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Content analysis of YouTube videos regarding splint therapy for temporomandibular joint disorders

Omer Faruk Sari[1], Elif Albayrak[2], Muhammed Hilmi Buyukcavus[3]

[1]Medipol University, Faculty of Dentistry, Department of Orthodontics, Ankara, Türkiye
[2]Süleyman Demirel University, Faculty of Dentistry, Department of Orthodontics, Isparta, Türkiye
[3]Antalya Bilim University, Faculty of Dentistry, Department of Orthodontics, Antalya, Türkiye

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Abstract

YouTube, like many other healthcare settings, is a widely used platform by patients. However, despite this popularity, variability in content quality and low reliability are significant challenges. This study aims to analyze the content quality and reliability of videos on YouTube™ regarding splints used in the treatment of temporomandibular dysfunction (TMD). The YouTube™ database was searched using the keywords "TMJ splint treatment" and "TMJ and splint." After applying the exclusion criteria, 100 videos were categorized based on the uploader's profile (healthcare professional/individual user). Video content was analyzed by two independent orthodontists using quantitative quality scales and standardized DISCERN and VIQI indices. The majority of the evaluated videos (64%) were uploaded by experts, and these videos were found to be statistically significantly superior to videos from individual users in terms of both overall content scores and DISCERN scores ($p<0.05$). The focus of the video content was observed to be predominantly patient experiences (60%). Importantly, high-quality videos also scored higher on measures such as views, likes, duration, and engagement index ($p<0.05$). Videos on TMJ and splint treatment on YouTube™ were found to be moderate in terms of content. The high reach of low-quality and potentially misleading videos has the potential to negatively impact patient perceptions and decisions about treatment. In light of these findings, physicians must play a significant role in patient education by producing evidence-based, accurate, and high-quality digital content.

Keywords: Splint, temporomandibular disorders, YouTube

Introduction

Temporomandibular dysfunction (TMD) is a group of disorders characterized by pain and dysfunction affecting the temporomandibular joint (TMJ), the masticatory muscles, and associated musculoskeletal structures. Patients frequently report this condition as pain, functional limitations, or articular sounds (clicks) in the TMJ region during movement. TMD, considered one of the most common causes of orofacial pain, is reported to have a high prevalence [1-3]. Studies indicate that these disorders are not limited to the joints but can also involve the central nervous system and have a complex, multifactorial etiology.

Management of TMD involves a variety of treatment methods. Current strategies include exercise therapy, pharmacological interventions (analgesics, muscle relaxants), acupuncture, intra-articular injections (anesthetics, corticosteroids), psychological approaches (relaxation techniques, stress management), surgical procedures, and occlusal splint therapy [4].

The methods used in the treatment of TMD are classified into two main categories: reversible (conservative) and irreversible (invasive) [5,6]. Among these treatment options, occlusal splints are at the forefront of conservative approaches. These removable appliances, usually made of acrylic resin, cover the occlusal and incisal surfaces of the teeth in the upper or lower jaw, providing controlled contact with the teeth in the opposite jaw [7,8]. The primary purpose of these appliances is to modulate muscle activity by redistributing occlusal forces and reducing

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Corresponding Author: Omer Faruk Sari, Medipol University, Faculty of Dentistry, Department of Orthodontics, Ankara, Türkiye
Email: omer.sari@ankaramedipol.edu.tr

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biomechanical stress on the temporomandibular joint.

The complex nature of TMD and its negative impact on patients' quality of life drives individuals to seek information about their condition. Today, the internet has become one of the most common sources of health-related information [9]. While the internet offers experts the opportunity to deliver evidence-based information to everyone, it also poses a serious risk of disinformation due to the unregulated nature of the content. The lack of scientific oversight contributes to the rapid spread of unsubstantiated misinformation, posing a potential threat to patient health and decision-making [10,11].

YouTube™, a video-sharing platform with over two billion monthly active users, stands out as a popular source of information for patients thanks to its rich visual content [12]. Patients frequently use this platform to research treatment options, access expert opinions, and learn about other patients' experiences. However, much of the health content uploaded to YouTube™ is not subject to a scientific filter, such as peer review; this can lead to significant issues regarding the reliability and accuracy of the information presented [13].

While numerous studies exist in the literature analyzing the content quality of YouTube™ videos in various fields of dentistry [14,15], analyses addressing TMD are quite limited [16,17]. More importantly, to our knowledge, no comprehensive content analysis focusing on occlusal splints, commonly used in the treatment of TMD, has been found in the literature. Therefore, the current study aimed to assess the content quality, reliability, and accuracy of YouTube™ videos used by patients to learn about TMD and occlusal splint treatment, based on expert and patient feedback.

Material and Methods

This study was designed with a cross-sectional, descriptive research design based on content analysis of videos on the YouTube™ platform. To determine the keywords to be used in the study, the Google Trends website (Google Trends, 2020, Alphabet, USA) was used, and the most commonly used search terms for the topic of "splint use in temporomandibular joint treatment" were determined to be "TMJ splint treatment" and "TMJ and splint" [18]. Data collection was conducted independently by two researchers, experts in the field, on May 20, 2025, using the identified keywords on the online video sharing platform YouTube™ (https://www.youtube.com). Search results were filtered according to the platform's default ranking criterion of "relevance." Based on the literature reporting that the majority of users viewed the first three pages [19], the first 140 videos were pre-evaluated, and the study was completed with 100 videos that met the inclusion criteria. Contents that did not contain audio or only music, videos unrelated to the study topic (TMJ and splint treatment), videos exceeding 30 minutes in duration, and duplicated videos were excluded from the study.

To ensure inter-rater consistency, all videos were re-examined by the same researchers two weeks after the initial assessment. All videos were viewed in full, and data for each video were recorded in a Microsoft Excel spreadsheet (Microsoft Corp., Redmond, WA, USA). The evaluated data included the total number of views, number of likes, total duration (seconds), and uploader source (dentist/specialist, individual user (patient/relative)). The overall quality of the videos was assessed using the Video Information and Quality Index (VIQI). Within the scope of this index, which is based on four main criteria, videos were scored on a 5-point Likert scale (1=very poor, 5=very good) for each criterion: information flow (VIQI 1), information clarity (VIQI 2), video quality (VIQI 3), and consistency (title-content congruence) (VIQI 4) [20]. The DISCERN (written quality criteria for consumer health information on treatment options) scoring system was used to assess the reliability of the information presented in the videos [21]. DISCERN consists of three main sections with 16 questions. The content quality of the videos was measured using an eight-parameter scoring system developed based on the literature [22]. These parameters were etiology, diagnostic methods, advantages, indications, contraindications, personal experience, splint mechanism, cost, and prognosis. The videos were scored based on the number of parameters addressed [23]. For each parameter, a score of 1 was given if the video presented accurate information and 0 if it did not, resulting in a total content score between 0 and 8. Based on this score, videos were classified as having poor (0-2 points), moderate (3-5 points), and rich (6-8 points) content quality.

To assess intra-observer reliability, all videos were re-evaluated two weeks later by the same researchers (E.A. and Ö.F.S.).

Ethical Considerations

Ethics committee approval was not obtained for this study because it used data publicly shared on the YouTube™ platform and did not involve any direct intervention on humans or animals.

Statistical Analysis

Statistical analysis of the data was performed using SPSS (Statistical Package for the Social Sciences) version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics for continuous variables are expressed as mean ± standard deviation and median, while categorical variables are expressed as number (n) and percentage (%).

Before comparing quantitative data between two independent groups (dentist/specialist, individual user), the data were checked for normal distribution using the Shapiro-Wilk test. Because the data were not normally distributed, the Mann-Whitney U test was used. The chi-square test was applied for comparisons of categorical data between the same groups. The significance level was set at $p<0.05$.

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Results

Table 1 shows the relationship between the content levels of videos about splint use uploaded to YouTube and the video uploaders. Of the 100 videos examined, 64% were uploaded by experts and 36% by individual users. 79% of videos uploaded by experts were rated as high content, while this rate was 73% for videos uploaded by individual users. High content videos were statistically more common in experts' posts (P < .001). No statistical difference was found between the two groups for low content videos. In the evaluation based on video content type, 70% of videos featuring patient experiences were classified as high content. While the high content rate reached 87% in videos with general informational purposes, 75% of the few videos featuring treatment applications were found to be high content. A statistically significant relationship was found between video content type and content level (P < .001).

Table 1. Analysis of video uploaders and content characteristics

Parameters	Low-Quality Content Videos n (%)	High-Quality Content Videos n (%)
Video Uploader		
Dental Specialist (n:64) (n:64%)	14 (21%)	50 (79%)
Individual Users (n:36) (n:36%)	10 (27%)	26 (73%)
P	NS	***
Video Content		
Patient Experience (n:60) (n:60%)	18 (30%)	42 (70%)
General Information (n:36) (n:36%)	5 (13%)	31 (87%)
Treatment Procedure (n:4) (n:4%)	1 (25%)	3 (75%)
P	***	***

X^2: Statistical test; *: P < .05; **: P < .01; ***: P < .001.

The total content score was 2.73 ± 0.58 in low-content videos and 4.85 ± 0.81 in high-content videos, a difference that was statistically significant (P < 0.001). Although DISCERN scores assessing information reliability were higher in high-content videos (2.8 ± 0.47), this difference was not statistically significant (P > 0.05). However, statistically significant differences were observed between high-content videos and low-content videos in the VIQI sub-parameters of flow (3.67 ± 0.38 vs. 2.33 ± 0.54; P < 0.01), clarity (3.74 ± 0.44 vs. 2.11 ± 0.51; P < 0.01), quality (3.2 ± 0.61 vs. 1.98 ± 0.49; P < 0.001), and consistency (3.55 ± 0.51 vs. 2.11 ± 0.46; P < 0.05). The total VIQI score was also statistically significantly higher in high-content videos (14.16 ± 2.47) compared to low-content videos (8.53 ± 1.5) (P < 0.001) (Table 2). When the characteristics of the videos were examined, it was determined that high-content videos had significantly higher average views (18911.85 ± 1507.86), likes (424.45 ± 102.21), comments (31.80 ± 32.34), video length (279.70 ± 166.39 seconds), viewing rate (1545.27 ± 1662.74), and interaction index (2.52 ± 1.62) than low-content videos (P < .05 - P < .001) (Table 2).

Table 2. Comparison of video quality and content based on video type

Parameters	Low-Quality Content Videos Mean ± SD	High-Quality Content Videos Mean ± SD	*P*
Total Content Score	2.73 ± 0.58	4.85 ± 0.81	***
DISCERN (Information Reliability)	2.3 ± 0.51	2.8 ± 0.47	NS
VIQI-1 (Content Flow)	2.33 ± 0.54	3.67 ± 0.38	**
VIQI-2 (Clarity)	2.11 ± 0.51	3.74 ± 0.44	**
VIQI-3 (Quality)	1.98 ± 0.49	3.2 ± 0.61	***
VIQI-4 (Consistency)	2.11 ± 0.46	3.55 ± 0.51	*
Total VIQI Score	8.53 ± 1.5	14.16 ± 2.47	***
Characteristics of the Videos			
Number of Views	15928.73 ± 1916.9	18911.85 ± 1507.86	**
Number of Likes	84.60 ± 142.36	424.45 ± 102.21	***
Number of Comments	12.33 ± 23.45	31.80 ± 32.34	***
Duration in Seconds	185.23 ± 265.83	279.70 ± 166.39	***
View Duration Rate	1157.96 ± 365.2	1545.27 ± 1662.74	*
Viewer Engagement Score	0.77 ± 0.86	2.52 ± 1.62	**

VIQI: Video information and quality index; SD: Standart deviation; P: Mann-whitney U test; *: P < .05; **: P < .01; ***: P < .001

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Videos uploaded by experts were found to have significantly higher values in terms of content and quality compared to videos uploaded by individual users. The mean total content score for videos uploaded by experts was 4.8 ± 2.0, while this value was 2.7 ± 1.0 for videos uploaded by individual users, and the difference was statistically significant (P < .001). Significant differences were also found in favor of the experts' videos for DISCERN scores (2.9 ± 0.9 vs. 1.0 ± 0.5) and VIQI scores for flow (2.9 ± 1.1 vs. 1.2 ± 0.4), clarity (3.0 ± 0.9 vs. 1.3 ± 0.4), and consistency (2.9 ± 0.8 vs. 1.3 ± 0.5) (P < .001). However, no significant difference was found between the two groups for the VIQI-3 parameter related to video quality (P > .05). The total VIQI score was measured as 11.6 ± 3.6 in expert videos and 6.5 ± 1.9 in videos uploaded by individual users, and this difference was found to be statistically significant (P < .001) (Table 3).

The average number of views (14259.6 ± 18014.9 vs. 10938.3 ± 16361.1; P < .05), number of likes (125.7 ± 107.9 vs. 62.1 ± 92.5; P < .001), viewing rate (2238.7 ± 3432.6 vs. 1295.5 ± 2711.7; P < .001), and interaction index (2.2 ± 2.4 vs. 0.8 ± 0.7; P < .001) of videos uploaded by experts were found to be significantly higher. However, no statistically significant difference was observed between the two groups in terms of the number of comments and video length (P > .05) (Table 3).

Table 3. Comparison of video quality and content according to uploader type

	VIDEO UPLOADER		
	Dental Specialist (n:64)	**Individual Users (n:36)**	
Parameters	**Mean ± SD**	**Mean ± SD**	**P**
Total Content Score	4.8 ± 2.0	2.7 ± 1.0	***
DISCERN (Information Reliability)	2.9 ± 0.9	1.0 ± 0.5	***
VIQI-1 (Content Flow)	2.9 ± 1.1	1.2 ± 0.4	***
VIQI-2 (Clarity)	3.0 ± 0.9	1.3 ± 0.4	***
VIQI-3 (Quality)	2.8 ± 0.8	2.7 ± 0.5	NS
VIQI-4 (Consistency)	2.9 ± 0.8	1.3 ± 0.5	***
Total VIQI Score	11.6 ± 3.6	6.5 ± 1.9	***
Number of Views	14259.6 ± 18014.9	10938.3 ± 16361.1	*
Number of Likes	125.7 ± 107.9	62.1 ± 92.5	***
Number of Comments	18.9 ± 33.0	18.2 ± 25.6	NS
Duration in Seconds	170.8 ± 197.4	198.6 ± 140.2	NS
View Duration Rate	2238.7 ± 3432.6	1295.5 ± 2711.7	***
Viewer Engagement Score	2.2 ± 2.4	0.8 ± 0.7	***

VIQI: Video information and quality index; SD: Standart deviation; P: Mann whitney U test; *: P < .05; **: P < .01; ***: P < .001

Discussion

This study aimed to analyze the content characteristics, quality, and viewer interactions of videos about splint use shared on YouTube. Digital platforms have been shown to play a significant role in accessing health-related information, but the quality and reliability of the content presented are unclear [23,24].

One of the key findings of our study is that videos uploaded by experts contain richer informational content than those shared by individual users. This result is consistent with previous studies indicating that videos focused on patient experience may be less informative [25]. However, this finding contradicts some studies suggesting that video source does not influence content quality [26]. This difference is thought to be due to study's focus on a specific medical topic, such as "splint use," and the fact that expert knowledge plays a more decisive role in such matters.

Despite this difference in content quality, another notable finding of the study was that no significant difference was found between the two groups of videos in terms of technical quality (images, audio, editing). This suggests that individuals without expertise in video editing can produce high-quality visual materials, and therefore, the professional appearance of the content may not always be an indicator of scientific accuracy.

The significant superiority of expert videos in metrics such as view count, like rate, and engagement index suggests that, contrary to popular belief, viewers actively seek not only popular or personal stories but also trustworthy and professionally presented content. Viewers can discern quality and prefer reliable sources in their information search [27,28].

However, no significant difference was observed in the number of comments made on the videos. This suggests that viewers value not only scientific authority but also connection and empathy with individuals who have shared similar experiences in their search for health information. Patients tend to communicate

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more easily with individuals who share their experiences and view them as a source of support, which explains the dynamics of interaction on these platforms. When these parameters are considered together, organizing the content structure of expert videos may be the most appropriate approach.

When comparing high- and low-quality videos, high-quality content was found to have longer video duration, more comments, and significantly higher VIQI and content scores [29,30]. This finding is consistent with the results of a study on Botox injections and reinforces the hypothesis that YouTube, when properly filtered, can be a useful source of information for patients [31].

In the present study the DISCERN scale did not show a significant difference between the two groups; however, its numerically higher value in high-content videos suggests a trend toward these videos presenting treatment processes more understandably and reliably [32-34].

This study has several limitations. First, the analysis was restricted to the first three pages of the search results, which may have led to the exclusion of potentially relevant videos. Additionally, the variability of the YouTube™ search algorithm can influence the visibility and ranking of videos, thereby limiting the reproducibility of the results. The dynamic nature of video content, which is subject to frequent updates and deletions, may affect the long-term validity of the findings. Finally, the analysis was limited to English and Turkish YouTube™ videos. Future studies should include videos in other languages in the analysis.

Conclusion

Physicians must direct their patients only to scientifically validated content. Furthermore, the findings of this study also highlight the need for specialists to produce more understandable, friendly, and interactive content that meets patient expectations. To prevent inaccurate or incomplete information, especially in video content produced for patient education and guidance purposes, it should be a public health imperative that it be prepared and monitored by specialists.

Conflict of Interests
The authors declare that there is no conflict of interest in the study.

Financial Disclosure
The authors declare that they have received no financial support for the study.

Ethical Approval
Ethics committee approval was not obtained for this study because it used data publicly shared on the YouTube™ platform and did not involve any direct intervention on humans or animals.

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