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Does YouTube™ give us accurate information about bruxism?

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ABSTRACT

Aim: The aim of this study is to evaluate the quality of the information provided by the most watched videos about bruxism on YouTube™.

Material and Method: The results of YouTube™search were examined using the keyword "bruxism". The searching limited to the first 130 videos. DISCERN and the video information and quality index (VIQI) and the criteria were used for evaluating the videos. Also, the interaction index and the viewing rate of the videos were calculated. The Kruskal-Wallis H Test, Pearson's Chi-Square Test, Spearman's rho correlation were used for statistical analyses. Significance level was taken as $p<0.05$.

Results: Thirty-eight percentage of the videos were uploaded by dentist/specialist, 43% of them were uploaded by hospital, 4% of them were uploaded by commercial, 2% of them were uploaded by layperson, and 13% of them were uploaded by other. The average DISCERN score was 36.65 (poor). According to VIQI, 3 of the videos were found to be Scale 5, 15 of them were Scale 4, 35 of them were Scale 3, 39 of them were Scale 2, 8 of them were Scale 1.

Conclusion: The bruxism videos on YouTube™, mainly prepared by health professionals, were found to be insufficient and poor.

Keywords: Bruxism, internet, social media

INTRODUCTION

Bruxism is a condition that concerns clinicians and academics who are interested in dentistry, neurology and sleep medicine (1). The definitions of bruxism have undergone many changes over the years. According to the consensus report in 2013, the bruxism was characterized by a clenching or grinding action of the teeth and/or pushing the lower jaw, repetitive and grouped as nocturnal or awake bruxism depending on the circadian rhythm (1). At the consensus meeting in 2018, the definition of bruxism was re-evaluated and nocturnal bruxism and awake bruxism were completely separated from each other. The nocturnal bruxism is masticatory muscle activity (rhythmic and tonic) during sleep, not a sleep disorder in healthy individuals. The awake bruxism is a chewing muscle activity characterized by repetitious or continuous tooth contact and/or by bracing or thrusting of the mandible while waking, not a sleep disorder in healthy individuals (2).

According to a systematic review, the prevalence of self-reported SB in adults is 12% (3). In children, self-reported SB varies between 3.5 – 40.6% according to different age groups (4). The main conditions caused by nocturnal bruxism are: headache after waking up, temporomandibular disorders, tooth wear, fractures/failures of the tooth or implant (5-8). Before getting help from healthcare professionals, patients with these complaints do research on the internet to get more detailed information about their illness and determine the path they should follow for their treatment.

Today, the active use of social media causes it to be predicted that patients will receive more support from social media and video sharing platforms regarding their health in the future (9). YouTube™, one of the video sharing platforms, has been operating since 2005 and is one of the platforms where health-related videos are shared and watched the most because it is easily accessible by the public (10). After the videos on YouTube™ gained importance in dentistry and medicine, the reliability of this information was investigated with many studies. These studies are related to orthodontics (rapid maxillary expansion, orthodontic elastics, impacted canine, sleep apnea) (9,11-15), oral surgery (16-19), pedodontics (20), endodontics (21), and prosthodontics (22,23). In these studies, the scales with standard parameters were used to determine the reliability of the contents. The most common of these parameters are Journal of American

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Medical Association (JAMA) benchmark Criteria, DISCERN, Global Quality Score (GQS) and Video Information and Quality Index (VIQI).

In the literature search, conducted in Pubmed and Google Scholar databases, no studies on "bruxism" and YouTube™ were found (as of 1st of May 2022). The aim of the current study is to evaluate the quality of the information provided by the most watched videos about bruxism on YouTube™. The research hypothesis of this study was that the videos about bruxism on YouTube™ were misleading or incomplete.

MATERIAL AND METHOD

There was no human or animal participation in the study and the videos reviewed on YouTube™ were open to everyone. Therefore, it was not necessary to obtain ethics committee approval.

The results of YouTube™search were examined using the keyword "bruxism" on 6th of May 2022 to evaluate the information about bruxism. According to the search results, it was evaluated as the first 130 videos. The exclusion criteria were as follows: languages other than Turkish, irrelevant to the title, poor video quality, videos with comments turned off, silent videos, videos longer than 15 minutes (**Table 1**). The results of the search were saved by creating a playlist as search results may vary on separate days. The evaluation of the videos was performed by two authors (H.Y and H.B.) to avoid bias. The DISCERN and the VIQI and the criteria were used for evaluating the videos. Also, the interaction index and the viewing rate of the videos were calculated.

Table 1. Reasons for excluding videos

Exclusion Criteria	Number of videos
Languages other than Turkish	3
Irrelevant to the title	8
Poor video quality	1
Videos with comments turned off	5
Silent videos	4
Videos longer than 15 minutes	9

The DISCERN was first published in 1998 for developing a short instrument, which enables patients and healthcare providers to judge the quality of information about treatment choices (24). It consists of a total of 16 questions, which is scored between 1 and 5 points. The scores of videos were calculated by summing up the points from each question. The videos were divided into 5 categories according to the rating. The range of 16-26 points indicated very poor, 27-38 points indicated poor, 39-50 points indicated fair, 51-62 points indicated good, and above 63 points indicated excellent.

The information accuracy, the flow of information, quality and precision of the videos were evaluated with VIQI scale. While evaluating the videos with VIQI, a 5-point Likert scale was used (1: poor, 5: high quality).

Those who uploaded the videos were grouped as dentist/specialist, hospital/university, commercial, layperson, or other. The view counts, comment counts, the length of the video, time elapsed since the upload date, the likes and dislikes counts were determined. The viewers' interaction was calculated as follows: Subtracting the likes counts from the dislikes counts, dividing by the total view counts and multiplying by 100. The viewing rate was calculated by dividing the view counts by the number of days since upload and multiplying by 100 (25).

Statistical Analysis

Data were analyzed with SPSS software program (version 23, SPSS Inc, Chicago, Ill). Conformity to normal distribution was evaluated using the Shapiro Wilk test. Mann-Whitney U test was used to compare the data that were not normally distributed according to the paired groups. The Kruskal-Wallis H Test was used to compare the data that were not normally distributed, and multiple comparisons were examined with the Dunn test. Pearson's Chi-Square Test was used to compare categorical data. Spearman's rho correlation was used to examine the relationship between data that did not show normal distribution. Analysis results were presented as mean ± standard deviation and median (minimum – maximum) for quantitative data, and frequency (percent) for categorical variables. The significance level was set at $p<0.05$.

RESULTS

A total of 130 videos were analyzed and 30 of them were not included because they did not meet the criteria (languages other than Turkish; n=3, irrelevant to the title; n=8, poor video quality; n=1, videos with comments turned off; n=5, silent videos; n=4, videos longer than 15 minutes; n=9) as mentioned in **Table 1**.

According to DISCERN scores, out of 100 videos, one of them was found to be excellent, 9 of them were good, 33 of them were fair, 38 of them were poor and 19 of them were very poor. The average DISCERN score was 36.65 (poor). The distribution of the scores according to DISCERN were shown at **Table 2**.

Table 2. Distribution according to DISCERN scores

Total DISCERN Score (16-80)	
Score 16-26 – Very poor	19
Score 27-38 – Poor	38
Score 39-50 – Fair	33
Score 51-62 – Good	9
Score 63-80 – Excellent	1
The average DISCERN score	36.65

According to VIQI, out of 100 videos, 3 of them was found to be Scale 5 (high quality), 15 of them were Scale 4, 35 of them were Scale 3, 39 of them were Scale 2, 8 of them were Scale 1. 39% of the total videos were Scale 2. The distribution of the scores according to VIQI were shown at **Table 3**.

Table 3. Distribution of videos according to video information and quality index (VIQI)

Scale 1 (poor quality)	8
Scale 2	39
Scale 3	35
Scale 4	15
Scale 5 (high quality)	3

As seen in **Table 4**, there was a positive correlation between view count and all quantitative observations except DISCERN score. The highest correlation found between view count and likes (r= 0.744; p <0.001). There was a moderate correlation between total video duration and likes (r= 0.392; p<0.001), dislikes (r= 0.324; 0.001), and total DISCERN scores (r= 0.441; p<0.001). There was a moderate correlation between viewer's interaction and likes (r= 0.461; <0.001). There was a moderate correlation between viewing rate and total numbers of comments (r= 0.581; p<0.001), likes (r= 0.696; p<0.001) and dislikes (r= 0.541; p<0.001).

Table 4. Correlation between video features and quantitative observations

	View count	Total video duration (second)	Viewer's interactions	Viewing rate
Total numbers of comments	0.642; <0.001**	0.296; 0.003*	0.144; 0.153	0.581; <0.001**
Likes	0.744; <0.001***	0.392; <0.001**	0.461; <0.001**	0.696; 0.001**
Dislikes	0.591; <0.001**	0.324; 0.001**	-0.166; 0.098	0.541; <0.001**
Number of days since upload	0.274; 0.006*	-0.144; 0.154	-0.179; 0.076	-0.181; 0.073
Total DISCERN	0.075; 0.459	0.441; <0.001**	-0.029; 0.771	0.116; 0.251

Spearman's rho correlation coefficient, (P <0.05), *** High positive correlation, **Moderate positive correlation, *Weak positive correlation

38% of the videos were uploaded by dentist/specialist, 43% of them were uploaded by hospital, 4% of them were uploaded by commercial, 2% of them were uploaded by layperson, and 13% of them were uploaded by other. There was no significant difference between video source and view count (p=0.078), viewing rate (p=0.344). There was statistically significant difference between the video source categorization and the total video duration (p=0.005). The videos in hospital/university category were significantly had shorter time. There is statistically significant difference between video source categorization and viewer's interactions (p=0.016). The videos in dentist/specialist category were significantly had highest viewer's interactions (**Table 5**).

Table 5. Comparison and descriptive statistics of video sources

Video source	View count	Total video duration (second)	Viewer's interactions	Viewing rate
Dentist / specialist	322.5 (15-42683)	142.5 (36-604)[ab]	2.8 (0-27)[a]	45 (1-5265)
Hospital / university	245 (6-11272)	115 (31-810)[b]	0.8 (0-7)[b]	36.2 (1-3900)
Commercial	4428.5 (389-22111)	90.5 (64-127)[ab]	0.6 (0-3)[ab]	513.6 (35-1496)
Layperson	2915.5 (531-5300)	577 (311-843)[ab]	1.9 (1-3)[ab]	368.2 (92-644)
Other	148 (11-44135)	301 (63-619)[a]	2.9 (0-14)[ab]	51.2 (3-13294)
P	0.078	0.005*	0.016*	0.344

Median (Min – Max), *Significant results of Kruskal-Wallis test, (*P <0.05), [ab]There is no difference between groups with the same letter

DISCUSSION

In the current study, the quality of videos about bruxism on the digital content platform YouTube™ was evaluated. The videos rated as low quality according to the DISCERN criteria, and it was evaluated mainly as Scale 2 and Scale 3 in the VIQI criteria with 5 ratings. The research hypothesis of this study was accepted that the videos about bruxism on YouTube™ were misleading or incomplete.

In the present study, videos were evaluated according to VIQI and DISCERN criteria. In recent studies, evaluating the videos about dentistry on YouTube™ used JAMA (22), DISCERN (22), VIQI (14) and GQS (9, 13, 15) criteria. There is no consensus in the literature about which of these scales is more precise. However, in some studies (13, 22), a more objective evaluation was desired by using the two scales together. In this study, two separate evaluation criteria were used, and the results of the evaluations made according to the VIQI and DISCERN criteria were parallel to each other. In the study of Eksi-Ozsoy (22), the evaluation of the JAMA criteria had a higher score than the DISCERN criteria, inconsistent with current study.

It was reported that YouTube™users viewed the first 60 to 200 videos and 90% of YouTube™ users search the first three pages (17, 26). In previous studies (13-16, 18, 21-23), examining video content in the field of dentistry, between 100 and 150 videos were evaluated. In the current study, the first 130 videos were evaluated and 30 of them were not included because they did not meet the evaluation criteria.

In the current study, although the number of commercial videos was less than the dentist/specialist and hospital uploaders, the view counts and the viewing rate were higher than all video uploaders. One reason may be that the videos uploaded by commercial can reach more

viewer because they are often sponsored content. The commercial's total video duration was shorter compared to other videos, as another reason, viewers may have preferred to watch short videos.

Most of the studies evaluating the videos about dentistry in the literature (9,11,13-22) found the videos poor and inadequate, in consistent with this study. In the one of the studies that found the video content sufficient, no standardized evaluation criteria were used (12). The most dangerous part in terms of health-related videos is that there are no rules or restrictions on uploading videos and everyone can easily shoot and upload videos. The videos about "bruxism" were mainly uploaded by the dentist/specialist (38%) and the hospital (43%). The interactions of dentist/specialist videos resulted in more interaction by viewers than all video sources. Although the videos about "bruxism", mostly prepared by professionals, attract the attention of the audience, the evaluation of videos as poor and insufficient in terms of both evaluation criteria (VIQI and DISCERN) shows that health professionals should produce higher quality content.

Many factors (biological, genetic, psychological, and external) play a role in the etiology of bruxism (27-29). The social isolation, which is one of the psychological factors, negatively affects both physical and mental health (30, 31). In the study of Saczuk et al. (32), it was observed that the findings of TMD and bruxism increased with social isolation. One of the important results of the current study was that videos containing bruxism increased with the COVID-19 pandemic process. Based on the date of the first COVID-19 case in Turkey (March 11, 2020), 23% of the videos were uploaded before and 67% after that specific date.

One of the limitations of the study is that many new videos are uploaded to YouTube™ every minute, and the data of the study can evaluate the videos at the time of the evaluation. Another limitation is that patients or non-professionals may search for videos with other words (tooth clenching, tooth grinding) than "bruxism". In future studies, an extensive analysis can be made by adding other social media platforms, for example Instagram.

CONCLUSION

Within the limitations, the following results were obtained from this study:

1. The videos about "bruxism" were found to be poor on the YouTube™ video platform.
2. Most of the videos were prepared by the dentist/specialist and hospital. Due to the insufficient content, health professionals should prepare better quality and informative videos about bruxism.

ETHICAL DECLARATIONS

Ethics Committee Approval: Ethics committee approval was not obtained as there was no human or animal participation in the study, and the videos were public. The study according to the World Medical Association Declaration of Helsinki, as no patient data or materials were used and all videos used for the study are available on a public social media website (YouTube™).

Informed Consent: There was no human or animal participation in the study and the videos reviewed on Youtube™ were open to everyone. Therefore, it was not necessary to obtain informed consent.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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