

# Analysis of YouTube™ Videos Related to Dental Sedation: A Cross-Sectional Study

## Dental Sedasyon ile İlgili YouTube™ Videolarının Analizi: Kesitsel Çalışma

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**ABSTRACT Objective:** YouTube™ is an online platform that parents usually prefer to seek information on health issues, including pediatric dental sedation. The study aimed to assess the quality, reliability, and content of the YouTube™ videos on pediatric dental sedation. **Material and Methods:** The searching term was detected as “sedation in pediatric dentistry” (Google Trends Application). The first 149 videos on YouTube™ were listed, and the Uniform Resource Locator was copied. A five-point scale [Global Quality Scale (GQS)], reliability scores, and content analyses were performed on the videos remained which are suitable with the including criteria (n=55). The Shapiro-Wilk and the Mann-Whitney U tests were used for statistical evaluations. **Results:** The recent study results showed that the videos analyzed were classified as “poor” considering the content analyses. The mean and median reliability score and GQS of the videos were generally moderate quality. The median GQS values of the rich content videos seemed to be significantly higher than the poor ones (p<0.05). According to the content categories, reliability scores and the other features did not show a statistical difference (p>0.05). **Conclusion:** YouTube™ videos on pediatric dental sedation seemed to be insufficient considering the study headings. Dental professionals and anesthesiologists should put more effort into improving the quality and reliability of the videos regarding pediatric dental sedation.

**ÖZET Amaç:** Aileler, çocuklara uygulanan dental sedasyon da dâhil olmak üzere sağlık konularıyla ilgili bilgi edinmek için YouTube™ gibi sosyal platformları tercih etmektedir. Bu çalışma, pediatrik dental sedasyon konusundaki YouTube™ videolarının kalitesini, güvenilirliğini ve içeriğini ölçmeyi amaçlamaktadır. **Gereç ve Yöntemler:** Arama terimi olarak “sedation in pediatric dentistry” belirlenmiştir (Google Trends Application). Konu ile ilgili ilk olarak 149 video listelenmiş ve Tekdüzen Kaynak Bulucu bilgileri kaydedilmiştir. Dâhil edilme kriterlerine uygun olmayanlar çıkarıldıktan sonra kalan videolar üzerinde (n=55) Küresel Kalite Ölçeği [(Global Quality Scale “GQS”)] güvenilirlik ve içerik analizleri uygulanmıştır. Verilerin analizi için Shapiro-Wilk ve Mann-Whitney U testleri kullanılmıştır. **Bulgular:** Analiz sonuçlarına göre incelenen videolar zayıf içerikli, orta seviye kalite ve güvenilirlikte bulundu. Zengin içerikli videoların GQS değerlerinin, zayıf içerikli videoların GQS değerlerine göre istatistiksel olarak anlamlı düzeyde yüksek olduğu görülmektedir (p<0,05). İçerik kategorilerine göre güvenilirlik ve diğer analiz başlıklarının istatistiksel olarak anlamlı bir ilişkisi olmadığı tespit edilmiştir (p>0,05). **Sonuç:** Pediatrik dental sedasyona ilişkin YouTube™ videolarının yanlış bilgi içermemekte birlikte, incelenen çalışma konuları bakımından yetersiz olduğu görülmektedir. Diş hekimliği alanındaki klinisyen ve araştırmacıların ve bu konuda çalışan anestezi uzmanlarının, incelenen konuya dair videoların kalite, güvenilirlik ve içeriklerini geliştirmek için daha fazla özen göstermesi gerekmektedir.

**Keywords:** Pediatric dentistry; conscious sedation; anesthesia; internet

**Anahtar Kelimeler:** Çocuk diş hekimliği; bilinçli sedasyon; anestezi; internet

Dental caries has been the most common chronic and infective disease seen in the pediatric population.<sup>1</sup> Although protective measures have been taken to prevent caries development in early childhood, these attempts might be insufficient, and children might be

suffering from dental diseases and the concomitant symptoms.<sup>2,3</sup> Dental fear, anxiety, disabilities, and younger ages have been the previous restrictive factors that cause the children not to volunteer for dental treatments. In this case, the disease might cause further

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problems, including dental abscess, systemic diseases, malnutrition, temporomandibular joint dysfunctions, esthetic, orthodontic, and psychological problems.<sup>4-7</sup>

Sedation is the primary attempt that clinicians try to take to treat the uncooperative pediatric patients when other non-pharmacological methods like voice control, tell-show-do, and behavioral management procedures were useless.<sup>8</sup> Nitrous oxide (NO) is a gas with anxiolytic and sedative effects, and it causes varying analgesia rates with muscular relaxation. NO sedation is a safe and quick method that makes the patient feel relaxed, but the patient's cooperation is still needed though the patient is awake and has the power to refuse the treatment. Accordingly, this method is just preferred for short-term treatments like tooth extraction. Conscious sedation is another option that could be done in oral or parenteral ways. In this method, protective reflexes have been maintained according to sedation level, and the patient still could maintain the airway independently and continuously. Additionally, an appropriate response could be taken from the patient to physical stimulations or verbal commands. The patient's vital signs should be observed, and monitoring is needed to make the sedation application safer for both methods.<sup>9,10</sup>

Parents usually tend to prefer the less traumatic method for their children, and accordingly, an increasing trend for dental treatments under sedation has been seen in recent years.<sup>7</sup> When a dental problem occurs with a child who cannot accept the treatment, and the dentist mentioned sedation as a treatment option, the parents usually find additional information from websites. The survey studies explained that 8 of 10 internet users reached the health instructions in online platforms. Health Information National Trends Survey detected an increase in internet usage to access health instructions.<sup>11</sup> These reports show that YouTube™ (Alphabet Inc., Mountain View, California, USA) could be considered as an efficient way for reaching and disseminating the information. Though this platform has no limitations in any content features or a peer-review process before the videos are exposed to the public, the accuracy and reliability of the contents are indistinct. It is critical to manage the advantages and eliminate this platform's disadvantages to become an educational application.

To the best of our knowledge, in the literature review, although one study was found analyzing the content of YouTube™ videos on general anesthesia, no study was detected assessing the reliability and quality of YouTube™ videos regarding dental sedation.<sup>12</sup> Considering these findings, the recent study aimed to analyze the reliability, quality, and content of YouTube™ videos on pediatric dental sedation, assess the efficacy of these videos, and help health providers lead the parents accessing accurate information on the subject mentioned.

The study hypothesized that the videos on YouTube™ might be insufficient to give reliable information to the parents about pediatric dental sedation.

## MATERIAL AND METHODS

Ethical approval was not required for the recent study since the project was not performed on people or the materials taken of them, and the data analyzed were open accessed. The Google Trends website (Google Trends, 2020, Alphabet, ABD) (<https://trends.google.com>) was used to find the most frequently used search term for "pediatric dental sedation".<sup>13</sup> The searching setting was adjusted as "Worldwide", "Google Web Search", "Last 5 years" (Figure 1). After a few try with possible words related to pediatric dental sedation, new keywords were obtained using the related-queries table on the application. Comparative searches were conducted with these keywords: "children's dental sedation", "sedation in pediatric dentistry", "dental sedation for children". Based on comparative search results, the most used searching term was detected "sedation in pediatric dentistry" (Google Trends, May 5, 2021).

In the previous studies, it was detected that individuals usually look for the first 60-200 videos and view 30 of them.<sup>14</sup> Accordingly, the first 150 videos were chosen for the investigation, and considering the copied video on this list, the examinations continued with 149 videos. Before searching, cookies and previous searching results were erased. After the URL (Uniform Resource Locator) of each video was copied in case the searching data might change in dif-

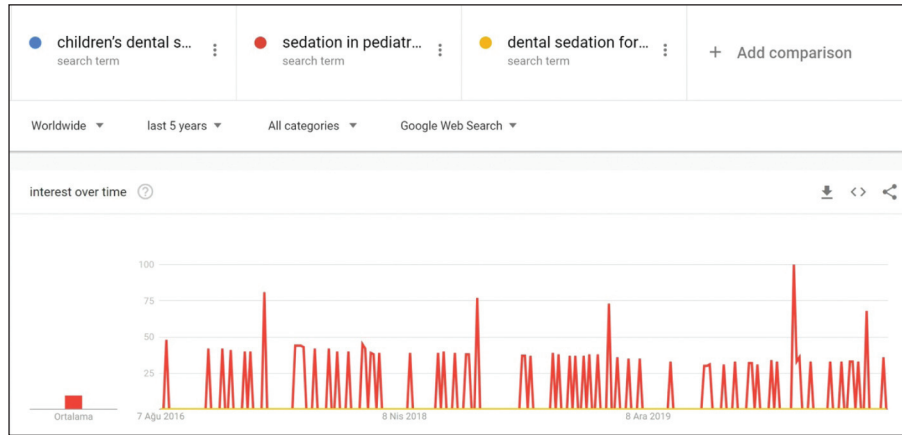


FIGURE 1: The appearance of the search terms in Google Trends.

ferent time intervals (May 5, 2021), these chosen videos were analyzed by 2 investigators due to the determined criteria. The reliability index of Kappa was calculated to assess the inter-rater consistency between each researcher.

As seen in Table 1, 64.4% (n=96) of the videos were excluded from the study. Among these videos excluded, 30.9% (n=46) had irrelevant topics, 14.8% (n=22) were closed to comments, 6.7% (n=10) were commercial, 6.7% (n=10) had no audio narration, 4.7% (n=7) were longer than 15 minutes and, 0.7% (n=1) were in non-English language. According to these findings, 35.6% (n=53) of the videos were assessed within the scope of the study (Figure 2).

Content analyzing, DISCERN reliability scoring, and a 5-point scale, Global Quality Scale (GQS), were applied on 53 videos that remained after the exclusion (Figure 3). Reliability scoring was based on 5 questions derived from DISCERN, a scale used to assess health-related instructions. The scoring contained 5 questions. For each question, the answer “n” scored 0, and “yes” scored 1 point.<sup>15</sup> GQS was used to examine the overall quality of the videos. This scoring system has also been known as a 5-point scale system based on the usefulness of the videos and the general concern of the viewers.<sup>16</sup> Furthermore, the additional parameters were listed for each video:

1. Title and URL data.
2. Video length in minutes.

3. Submitting date.

4. The time between the time of the submitting and the watching time in days.

5. Source of the video (Dentist/pediatricians/pedodontics, layperson/parents, anesthesiologist, dental clinic, charity, educational, Tv-radio program).

6. Gender of the speaker.

7. Viewing number.

8. Like and dislike numbers.

9. The number of comments.

10. Type of the sedation (NO sedation, conscious sedation, both of them).

In addition to that, “Interaction Index (%)” and “Viewing Rate (%)” were calculated, respectively.<sup>16</sup>

TABLE 1: Excluding criteria for the videos analyzed.		
	n	%
Analyzed	53	35.6
Irrelevant	46	30.9
Comments closed	22	14.8
No-audio	10	6.7
Commercial	10	6.7
Long video (>15 min)	7	4.7
Non-English	1	0.7
Total	149	100.0

$$\text{Interaction Index (\%)} = \frac{\text{Number of likes} - \text{number of dislikes}}{\text{Number of views}} \times 100$$

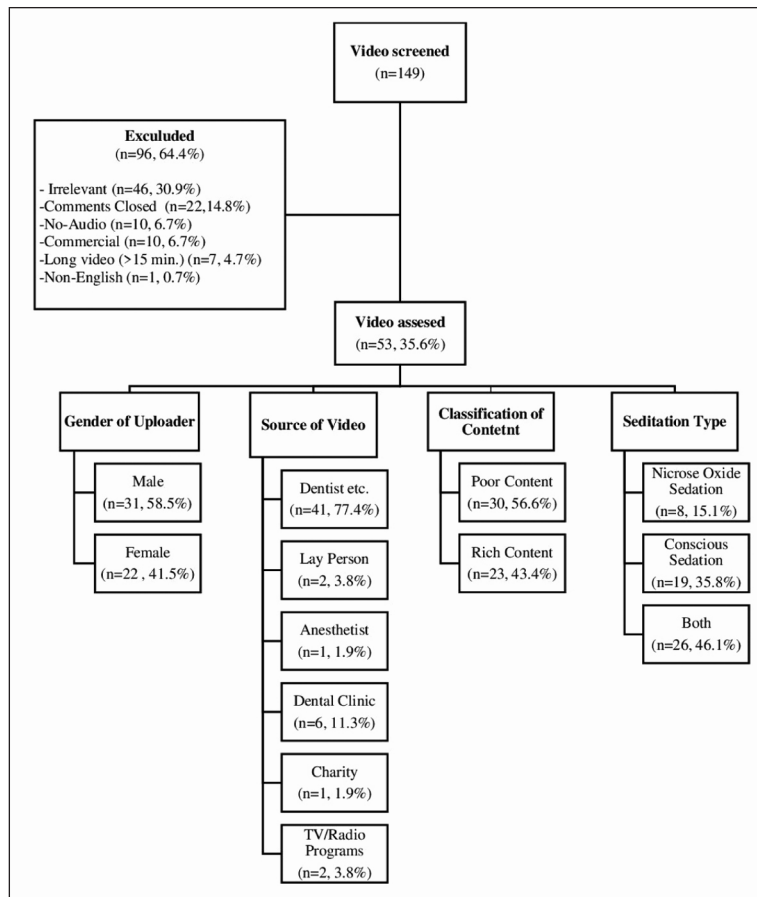
$$\text{Viewing rate (\%)} = \frac{\text{Number of views}}{\text{Number of days since upload}} \times 100$$

The titles of content analyses determined to evaluate the YouTube™ videos were as follows: definition of the method [1], type of the methods [2], indication/contraindication [3], advantages/disadvantages [4], type of the medical agents used [5], preoperative cautions [6], explaining the procedure [7], showing the application of the procedure [8], post anaesthesia recovery [9], postoperative cautions [10]. The headings in the content analyses were determined according to the European Association of Pediatric Dentistry (EAPD) Guidelines on Sedation in Pediatric Dentistry.<sup>9</sup> One point was

given for each heading mentioned in the video, and 0 was written if the heading was not mentioned. In a previous study, 5 and 6 points were stated as a determiner of good quality, since the videos with 7 and 8 points were mentioned as excellent quality.<sup>12</sup> According to this study, the total scores for contents were calculated for each of the videos, and the ones with the score under 5 points were included in the group of poor content. In contrast, the videos scored as five and above were divided into the group of rich content.

**DATA ANALYSIS**

Descriptive statistics of the features of YouTube™ videos examined within the scope of the research were expressed as a minimum, maximum, average, median, standard deviation, frequency, and percentage. The Shapiro-Wilk test was used to evaluate the usual distribution assumption in the study groups. Since the data in the groups did not exhibit normal



**FIGURE 2:** The classification of the data detected from the videos analyzed.

<b>Reliability Score (Adapted from DISCERN)<sup>15</sup> Description</b>	
1.	Are the aims clear and achieved?
2.	Are reliable sources of information used?
3.	Is the information presented balanced and unbiased?
4.	Are additional sources of information listed for patient reference?
5.	Are areas of uncertainty mentioned?
<b>Global Quality Score (GQS)<sup>16</sup> Description</b>	
1.	Poor quality, poor flow of video, most information missing, not at all useful for patients
2.	Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients
3.	Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients
4.	Good quality and generally flow. Most of the relevant information is listed, but some topics not covered, useful for patients.
5.	Excellent quality and flow, very useful for patients

**FIGURE 3:** DISCERN Reliability Score and 5-Point Scale Global Quality Scale (GQS) Description.<sup>15,16</sup>

distribution, the Mann-Whitney U test was used in pairwise group comparisons.

Cohen’s kappa test was used to evaluate the consistency of reliability and GQS values between observers. Observer measurement averages (n=2) of reliability and GQS values were used in the analysis.

SPSS 26 (Statistical Package for the Social Sciences for Windows 13.0, IBM Inc., Chicago, IL, USA) statistical software was used in the data’s statistical analysis process, and p<0.05 was considered statistically significant.

## RESULTS

Correlation between the raters was assessed by Intraclass Correlation Coefficient analysis. In **Table 2** and **Table 3**, the findings of the analyses held to evaluate the consistency between the GQS, and reliability scores detected by each researcher were shown. According to **Table 2** and **Table 3**, there was an acceptable consistency between each researcher considering GQS scores (Kappa value=0.847, p<0.001), and statistically higher values were found in the consistency of the reliability values detected by each researcher (Kappa value=0.912, p<0.001).

The descriptive findings of the videos were shown in **Table 4**. Accordingly, the median value of viewing numbers was 3089.00. The median value of likes was 12.00 while the same values of dislike and comments were 1.00. The median value for the video length (min) was 03:39 while the median value for the days since uploaded was 790. The median values of interaction index and viewing rates were 0.4739 and 399.69 respectively. The median values of reliability score and GQS were both detected as 3.00 (moderate). The median value for the content score was 4.00 which was classified as poor content.

**Table 5** shows that 80% (n=24) of the videos with poor content were produced by dentists, pedodontists, pediatricians, and medical doctors. Ex-

**TABLE 2:** Assessment of the consistency between the researchers according to the GQS scale.

		GQS (Second observer)					Total	
		1	2	3	4	5		
GQS (First observer)	1	n	3	0	0	0	0	3
		%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	2	n	0	7	3	0	0	10
		%	0.0%	70.0%	30.0%	0.0%	0.0%	100.0%
	3	n	0	1	19	0	0	20
		%	0.0%	5.0%	95.0%	0.0%	0.0%	100.0%
	4	n	0	0	1	13	0	14
		%	0.0%	0.0%	7.1%	92.9%	0.0%	100.0%
	5	n	0	0	0	0	1	1
		%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Total % within GQS		n	3	8	23	13	1	48
		%	6.3%	16.7%	47.9%	27.1%	2.1%	100.0%

Kappa value: 0.847, p<0.001, (CI: 0.719-0.974). GQS: Global Quality Scale; CI: Confidence interval.

**TABLE 3:** Assessment of the consistency between the researchers according to reliability score.

		Reliability (Second observer)							
		0	1	2	3	4	5	Total	
Reliability (First observer)	0	n	1	0	0	0	0	0	1
		%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	1	n	1	1	0	0	0	0	2
		%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	2	n	0	0	2	1	0	0	3
		%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	100.0%
	3	n	0	0	0	23	0	1	24
		%	0.0%	0.0%	0.0%	95.8%	0.0%	4.2%	100.0%
	4	n	0	0	0	0	22	0	22
		%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	5	n	0	0	0	0	0	2	2
		%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Total % within reliability		n	2	1	2	24	22	3	54
		%	3.7%	1.9%	3.7%	44.4%	40.7%	5.6%	100.0%

Kappa value: 0.912, p<0.001, (CI: 0.817-1.000). CI: Confidence interval.

**TABLE 4:** The descriptive findings of the videos analyzed.

Variables	Minimum	Maximum	Median	Mean	SD
Video characteristics					
No. of views	1	334194	3089.00	30736.78	74282.66
No. of likes	0	1600	12.00	140.54	353.29
No. of dislikes	0	102	1.0	7.69	20.65
No. of comments	0	321	1.0	28.52	74.75
Video length (minutes)	00:59	12:21	03:39	4:11	2:50
Days since upload	6	31215	790.0	1718.39	4211.58
Interaction index	-47	100.00	0.4739	2.8417	13.75
Viewing rate	.64	42045.06	399.69	3608.58	8333.79
Reliability score	.00	5.00	3.00	3.32	0.94
Contents score	1	8	4.00	4.51	1.54
GQS	1.00	5.00	3.00	3.05	0.86

GQS: Global Quality Scale; SD: Standard deviation.

cept this, the distributions of the remaining videos according to source were as follows: layperson 3.3% (n=1), anesthesiologist 3.3% (n=1), dental clinics 10% (n=3) and charity 3% (n=1).

On the other hand, 73.9% (n=17) of the videos with rich content were produced by dentists, periodontists, pediatricians, or doctors though, 4.3% (n=1) was done by layperson, 13% (n=3) dental clinic and 8.7% (n=2) radio programs. In addition, 36.7%

(n=11) of the videos with poor content were produced by women, 20.8% (n=19) by men, while 47.8% (n=11) of videos with rich content were produced by women and 52.2% (n=12) were produced by men. In addition, 16.7% (n=5) of the videos with rich content have NO sedation, 30% (n=9) conscious sedation, and 53.3% (n=16) both types of sedation.

As seen in Table 6, The GQS median value and mean (4.00, 3.55±0.65) of the rich contented videos



**TABLE 5:** Distribution of reviewed videos by content categories.

Video demographics	Poor content (n=30)		Rich content (n=23)		Total n (%)
	n (%)		n (%)		
Source of video					
Dentist pedodontist pediatrician doctor	24 (80.0)		17 (73.9)		41 (77.4)
Layperson	1 (3.3)		1 (4.3)		2 (3.8)
Anesthetist	1 (3.3)		0 (0.0)		1 (1.9)
Dental clinic	3 (10.0)		3 (13.0)		6 (11.3)
Charity	1 (3.3)		0 (0.0)		1 (1.9)
Tv/radio programs	0 (0.0)		2 (8.7)		2 (3.8)
Gender of uploader					
Male	19 (20.8)		12 (52.2)		31 (58.5)
Female	11 (36.7)		11 (47.8)		22 (41.5)
Sedation type					
NO sedation	5 (16.7)		3 (13.0)		8 (15.1)
Conscious sedation	9 (30.0)		10 (43.5)		19 (35.8)
Both	16 (53.3)		10 (43.5)		26 (49.1)
Total	30 (100.0)		23 (100.0)		53 (100.0)

NO: Nitrous oxide.

**TABLE 6:** Evaluation of the variables in terms of content categories.

Variables	Poor content (n=30)			Rich content (n=23)			p value*
	Mean	SD	Median	Mean	SD	Median	
No. of views	19547.73	61643.82	2464.00	46658.39	88351.70	5416.00	0.216
No. of likes	117.23	334.15	9.00	177.04	387.92	20.0	0.556
No. of dislikes	6.13	18.96	1.00	10.00	23.30	1.00	0.614
No. of comments	25.77	74.51	1.00	33.35	77.91	2.00	0.628
Video length (sn)	251.07	187.32	159.00	257.52	146.40	233.0	0.478
Days since upload	2214.70	5571.07	967.50	1062.43	1015.55	655.0	0.328
Interaction index	3.89	18.17	0.4845	1.61	4.10	0.4513	0.628
Viewing rate	2489.30	7093.64	133.04	5224.93	9795.81	655.07	0.076
Reliability score	3.13	1.09	3.00	3.61	0.58	4.00	0.110
GQS	2.73	0.76	3.00	3.55	0.65	4.00	<b>&lt;0.001</b>

\*Mann-Whitney U test; SD: Standard deviation; GQS: Global Quality Scale.

were statistically higher than the mean and median values of the poor ones ( $2.73 \pm 0.76$ , 3.00) ( $p < 0.001$ ). However, the other features of the videos examined within the scope of the research did not show a statistically significant difference in terms of content categories ( $p > 0.05$ ).

## DISCUSSION

Sedation and general anesthesia are pharmacological behavior management methods used in pediatric patients' treatments. Recently, an increasing trend had

been seen in the need for dental treatment under sedation and general anesthesia.<sup>9,17,18</sup> Parents usually prefer online platforms like YouTube™ to look for the information they are curious about or share the knowledge and experience they have already had.<sup>12</sup> In the literature review, although the YouTube™ videos about general anesthesia, space maintainers, pediatric dental trauma, early-childhood caries, orthodontic and surgical treatments were studied, no study was detected assessing the quality and reliability of YouTube™ videos on dental sedation.<sup>12,14,19-24</sup>

Therefore, the study's subject was determined to examine the reliability and the quality of the contents of YouTube™ videos on dental sedation. By this means, it was aimed to increase the awareness of healthcare providers about the information presented in these videos and to make it possible for the professionals to advise their patients the proper resources on pediatric dental sedation.

Different assessing methods were preferred in the previous studies, including GQS, reliability, usefulness, and the Variations in Implementation of Quality Interventions scale.<sup>19,25-27</sup> In the recent study, the GQS values and reliability scores were preferred, similar to the previous studies held by Singh et al. (GQS and reliability), Delli et al. (GQS and reliability), and Bernard et al. (GQS).<sup>16,27,28</sup> DISCERN is an analysis that plays a vital role in delivering effective healthcare by improving standards of patient health information and enabling patients to make informed treatment choices based on the proper evidence.<sup>28</sup> GQS system was chosen due to the effectiveness and practicability of the scale.

The present study results showed that considering content analyses, the videos examined were classified as "poor" content since the mean values were under 5 points. According to the mean GQS and reliability score, these videos were generally of moderate quality. No video was detected, including all the headings of the content table. In a large amount of the videos, the number of the headings mentioned was 4 and lower than this. Similar results were detected in the study held by Ustdal et al., in which researchers detected that the videos were not reliable.<sup>29</sup> In another study held by Bozkurt et al., the content of the videos was assessed as "intermediate".<sup>14</sup> Nevertheless, Yavuz et al. presented that YouTube™ videos on rapid palatal expansion were essential sources for this subject, and the videos' contents were "excellent".<sup>22</sup>

The results of our study showed a limited relationship between the content points of the videos and the other features (likes, dislikes, comments numbers, existence time in the platform, source, gender, and type of the sedation) assessed in the study. It was detected that medical professionals produced 80%

(n=24) of the videos with poor content and 73.9% (n=17) of the videos with rich content. These findings showed that medical professionals were insufficient to give the information listed in the EAPD Sedation Guidelines.<sup>9</sup> Women produced 47.8% (n=11) of videos with rich content, and men produced 52.2% (n=12), and these results showed no relation between the content scores and the speaker gender. It was detected that 53.3% (n=16) of the videos with rich content were about both types of sedation. In comparison, NO sedation was mentioned in 16.7% (n=5) of the videos with rich content, and 30% (n=9) of rich contented videos were on conscious sedation. The increase in the type of sedation mentioned seemed to correlate with the content points of each video proportionally.

According to the present study results, only the GQS values of the rich content videos seemed to be significantly higher than the poor content ones. Since healthcare providers uploaded 90.6% of the videos, a statistical difference was not detected between the features analysed (likes, dislikes, comment numbers, existence time in the platform, source, gender, and type of the sedation) and the content categories ( $p>0.05$ ). According to a previous study, rich content videos seemed to have higher GQS values than those with poor content, similar to the recent study.<sup>29</sup>

A scoring system based on usefulness was used in another study examining YouTube™ videos on oral hygiene instructions. Accordingly, almost half of the videos were moderately useful, with 31.1% being considered slightly useful.<sup>26</sup> In a similar study held by Öztürk and Gümüş, the quality of the YouTube™ videos on dental treatment under general anesthesia in children was assessed with GQS scores.<sup>12</sup> In the results, just 3 of the videos were identified as rich content. At the same time, 11 of them were described as poor, considering content analyses. The reliability of the videos was found to be low-grade, while the quality of the videos was stated as average. In the same study, it was also seen that the videos with good quality had significantly higher video duration, the number of likes, viewing rate, and reliability scores than videos with poor quality ( $p<0.05$ ), unlike the present study.<sup>12</sup>



YouTube™ has been known as a dynamic process, and the order of the searching results might change due to the effect of the viewers. Accordingly, there might be a disability in data collection. In the present study, only the videos in the English language were analyzed. Extending the searching comprising other languages might change the results, and these could be mentioned as the limitation of the study.

## CONCLUSION

In conclusion, although false information was not mentioned in any of the videos examined, it was detected that YouTube™ videos on pediatric dental sedation seemed to be insufficient considering the headings examined in the study. Therefore, oral health providers should be aware of inadequate information on YouTube™, put more effort into improving the quality, reliability, and content of the videos, and help their patients to find accurate and reliable sources of information.

## Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

## Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

## Authorship Contributions

**Idea/Concept:** Kübra Gülnur Topsakal; **Design:** Kübra Gülnur Topsakal; **Control/Supervision:** Merve Aksoy; **Data Collection and/or Processing:** Merve Aksoy, Kübra Gülnur Topsakal; **Analysis and/or Interpretation:** Kübra Gülnur Topsakal, Merve Aksoy; **Literature Review:** Kübra Gülnur Topsakal, Merve Aksoy; **Writing the Article:** Kübra Gülnur Topsakal, Merve Aksoy; **Critical Review:** Kübra Gülnur Topsakal, Merve Aksoy; **References and Fundings:** Kübra Gülnur Topsakal, Merve Aksoy.

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