

Content Analysis of YouTube™ Videos about Direct Composite Laminates

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<p>Abstract: This study seeks to assess the content of YouTube™ videos offering information on direct composite laminate treatment, an aesthetic dental procedure. Using the "kompozit lamina (composite laminate)" keywords identified by the Google Trends, relevant videos were searched on YouTube™ on February 22, 2024. From a total of 124 videos uploaded in the last two years, 25 videos conforming to the study criteria were identified and selected. A scoring system consisting of 7 parameters was used to classify video content quality as low and high. The videos were grouped according to their uploaders and the interaction indexes and viewing rates of the videos were also analyzed. The obtained data were statistically analyzed, with a significance threshold set at $p < 0.05$. The content quality of the analyzed videos was found to have an average score of 2.48 out of 7 full points, and 20 (80%) of the videos had low content and 5 (20%) had high content. While the most informed topic was complications; contraindications were found to be the least mentioned topic. When the distributions according to video uploaders were examined, it was revealed that the greater part of videos were uploaded by the dental clinic/hospital/university ($n=11$, 44%) category. The videos on the YouTube™ platform about direct composite laminate treatment were found to be insufficient in terms of informational content. Dentists and academicians who are experts in this field can help individuals access accurate information by producing videos with higher quality content.</p> <p>Keywords: Direct composite laminate, Internet, social media, Video analysis, YouTube.</p>	<p style="text-align: center;">Research Paper</p>
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INTRODUCTION

Direct composite laminate restorations, achieved by the direct application of resin composites onto teeth, are among the most conservative methods for treating color, size, and shape anomalies in teeth. With rapidly advancing aesthetic and mechanical properties, and increasing clinical success rates, resin composites can achieve good results in a single session without the need for lengthy laboratory procedures [1]. It has become a frequently preferred treatment method by both dentists and patients due to its simple clinical application, low cost, and easy reparability [2].

In this era where we can easily access the internet anytime and anywhere, obtaining information on any subject has become much more practical. Especially the sharing platforms known as social media have become a significant source of information for patients to research topics, they are curious about regarding treatments [3].

YouTube™, a highly utilized video sharing platform both globally and in our country, is highly preferred by patients due to its provision of visual and auditory information for free and without requiring membership [4]. Significantly more videos have started to be uploaded on this platform by doctors to inform their patients, by organizations to promote themselves, and by patients to share their experiences [3]. Although social media platforms facilitate patients' access to information about treatment options, protocols, and experiences, it is crucial to critically evaluate the accuracy and reliability of this information. The lack of oversight for videos on sites like YouTube™ can lead to the spread of misleading and incomplete information, potentially affecting patients' treatment processes [4].

In recent years, with the increase in patients' aesthetic demands, interest in direct composite laminate restorations has also been growing, and numerous videos on this topic can be found on social media. Upon reviewing the literature, it has been observed that there are no studies evaluating the quality of informational

content in videos concerning direct composite laminates. Therefore, this study aims to assess the informational content of videos about direct composite laminates available on the YouTube™ video sharing site.

MATERIAL AND METHODS

Data Collection

Initially, Google Trends was used on February 22, 2024, to determine which keywords were most frequently searched in the field of dentistry, and the search term "kompozit lamina (composite laminate)" was selected accordingly. After determining the keywords, searches were conducted by entering them into the YouTube™ website. The results were then sorted by upload date, and videos uploaded within the last two years were reviewed. To prevent the loss of video data, the universal resource locators (URLs) of all videos to be analyzed were recorded. Since this study utilizes publicly available data, it does not necessitate approval from an ethics committee.

The study included informational videos that were in Turkish, had acceptable video quality (240p and above), and contained content related to direct composite laminate restorations. Videos that were not in Turkish, were duplicates, lacked audio or written narration, were unrelated to the topic, or contained only advertising content were excluded from consideration. After excluding videos that failed to meet the criteria from the 124 videos reviewed, the remaining 25 videos were analyzed.

The duration, view count, number of likes and dislikes, days since upload, number of comments, and the uploader's subscriber count were recorded for each video. Additionally, the videos were classified into three groups based on their sources: (1) dentist/specialist dentist, (2) dental clinic/hospital/university, (3) other (TV channel, personal, patient experience).

Analysis of the Accuracy of Video Information Content

For the analysis of the videos assessed in the research, seven different sub-parameters (definition, indication, contraindication, advantage, application method, complication, and cost) were identified based on recent publications in the literature regarding direct composite laminates [5, 6]. The parameters evaluated in the study were scored as 1 if present in the video, and 0 if absent. Each video's "total content score" was determined by considering and scoring these sub-parameters, resulting in a score varying from 0 to 7. Videos that scored 4 or more points were classified as high-content, while videos scoring 3 or fewer points were classified as low-content.

Analysis of the Interaction Index and View Rate

Interaction index and viewing ratio in the analysis of videos were calculated using the formulas recommended in previous studies as provided below [7,8].

Interaction Index (%) = ((Number of Likes-Number of Dislikes) / (Number of Views)) × 100

Viewing Rate (%) = ((Number of Views) / (Days Since Upload)) × 100

Data Analysis

All data analyses were carried out using the SPSS software (version 25, SPSS Inc, Chicago). The Shapiro-Wilk test was employed to assess the normality of the data distribution. The evaluated data were reported as mean, standard deviation, minimum, maximum and median. For data with normal distribution, a t-test was used to analyze mean differences between high and low video contents, while for non-normally distributed data, the Mann-Whitney U test was employed. The Kruskal-Wallis test was used for evaluating data with more than two groups. To examine the correlations of the total content scores of the videos, Pearson correlation coefficients were calculated. Statistical significance value was determined as $p < 0.05$.

RESULTS

The search conducted using the specified title resulted in a total of 124 videos uploaded within the last two years, of which 25 were included in the analysis.

Results of the Analysis on the Accuracy of Video Information Content

The quality of the information content of the videos was ascertained based on their video scores. The scores of the videos ranged from 0 to 6, with a median of 2 and an average of 2.48 ± 1.60 . It was found that no video received a maximum score of 7 in terms of information content quality. It was determined that 36% (n=9) of the videos included definitions, 20 % (n=5) included indications, 8% (n=2) included contraindications, 44% (n=11) included advantages, 48% (n=12) included application methods, 56% (n=14) included complications, and 36 % (n=9) included cost parameters (Figure 1).

When evaluating the parameters that should be mentioned regarding direct composite laminates in the videos, complications were the most frequently discussed at a rate of 56% (n=14). Conversely, contraindications were the least mentioned, with only 8% (n=2) of the videos addressing this parameter.

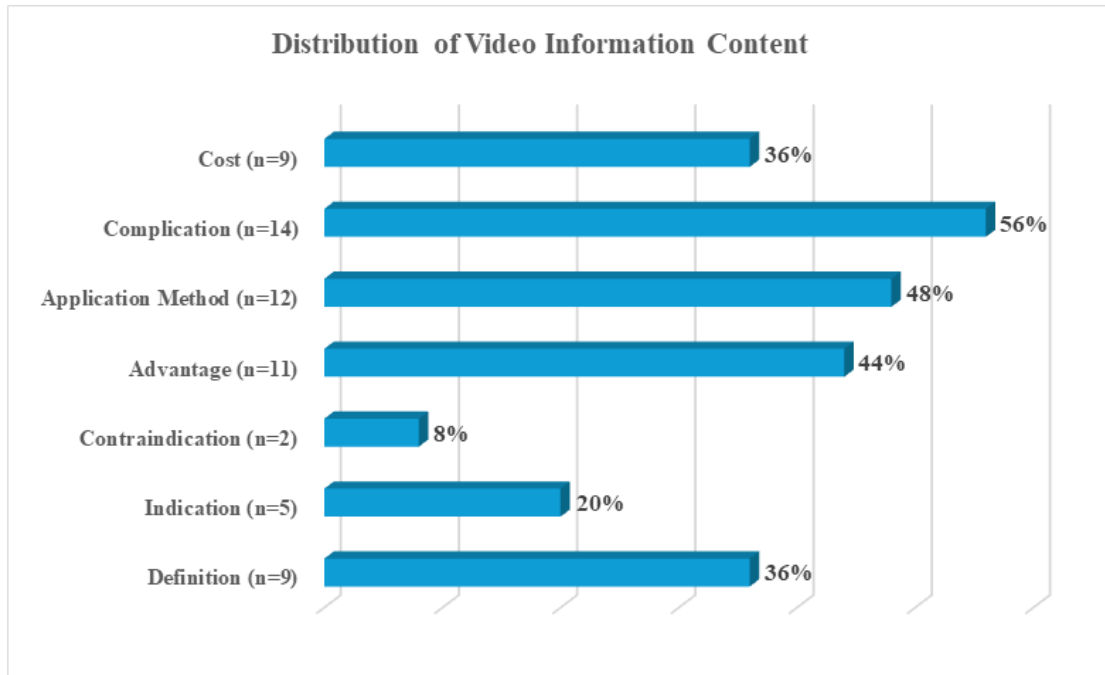


Figure 1: Distribution of Content Parameters Provided in the Videos

Source of Video Uploads

When the video distribution by uploader was reviewed, and it was identified that the greater part of the videos were uploaded by dental clinics/hospitals/universities (n=11, 44%). Following

this, it was observed that 40 % of the videos (n=10) were uploaded by dentists/specialist dentists and 16 % (n=4) were uploaded by other categories (TV channel/personal/patient experience) (Figure 2).

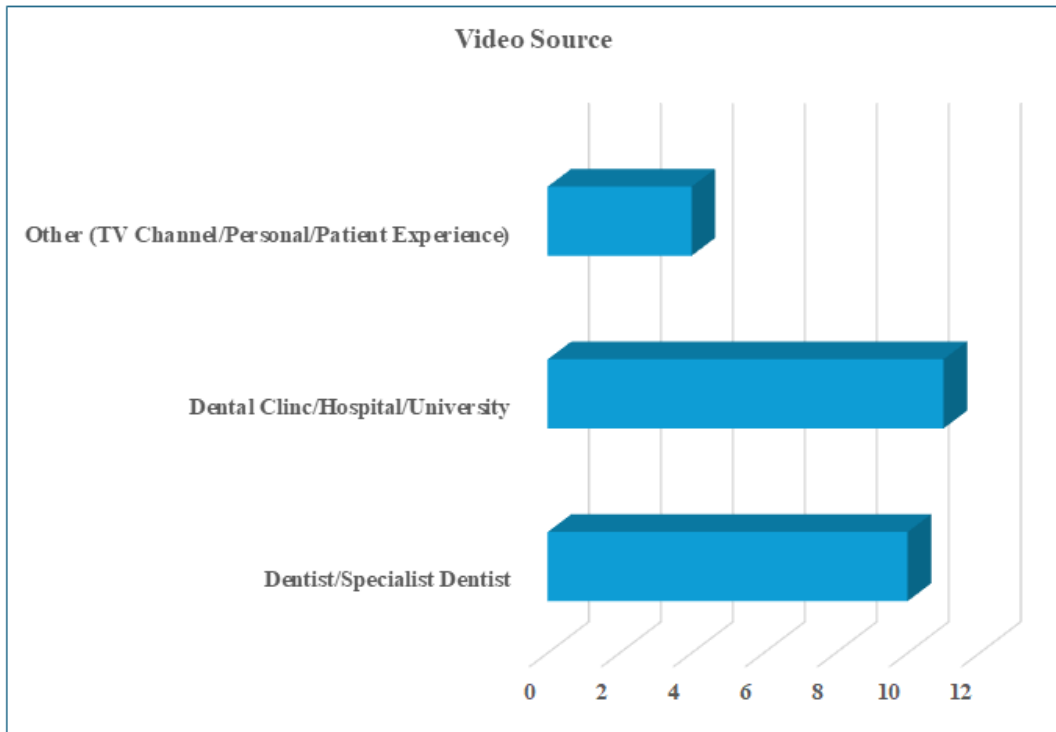


Figure 2: Distribution of Video Sources (n=25)

The number of videos with low content was found to be 80 % (n=20), while the number of videos with high content, scoring 4 and above, was 20 % (n=5).

It was found that 80 % (n=8) of the videos uploaded by dentists/specialist dentists, 81.8 % (n=9) of the videos uploaded by dental clinics/hospitals/universities, and 75% (n=3) of the

videos uploaded by other categories (TV channel/personal/patient experience) were of low content quality (Table 1).

Most of the videos with low content, 81.8% (n=9), were uploaded by dental clinics/hospitals/universities.

Table 1: Distribution of Video Content Quality by Video Sources

Video Source	Video Content Quality	
	Low	High
	n (%)	n (%)
Dentist/Specialist Dentist	8(80%)	2 (20%)
Dental Clinic/Hospital/University	9 (81.8%)	2 (18.2%)
Other (TV Channel/Personal/Patient Experience)	3 (75%)	1 (25%)

Results of the Analysis of Interaction Index and Viewing Rate

The view counts of the videos ranged from 22 to 22001, with a median of 516. The time elapsed since the videos were uploaded ranged from 40 to 713 days, with a median of 484 days. The number of likes on the videos ranged from 0 to 405, with a median of 4. The number of dislikes on the videos ranged from 0 to 20,

with a median of 0. The interaction index ranged from 0 % to 9.25%, with a median of 1.31%. The viewing rates ranged from 3.61 % to 3935.77%, with a median of 145.35%.

Statistical analysis revealed no significant difference in interaction index and viewing rates among video sources (p>0.05) (Table 2).

Table 2: Assessment of Interaction Index and Viewing Rate by Video Sources

	Video Source	n	Mean±SD	Min-Max (Median)	p
Interaction Index	Dentist/Specialist Dentist	10	2.96±2.98	0-9.25 (2.72)	0.125
	Dental Clinic/Hospital/University	11	0.97±0.68	0-2.12 (1.01)	
	Other (TV Channel/Personal/Patient Experience)	4	1.70±2.06	0-5.03 (0.87)	
Viewing Rate	Dentist/Specialist Dentist	10	225.10±203.62	16.91-577.77 (223.57)	0.882
	Dental Clinic/Hospital/University	11	294.32±459.85	7.26-1622.69 (39.68)	
	Other (TV Channel/Personal/Patient Experience)	4	1022.45±1682.99	3.61-3935.77 (75.21)	

Kruskal Wallis Test SD: Standard Deviation Statistical significance value was determined as p<0,05.

No statistically significant difference was found when comparing the number of views, days since upload, number of likes, number of dislikes, video duration,

number of subscribers, and number of comments based on the video content quality (p>0.05) (Table 3).

Table 3: Number of Views, Days Since Upload, Number of Likes and Dislikes, Video Duration, Number of Subscribers and Number of Comments by Video Content Quality

	Video Content Quality		p
	Low	High	
	Min-Max(Median)	Min-Max(Median)	
	Mean±SD	Mean±SD	
	Number of Views	22-22001 (522)	
	2251.30±4882.23	506.20±380.91	
Days Since Upload	40-713 (559)	253-484 (355)	0.303**
	450.00±211.05	374.00±89.48	
Number of Likes	0-405 (3.50)	0-29 (7)	0.891*
	29.60±87.07	12.60±12.44	
Number of Dislikes	0-20 (0)	0-0 (0)	0.617*
	1.00±4.36	0±0	
Video Duration (sec)	14-390 (67)	46-760 (132)	0.918*
	98.20±86.17	269.40±256.51	

	Video Content Quality		p
	Low	High	
	Min-Max(Median)	Min-Max(Median)	
	Mean±SD	Mean±SD	
Number of Subscribers	11-44300 (2830)	4-19100 (364)	0.083*
	5899.05±9917.14	7025.40±8395.00	
Number of Comments	0-136 (0.50)	0-34 (1)	0.563*
	955±29.87	7.60±13.25	

*: Mann Whitney U Test **: t-test SD: Standard Deviation Statistical significance value was determined as p<0.05.

No statistically significant difference was found when comparing interaction index and viewing rates based on video content quality (p>0.05) (Table 4).

Table 4: Interaction Index and Viewing Rate by Video Content Quality

	Video Content Quality		p
	Low	High	
	Min-Max(Median)	Min-Max(Median)	
	Mean±SD	Mean±SD	
Interaction Index	0-9.25 (1.39)	0-5.03 (1.01)	0.758*
	1.87±2.40	1.95±1.81	
Viewing Rate	3.61-3935.77 (169.74)	20.45-272.25 (145.35)	0.164**
	459.97±879.82	135.79±100.44	

*: Mann Whitney U Test **: t-test SD: Standard Deviation Statistical significance value was determined as p<0.05.

The videos have been evaluated in terms of correlation index in Table 5.

Table 5: The Correlation Coefficients for Total Content Score with View Count, Time Elapsed, Number of Likes and Dislikes, Video Duration, Subscriber Count, Number of Comments, Interaction Index and Viewing Rate

	Total Content Score	Number of Views	Days Since Upload	Number of Likes	Number of Dislikes	Video Duration	Number of Subscribers	Number of Comments	Interaction Index	Viewing Rate
Total Content Score	R=1	R=0.028	R=-0.102	R=0.057	R=0.066	R=0.456*	R=0.092	R=0.040	R=-0.224	R=-0.450*
p		0.893	0.628	0.788	0.753	0.022	0.661	0.849	0.282	0.024

The Pearson Correlation Coefficient Test, *: p<0.05 indicates statistical significance, R: Definition of the correlation coefficient: Values between 0 and ±0.3 indicate a weak correlation; between 0.3 and 0.7 (or -0.3 and -0.7), a moderate correlation; and between 0.7 and 1.0 (or -0.7 and -1.0), a strong correlation.

The total content scores show a moderate positive correlation with video duration and a moderate negative correlation with viewing rates, while no correlation is observed with other parameters. This indicates that as video durations increase, the total content scores also increase, and as viewing rates increase, the total content scores decrease.

DISCUSSION

With advancements in adhesive systems and resin materials, direct composite laminate applications that meet patients' increasing aesthetic expectations have

become highly popular today. Individuals can easily access information about such treatments not only from doctors and healthcare institutions but also via the internet. Since the content available on internet platforms like YouTube™ can have positive or negative effects on users, it is important to have videos with high-quality information content in these digital environments. There are numerous studies [3, 4, 7, 8] evaluating YouTube™ videos in various fields of dentistry; however, no studies have been found specifically related to direct composite laminates. Therefore, this study aims to evaluate Turkish YouTube™ videos on the subject.

Out of the 124 videos uploaded in the last two years related to the topic, 25 were included in the study based on the specified criteria, after excluding those that did not qualify. The videos were evaluated in terms of the definition, indications, contraindications, advantages, application methods, potential complications, and cost of direct composite laminate. Within the framework of these sub-parameters, it was observed that most of the videos examined exhibited significant information deficiencies. The fact that none of the examined videos received a full score of 7 and only 5 videos were rated as highly informative further supports this observation. The topics with the most information provided were complications, application methods, and advantages, while the number of videos providing information on contraindications of the application was notably low. Although the low number of videos providing information on contraindications in our study is consistent with other studies [3, 8-10], it is crucial to inform individuals with Class III malocclusion, edge-to-edge bite, parafunctional habits, and extreme crowding about contraindications to prevent misconceptions about the treatment.

In some studies [11, 12] evaluating YouTube™ videos related to dental applications, it has been reported that the quality of the informational content is adequate; however, in other studies [7, 8, 13, 14], it is considered to be of insufficient quality. The differing results in the studies may be due to variables such as the recency of the topic being researched, the different parameters evaluated, and the varying number of videos reviewed [15].

The findings of our study have shown that the number of highly informative videos is quite low. In the literature, parallel to our current study, it has been noted that in a study examining the informational content of YouTube™ videos about porcelain laminate veneers, the videos were found to have insufficient informational content [3]. Similarly, another study evaluating YouTube™ videos about ceramic inlays and onlays also found that the videos had insufficient informational content [10].

In our study, when examining the sources of the evaluated videos, it was found that most of the content was created by dental clinics/hospitals/universities (44 %) and dentists/specialist dentists (40 %). When examining studies evaluating YouTube™ videos prepared on dental topics, some studies [3, 16] have indicated that the video upload sources were mostly TV channels or patient experience videos. However, other studies [11, 15, 17, 18], supporting our results, have indicated that the majority of the videos were uploaded by academic institutions, dentists, and specialist dentists.

When examining the relationship between the upload source and the content quality of the analyzed

videos, the evidence from our study confirms the literature by indicating that videos uploaded by healthcare professionals and institutions are more numerous and have higher informational quality compared to those uploaded by individual users [19]. Even though no statistically significant difference exists between the view rates of videos uploaded by health professionals and organizations and other video uploaders, the fact that videos uploaded by health professionals and organizations are watched more by users but have lower informational content quality reveals a significant shortcoming.

In the present study, no statistically significant differences were found between video sources in terms of interaction indices and view rates. No statistically significant differences were found when comparing the distributions of video content quality with the number of views, the times elapsed since the videos were uploaded, the number of likes, the number of dislikes, video duration, number of subscribers, number of comments, interaction indices, and view rates.

CONCLUSION

According to the results of our study, the informational content of YouTube™ videos uploaded in the last two years regarding direct composite laminates has been found to be insufficient. The YouTube™ platform does not appear to be a sufficient resource for patients seeking information about direct composite laminates. Additionally, it may be beneficial for expert physicians to review the content of uploaded videos and upload more high-quality, informative videos on the topic to direct their patients to current and reliable information on the internet.

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