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Youtube™ as an Information Source for Clinicians and Patients on Inlay-Onlay-Overlay Procedures

İnlay-Onlay-Overlay Restorasyonlar Hakkında Klinisyenler ve Hastalar İçin Bir Bilgi Kaynağı Olarak Youtube™

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ABSTRACT

Objective: The aim of this study was to evaluate the quality of YouTube™ videos on inlay, onlay, overlay restorations and to understand whether they were useful to patients and clinicians.
Method: In the present study, "inlay, onlay and overlay" were used as keyword and YouTube videos was analyzed. The first 159 videos were analyzed by two independent researchers, and 69 were subsequently included in the study. The characteristics of the videos, target audience and source of uploaded were evaluated. A 15-point scale was used to classify videos into low and high content. Each video was evaluated for content quality using the Video Information and Quality Index (VIQI) and Global Quality Scale (GQS).
Result: Most of the videos (44.9 %) had been uploaded by healthcare professionals, and followed by hospital/university (24.6 %). Definition of inlay-onlay-overlay was most mentioned topic. 63.8% of the videos was determined as low content and 36.2% high content. The VIQI and GQS scores of the high content group were significantly higher than low content group (*P* :.001; *P* <.05).
Conclusion: This study implies that YouTube™ is not a reliable source of information on inlay-onlay-overlay restorations. It is important that the contents of video sharing platforms are controllable by health professionals.
Keywords: GQS, Inlay, Onlay, Video content, VIQI, YouTube

ÖZ

Amaç: Bu çalışma, indirekt parsiyel restorasyonlarla ilgili bilgi sağlamak amacıyla başvurulan YouTube™ platformundaki videoların bilgi içeriği ve bilgi kalitesini değerlendirmeyi amaçlamıştır.
Yöntem: Bu kesitsel çalışmada, YouTube™ video paylaşım sitesine 'inlay-onlay-overlay' arama terimi girilerek tarama yapıldı. İlk 159 video iki bağımsız araştırmacı tarafından analiz edildi, hariç tutma kriterleri uygulandıktan sonra 69 video çalışmaya dahil edildi. Yüklenen videoların özellikleri, hedef kitlesi ve kaynağı değerlendirildi. Videoları düşük ve yüksek içeriğe göre sınıflandırmak için 15 puanlık bir ölçek kullanıldı. Her video, Küresel Kalite Skalası (GQS) ile Video Bilgileri ve Kalite İndeksi (VIQI) kullanılarak içerik kalitesi açısından değerlendirildi.
Bulgular: Videoların çoğunun (%44,9) sağlık çalışanları tarafından yüklendiği, bunu hastane/üniversite (%24,6) kuruluşlarının izlediği görüldü. Videoların %63,8'i düşük içerikli, %36,2'si yüksek içerikli olarak belirlendi. Yüksek içerikli grubun VIQI ve GQS puanları, düşük içerikli gruba göre anlamlı derecede yüksekti (*P* :.001; *P* <.05).
Sonuç: Bu çalışma, YouTube™'un inley-onlay-overlay restorasyonlar konusunda güvenilir bir bilgi kaynağı olmadığını göstermektedir. Video paylaşım platformlarının içeriklerinin alanında uzman hekimler ve akademisyenler tarafından kontrol edilebilir olması önemlidir.
Anahtar Kelimeler: GQS, Inlay, Onlay, Video içeriği, VIQI, YouTube

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INTRODUCTION

Developments in adhesive technologies and the increase in conservative approaches have increased the indications for partial indirect restorations, especially based on the aesthetic dentistry approach.[1] Partial indirect restorations are classified as inlay (without covering the tubercles), onlay (covering at least one tubercle) and overlay (covering all tubercles).[2] Inlay-onlay-overlay restorations protect the remaining tooth structure.[2,3] Partial indirect restorations can be considered as a more conservative option than post-core and veneer crowns. In addition, they indicated in posterior teeth that have undergone root canal treatment and show excessive material loss.[4] Indirect inlays, onlays and overlays provide good proximal contact compared to direct resin composites and also eliminate the disadvantages caused by polymerization shrinkage.[5,6] In addition, ceramic inlay-onlay-overlay restorations have advantages such as longevity, durability and degree of translucency.[6] Nowadays, with the increasing interest in the conservative approach, the use of indirect restorations has become popular.[1] Inlay-onlay-overlay restorations are among the commonly used indirect treatment methods.

With its increasing popularity since 2005, YouTube™ has become the third most visited site. YouTube™ has become a video encyclopedia containing important information on many medical topics, including inlay, onlay and overlay procedures. However, healthcare professionals (specialists, dentists), dental manufacturer or anyone who is a layperson can publish content on this platform.[7] This, a potential risk for patients and/or healthcare professionals depending on the timeliness, quality of the information in the video content.[8] The content and quality of YouTube™ videos on topics related to dental treatments have been evaluated in various studies.[7-10]

Acceleration of production with the introduction of CAD/CAM and 3D printers into our laboratories, increased interest in the conservative approach, aesthetic and mechanical developments in materials. In recent years, the increasing aesthetic demands of patients have led to an increased interest in porcelain inlay-onlay-overlay restorations.[11-14] When current literature is examined, studies evaluating the information content quality of videos about porcelain inlays, onlays and overlays are quite insufficient.

Information about various dental treatments can be obtained using the YouTube™ platform. However, the quality of these contents can affect people's thoughts and attitudes towards treatment. The presence of incorrect and incomplete information on this platform can damage the quality of treatment, effective use of time, and patient-physician relationship. Therefore, this study was aimed to evaluated the reliability and quality of videos on YouTube™ for patients and clinicians seeking information about inlay-onlay-overlay restorations.

METHOD

"Google Trends" is an online search engine that can be used to determine how frequently selected keywords have been queried over a certain period of time.[15] After a search for "Inlay-Onlay-Overlay" using this application on March 24, 2023, we found that the most commonly used terms were "inlay, onlay, overlay" (Google Trends, 2023). According to research, most YouTube™ users generally look only at the first three pages of their search results to find the information they are curious about, and often scan only the first 30 videos.[16,17] In previous studies on the subject in the literature, it was stated that approximately 95% of users watched the first 60-200 of the scanned videos.[16-20] In this study, the first 159 most viewed videos were selected and their Uniform Resource Loader (URL) addresses were recorded. 90 videos were excluded from the study for the reasons stated in Table 1. All evaluations were made on 69 videos and by two independent observers. The videos that caused disagreements among the researchers were rewatched and disagreements were resolved by consensus. Evaluation of the videos by two independent observers prevents subjectivity as much as possible, and the high correlation rate observed between the referees increases the reliability of the evaluation results.

Table 1. Exclusion criteria.

Exclusion criteria	n	%
No audio	48	53.3
Not in English	30	33.3
Duplicate	8	8.9
Not related to subject	4	4.4
Total	90	100

Video features such as the number of days since the video was uploaded, the country of origin, the duration of the video, the number of likes/dislikes it received, and viewers' comments were recorded.

The content evaluation of these videos was performed independently on the following subjects: (1) definition of inlay-onlay-overlay; (2) indications; (3) contraindications; (4) procedures involved; (5) advantages; (6) complications/disadvantages; (7) prognosis and Survival; (8) post-operative sensitivity; (9) abrasion resistance/fracture resistance; (10) stain resistance; (11) aesthetic satisfaction; (12) cost satisfaction; (13) plaque involvement; (14) chewing performance; and (15) application time. The presence of each content was scored as 1 point out of a total of 15 points. Videos considered as 9-15 points were identified as high content, and 0–8 points as low content.

The upload source of the videos was divided into five groups: healthcare professionals (dentist, specialist), hospitals/ universities/ dental clinics, commercial agencies (dental manufacturing or dental supply company), laypersons and others (tv channels, news agencies). The target audience was classified into three groups: professional, layperson and both.

The videos were evaluated with the VIQI, which uses a five-point Likert scale from 1 (poor) to 5 (high) to evaluate characteristics such as informativeness, accuracy, quality, and compatibility of the video title and content. In addition, the content quality of the videos was evaluated with the GQS, which consists of 5-points and takes into account video flow and ease of use. On this scale, 1-2 determined as low, 3 moderate and 4-5 high quality (Table 2). [21-23]

Table 2. Global quality scale

Poor quality, poor flow of the video, most information missing, not helpful for patients/specialist/dentist	1
Generally poor quality and poor flow, some information listed but many important topics but of limited use to patients/specialist/dentist	2
Moderate quality,suboptimal flow, some important is adequately discussed but others poorly discussed, somewhat useful for patients/ specialist/dentist	3
Good quality generally good flow, most relevant informations is covered, useful for patients/ specialist/dentist	4
Excellent quality and flow, very useful for patients/ specialist/dentist	5

Since the present study is an observational study as it involved the use of public access data only, there is no need for approval of the ethics committee.

Statistical analyses

IBM SPSS Statistics version 22.0 was used for statistical analysis in this study. The suitability of the parameters for normal distribution was evaluated with the Shapiro Wilks test and it was seen that the parameters did not show a normal distribution. In the study, descriptive statistical methods and Kruskal Wallis test (past hoc Dunn's test) for comparisons of quantitative data between more than two groups. Mann Whitney U Test were used for the comparison of quantitative data between two groups. Spearman's rho correlation analysis was used to examine the relationships between parameters. For the comparison of qualitative data, Chi-Square test, Fisher's Exact Chi-Square test, Fisher Freeman Halton Exact Test and Continuity Correction were used. Significance was evaluated at the P <.05 level. Significance was evaluated at the P <.05 level.

RESULTS

The USA scored highest for video uploads (40.6%, n = 28), with India ranking second (17.4%, n = 12). Eight videos were uploaded by users from Turkey

(11.6%), seven from Iranian (10.1%), three from United Kingdom (4.3%), two from both Japan and Spain (2.9%) and the remaining videos from Asia, China, England, France, Korea, South Africa and United Arab Emirates (each 1%, n = 1).

Descriptive statistics of the YouTube™ videos were provided in Table 3 and Table 4. Most videos (44.9%, n = 31) were uploaded by healthcare

professionals (Table 4). Mean duration of the YouTube™ videos on inlay-onlay-overlay was 9:84 min (varies: 0:22–98:00 min; median: 3:13). The mean number of views for these videos was 24203,57 (varies: 11–405302; median: 2027) with a mean interaction index of 31,83 views/d (varies: 0–1362,58 views/d) and a mean viewing rate of 1294,52 (varies: 1,8–11778,61). The overall mean of the number of "likes" was 190,19 (varies: 0–1,300), while the overall mean number of "dislikes" was 0,00. The upload of the video was 1466,78 days (varies: 70–4568). The mean total content score of the YouTube™ videos on inlay-onlay-overlay was 6.48, the mean GQS score was 2.81, and the mean VIQI total score was 13.88 (Table 3).

Fourty-four (63.8%) and twenty-five (36.2%) videos were included in the low-content and high-content groups, respectively.

Table 3. Descriptive Statistics of the YouTube™ Videos

Variables	Minimum	Maximum	Mean	Std. Dev.	Median
Video characteristics					
Number of views	11	405302	24203.57	59917.28	2027
Duration in minutes	22sec	98min	9:84	15:49	3:13
Days since upload	70	4568	1466.78	1124.21	1220
Number of comments	0	98	9.94	22.36	0
Number of likes	0	1300	190.19	346.00	24
Number of dislikes	0	0	0.00	0.00	0
Viewing rate	1,8	11778.61	1294.52	2384.17	246.5228
Interaction Index	0	1362.58	31.83	171.39	1.2402
Total Content Score	0	13	6.48	4.13	6
VIQI content assessment					
Flow of information	1	5	3.49	1.30	3
Information accuracy	2	5	3.99	1.02	4
Quality	1	5	2.71	1.57	2
Precision	1	5	3.74	1.30	4
VIQI total score	7	20	13.88	4.42	14
GQS	1	5	2.81	1.35	3

There was no statistically significant difference between the low and high content video groups in terms of the number of views, the day since upload, and the number of dislikes (P >.05). There was no statistically significant difference between the low and high content video groups in terms of viewing rate and interaction index (P >.05). Video durations of videos with high content were statistically significantly longer than lowcontent videos (P :.001; P <.05). The number of comments with high content was statistically significantly higher than videos with low content (P :.014; P <.05). The number of likes of high content group was statistically significantly higher than low content group (P :.035; P <.05). Flow and accuracy of information, content quality and total VIQI scores of high content videos were statistically significantly higher than low content videos (P :.001; P <.05). GQS scores of high content videos were statistically significantly higher than low content videos (P :.001; P<.05).

Table 4. Distrubition of Youtube™ videos source of upload, target audience, video contents

		n	%
Source of Upload	Healthcare professionals	31	44.9
	Hospital/university	17	24.6
	Commercial	6	8.7
	Layperson	1	1.4
	Other	14	20.3
Target audience	Professional	28	40.6
	Layperson	17	24.6
	Both	24	34.8
Total Content Score	Low content (0-6)	44	63.8
	High content (7-13)	25	36.2
Video Contents	Definition of Inlay-Onlay-Overlay	62	89.9
	Indications	48	69.6
	Contraindications	21	30.4
	Procedures involved	57	82.6
	Advantages	46	66.7
	Complications/Disadvantages	22	31.9
	Prognosis and Survival	32	46.4
	Post-operative sensitivity	7	10.1
	Abrasion resistance/Fracture resistance	22	31.9
	Stain resistant	9	13.0
	Aesthetic satisfaction	36	52.2
	Cost satisfaction	22	31.9
	Plaque involvement	12	17.4
	Chewing performance	18	26.1
	Application time	36	52.2

DISCUSSION

The aim of this study was to evaluate the accuracy and quality of video contents related to inlay-onlay-overlay on the YouTube™ video platform. With easy and free access to many videos, YouTube™ has become a powerful resource for learning about dentistry.[19] Partial indirect restorations have gained popularity and become the focus of attention of both patients and clinicians, due to their conservative approach and highly aesthetic results, along with the developments in adhesive systems.[24] For this reason, especially the patients' need for additional information and research curiosity about such treatments encourage individuals to seek information from their physicians as well as directs to internet use. Moreover, no study has been found that analyzes the content quality of the information presented in YouTube™ videos related to inlay-onlay-overlay restorations. Video shared information exchange has grown rapidly and has become an important source of information today.[25] Although it is undeniable that social media, including YouTube™, on patients, students and healthcare professionals who use social media for education and access to information, these tools also bring with them various risks such as lack of accurate information and uncontrolled dissemination[26]; For this

Table 5. Comparison of variables Low-Content and Moderate+High Content videos

	Low Content			High Content			
Variables	Min	Max	Mean±SD (median)	Min	Max	Mean±SD (median)	*P*
Video characteristics							
Number of views	11	405302	23571.8±70769.35 (1702)	22	121678	25315.48±34592.88 (8469)	.099
Duration in minutes	0.22	29	3.63±5.49 (1.3)	0.23	98	20.77±20.75 (15.5)	.001*
Days since upload	70	4383	1494.82±1169.1 (1209.5)	185	4568	1417.44±1062.12 (1220)	.930
Number of comments	0	59	4.55±11.53 (0)	0	98	19.44±32.1 (2)	.014*
Number of likes	0	1300	117.07±252.55 (17.5)	0	1300	318.88±444.81 (54)	.035*
Number of dislikes	0	0	0±0 (0)	0	0	0±0 (0)	1.000
Viewing rate	2.69	11778.61	1146.23±2520.09 (213.4)	1.8	7383.37	1555.51±2148.39 (364.3)	.074
Interaction Index	0	1362.58	48.97±213.59 (1.2)	0	4.79	1.68±1.51 (1.5)	.680
VIQI content assessment							
Flow of information	1	5	2.84±1.08 (3)	2	5	4.64±0.76 (5)	.001*
Information accuracy	2	5	3.55±0.93 (3)	2	5	4.76±0.66 (5)	.001*
Quality	1	5	2.14±1.3 (2)	1	5	3.72±1.51 (4)	.001*
Precision	1	5	3.14±1.13 (3)	1	5	4.8±0.82 (5)	.001*
VIQI total score	7	20	11.59±3.35 (11)	7	20	17.92±2.93 (19)	.001*
GQS	1	4	2±0.78 (2)	1	5	4.24±0.88 (4)	.001*

Mann Whitney U Test* P <.05

reason, in order to increase the content quality of YouTube™ videos, especially those related to the field of health, video sources must be checked and the information in the video content must be evaluated by health professionals in terms of currency, accuracy and quality.[16,27]

Additionally, quality of the information in the content of YouTube™ videos is questionable, as it is difficult to standardize the content of uploaded videos.[28] This study supports the results. There were many videos on inlay-onlay-overlay procedures, but the proportion of videos with high content (n = 25) was low; and most of the uploaded videos were low content videos (n= 44) (Table 6).

Table 6. Comparison of variables Low-Content and Moderate+High Content videos

		Low Content (n=44)	High content (n=25)	
		n (%)	n (%)	*P*
Source of Upload	Healthcare professionals	18 (40.9)	13 (52)	[1].743
	Hospital/university	10 (22.7)	7 (28)	
	Commercial	5 (11.4)	1 (4)	
	Layperson	1 (2.3)	0 (0)	
	Other	10 (22.7)	4 (16)	
Target audience	Professional	11 (25)	17 (68)	[2].001*
	Layperson	16 (36.4)	1 (4)	
	Both	17 (38.6)	7 (28)	
Video Contents	Definition of Inlay-Onlay-Overlay	37 (84.1)	25 (100)	[3].043*
	Indications	24 (54.5)	24 (96)	[4].001*
	Contraindications	2 (4.5)	19 (76)	[4].001*
	Procedures involved	33 (75)	24 (96)	[3].025*
	Advantages	22 (50)	24 (96)	[4].001*
	Complications/Disadvantages	4 (9.1)	18 (72)	[4].001*
	Prognosis and Survival	11 (25)	21 (84)	[4].001*
	Post-operative sensitivity	1 (2.3)	6 (24)	[3].008*
	Abrasion resistance/ Fracture resistance	3 (6.8)	19 (76)	[4].001*
	Stain resistant	0 (0)	9 (36)	[3].001*
	Aesthetic satisfaction	12 (27.3)	24 (96)	[4].001*
	Cost satisfaction	8 (18.2)	14 (56)	[4].003*
	Plaque involvement	2 (4.5)	10 (40)	[3].001*
	Chewing performance	5 (11.4)	13 (52)	[4].001*
	Application time	14 (31.8)	22 (88)	[4].001*

[1]Fisher Freeman Halton Exact Test [2]Ki-kare test [3]Fisher's Exact test [4]Continuity (yates)
*P <.05

In many studies evaluating YouTube™ content, it was found that the content quality was low, similar to this study. In their study on dental implants by Abukaraky et al.[9], it was shown that 114 videos mostly had poor content. In a study evaluating the content quality of YouTube™ videos uploaded by patients undergoing dental implant treatment, it was observed that the majority of the videos were incomplete and incorrect in information.[30] In the current study, no sharing of patient experience was found as a video source.

In a study conducted among medical doctors, it was observed that 85% of the participants encountered at least once a patient who came with information obtained from the internet, and 75% found it useful. They also believe that incorrect and incomplete information will harm the quality of the treatment they receive, the effective use of time, and the patient-physician relationship.[31] This research was found to be important in terms of showing the importance of the quality of information in the field of health on the social media.

Due to the increase in internet usage and ease of access and application, YouTube™ has become an open platform where anyone can upload videos. In this study, most of videos (44.9%, n= 31) on inlay-onlay-overlay were uploaded by healthcare professionals (specialist, dentists), however, there was no statistically significant difference between the low and high content video groups in terms of uploaded resources (P >.05). The rate of targeting professionals in high content videos (68%) was statistically significantly higher than low-content videos, which indicated that the majority of the uploaded high-content videos were directed toward healthcare professionals. According to a study that investigated the quality of information regarding burning mouth syndrome in YouTube™ videos, these videos reported that they had low video content and quality, were generally aimed at patients and the layperson, but not dentists and specialists.[32]

In a study evaluating YouTube™ as a source of information on digital dentistry, it was observed that 44.44% of the analyzed videos had medium content quality, while 37.03% had poor content quality. It was reported that the majority of the videos (38.88%) were uploaded by dentists, but although the reporter was a dentist in 75.90% of them, 57.40% of the videos had poor content, receiving 2 points on the GQS.[33]

Definition of inlay-onlay-overlay, procedures involved and advantages was most frequently mentioned subject in all the videos reviewed. The content quality of high content videos was statistically significantly higher than low-content videos (P <.05) (Table 6). In addition, low-content videos did not discuss stain resistant. This provides necessary information and guidance to both patients and healthcare professionals interested in partial indirect restorations.

Table 7. Correlations between Total Content Score, VIQI, GQS and YouTube demographics

		Total Content Score	VIQI	GQS
Total Content Score	r	1.000		
	P	.		
VIQI	r	**0.741**	1.000	
	P	**.001***	.	
GQS	r	**0.888**	**0.875**	1.000
	P	**.001***	**.001***	.
Number of views	r	0.075	**0.349**	0.230
	P	.540	**.003***	.058
Duration in minutes	r	**0.560**	**0.597**	**0.614**
	P	**.001***	**.001***	**.001***
Days since upload	r	-0.016	0.061	0.016
	P	.897	.617	.899
Number of comments	r	**0.336**	**0.469**	**0.372**
	P	**.005***	**.001***	**.002***
Number of likes	r	0.139	**0.399**	**0.295**
	P	.255	**.001***	**.014***
Viewing rate	r	0.070	**0.358**	0.227
	P	.569	**.003***	.061
Interaction Index	r	-0.040	-0.011	0.023
	P	.746	.926	.854

Spearman's Rho Correlations*P <.05

Table 8. Comparison of scores according to source of upload and target audience

		Total Score	VIQI	GQS
		Mean±SD (median) (Min-Max)	Mean±SD (median) (Min-Max)	Mean±SD (median) (Min-Max)
Source of Upload	Healthcare professionals	7.13±4.22 (8) (0-13)	15±4.31 (16) (7-20)	3.03±1.35 (3) (1-5)
	Hospital/ university	6.76±3.96 (7) (1-13)	13.35±5.07 (13) (7-20)	2.71±1.49 (2) (1-5)
	Commercial	5±4.29 (3.5) (2-13)	13.67±3.39 (13) (11-20)	2.67±1.37 (2.5) (1-5)
	Other	5.29±4.25 (4.5) (1-12)	12.5±3.98 (11) (8-20)	2.57±1.28 (2) (1-5)
	[1]*P*	.458	.329	.692
Target audience	Professional	8.18±4.58 (10) (1-13)	16.61±3.96 (18) (7-20)	3.5±1.45 (4) (1-5)
	Layperson	4.88±2.83 (6) (1-9)	10.24±2.88 (10) (7-17)	1.82±0.73 (2) (1-3)
	Both	5.63±3.75 (5) (0-13)	13.29±3.78 (13.5) (7-20)	2.71±1.12 (2.5) (1-5)
	[2]*P*	.021*	.001*	.001*

[1]Mann Whitney U Test [2]Kruskal Wallis Test
Source of Upload Layperson (n=1), is not included in the comparison.

The results of most studies conducted in the field of dentistry agree that YouTube™ videos are scientifically inaccurate and often contain incomplete and/or incorrect health-related information.[10,11,28,32-34] This result is similar to the present study. Contrary to the results of this study, studies where videos about dental practices on the YouTube™ video platform were evaluated, it was reported that the videos had high information content.[35-36]

A systematic review reported that YouTube™ contains misleading, mostly anecdotal information that conflicts with reference standards.[37] All VIQI and GQS evaluation criteria were scored higher in the high-content video group than in the low-content video group (Table 6). Contrary the results of this study, Lena et al.[10] reported that there was no difference in terms of total VIQI score between high and low content video groups. This study results were different from their study because there were many low-content videos (n = 44) in this study.

This study showed a strong positive correlation between total content score and VIQI (r = 0.741, *P* <.05), GQS (r = 0.888, *P* <.05) (Table 6). The results obtained from the study are similar to the results of the study by Aydin et al.[38], in which videos on the YouTube™ video platform about removable orthodontic appliances were evaluated. There was no statistically significant relationship between total content score and viewing rate, interaction index (*P* >.05). In this study, it was determined that videos with good quality information content received more likes and comments. In addition, there was a statistically significant positive correlation between VIQI and GQS, video duration, number of view, number of comments, number of likes (Table 7). There was no statistically significant relationship between VIQI and interaction index (*P* >.05). This study results are similar to those of Paksoy et al.[16] In their study, there was a positive correlation between VIQI and total content score and there was a positive relationship between total content score and the variables of duration in minutes, VIQI, number of comments, number of likes and number of dislikes. Contrary to the results of this study, there was a positive relationship with the interaction index. The results of many studies have shown that videos with good quality information content have a longer duration, higher viewing rate and GQS index.[39-43] Additionally, Ustdal et al.[44] reported a significant positive relationship between GQS score and quality information score.

This study had several limitations. There was no validated evaluation tool that rated video-based resources.[33] In addition, study results may vary depending on the search words used to find the YouTube™ video. In other words, different results may occur when different search terms are used. In this study, the search was made using only a single data to avoid confusion.

Search term, “inlay-onlay-overlay”; It is thought to be the search term that the average person would most likely use when searching on the topic. Secondly, YouTube™ is a dynamic platform and its content changes over time.

CONCLUSION

Although social media provides a great advantage in terms of reaching a large population, it can also easily cause false information to spread with the same method. Operational videos of inlay-onlay and overlay restorations method should be uploaded to YouTube™ after approval by experts. Considering that the YouTube™ platform plays an important role in patients' treatment preferences, it is thought that it will be useful for informing specialist physicians about treatment. It is very critical that dentists, public health institutions or academics provide unbiased and realistic information on this platform.

Etik Komite Onayı: Bu çalışma gözlemsel bir çalışma olduğundan ve yalnızca kamuya açık erişim verilerinin kullanılmasını içerdiğinden etik kurul onayına gerek yoktur.
Hasta Onamı: Mevcut çalışma yalnızca kamuya açık erişim verilerinin kullanılmasını içerdiğinden ve gözlemsel bir çalışma olduğundan bilgilendirilmiş gönüllü onam onayına gerek yoktur.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir– H.Y.I., K.C.I.; Tasarım – H.Y.I., K.C.I.; Denetim – H.Y.I., K.C.I.; Kaynaklar- H.Y.I., K.C.I.; Malzemeler – H.Y.I., K.C.I.; Toplama ve/veya İşleme – H.Y.I., K.C.I.; Analiz ve/veya Yorum – H.Y.I., K.C.I.; Literatür Taraması – H.Y.I., K.C.I.; Yazma – H.Y.I., K.C.I.; Eleştirel İnceleme – H.Y.I., K.C.I.;
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REFERENCES

1. Naik V, Jain A, Rao R, Naik B. Comparative evaluation of clinical performance of ceramic and resin inlays, onlays, and overlays: A systematic review and meta analysis. *J Cons Dent*. 2022;25(4):347-355. doi:10.4103/jcd.jcd_184_22
2. Veneziani M. Posterior indirect adhesive restorations: updated indications and the Morphology Driven Preparation Technique. *Int J Esthet Dent*. 2017;12(2):204-230.
3. Guess PC, Guess PC, Strub JR, et al. All-ceramic partial coverage restorations--midterm results of a 5-year prospective clinical splitmouth study. *J Dent*2009;37(8):627-637.
4. Yamanel K, Caglar A, Gülsahi K, et al. Effects of different ceramic and composite materials on stress distribution in inlay and onlay cavities: 3-D finite element analysis. *Dent Mater J.* 2009;28:661–670.
5. Donly KJ, Jensen ME, Triolo P, Chan D. A clinical comparison of resin composite inlay and onlay posterior restorations and cast-gold restorations at 7 years. *Quint Int*. 1999;30(3):163-168. https://pubmed.ncbi.nlm.nih.gov/10356568/
6. Leirskar J, Henaug T, Thoresen NR, Nordbø H, von der Fehr FR. Clinical performance of indirect composite resin inlays/onlays in a dental school: observations up to 34 months. *Acta Odontol Scand*. 1999;57(4):216-220. doi:10.1080/000163599428805
7. Wong K, Doong J, Trang T, Joo S, Chien AL. YouTube Videos on Botulinum Toxin A for Wrinkles: A Useful Resource for Patient Education. *Dermatol Surg.* 2017;43(12):1466-1473.

8. Seramik İnley ve Onleylerle İlgili YouTube™ Videolarının İçerik Analizi. *Mersin Üniv Tıp Fak Lokman Hek Derg*. 2023;13(2):399-407. doi:10.31020/mutftd.1212805
9. Abukaraky A, Hamdan AA, Ameera MN, Nasief M, Hassona Y. Quality of YouTube TM videos on dental implants. *Medicina Oral Patologia Oral Y Cirugia Bucal.* 2018;23(4):13. doi:10.4317/MEDORAL.22447
10. Lena Y, Dindaroğlu F. Lingual orthodontic treatment: A YouTube™ video analysis. Angle Orthod. 2017;88(2):208-214. doi:10.2319/090717-602.1
11. Jockusch J, Özcan M. Additive manufacturing of dental polymers: An overview on processes, materials and applications. *Dent Mate J*. 2020;39(3):345-354. doi:10.4012/DMJ.2019-123
12. Arslan B, Nalbant L, Nalbant AD, Nadirov M. Üç Boyutlu yazıcıların dental kullanımında güncel protetik yaklaşımlar. *Atatürk Üniv Diş Hek Derg.* 2021; 31(3): 459-470.
13. Chabouis HF, Chabouis HF, Faugeron VS, Attal JP. Clinical efficacy of composite versus ceramic inlays and onlays: a systematic review. *Dent Mater*. 2013;29(12):1209-1218.
14. Sampaio FBWR, Özcan M, Gimenez T, Moreira MS, Tedesco TK, Morimoto S. Effects of manufacturing methods on the survival rate of ceramic and indirect composite restorations: A systematic review and meta-analysis. *J Esth Res Dent.* 2019;31(6):561-571.
15. Hegarty E, Campbell C, Grammatopoulos E, DiBiase AT, Sherriff M, Cobourne MT. YouTube™ as an information resource for orthognathic surgery. *J Orthod.* 2017;44(2):90-96.
16. Paksoy T, Gaş S. Quality and Content of YouTubeTM Videos Related to Sinus Lift Surgery. *J Oral Maxillofac Surg, Med Pathol*. 2021;33(1):48-52. doi:10.1016/J.AJOMS.2020.08.015
17. Is YouTube an adequate patient resource about orthodontic retention? A cross-sectional analysis of content and quality. *Am J Orthod Dentofac Orthoped*. 2022;161(1):e72-e79.
18. Yildirim G, Kocaelli HA. Assessment of the content and quality of YouTube videos related zygomatic implants: A content-quality analysis. *Clin Implant Dent Relat Res*. 2023;25(3): 605-612.
19. Hatipoglu S, Gaş S. Is Information for surgically assisted rapid palatal expansion available on YouTube reliable. *J Oral Maxillofac Surg*. 2020;78(6). doi:10.1016/J.JOMS.2020.01.013
20. Hassona Y, Taimeh D, Marahleh A, Scully C. YouTube as a source of information on mouth (oral) cancer. *Oral Diseas*. 2016;22(3):202-208. doi:10.1111/ODI.12434
21. Moon H, Lee GH. Evaluation of Korean-Language COVID-19-Related Medical Information on YouTube: Cross-Sectional Infodemiology Study. *J Medical Int Res.* 2020;22(8). doi:10.2196/20775
22. Kocyigit BF, Akyol A. YouTube as a source of information on COVID-19 vaccination in rheumatic diseases. *Rheumatol Int*. 2021; 41(12): 2109-2115. doi:10.1007/S00296-021-05010-2
23. Yüce MÖ, Adalı E, Kanmaz B. An analysis of YouTube videos as educational resources for dental practitioners to prevent the spread of COVID-19. *Irish J Med Sci.* 2021;190(1):19-26.
24. Morimoto S, Rebello de Sampaio FBW, Braga MM, Sesma N, Özcan M. Survival Rate of Resin and Ceramic Inlays, Onlays, and Overlays: A Systematic Review and Meta-analysis. *J Dent Res.* 2016;95(9):985-994. doi:10.1177/0022034516652848
25. Starman JS, Gettys FK, Capo JA, Fleischli JE, Norton HJ, Karunakar MA. Quality and content of Internet-based information for ten common orthopaedic sports medicine diagnoses. *J Bone Joint Surg, Am*. 2010;92(7):1612-1618. doi:10.2106/JBJS.I.00821
26. Ventola CL. Social media and health care professionals: benefits, risks, and best practices. *P T.* 2014; 39(7): 491-499, 520.
27. Chen H ming, Hu Z, Zheng X, et al. Effectiveness of YouTube as a source of medical ınformation on heart transplantation. *Interact J Med Res. 2013; 21(2); e28. doi: 10.2196/ijmr.2669.*
28. Nason GJ, Kelly P, Kelly ME, et al. YouTube as an educational tool regarding male urethral catheterization. Scandinavian *J Urology Nephrology.* 2015;49(2):189-192.
29. Ho A, McGrath C, Mattheos N. Social media patient testimonials in implant dentistry: information or misinformation? *Clin Oral Imp Res*. 2017;28(7):791-800. doi:10.1111/CLR.12883
30. Murray E, Lo B, Pollack LM, et al. The ımpact of health ınformation on the ınternet on health care and the physician-patient relationship: National U.S. Survey among 1.050 U.S. Physicians. *J Medical Int Res.* 2003;5(3). doi:10.2196/JMIR.5.3.E17
31. Fortuna G, Schiavo J, Aria M, Mignogna MD, Klassen GD. The usefulness of YouTube™ videos as a source of information on burning mouth syndrome. *J Oral Rehabil.* 2019;46(7):657-665. doi:10.1111/JOOR.12796
32. Aslan O. Mitral Valv Prolabsusu hakkında sağlık bilgi kaynağı olarak youtube kullanımının değerlendirilmesi. *Soc Sci Stud J (Sssjournal).* 2023;114(114):8181-8186.
33. Ajumobi A, Malakouti M, Bullen A, Ahaneku H, Lunsford T. YouTube™ as a source of ınstructional videos on bowel preparation: a content analysis. *J Cancer Educ.* 2016;31(4):755-759.
34. Yavuz MC, Buyuk SK, Genc E. Does YouTube™ offer high quality information? Evaluation of accelerated orthodontics videos. *Irish J Med Sci.* 2020;189(2):505-509. doi:10.1007/S11845-019-02119-Z
35. Gaş S, Özdal Zincir Ö, Pasaoglu Bozkurt A. Are YouTube videos useful for patients ınterested in botulinum toxin for bruxism. *J Oral Maxillofac Surg.* 2019;77(9):1776-1783.
36. Madathil KC, Rivera-Rodriguez AJ, Greenstein JS, Gramopadhye AK. Healthcare information on YouTube: A systematic review. *Health Infor J.* 2015;21(3):173-194. doi:10.1177/1460458213512220
37. Yilmaz H, Aydin MN. YouTube™ video content analysis on space maintainers. *J Indian Soc Pedodont Preventiv Dent.* 2020;38(1):34-40. doi:10.4103/JISPPD.JISPPD_215_19
38. ElKarmi R, Hassona Y, Taimeh D, Scully C. YouTube as a source for parents' education on early childhood caries. Int *J Paediatr Dent*. 2017;27(6):437-443. doi:10.1111/IPD.12277
39. 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 Commun Health.* 1999;53(2):105-111. doi:10.1136/JECH.53.2.105
40. Öztürk G. Çocuklarda genel anestezi altında uygulanan diş tedavileri ile ilgili YouTube™ videolarının içerik analizi. *Selcuk Dent J.* 2021;8: 140–147.
41. Korkmaz YN, Buyuk SK. YouTube as a patient-ınformation source for cleft lip and palate. *Craniofac J.* 2020; 57(3): 327-332 doi:10.1177/1055665619866349
42. Atilla AO. Maksiller ekspansiyon için bilgi kaynağı olarak youtube'un video analizi ile değerlendirilmesi. *Selcuk Dent J*. 2020;7: 494–499.
43. Simsek H. (2020). YouTube™ as a source of information on oral habits. *J Indian Soc Pedod Prev Dent.* 2020;38(2): 115–118.
44. Ustdal G, Guney AU. YouTube as a source of information about orthodontic clear aligners. *Angle Orthod.* 2020;90(3): 419–424. https://doi.org/10.2319/072419-491.1