ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE
Journal of Advanced Research in Health Sciences /
Sağlık Bilimlerinde İleri Araştırmalar Dergisi 2022
DOI: 10.26650/JARHS2022-1163393

YOUTUBE AS A SOURCE OF INFORMATION ON PORCELAIN LAMINATE VENEERS

PORSELEN LAMİNAT KAPLAMA HAKKINDA BİLGİ KAYNAĞI OLARAK YOUTUBE

Pınar NAİBOĞLU[1], Sevde GÖKSEL[2], Gül AYKANAT[3]

[1]Giresun University, Faculty of Dentistry, Department of Restorative Dentistry, Giresun, Turkiye
[2]Private Practice, Ankara, Turkiye
[3]Biruni University, Faculty of Dentistry, Department of Prosthetic Dentistry, Istanbul, Turkiye

ORCID ID: P.N. 0000-0001-7440-0320; S.G. 0000-0003-0092-7079; G.A. 0000-0002-9801-9871

Citation/Atıf: Naiboglu P, Goksel S, Aykanat G. YouTube as a source of information on porcelain laminate veneers. Journal of Advanced Research in Health Sciences 2022;5(3):147-152. https://doi.org/10.26650/JARHS2022-1163393

ABSTRACT

Objective of work: This study aimed to evaluate the content and usefulness of YouTube videos on porcelain laminate veneers.
Materials and Methods: The keyword porcelain laminate veneer was searched on YouTube. The first 200 videos were scanned. After exclusions, 79 videos were assessed for the content presented in 8 topic titles for porcelain laminate veneers. Videos were classified as poor (0), moderate (1), and excellent (2) based on the usefulness score. A general video assessment included length of the video, number of views, comments, likes, dislikes, and days since upload was completed. Videos were categorized according to their type: educational, patient's experience, and scientifically erroneous. The source of the uploaded videos was classified into three groups: professionals (dentist, specialist), health companies, and individual users. Data were analyzed with the Kruskal-Wallis, Post hoc-Dunn, and chi-square tests ($p < .05$).
Results: The average usefulness score was 0.544. It was found that the length of the video and the number of comments were significantly higher in the excellent videos than in poor videos (p=.030 and p=.019, respectively). There was no significant difference between the usefulness score and the source of upload (p=.426) or the type of video (p=.819). The most discussed topic title was *procedures of porcelain laminate veneer* (32.86%), while the least discussed topic title was *contraindications* (3.81%).
Conclusion: YouTube appears to be an incomplete source of information about porcelain laminate veneers for patients.
Keywords: Dental laminate; dental porcelain; dental veneers; information resources

ÖZ

Amaç: Porselen laminate veneer üzerine YouTube videolarının içeriğini ve yararlılığını değerlendirmek.
Gereç ve Yöntemler: YouTube'da "porselen laminate veneer" anahtar kelimesi arandı. İlk 200 video tarandı. Hariç tutulanlardan sonra, 79 video, içeriğin yararlılığı açısından iki araştırmacı tarafından analiz edildi. Videolarda, porselen laminate veneer 8 konu başlığında değerlendirildi. Videolar, yararlılık puanına göre zayıf (0), orta (1) ve mükemmel (2) olarak sınıflandırıldı. Genel video değerlendirmesi, videonun uzunluğunu, görüntüleme yorum, beğenme, beğenmeme ve yüklemeden bu yana geçen gün sayılarını içeriyordu. Videolar türlerine göre eğitici, hasta deneyimi ve bilimsel olarak hatalı olarak kategorilere ayrıldı. Videolar yüklenme kaynaklarına göre profesyoneller (diş hekimi, uzman), sağlık şirketleri ve bireysel kullanıcılar olarak üç gruba ayrıldı. Veriler Kruskal-Wallis testi, Posthoc-Dunn testi ve ki-kare testi ile analiz edildi (p<0,05).
Bulgular: Ortalama yararlılık puanı 0,544'idi. Mükemmel yararlılık puanına sahip videolarda video uzunluğunun ve yorum sayısının zayıf yararlılık puanına sahip videolara göre anlamlı derecede yüksek olduğu bulundu (sırasıyla p=0,030 ve p=0,019). Yararlılık puanı ile yükleme kaynağı (p= 0,426), video türü (p=0,819) arasında anlamlı bir fark yoktu. En çok tartışılan konu başlığı porselen laminate veneer prosedürleriydi (%32,86). En az tartışılan konu başlığı ise kontrendikasyonlar oldu (%3,81).
Sonuç: YouTube, porselen laminate veneer hakkında hastalar için yetersiz bir bilgi kaynağı olarak görünmektedir.

Anahtar Kelimeler: Dental laminate; diş porseleni; diş kaplamaları; bilgi kaynakları

Corresponding Author/Sorumlu Yazar: Sevde GÖKSEL **E-mail:** dt.sevde@gmail.com

Submitted/Başvuru: 17.08.2022 • **Revision Requested/Revizyon Talebi:** 18.08.2022 • **Last Revision Received/Son Revizyon:** 01.09.2022 • **Accepted/Kabul:** 02.09.2022 • **Published Online/Online Yayın:** 05.10.2022

INTRODUCTION

Porcelain laminate veneers are used to restore anterior teeth that are colored, worn, fractured, malformed, and misaligned using dental adhesive and resin cement (1, 2). Due to their biocompatibility, durability, and aesthetic appeal, they are used to treat anterior teeth as a standard procedure (3). The proper planning, selection of the appropriate preparation technique, ceramic, cement, and appropriate finishing and continuing maintenance of restorations are essential for the success of porcelain laminate veneers (4). Porcelain laminate veneers differ from other dental restorations in dentistry. They are generally preferred for esthetic purposes. Since patients can be demanding in their esthetic requirements, patients need to be aware of what treatment they will receive (5).

Recently there has been an enormous increase in internet usage by the public due to the ease of access to the internet, the desire of patients to learn more about their medical conditions, and the fact that it is cheap, as opposed to professional healthcare consultation (6). YouTube was established in 2005. It is the most popular online video sharing platform, consisting of a broad network that allows viewers to watch videos, download them for free, comment, like and upload them (7-9).

In recent years, YouTube has been used widely by patients who want to learn medical information about their conditions (10). However, it was concluded in a systematic review that YouTube contains misleading information that contradicts reference guidelines (7). Therefore, it is essential to evaluate the integrity and quality of the obtained information from YouTube videos. As medical and dental professionals realize that patients are progressively using YouTube to search for information about treatment, many studies have been investigated for the accuracy and the content of YouTube videos (6, 8, 11-20). The objective of this study was to assess the content and usefulness of YouTube videos on porcelain laminate veneers. The research hypothesis was that YouTube videos on porcelain laminate veneers contain incomplete information.

MATERIALS AND METHODS

This was a cross-sectional evaluation of YouTube videos on porcelain laminate veneers. YouTube was searched (www.youtube.com) using the ''porcelain laminate veneer'' search term on November 18, 2020. ''Sort by relevance'' was used as a search filter. Cookies and previous search results were deleted from the browser (Google Chrome) to avoid changing the order of the videos. The first 200 videos were watched by two researchers (PN, SG) in the study, as it was reported that most of the studies using YouTube as a search engine had used 60-200 videos (6, 10).

All videos were recorded on the watch list to avoid any duplication. The study did not include composite laminate or crown restoration videos, irrelevant videos, videos with no sound or heading, lectures or conferences, non-English language videos, advertisements, and duplicate videos. There was no restriction on the length of the video. This study included English-language videos related to porcelain laminate veneers having acceptable quality.

The following criteria were determined for all videos: the number of views, the number of ''likes'' and ''dislikes'', the length of the video, the number of comments, country of origin, the source of upload, and days since upload. Viewers' interaction with videos was calculated using the formula of interaction index [(number of likes-number of dislikes / total number of views) x 100%] and the viewing rate (number of views/number of days since upload x 100%) (6). The videos were categorized according to their type: educational, patient's experience, and scientifically erroneous. The upload source was classified into three groups: professionals (dentist, specialist), health companies, and individual users.

This study evaluated videos for the content presented in the following eight topic titles for porcelain laminate veneers: definition, indications, contraindications, advantages, procedures involved, complications, prognosis and survival, cost (12). Researchers were blinded to each other's answers. If a topic title was mentioned in the video, 1 point was given; if it was not mentioned, 0 points were given. A total of 0–2 points indicated the content of a poor video with a lack of information where most topics were not discussed, and topics were not beneficial for patients. A total of 3–5 points indicated a moderate video content with moderate quality; some issues were discussed well and were somewhat helpful for patients. A total of 6–8 points stated excellent video content with excellent quality; almost all topics were discussed and were highly beneficial for patients.

In addition, usefulness scores for all videos were determined as poor, moderate, and excellent, according to the presence of flow and quality of the content.

- a poor score (0): poor quality, insufficient information
- a moderate score (1): moderate quality, satisfactory information
- an excellent score (2): excellent quality, accurate, and highly useful information.

Any disagreements were solved with consensus. Ethical approval was not required for this study as publicly available data was used.

SigmaPlot 12.5 software (Systat Software Inc, San José, CA, USA) was used for statistical analysis. Data were tested for normality using the Shapiro-Wilk test. The Kruskal-Wallis test was used to evaluate nonparametric data. The Post hoc-Dunn test was used to evaluate the differences. The chi-square test evaluated differences in categorical variables. Correlations were determined using the Spearman correlation test. $p < .05$ was considered significant. The agreement of the researchers on usefulness was evaluated using the kappa score.

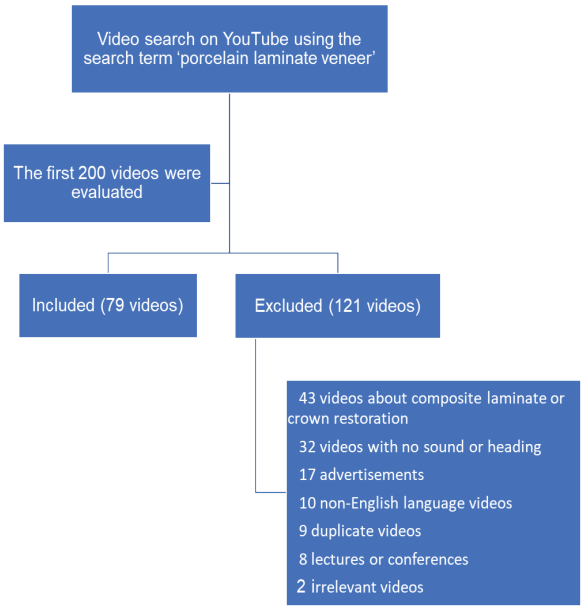

Figure 1: Flowchart

RESULTS

Of the first 200 videos screened, 121 were excluded (Figure 1). The remaining 79 videos were classified by source of upload: professionals (dentist, specialist) (78.48%, n=62), health companies (11.39%, n=9), individual users (10.13%, n=8). Videos were categorized according to type of video: educational (n=71), patient experience (n=7), scientifically erroneous (n=1). The USA uploaded most of the videos (58.23%, n=46), while India, Britain, Turkiye, Canada, Australia, Israel, Egypt, Hungary, Germany, Cambodia, and Mexico uploaded the other videos. The descriptive statistics of the video demographic data are shown in Table 1.

The mean viewing rate was 1.22 and the mean interaction index was 1.28. The usefulness score average was 0.544. Of the selected videos, 53.16% were classified as poor (42/79), 39.24% were classified as moderate (31/79), 7.60% were classified as excellent (6/79). The procedures of porcelain laminate veneers (32.86%, n=69), advantages (18.57%, n=39), indications (16.67%, n=35), definition (9.05%, n=19), prognosis and survival (7.62%, n=16), complications (5.71%, n=12), cost (5.71%, n=12) and contraindications (3.81%, n=8) were discussed in the videos.

The comparison of the video demographic data based on the usefulness score is given in Table 2. It was found that the length of the video and the number of comments were statistically significantly higher in the excellent videos than poor videos (p=.030 and p=.019, respectively). However, it was found that the length of the video and the number of comments were not significantly different between excellent and moderate videos (p=.474 and p=.331, respectively) and moderate and poor videos (p=.107 and p=.064, respectively). No significant differences were found between the usefulness score and other demographic data.

There was a significant difference between the upload source and the video type (p < .001). There was no significant difference between the usefulness score and the type of video (p=.819). Of the educational videos, 57.75% were categorized as poor, 30.98% as moderate, and 11.27% as excellent. Of the patient's experience videos, 57.14% were moderate, and 42.86% were poor. Only one video was scientifically erroneous. The Spearman correlation test showed a significant correlation between the length of the video the number of views, likes, and comments (p < .001).

Table 1: Descriptive statistics of the video demographic data

	Mean	SD	Minimum	Maximum
Views	135,277.62	394,726.64	19	3,057,390
Likes	722.75	1870.62	0	13,000
Dislikes	85.11	408.42	0	3600
Comments	69.48	192.78	0	1372
Length of video (minute)	8.38	8.6	0.42	36.31
Days since upload	1589.27	1113.44	21	4723
Viewing rate	1.22	4.19	0	34.16
Interaction index	1.28	2.35	-0.25	15.79

SD=standard deviation.

A comparison of the video demographic data based on the source of uploads is shown in Table 3. There were no significant differences between video demographic data based on the upload source. The weighted kappa score for the interobserver agreement was 0.909.

DISCUSSION

This study proposed to evaluate the content and usefulness of YouTube videos on porcelain laminate veneers. The research hypothesis was accepted because the content and usefulness of YouTube videos were generally incomplete.

YouTube has numerous health-related videos accessible to anyone with access to the internet (14). Since many written sources are at a much higher reading level than that considered appropriate for patient education, patients may access health-related information using the right resources on YouTube (15). However, as with some websites, content on YouTube is not peer-reviewed and it is often difficult to validate the source or the reliability of the information provided (7, 11).

The content and quality of health-related YouTube videos have been investigated in many studies. There is no consensus among the studies. In some studies, YouTube has been reported as a reliable source, while in others, the information content of videos has been found to be poor (6, 11-14, 16-20). In this study, it was reported that more than half of the videos on porcelain laminate

Table 2: Comparison of the video demograhic data based on usefulness score

Parameters	Poor (n=42)		Moderate (n=31)		Excellent (n=6)		*p*-value
	Mean±SD	Min-Max	Mean±SD	Min-Max	Mean±SD	Min-Max	
Views	99,949±215,487.84	19-1,083,382	106,139.94±228,906.93	53-1,108,309	533,122.67±1,236,842.83	380-3,057,390	.479
Likes	417.38±865.42	1-4600	959±2422.38	0-13,000	1639.67±3331.76	21-8400	.257
Dislikes	39.29±75.41	0-338	46.36±92.72	0-395	606.17±1466.7	0-3600	.909
Comments	36.17±98.69	0-502	106.0±269.09	0-1372	113.67±213.29	2-545	.030 .019[a] .331[b] .064[c]
Length of video (minute)	5.99±6.43	0.42-24.49	10.47±10.12	0.45-36.31	14.28±9.24	5.5-28.43	.011 .030[a] .474[b] .107[c]
Days since upload	1672.93±1281.98	21-4723	1599.94±793.88	155-3397	948.5±1236.95	128-3396	.131
Viewing rate	0.76±1.82	0-10.77	0.91±2.09	0-9.93	6.06±13.78	0.02-34.16	.335
Interaction index	1.40±3.02	-0.25-15.79	1.02±1.03	0-5.66	1.74±2.03	0.16-5.53	.256

[a]Excellent and poor; [b]excellent and moderate; [c]moderate and poor. SD = standard deviation; Min = minimum; Max = maximum.

Table 3: Comparison of the video demograhic data based on source of upload

Parameters	Professionals (dentist/specialist) (n =62)		Health companies (n = 9)		Individual users (n = 8)		*p* -value
	Mean±SD	Min-Max	Mean±SD	Min-Max	Mean±SD	Min-Max	
Views	147,022.67±437,282.16	19-3,057.390	149,717.78±218,488.96	382-665,318	28,008.38±25,557.79	40-74,322	.462
Likes	816.09±2091.83	0-13,000	548.11±578.83	8-1500	195.75±207.33	1-476	.387
Dislikes	95.92±460.12	0-3600	59.22±78.80	0-229	30.5±37.63	0-87	.369
Comments	79.53±215.95	0-1372	32.78±35.18	0-89	32.88±46.76	0-132	.858
Length of video (minute)	8.25±8.49	0.42-35.06	13.04±10.89	2.32-36.31	4.07±3.39	1.03-10.26	.066
Days since upload	1515.68±1091.89	21-4302	1895.67±1010.59	182-3400	1814.88±1425.16	665-4723	.456
Viewing rate	1.41±4.70	0-34.16	0.74±0.93	0.02-2.47	0.28±0.38	0-1.11	.619
Interaction index	1.39±2.57	-0.25-15.79	0.69±0.57	0.16-2.09	1.10±1.67	0-5	.652

SD, standard deviation; Min, minimum; Max, maximum.

veneers on YouTube are of poor quality content. The results presented here suggest that the majority of the users searching for information on porcelain laminate veneers on YouTube accessed more poor videos than excellent videos. YouTube contains health-related videos uploaded by different people, ranging from health professionals to laypeople. Also, the lack of system-set standards for the inclusion of health-related topics may explain the high number of low-content videos on medical issues (18).

In this study, it was found that the length of the video and the number of comments were statistically higher in excellent videos than poor videos. Similar to this study, Lena and Dindaroğlu and Menziletoğlu et al. reported that better content videos have higher length and more comments (13, 17). These results can be considered as the viewers' reactions to the variables provided for high-quality videos (13).

Strychowsky et al., Delli et al., and Kumar et al. reported that the videos related to patients' experiences might contain more misleading information (15, 19-20). However, in the study of Menziletoglu et al., there was no significant difference between the upload source and the usefulness score (17). In addition, Gaş et al stated that there was no significant difference between the usefulness score and the type of video, source of upload (12). In our study, video usefulness was not influenced by the type of video or the upload source.

A previous study by Gaş et al., which evaluated botulinum toxin for bruxism, stated that the least discussed topic domains in YouTube videos were contraindications, costs, and complications, respectively (12). The least discussed topic titles regarding porcelain laminate veneers in our study were similar to Gaş et al.' study (12). These results verify the revealed concerns about the use of YouTube videos by patients who want to learn health-related information; YouTube contains misleading information that contradicts reference guidelines, and a user is relatively likely to find such content (7).

This study had some limitations. First, non-English language videos were excluded. Second, different results were listed when different keywords were used. Thirdly, since YouTube has dynamic content, the search results may change at other times and dates. Lastly, some large videos were uploaded to YouTube in sections. Since only specific topics were discussed in these video sections, a lower score was given compared to the videos where each topic was discussed in one. Although there are YouTube studies about porcelain laminate veneers in the literature, there is no study using other social media resources as far as we know. In the literature, there are studies that evaluate other social media channels (Facebook, Twitter, and Instagram) as a source of information on different health-related issues (21). For future studies, it is recommended to evaluate information sources about laminate veneers using other social media platforms.

CONCLUSIONS

Some essential parameters about porcelain laminate veneers were not mentioned in most of the YouTube videos. The content and usefulness of YouTube videos were generally incomplete. Dental care professionals should not forget that YouTube can impact patients and be responsible for developing the content of videos relevant to their field.

Peer Review: Externally peer-reviewed.

Author Contributions: Conception/Design of Study- P.N., S.G.; Data Acquisition- P.N., S.G.; Data Analysis/Interpretation- P.N., S.G.; Drafting Manuscript- P.N., S.G., G.A.; Critical Revision of Manuscript- P.N., S.G., G.A.; Final Approval and Accountability- P.N., S.G.; Material and Technical Support- P.N.; Supervision- P.N.

Conflict of Interest: The authors have no conflict of interest to declare

Financial Disclosure: The authors declared that this study has received no financial support.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Çalışma Konsepti/Tasarım- P.N., S.G.; Veri Toplama- P.N., S.G.; Veri Analizi/Yorumlama- P.N., S.G., G.A.; Yazı Taslağı- P.N., S.G., G.A.; İçeriğin Eleştirel İncelemesi- P.N., S.G., G.A.; Son Onay ve Sorumluluk- P.N., S.G.; Malzeme ve Teknik Destek- P.N.; Süpervizyon P.N.

Çıkar Çatışması: Yazarlar çıkar çatışması beyan etmemişlerdir

Finansal Destek: Yazarlar finansal destek beyan etmemişlerdir.

REFERENCES

1. Peumans M, Van Meerbeek B, Lambrechts P, Vanherle G. Porcelain veneers: a review of the literature. J Dent 2000;28(3):163-77.
2. Akoğlu B, Gemalmaz D. Fracture resistance of ceramic veneers with different preparation designs. J Prosthodont 2011;20(5):380-4.
3. Fradeani M, Redemagni M, Corrado M. Porcelain laminate veneers: 6- to 12-year clinical evaluation--a retrospective study. Int J Periodontics Restorative Dent 2005;25(1):9-17.
4. Calamia JR, Calamia CS. Porcelain laminate veneers: reasons for 25 years of success. Dent Clin North Am 2007;51(2):399-417.
5. Burke FJT. Survival rates for porcelain laminate veneers with special reference to the effect of preparation in dentin: a literature review. J Esthet Restor Dent 2012;24(4):257-65.
6. Hassona Y, Taimeh D, Marahleh A, Scully C. YouTube as a source of information on mouth (oral) cancer. Oral Dis 2016;22(3):202-8.
7. Madathil KC, Rivera-Rodriguez AJ, Greenstein JS, Gramopadhye AK. Healthcare information on YouTube: a systematic review. Health Informatics J 2015;21(3):173-94.
8. Keelan J, Pavri-Garcia V, Tomlinson G, Wilson K. YouTube as a source of information on immunization: a content analysis. JAMA 2007;298(21):2482-4.
9. Dias da Silva MA, Pereira AC, Walmsley AD. Who is providing dental education content via YouTube? Br Dent J 2019;226(6):437-40.
10. Desai T, Shariff A, Dhingra V, Minhas D, Eure M, Kats M. Is content really king? An objective analysis of the public's response to medical videos on YouTube. PLoS One 2013;8(12):e82469. doi: 10.1371/journal.pone.0082469.
11. Steinberg PL, Wason S, Stern JM, Deters L, Kowal B, Seigne J. YouTube as source of prostate cancer information. Urology 2010;75(3):619-22.
12. Gaş S, Zincir ÖÖ, Bozkurt AP. Are YouTube videos useful for patients interested in botulinum toxin for bruxism? J Oral Maxillofac Surg 2019;77(9):1776-83.
13. Lena Y, Dindaroğlu F. Lingual orthodontic treatment: a YouTube video analysis. Angle Orthod 2018;88(2):208-14.
14. Biggs TC, Bird JH, Harries PG, Salib RJ. YouTube as a source of information on rhinosinusitis: the good, the bad and the ugly. J Laryngol Otol 2013;127(8):749-54.
15. Strychowsky JE, Nayan S, Farrokhyar F, MacLean J. YouTube: a good source of information on pediatric tonsillectomy? Int J Pediatr Otorhinolaryngol 2013;77(6):972-5.
16. 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):90-6.
17. Menziletoglu D, Guler AY, Isik BK. Are YouTube videos related to dental implant useful for patient education? J Stomatol Oral Maxillofac Surg 2020;121(6):661-4.
18. Ajumobi AB, Malakouti M, Bullen A, Ahaneku H, Lunsford TN. YouTube™ as a source of instructional videos on bowel preparation: a content analysis. J Cancer Educ 2016;31(4):755-9.
19. Delli K, Livas C, Vissink A, Spijkervet FKL. Is YouTube useful as a source of information for Sjögren's syndrome? Oral Dis 2016;22(3):196-201.

20. Kumar N, Pandey A, Venkatraman A, Garg N. Are video sharing web sites a useful source of information on hypertension? J Am Soc Hypertens 2014;8(7):481-90.
21. Gabarron E, Larbi D, Dorronzoro E, Hasvold PE, Wynn R, Årsand E. Factors engaging users of diabetes social media channels on Facebook, Twitter, and Instagram: observational study. J Med Internet Res, 2020;22(9):e21204. doi: 10.2196/21204.