting.

The following were used as exclusion criteria: (1) a language other than English, (2) a topic unrelated to fiber posts, (3) no audio or subtitles, (4) a duration of more than 30 min, (5) duplication.

All videos were numbered to determine inter-rater reliability and 25 videos were selected with a randomization website. These videos were reviewed 15 days later by the same researcher to estimate intra-rater reliability, and all videos were then re-rated by a second researcher.

The characteristics of the videos, such as the number of days since the upload date, the duration, the number of likes and dislikes, and the number of comments, were recorded. Viewer interaction was calculated using the interaction index and viewing rate based on Hassona *et al.*¹⁴ research.

Video content was measured based on the following criteria: (1) definition of fiber post, (2) indications, (3) contraindications, (4) equipment and materials, (5) type of cavity preparation, (6) advantages and disadvantages, (7) complications, (8) clinical survival, (9) restoration satisfaction, (10) manufacturing technique, (11) cement used, (12) aesthetic expectations, and (13) postoperative pain. The presence of each criterion contributed one point to the total content score for a maximum of 13 points. Videos scoring seven points or more were designated "high content," whereas those with scores below seven points were considered "low content."

The video source was categorized into five groups: healthcare professional, hospital or university, commercial party (dental supplies manufacturer or vendor), layperson, and others (such as TV channels and news agencies). The analysis of the videos included the target audience (professional, layperson, or both) and the upload source.

The video information and quality index (VIQI) were used to evaluate the content quality. On a Likert scale from one (poor) to five (high), this index incorporates video properties such as information flow, accuracy, content quality, and precision.¹² Similarly, the educational quality of videos was evaluated based on the global quality scale (GQS) (Figure 1).

Global Quality Scale (GQS)	SCORE
Poor quality, poor flow of the video, most information missing	1
Generally poor quality, poor flow, some information listed but most significant topics missing, of limited use to patients.	2
Moderate quality, insufficient flow, some significant information is adequately discussed but others poorly discussed, somewhat useful for patients.	3
Good quality, generally good flow, most related information is mentioned, useful for patients.	4
Excellent quality and flow, highly useful to patients	5

Figure 1. Global Quality Scale (GQS)

Statistical Analysis

Statistical analyses were conducted with IBM SPSS (version 22.0, SPSS, Chicago, IL). The Shapiro–Wilk test was used to test the normality of the variables, descriptive statistics were used to assess the video characteristics, and the Mann–Whitney U test was used to compare quantitative data between groups. The relationships between the parameters were examined by calculating the Spearman's rho correlation coefficients. The qualitative data were compared with Fisher's exact test, the Fisher–Freeman–Halton Exact Test, and Yates's continuity correction. Statistical significance was set at $p < 0.05$.

RESULTS

The initial search identified 216 videos. Of these, 93 were excluded for the following reasons: having no audio or subtitles (45.2%, $n=42$), not being in English (37.6%, $n=35$), being unrelated to fiber posts (11.8%, $n=11$), and durations longer than 30 min (5.4%, $n=5$). The highest proportion of videos were posted from the USA (38.2%). Other notable sources included Indonesia (12%), India (9.8%), and Italy (6.5%); 4.9% of the videos were uploaded from Turkey.

Table 1 presents the descriptive statistics of the video characteristics. On average, the videos were 7.74 min long. The mean number of views was 18.254 and the mean viewing rate was 1.568. The average video was liked 164 times (ranging from 0 to 3.000) whereas dislikes were almost nonexistent

Table 1. Descriptive analysis of the YouTube videos

Variables	Minimum	Maximum	Mean	SD	Median
Video characteristics					
Number of views	6	270101	18253.88	38556.30	2564
Number of likes	0	3000	163.89	450.75	18
Number of dislikes	0	1	0.02	0.13	0
Number of comments	0	103	6.67	14.82	1
Duration in minutes	0.12	400	7.74	35.88	3.33
Days since upload	83	5145	1783.31	1352.09	1279.5
Interaction index	0	9.09	1.33	1.67	0.79
Viewing rate	0	33451.81	1568.03	4496.36	236.56
Total content score	0	11	4.19	2.12	4
GQS	1	5	2.71	1.17	3
VIQI content assessment					
Flow of information	1	5	3.33	1.30	4
Information accuracy	1	5	3.25	1.12	3
Quality	1	5	2.74	1.14	3
Precision	1	5	3.58	0.99	4
VIQI total	4	20	12.91	4.02	14

Table 2. Distribution of YouTube videos source of upload, target audience, video contents

		Low Content (n=111)	High content (n=12)	
		n (%)	n (%)	p
Source of upload	Healthcare professionals	74 (66.7%)	11 (91.7%)	0.102
	Commercial	37 (33.3%)	1 (8.3%)	
Target audience+	Professional	75 (68.2%)	6 (50%)	0.215
	Both	35 (31.8%)	6 (50%)	
Video contents	Definition of fiber post	6 (5.4%)	6 (%50)	0.001*
	Indications	15 (13.5%)	12 (100%)	0.001*
	Contraindications	4 (3.6%)	4 (33.3%)	0.003*
	Equipment materials	91 (82.07%)	12 (100%)	0.212
	Type of cavity prep.	78 (70.3%)	11 (91.7%)	0.176
	Advantages/Disadvantages	7 (6.3%)	3 (25%)	0.058
	Complications	1 (0.9%)	4 (33.3%)	0.001*
	Restoration satisfaction	41 (36.9%)	10 (83.3%)	0.004*
	Manufacturing technique	71 (64.0%)	11 (91.7%)	0.060
	Cement	75 (67.6%)	11 (91.7%)	0.105
	Clinical survival	2 (1.8%)	4 (33.3%)	0.001*
	Aesthetic expectation	26 (23.4%)	9 (75.0%)	0.001*
	Postop pain	1 (0.9%)	0 (0%)	1.000

Fisher's Exact Test *p<0.05

+: Since the number of lay persons in the target audience is 1, they have been excluded from the study.

(mean=0.02, median=0). The mean number of days since upload was 1.783, or slightly less than five years (varying between 83 and 5.145 days). Other features, such as the upload source, target audience, and contents are summarized in Table 2.

The high-content and low-content groups included 12 (9.8%) and 111 (90.2%) videos, respectively. The high-content group had higher mean VIQI and GQS scores, total content scores, interaction indexes, and durations than the low-content group (all differences

were highly significant). There was no significant difference in the number of views, viewing rate, number of likes or dislikes, or number of comments between groups (Table 3).

The correlations among total content, VIQI, and GQS scores, and the video characteristics are shown in Table 4. A positive relationship was found between the total content score and GQS ($r=0.658$, $p=0.001$) and VIQI ($r=0.657$, $p=0.001$) scores. Furthermore, a significant correlation was observed between the GQS and VIQI scores ($r=0.718$, $p=0.001$), the number of views ($r=0.194$, $p=0.032$), the number of likes ($r=0.276$, $p=0.002$), the interaction index ($r=0.232$, $p=0.01$), and the duration ($r=0.440$, $p=0.001$). VIQI score also correlated significantly with the num-

ber of views ($r=0.248$, $p=0.006$), the number of likes ($r=0.432$, $p=0.001$), the number of comments ($r=0.268$, $p=0.003$), the interaction index ($r=0.363$, $p=0.001$), the duration ($r=0.476$, $p=0.001$), and the viewing rate ($r=0.254$, $p=0.005$).

Videos uploaded by healthcare professionals had higher mean total content scores ($p<0.01$) and mean VIQI scores ($p<0.01$) than those posted by commercial sources. However, no significant difference was found in the mean GQS score by type of poster (Table 5).

The intraclass correlation coefficient (ICC) was above 90% both between observers and within observers in the evaluation of GQS and VIQI scores.

Table 3. Comparison of variables Low-Content and High-Content videos

Variables	Low Content			High Content			p
	Min	Max	Mean±SD (median)	Min	Max	Mean±SD (median)	
Video characteristics							
Number of views	6	270101	17566.23±37453.67 (2473.5)	35	164241	24557.33±49032.11 (4652)	0.796
Number of likes	0	3000	132.49±374.04 (17)	0	3000	454.33±867.4 (74.5)	0.056
Number of dislikes	0	1	0.02±0.13 (0)	0	0	0±0 (0)	0.641
Number of comments	0	103	6.06±14.11 (1)	0	53	12.33±20.13 (0.5)	0.769
Duration in minutes	0.12	400	7.68±37.73 (3.3)	1.03	19.31	8.33±6.53 (6.7)	0.023*
Days since upload	83	5145	1825.83±1377.15 (1298)	198	3579	1354.27±1017.97 (1233)	0.355
Interaction index	0	9.09	1.16±1.53 (0.7)	0	7.55	2.85±2.2 (2.8)	0.002*
Viewing rate	0	33451.81	1531.27±4606.34 (191)	5.28	10441.26	1938.97±3325.75 (356.8)	0.534
GQS	1	5	2.56±1.10 (3)	2	5	4.08±0.90 (4)	0.001*
VIQI content assessment							
Flow of information	1	5	3.25±1.30 (3)	1	5	4.08±1.08 (4)	0.019*
Information accuracy	1	5	3.16±1.08 (3)	1	5	4.08±1.16 (4)	0.003*
Quality	1	5	2.63±1.09 (3)	1	5	3.75±1.14 (4)	0.002*
Precision	1	5	3.51±0.96 (4)	1	5	4.25±1.14 (4.5)	0.002*
VIQI total	4	19	12.56±3.86 (13)	4	20	16.17±4.28 (17)	0.001*

Mann Whitney U Test * $p<0.05$

Table 4. Spearman's Rho Correlations between Total Content Score, VIQI, GQS and YouTube demographics

	Total content		GQS		VIQI	
	r	p	r	p	r	p
Total content	1.000	-	-	-	-	-
GQS	0.658	0.001*	1.000	-	-	-
VIQI	0.657	0.001*	0.718	0.001*	1.000	-
Number of views	0.151	0.096	0.194	0.032*	0.248	0.006*
Number of likes	0.256	0.004*	0.276	0.002*	0.432	0.001*
Number of dislikes	0.027	0.770	0.034	0.713	-0.019	0.834
Number of comments	0.194	0.031*	0.131	0.150	0.268	0.007*
Duration in minutes	0.383	0.001*	0.440	0.001*	0.476	0.001*
Number of days since upload	0.055	0.546	0.044	0.634	-0.033	0.719
Interaction index	0.280	0.002*	0.232	0.010*	0.363	0.001*
Viewing rate	0.116	0.204	0.165	0.069	0.254	0.005*

Spearman's Rho Correlations *p<0.05

Table 5. Distribution of YouTube videos source of upload, target audience, video contents

		Total Content Score	VIQI	GQS
		Mean SD (median)	Mean SD (median)	Mean SD (median)
Source of upload	Healthcare professionals	4.54±2.16 (4)	13.65±3.75 (154)	2.82±1.21 (3)
	Commercial	3.39±1.82 (4)	11.26±4.18 (12)	2.45±1.06 (2)
	p	0.006*	0.002*	0.096
Target audience	Professional	3.85±2.11 (4)	12.54±4.02 (13)	2.54±1.18 (3)
	Both	4.93±1.95 (5)	13.73±3.97 (14)	3.05±1.09 (3)
	p	0.005*	0.089	0.027*

Mann Whitney U test *p<0.05

Note: Layperson answer has been left out of comparison because there is only one.

DISCUSSION

YouTube is the second most popular social media platform in the world. It is also a preferred site for health research due to its accessibility. As educational videos on YouTube are not reviewed for content when they are uploaded, the information provided may be outdated.²³

The literature offers many studies on the content quality and adequacy of YouTube videos.^{12,22} This study is the first to assess those aspects in the context of fiber posts and the results suggest that YouTube is an insufficient source of information on fiber posts. The videos analyzed in this study were categorized into high-content and low-content groups according to several content dimensions. Like previous studies investigating YouTube video quality, low-content videos were more numerous than high-content

videos.¹² Checking the content and optimizing the quality of YouTube videos are thought to improve individuals' knowledge of various dental treatment options. In an age when information technologies are advancing day by day, people's methods of accessing information and their pursuits are changing. With the widespread use of mobile phones, tablets, and computers, social media platforms offer fast and easy access to medical and dental training information and are the first choice of clinicians, laypeople, and healthcare companies. However, the lack of standardization of these videos may result in insufficient and inaccurate information.²⁴ Most studies of dentistry topics agree that YouTube videos contain scientifically incorrect and often misleading health-related information.¹⁹ In this study, as well, the content and information quality of most fiber-post videos were found to be insufficient.

Specifically, no video was found that covered all of the content dimensions enumerated above. The most frequently covered topics included materials, types of cavity preparation, cement, and manufacturing techniques. The prevalence of these dimensions can be explained by the finding that most videos (69.1%) were uploaded by healthcare professionals who primarily considered professionals as the target audience. Conversely, the least common content item was post-op pain. To address the topic of pain after treatment with a fiber post, video content by laypeople sharing their experiences is needed. Increased coverage of this topic in YouTube videos would be an important contribution to the available information in terms of evaluating the prevalence of pain-related complications after a fiber post procedure.

Although studies¹² have reported that prolonging a video may lead to decreased interest and audience distraction, the mean duration of the videos in this study was 7.74 min. Moreover, the high-content group had a longer mean duration than the low-content group (significant at $p < 0.05$). These results challenge the conclusions in the existing literature, suggesting that the richness of content is positively related to the video duration.

Another notable finding is that high-content videos achieved higher mean VIQI and GQS scores than low-content videos. This result reflects that information flow, information accuracy, and overall quality achieved higher scores on the VIQI for the high-content group. Moreover, there are positive correlations among the total content, VIQI, and GQS scores. Using more visual elements and title-compatible content is recommended to increase the content quality of YouTube videos.¹² Similarly, the positive correlation between total content and GQS scores highlights the importance of more diverse video content and a better flow of information.

On social media platforms, such as YouTube, users communicate their positive or negative opinions about posts in multiple ways, including likes, dislikes, and comments.²⁵ In this study, the characteristics of fiber-post videos were evaluated, and no statistically significant difference was found in the number of comments, the number of likes and dislikes, or the viewing rate by content level. Nevertheless, these

parameters may be affected by several other factors, such as the uploader's number of followers and advertisements.

This study's results suggest that the information content of YouTube videos about fiber posts is insufficient and should be enhanced. Endodontically treated teeth show lower survival rates than vital teeth.²⁶ Post-retained endodontic restorations may be an appropriate treatment option to preserve teeth before dental implant treatment is used.²⁷ Unfortunately, uniform treatment guidelines are lacking, and dental practitioners use different post and core materials, cements, and methods.²⁸ These may affect the success and survival rate of fiber post-retained restorations. In addition, the use of online internet platforms such as YouTube can support professional networking and education, patient care and education, and organizational promotion, but if the content quality of the videos is uncontrolled, it can engender potential dangers such as poor information, damage to professional image, violation of patient privacy, or licensing and other legal issues.²⁹ Therefore, health professionals have a particular responsibility to take a more active role in sharing content on YouTube to deliver accurate and up-to-date information to patients, laypersons, colleagues, and dental students.

The short data collection period can be considered a limitation of this study. In addition, viewer interests, view counts, and search results may change instantly and constantly, with the inevitable outcome that each study of this domain can be only a momentary snapshot. Another limitation of conducting research with YouTube is that it does not offer viewer demographic data, which could have provided further insight.

CONCLUSION

Although a wide variety of videos about fiber posts were found on the YouTube platform, most of them were inadequate in terms of content quality. Most videos covered materials, cavity preparation type, cement, manufacturing technique, and restoration satisfaction, and only a few addressed aesthetic expectations and clinical survival. Given the widespread use of social media for learning and the challenge of long-term follow-up on the clinical survival of fiber posts, sharing accurate, useful, and professional fiber post information on YouTube is critical.

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