ORIGINAL ARTICLE

# ARE YOUTUBE™ VIDEOS ABOUT PORCELAIN VENEERS USEFUL FOR PATIENT EDUCATION? CONTENT ANALYSIS

## *OS VÍDEOS DO YOUTUBE™ RELACIONADOS ÀS FACETAS DE PORCELANA SÃO ÚTEIS PARA INFORMAR AO PACIENTE? ANÁLISE DE CONTEÚDO*

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## ABSTRACT

The internet plays a crucial role in disseminating information, with YouTube™ being one of the leading platforms for audiovisual content. However, the lack of quality control can compromise the accuracy of information, especially in the healthcare field. Videos about porcelain veneers have gained prominence in dentistry, but inaccurate information may influence patients' decision-making. This study aimed to assess the reliability and usefulness of the most-watched YouTube™ videos about porcelain veneers. This is a retrospective cross-sectional study based on Portuguese-language videos of up to 20 minutes in length, identified through Google Trends between January 30, 2019, and January 30, 2022. The source, target audience, reliability (DISCERN-adapted criteria), and usefulness (Hassona's method) were analyzed. Two independent researchers evaluated the videos, and discrepancies were resolved by consensus. The significance level was set at 5%. Of the 100 videos analyzed, 68 were included. Most 80.9% were produced by dentists, and 72.1% were intended for lay audiences. Reliability was classified as moderate 64.7%, while usefulness was predominantly low 67.6%. Videos produced by laypersons had higher usefulness ($p$=0.002), and those targeting lay audiences showed greater reliability ($p$=0.041) and usefulness ($p$=0.004). In conclusion, most videos analyzed exhibit moderate reliability but low usefulness, particularly regarding risks and contraindications. Greater rigor is essential in disseminating information about dental procedures on the internet.

**Keywords:** Social media; Aesthetics; Dental aesthetics; Dental veneers; Dental porcelain.

## RESUMO

A internet é fundamental na disseminação de informações, e o YouTube™ destaca-se como uma das principais plataformas de conteúdo audiovisual. No entanto, a falta de controle de qualidade pode comprometer a precisão das informações, especialmente na área da saúde. Vídeos sobre facetas de porcelana têm ganhado destaque na odontologia, mas informações imprecisas podem afetar a decisão dos pacientes. Este estudo teve como objetivo avaliar a confiabilidade e utilidade dos vídeos mais assistidos sobre facetas de porcelana no YouTube™. Trata-se de um estudo transversal retrospectivo, baseado em vídeos em português, com até 20 minutos de duração, identificados via Google Trends entre 30 de janeiro de 2019 e 30 de janeiro de 2022. Foram analisadas fonte, público-alvo, confiabilidade (critério adaptado DISCERN) e utilidade (método de Hassona). Dois pesquisadores independentes avaliaram os vídeos, e divergências foram resolvidas por consenso. O nível de significância adotado foi de 5%. Dos 100 vídeos, 68 foram incluídos. A maioria (80,9%) foi produzida por dentistas, e 72,1% eram destinados a leigos. A confiabilidade foi classificada como média (64,7%), enquanto a utilidade foi considerada baixa (67,6%). Vídeos produzidos por leigos apresentaram maior utilidade ($p$=0,002), e os voltados ao público leigo mostraram maior confiabilidade ($p$=0,041) e utilidade ($p$=0,004). Conclui-se que a maioria dos vídeos apresenta confiabilidade moderada, mas baixa utilidade, especialmente quanto aos riscos e contraindicações. É essencial que haja maior rigor na divulgação de informações sobre procedimentos odontológicos na internet.

**Palavras-chave:** Mídias sociais; Estética; Estética dentária; Facetas dentárias; Porcelana dentária.

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## INTRODUCTION

The Internet plays a crucial role in the dissemination of information, having reached 5.35 billion users in 2024, which corresponds to 66% of the world's population (1). Among digital platforms, YouTube™ stands out as the second most globally accessed network, behind TikTok™ only (1). Despite the ease of access, the lack of strict control over video production can compromise the accuracy of the information disseminated, especially in the health area (2), often used due to the cost of clinical appointments and failures in professional-patient communication (3).

In dentistry, videos on YouTube™ cover a variety of topics, such as dental avulsion (4), dental trauma (5), orthodontic treatment (6,7), Sjögren's syndrome (8), dental implants (9,10), endodontic treatment (11,12) and tooth whitening (13), with most of them presenting low quality in terms of the content covered (10). Recently, aesthetic dental procedures have gained prominence, driven by social media and the use of filters in selfies, which has increased the demand for porcelain veneers. However, videos with patient reports and inaccurate information can have a negative influence on decision-making, promoting the excessive use of veneers as an aesthetic solution without considering more conservative alternatives, such as tooth whitening or composite resin veneers (14,15).

In this context, this study evaluated the most-watched YouTube™ porcelain veneer videos, analyzing reliability and usefulness criteria to understand the type of information disseminated and its suitability for both dentists and patients interested in the procedure.

## MATERIAL AND METHODS

This retrospective cross-sectional study used public domain data and did not require approval from the Research Ethics Committee. Videos related to ceramic laminates, also called "porcelain veneers," "dental contact lenses," and "porcelain lenses" were analyzed based on the search expression identified via Google Trends. A YouTube™ search was conducted regarding the subject between January 30, 2019 and January 30, 2022. The search filter used was "Sort by view count," resulting in the 100 most-watched videos (16-20).

The eligibility criteria were adopted in accordance with similar studies (19,21). Twenty-minute videos in Portuguese with content relevant to the topic were included. Videos in other languages, videos lasting more than 20 minutes, and those not directly related to the topic were excluded (22-24).

### *Video analysis*

The videos were evaluated with regard to three aspects:

- **Technical Information:** video source (dental surgeon or layperson) and target audience (professional audience or lay audience).
- **Reliability:** evaluated based on the DISCERN--adapted criteria (25), consisting of six items with binary score, as shown in Figure 1.
- **Usefulness:** analyzed by a scoring system (20), as shown in Figure 2.

| Binary evaluation 0 (no) / 1 (yes) |
|---|
| 1. Are the objectives clear and were achieved? |
| 2. Is the disclosed information balanced and bias-free? |
| 3. Were additional sources provided for the patient? |
| 4. Does it describe how the treatment is? |
| 5. Does it describe the benefit of treatment? |
| 6. Is it clear there may be more than one possible treatment? |
| Scoring: 0-2 (slightly reliable) / 3-4 - moderately reliable / 5-6 - very reliable |

**Figure 1 -** DISCERN-adapted reliability criteria.

| Evaluation: 0 (no information/ misleading information) / 1 (superficial information) / 2 (proper information) |
|---|
| 1. Definition: what are porcelain veneers? |
| 2. Indication |
| 3. Contraindication |
| 4. Procedure risks |
| 5. No reversible treatment / wear |
| Scoring: 0-3 (slightly useful) / 4-6 (moderately useful) / 7-10 (very useful) |

**Figure 2 -** Usefulness criteria adapted from Hassona et al. (2016).

### *Calibration of researchers*

Two independent researchers analyzed 10 videos at two distinct moments, with a seven-day break between evaluations. The agreement was verified

by the Kappa coefficient, and any differences were resolved by consensus.

### *Statistical analysis*

Data were analyzed using IBM SPSS 22 software and Kappa test for agreement between the two researchers, Kolmogorov-Smirnov test for data normality, Mann-Whitney test for comparisons between groups, and chi-square testing for associations between categorical variables. The significance level was set at 5% (α = 0.05).

## RESULTS

Of the 100 most-watched videos, 32 were excluded from the study: one for being in Spanish, six for lasting more than 20 minutes, and 25 for not specifically addressing the proposed theme. Thus, the final sample consisted of 68 videos.

The analysis of the selected videos showed an average duration of 6.10 minutes (0.22–17.65 min) and a total of 27,172,525 views (10.871–8.083,054 views), with an average of 254.31 views/day. Most of the videos, 80.9% (n = 55), were produced by dentists, while 19.1% (n = 13) by laypeople. Regarding the target audience, 27.9% (n = 19) of the videos were for health professionals, and 72.1% (n = 49) for the lay audience.

Analyses of the reliability and usefulness of the videos were performed after the calibration of researchers, with an agreement level higher than 95% (p <0.001). Reliability ranged from 0 to 6 points, and most of the videos (n = 44/64.7%) were classified as moderately reliable, while usefulness ranged from 0 to 10, with most (n = 46/67.6%) classified as slightly useful.

Comparison between reliability and video source did not reveal a significant difference (p = 0.922). However, the videos created by laypeople were classified as being more useful than those produced by dentists (p = 0.002) (Table 1). In addition, the analysis between the target audiences showed significant differences in reliability (p = 0.041) and usefulness (p = 0.004), with higher scores in the videos intended for laypeople (Table 2).

Regarding reliability and video source, 21.8% (n = 12) of dentist videos were classified as slightly reliable, while 30.8% (n = 4) of layperson videos received the same classification (p = 0.227). No dentist video was classified as very useful, while 30.8% (n = 4) of layperson videos were classified as such (p <0.001). Usefulness was also significantly higher in the videos intended for the lay audience (p = 0.012) (Table 1).

Video performance analysis was carried out after the calibration of researchers, with an agreement level higher than 95% (p <0.001). Video analysis based on DISCERN-adapted criteria showed that 95.6% (n = 65) presented clarity and achievement in objectives, but 82% (n = 56) did not offer additional sources to users. Only about half (n = 34) addressed the treatment and its benefits, and 66.2% (n = 45) did not clarify the existence of other treatment options (Table 3).

In the usefulness index, 70.6% (n = 48) of the videos did not explain what porcelain veneers are, 42.6% (n = 29) did not explain their indications, 94.1% (n = 64) omitted contraindications, 85.3% (n = 58) and 83.2% (n = 57) did not describe the risks associated with the procedure, and 35.3% (n = 24) did not mention that the treatment is irreversible (Table 3).

**Table 1 -** Analysis of reliability and usefulness indexes by video source

| | Dentist (n=55/80.9%) | | Layperson (n=13/19.1%) | | All (n=68/100%) | | p |
|---|---|---|---|---|---|---|---|
| **Reliability index** | | | | | | | **0.922** |
| Slightly reliable | 12 | 21.8% | 4 | 30.8% | 16 | 23.5% | |
| Moderately reliable | 38 | 69.1% | 6 | 46.1% | 44 | 64.7% | |
| Very reliable | 5 | 9.1% | 3 | 23.1% | 8 | 11.8% | |
| **Usefulness index** | | | | | | | **0.002** |
| Slightly useful | 42 | 76.4% | 4 | 30.8% | 46 | 67.6% | |
| Moderately useful | 13 | 23.6% | 5 | 38.4% | 18 | 26.5% | |
| Very useful | 0 | 0% | 4 | 30.8% | 4 | 5.9% | |

**Table 2 -** Analysis of reliability and usefulness indexes by audience

| | Professional (n=19/27.9%) | | Layperson (n=49/72.1%) | | All (n=68/100%) | | p |
|---|---|---|---|---|---|---|---|
| **Reliability index** | | | | | | | 0.041 |
| Slightly reliable | 6 | 31.6% | 10 | 20.4% | 16 | 23.5% | |
| Moderately reliable | 12 | 63.1% | 32 | 65.3% | 44 | 64.7% | |
| Very reliable | 1 | 5.3% | 7 | 14.3% | 8 | 11.8% | |
| **Usefulness index** | | | | | | | 0.004 |
| Slightly useful | 18 | 94.7% | 28 | 57.1% | 46 | 67.6% | |
| Moderately useful | 1 | 5.3% | 17 | 34.7% | 18 | 26.5% | |
| Very useful | 0 | 0.0% | 4 | 8.2% | 4 | 5.9% | |

**Table 3 -** Video performance regarding reliability and usefulness

| Reliability | 0 (No) | | 1 (Yes) | |
|---|---|---|---|---|
| 1. Are the objectives clear and achieved? | 3 | 4.4% | 65 | 96.6% |
| 2. Is the information balanced and free from bias? | 18 | 26.5% | 50 | 73.5% |
| 3. Are additional sources provided for the patient? | 56 | 82.3% | 12 | 17.6% |
| 4. Does it describe how the treatment is performed? | 34/32* | 50/47.1%* | 34/36* | 50.0/52.9%* |
| 5. Does it describe the benefits of the treatment? | 34 | 50.0% | 34 | 50.0% |
| 6. Is it clear that more than one treatment option may be possible? | 45 | 66.2% | 23 | 33.8% |
| **Usefulness** | **0 (Absent/misleading)** | | **1 (Superficial information)** | | **2 (Adequate information)** | |
| 1. Definition: What are porcelain veneers? | 48 | 70.6% | 10/11* | 14.7/16.2% | 10/9* | 14.7/13.2% |
| 2. Indication | 29 | 42.6% | 14 | 20.6% | 25 | 36.8% |
| 3. Contraindication | 64 | 94.1% | 3 | 4.4% | 1 | 1.5% |
| 4. Procedure risks | 58/57* | 85.3/83.2%* | 2/3* | 2.9/4.4%* | 8 | 11.8% |
| 5. Irreversibility/tooth wear | 24 | 35.3% | 10 | 14.7% | 34 | 50.0% |

**Both results were inferred when there was divergence between the researchers.*

## DISCUSSION

The Youtube™ platform has been consolidated as an important source of health information, including dentistry. Previous studies have highlighted the great heterogeneity in the quality of available information, especially in relation to aesthetic procedures such as porcelain veneers (4,6,9,26). This study, when analyzing the most-watched videos about the subject, revealed that the majority are intended for a lay audience, highlighting the great demand for information about aesthetic dental treatments. Nevertheless, the analysis also found that many of these videos had incomplete and inaccurate information, with 66% of them not mentioning the existence of therapeutic alternatives, and 35% not warning that the procedure is irreversible.

The literature already discusses the importance of considering less invasive alternatives before opting for irreversible treatments such as porcelain veneers. Haywood and Sword (2021) suggest that whitening treatments should be prioritized before veneers, which may be an invasive and irreversible option. Similarly, Christensen et al. (2006) state that direct compound resin veneers are a more conservative alternative. In the context of the analyzed videos, the absence of information about other treatment options, such as resin veneers, can lead viewers to a distorted view of the available options. In addition, the lack of information about the treatment being irreversible, with 35% of the videos omitting the dental wear required, can result in an inadequate understanding of the risks associated with the procedure.

The analysis of the video origin revealed that 80.9% of the videos were created by dentists; however, surprisingly, the videos produced by laypeople were classified as more useful. This can

be explained by the fact that many videos produced by dentists focus only on technique without providing information about the alternatives or treatment risks. On the other hand, layperson videos tend to explore personal experiences and provide clarification about what veneers are, their indications, contraindications, and the risks involved, which may have contributed to their highest usefulness index score.

Analysis of the video content based on the clarity and range criteria, using the usefulness index, also showed that a large portion of the videos did not address important points about treatment with porcelain veneers. For example, 70.6% of the videos did not define what porcelain veneers are in a proper manner, 42.6% did not explain their indications, and 94.1% omitted information about contraindications. The omission of this crucial information can lead to misinformation among viewers, compromising decision-making about the treatment. This lack of complete and accurate information is a significant concern, as it can directly impact patients' choices of procedures that may not be the most suitable for their conditions.

In addition, the Youtube™ algorithm that determines the order of videos in search results, based on interactions and engagement, can influence the visibility of the most informative videos. Although the study has analyzed the 100 most-watched videos, there is a possibility that high-quality content has not been included due to the metadata-based classification system and user interactions. This reinforces the need to consider the limitations imposed by algorithms in promoting high-quality content.

Finally, the limitations of this study include the fact that the analysis was performed only with YouTube™ videos. With the growth of other platforms such as Instagram and TikTok™, which operate with different algorithms and parameters, it is essential to expand research to these emerging media in order to evaluate the quality of information patients are consuming. The lack of scientific studies on these latest platforms is an important gap that should be addressed in future studies.

## CONCLUSION

In conclusion, Youtube™ presents itself as a widely used platform for disseminating information about dental treatments, but with limitations in terms of content quality and reliability. Most of the analyzed videos did not provide essential information, such as treatment alternatives, contraindications, and the risks involved, presenting generally moderate reliability but low utility. These findings highlight the need for greater responsibility on the part of dental professionals and laypeople when sharing health-related information.

**The authors have no conflict of interest to declare.**

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