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Dry Socket: Are YouTube Videos Helpful Source for This Painful Condition?

Kuru Soket: YouTube Videoları Bu Ağrılı Durum İçin Faydalı Bir Kaynak mıdır?

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ABSTRACT

Objective: Using social media for medical information is gaining popularity. Dry socket is a common dental health issue. This study aimed to investigate YouTube videos about dry socket and to evaluate their usefulness for patient education.

Methods: A YouTube search was performed for videos using the terms 'dry socket' and 'alveolar osteitis,' resulting in a total of 200 pre-screened videos (100 for each term). Demographic information was collected from 61 videos that met the inclusion criteria. Video resources were categorized as dentist/specialist dentist, health institutions, and others (individuals, health-related social media platforms). Video types were classified as educational, patient experience, and scientifically misleading. Two independent observers evaluated video content using a customized 10-point scoring system. The videos were rated as poor (0), moderate (1), or excellent (2) based on their information, data flow, and content quality.

Results: The average usefulness score was 0.92, with no significant difference observed between the usefulness scores of videos based on upload source and video type (P >.05). Excellent videos demonstrated significantly higher video length and interaction index compared to poor and moderate videos (P <.05). The most mentioned topic was severe pain (82%). The least mentioned topics were the use of oral contraceptives (23%) and poor oral hygiene (23%).

Conclusion: Social platforms such as YouTube can provide a certain level of information about dry socket for patients. Physicians should become more effective in providing high-quality knowledge to patients in person or on their social platforms.

Keywords: Alveolar osteitis, dry socket, tooth extraction, social media, YouTube

ÖZ

Amaç: Sosyal medyanın tıbbi bilgi kaynağı olarak kullanması popülerlik kazanmaktadır. Kuru soket, yaygın bir diş sağlığı sorunudur. Bu çalışma, kuru soketle ilgili YouTube videolarını incelemeyi ve hastalar için eğitim amaçlı kullanışlılıklarını değerlendirmeyi amaçlamaktadır.

Yöntemler: YouTube videolarında "kuru soket" ve "alveoler osteit" terimlerini kullanarak arama yapıldı. Her arama terimi için 100 video olmak üzere toplam 200 video ön incelemeye tabi tutuldu ve dahil edilme kriterlerini karşılayan 61 videonun demografik verileri kaydedildi. Videolar kaynaklar açısından diş hekimi/uzman diş hekimi, sağlık kurumları ve diğerleri (bireysel, sağlıkla ilgili sosyal medya platformları) olarak; tür açısından eğitici, hasta deneyimi ve bilimsel olarak yanıltıcı olarak sınıflandırıldı. Video içeriği, özelleştirilmiş 10 puanlık puanlama şeması kullanılarak iki bağımsız gözlemci tarafından değerlendirildi. Videoların kullanışlılık puanları içerdikleri bilgi, veri akışı ve içerik kalitesine göre zayıf (0), orta (1) ve mükemmel (2) olarak belirlendi.

Bulgular: Ortalama kullanışlılık puanı 0,92 olup, yükleme kaynağına ve video türüne göre videoların kullanışlılık puanları arasında anlamlı bir fark gözlenmedi (P >,05). Mükemmel videoların video uzunluğu ve etkileşim indeksi zayıf ve orta videolardan oldukça yüksekti (P<,05). En çok bahsedilen konu şiddetli ağrı (%82); en az bahsedilen konular oral kontraseptif kullanımı (%23) ve kötü oral hijyendi (%23).

Sonuç: YouTube gibi sosyal platformlar hastalara kuru soket hakkında belli düzeyde bilgi sağlayabilmektedir. Hekimlerin hastalara şahsen veya sosyal platformlarda yüksek kalitede bilgi sunma konusunda daha etkili hale gelmeleri gerekmektedir.

Anahtar Kelimeler: Alveoler osteit, kuru soket, diş çekimi, sosyal medya, Youtube

INTRODUCTION

Tooth extraction, particularly wisdom tooth extraction, is one of the most commonly performed procedures in dentistry. Complications arising from this procedure encompass both iatrogenic issues such as nerve injury and bone fractures, as well as inflammatory concerns like dry socket, postoperative pain, delayed healing, postoperative infection, hematoma, swelling, and trismus. Among these complications, dry socket is notably one of the most frequently occurring.[1]

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Dry socket is a condition that arises following a tooth extraction. It occurs when the initial blood clot, which forms in the tooth socket, dissolves prematurely, leading to a failure in the socket's healing process. This condition is also referred to as alveolar osteitis, alveolalgia, localized osteitis, fibrinolytic alveolitis, alveolitis sicca dolorosa, as well as necrotic or septic socket. Symptoms of dry socket typically start between two to four days following tooth extraction, characterized by severe pain that extends towards the ear and neck. The tissue lining the alveolar socket turns red, and there's a yellow-gray layer of dead tissue covering it, accompanied by a noticeable unpleasant smell.[2] It is associated with various factors such as age, gender, smoking habit, use of oral contraceptives, menstrual cycle, poor oral hygiene, duration of surgery, surgical trauma/extraction difficulty, existence of previous pericoronal or periapical infection, insufficient curettage or irrigation of the extraction socket.[3] For its management, irrigation is performed in the infected extraction cavity, and food residues and infected tissues are removed. Local pastes with analgesic and antiseptic effects are placed into the socket. Non-steroidal anti-inflammatories and antiseptic mouthwashes are prescribed.[4]

Currently, due to recent advancements in information technologies and the convenience of using smart devices like phones, computers, and tablets, there is a growing trend of increased information sharing over the internet across various domains. Most of this information is publicly available. In addition, this information reaches a wider audience with the increasing number of social media platforms. These platforms attract attention not only from the public but also from professionals who need to have knowledge.[5] YouTube is the second most visited social media platform in the world. Created in 2005, this platform has more than 1.9 billion monthly users and allows illustrated and animated presentation modes. Access to YouTube is easy, the content can be watched many times and the information is completely free. In late years, there has been a tremendous increase in the public use of YouTube to search for medical knowledge, as the Internet has become more widespread and easily accessible, the cost is lower than professional healthcare counseling, and patients desire to be more informed.[6-8] However, uploaded material is not peer-reviewed, can be downloaded from a variety of sources, and possibly is of varying quality. Viewers may find incomplete or misleading information along with useful information about the topics they are researching. So health professionals are concerned about the quality of this information.[9]

There have been many studies in different fields of dentistry, including tooth extraction, aimed at understanding the content, accuracy, and quality of the information provided in YouTube™ videos.[7,10-14] This study is intended to evaluate the information quality in YouTube videos related to dry socket and analyze their usefulness for patients. The hypothesis of the study posited that the information provided in YouTube videos about dry socket is not comprehensive.

METHODS

On 13 December 2022, English videos about dry socket were examined on YouTube. To simulate accessing information pretending the patients' point of view, common symptoms of dry socket, such as "severe pain after tooth extraction" and "foul odor after tooth extraction," were searched on Google. The search terms “dry socket” and “alveolar osteitis” have been reached. It was taken into account that users who search on YouTube do not watch more than 60 videos.[15] History was reset and searched without a membership so that previous searches do not affect the results and rankings. The search was filtered according to “relevance”, and the first 100 videos were selected for each keyword, and a total of 200 videos were watched.

Scanning of videos

To prevent the loss of video data in search results, the universal resource locators (URLs) of all videos to be analyzed were recorded. Videos not in the English language, lacking sound/visuals/titles, being repetitive, containing advertising content, exceeding 15 minutes in length, featuring conference/lecture content, or being irrelevant to the topic were excluded from the study. All videos were examined by two independent researchers (TCS, EM), and any disagreements were resolved by consensus. Demographic characteristics were registered for every individual video: [1] Content title, [2] Date of upload (Year), [3] Number of days elapsed since upload, [4] Source of upload (Dentists/ Specialist dentist, Healthcare institutions, Individual/health-related social platforms), [5] Country of origin, [6] Video duration (minutes), [7] Number of views, [8] Number of likes and dislikes, [9] Viewing rate, [10] Interaction index.

The formulas provided below were used to calculate the viewing rate and interaction index:[16]

Interaction index=[(likes-dislikes)/number of views]x100

Viewing rate=(number of views/days since upload)x100.

Evaluation of videos

The quality of the videos was assessed based on the parameters outlined in Table 1, with scores ranging from 0 to 10. A total score of 0-3 indicates weak video content with no discussion of the topic and no benefit for patients, as well as a lack of information. A total score of 4-7 indicates moderate-quality video content with some well-discussed topics that could be helpful for patients. A total score of 8-10 indicates excellent quality video content with almost all topics well-discussed and could be highly beneficial for patients. Additionally, the usefulness score of YouTube videos was determined by evaluating the video content in three categories: poor (0), moderate (1), and excellent (2).

Table 1. Content headings evaluated on YouTube.

Titles	Score
Definition	1
Risk factors	
Surgical trauma/Difficulty in extraction	1
Poor oral hygiene	1
Smoking	1
Use of oral contraceptives	1
Clinical findings	
Severe pain	1
Exposed bone/Necrotic socket	1
Foul odor in mouth	1
Treatment	1
Prevention	1
Total	**10**

• Poor (0): low quality, weak flow, incomplete and insufficient knowledge

• Moderate (1): moderate quality, insufficient flow, satisfactory knowledge

• Excellent (2): excellent quality and flow, accurate and highly useful knowledge.[17]

This study does not require ethics committee approval as it involves publicly available data.

Statistical analysis

Statistical analysis was conducted using the Statistical Package of Social Sciences (SPSS) software version 23.0, developed by IBM Inc., located in Armonk, USA. The normality of the variables was evaluated using the Shapiro-Wilk normality test, and it was determined that all variables did not follow a normal distribution. Non-parametric data were analyzed using the Kruskal-Wallis test and Mann-Whitney U test.

Post hoc tests were used to determine differences. The chi-square test was used to determine differences between categorical variables. For correlation analysis, the Spearman correlation coefficient was used. A significance level of *P*<.05 was deemed as statistically significant. Regarding the usefulness score, the level of agreement between different observers was assessed using the Kappa score.

RESULTS

In the study, a total of 200 videos were analyzed. Of these, 61 videos met the inclusion criteria, while 139 videos were excluded (Figure 1). The included videos were classified according to their type as educational (n=55), patient experience (n=5), and scientifically misleading (n=1). The included videos were classified according to their upload source as healthcare professional (n=29, 47.5%), healthcare institution (n=13, 21.13%), and others (individual, health-related social platforms) (n=19, 31.1%). Most videos were published in the USA (57.4%). Other countries include India, Canada, Australia, UK, Spain, and Kenya.

Based on the descriptive statistics in Table 2, the videos exhibited the following average values: a duration of 3.96 minutes, an average of 707.36 likes and 50.45 dislikes, and an average view count of 121,466.57. The average viewing rate was 6,680.55 and the interaction of viewers with the videos was generally positive, with an average interaction index of 2.24.

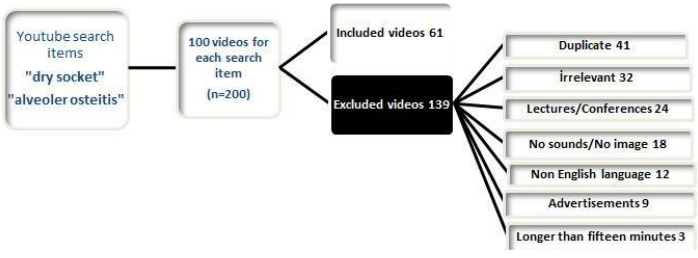

Figure 1. Flowchart of the YouTubeTM search strategy.

Table 2. Descriptive statistical properties of videos.

Parameters	Mean	SD	Median	Min.	Max.
Days since upload	1623.32	1387.92	1027	33.00	4645
Video duration (minutes)	3.96	3.13	3.00	0.55	13.73
Views	121466.57	362165.22	16229.00	1	2608275
Likes	707.36	1685.01	91.00	0	11000
Dislikes	50.45	164.71	3.00	0	1200
Viewing rate	6680.55	13875.14	1160.00	0.46	71630.70
Interaction index	2.24	5.20472	0.72	-0.17	33.30

SD=standard deviation; min=minimum; max=maximum.

Figure 2 illustrates the distribution of values for content titles such as definition, etiology/risk factors, symptoms, treatment, and prevention related to dry socket. There are only 2 videos that cover all topic titles (total content score=10). The videos have mentioned definition (72.1%), treatment (63.9%), and prevention (70.5%) at a considerable rate. The risk factor of smoking (62.3%) was emphasized more frequently, while other risk factors, such as trauma (26.2%), poor oral hygiene (23%), and oral contraceptive use (23%) were less frequently mentioned in the videos. The symptom of severe pain was mentioned the most (82%), while exposed bone (47.5%) and bad breath in the mouth (34.4%) were mentioned less.

Analysis of video demographic data based on the upload source revealed no significant difference between the groups (*P*>.05) (Table 3). When demographic data were compared based on the usefulness score, video length was found to be significantly higher in moderate quality videos (median=3.43) compared to poor videos (median=1.78) (*P*=.031). The video length of the excellent videos (median=6.41) was also found to be significantly higher than poor and moderate videos (*P*<.05). Besides, it has been observed that the interaction index of excellent videos (median=3.73) is significantly higher than poor (median=0.53) and moderate (median=0.59) videos (*P*<.05). There was no significant difference in the interaction index between the poor and moderate videos (*P*>.05).

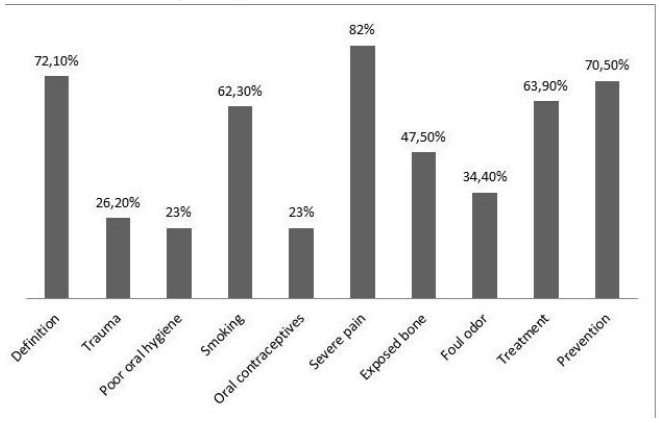

Figure 2. Content title percentages of YouTube videos

Table 3. Comparison of video demographics by upload source.

	Professionals(dentist/specialist) (n=29)			Health companies (n=13)			Others (Individual/Health related social platforms) (n=19)			*P* value
Parameters	**Median**	**Min.**	**Max.**	**Median**	**Min**	**Max**	**Median**	**Min**	**Max**	
Days since upload	645	33	4645	966	258	4144	2145	343	4644	.051
Video duration (minute)	4.11	0.56	12.13	2.00	0.55	4.40	3.48	1.33	13.73	.065
Views	9429	1	2608275	16466	85	671180	18215	239	501337	.669
Likes	91	0	11000	27	1	4400	112	1	4200	.890
Dislikes	3	0	1200	3	0	182	11	0	338	.609
Viewing rate	1223	0.46	67154.00	672.86	1.03	1630.70	963.44	8.41	2558.00	.905
Interaction index	1.3900	0.00	33.30	0.62	0.05	13.29	0.56	0.17	4.18	.164

**P<.05; min = minimum; max = maximum.*

Table 4. Comparison of video demographics by usefulness score.

Parameters	Poor (n=16)			Moderate (n=34)			Excellent (n=11)			*P* value
	Median	**Min**	**Max**	**Median**	**Min**	**Max**	**Median**	**Min**	**Max**	
Days since upload	1712.00	70	4645	1147.00	175	4644	645.00	33	3602	.092
Video duration (minutes)	1.78	0.55	4.11	3.43	0.56	12.13	6.41	2.88	13.73	***<.001** .031[a] .000[b] .013[c]
Views	10973.50	126	818757	19440.50	1	608275	4250	90	348130	.639
Likes	20.00	2	1800	127	0	11000	198.00	4	4200	.438
Dislikes	0	0	355	8.50	0	1200	3.00	0	153	.426
Viewing rate	727.10	13.04	1762 6.00	1137.50	0.46	1630.70	282.70	18.98	4255 8.00	.864
Interaction index	0.53	-0.02	3.05	0.59	-0.17	33.30	3.73	-0.03	16.60	***.014** 1.000[a] *.038[b] *.015[c]

**P*<.05; [a]poor and moderate; [b]poor and excellent; [c]moderate and excellent; min = minimum; max = maximum.

There was no significant difference between the upload source and video type (P>.05); there was also no significant difference between the usefulness score and video type (P>.05). 25.5% of educational videos were rated as poor, 56.4% as moderate, and 18.2% as excellent. On the other hand, 20% of videos with patient experiences were rated as poor, 60% as moderate, and 20% as excellent.

The correlation analysis of the video-related parameters is presented in Table 5. There was a strong positive correlation (P<.001) between the number of views and the time elapsed since upload, likes and dislikes, and viewing rate. There was also a weak negative correlation (P<.05) between the interaction index and the number of views. Additionally, there was a moderate positive correlation (P<.01) between video length and the number of likes and interaction index; there was a weak positive correlation (P<.05) between video length and the number of dislikes. The inter-observer reliability was excellent (Kappa=0.88) in determining the usefulness score.

Table 5. Spearman correlation coefficients of YouTube parameters of videos.

	Days since upload	Video duration	Views	Like	Dislikes	Viewing rate	Interaction index
Days since upload	1						
Video duration	-.184	1					
Views	.540***	.210	1				
Like	.279*	.405**	.871***	1			
Dislikes	.487***	.311*	.905***	.841***	1		
Viewing rate	.174	.351**	.902***	.876***	.800***	1	
Interaction index	-.548***	.361**	-.255*	.158	-.220	-.052	1

** P <.05, **P<.01, *** P <.001*

DISCUSSION

The study aimed to investigate YouTube videos about dry socket and ~~to~~ evaluate their usefulness for patient education. The research hypothesis was confirmed, revealing that YouTube videos generally presented incomplete content and demonstrated limited usefulness.

Recently, with the internet becoming a popular source of information, the tendency to turn to easily accessible and user-friendly online platforms such as Youtube for obtaining information about health conditions and treatment options have increased significantly. Dry socket is one of the most common complication following tooth extraction and imposes a significant burden on patients. The incidence is most commonly between 0.5% and 5% for routine extractions; while the incidence after mandibular wisdom tooth extraction is >30%.[18] However, the overall incidence has been reported to vary between 1% and 45%.[19] After tooth extraction, patients may apply repeated visits to dental clinics both on suspicion of retaining roots in the socket and for symptomatic relief and treatment. On the contrary, patients' already negative perceptions and fears about dental treatment may reinforce and they may turn to online platforms to seek answers to their questions related to this discomfort. Hence, it is crucial to educate patients regarding potential issues following a tooth extraction. No studies have been found in the literature that evaluate the content of YouTube videos related to dry socket. In studies evaluating the usefulness of YouTube videos on impacted tooth extraction, it was determined that the rate of mentioning complications, including dry socket, was low.[14,20]

While it was noted that videos on dental topics were generally of poor or moderate quality, and therefore not sufficient for patient education,[10,12,20-22] Paksoy and Gas[23] reported that 94.28% of YouTube videos related to the sinus lift procedure had high-quality content. The quantity and quality of these videos were found to be restricted for experts, but they could be sufficient for patients and non-expert healthcare providers. In our research, it was observed that only 18% of the videos exhibited content of superior quality, aligning with the findings of the investigation on impacted teeth carried out by Menziletoğlu et al.[20] We also found that the majority of the videos (55.7%) had moderate-quality content.

In scoring the quality of information content in YouTube videos, the most common risk factors and symptoms associated with dry socket were preferred.[1,2,24] Kuśnierek et al.[3] reported that the incidence of dry socket was approximately 13.2% in smokers and about 3.8% in non-smokers. In our study, although smoking was the most frequently mentioned topic in the titles of YouTube videos related to dry socket; oral hygiene, extraction difficulty/surgical experience, and oral contraceptive use were mentioned very rarely. The most frequently mentioned symptom was severe pain; however, exposed bone and foul odor, which could help in a more definite clinical diagnosis, were mentioned less frequently. In addition to physiological saline irrigation and curettage, biomaterials such as Alveogyl, 0.8% hyaluronic acid and 0.02% chlorhexidine digluconate gel are also used in the treatment of dry socket.[25] It was found that sufficient information was provided regarding the treatment and preventive measures. In our study, usefulness score was not influenced by the source and type of video, which is consistent with the study of Pasaoglu et al.[22]

In this study, only 11 of the scanned videos contained excellent level of information, and it is believed that 63.6% of these were considered to have excellent quality as they were installed by healthcare professionals. In general, the videos scanned in this study were of moderate-quality content, and it was found that these videos were uploaded mostly by professionals (38.3%), followed by other sources (38.2%), and healthcare institutions (23.5%). Most of the users searching for information about dry socket on YouTube accessed moderate-quality videos in all three groups, both patient experience and educational videos were also mostly moderate-quality videos. This situation suggests that YouTube video content can be a source of the dry socket to some extent.

In our study, similar to the study by Kandemir et al.[26], it was found that the video length and interaction index were statistically higher in excellent and moderate quality videos compared to poor quality videos. There was also a positive correlation between video length and interaction index, which supports this finding. Video length is an important criterion. Gas et al.[27] and Lena and Dindaroglu[28] concluded that when the duration increases, more detailed information can be conveyed to the viewers. However, it was stated that long videos may lead to a decrease in audience interest and the importance of presenting video content in reasonable time periods was emphasized.[26-28] In light of this, previous studies excluded videos longer than 15 minutes.[11,26,28-30] Therefore, in this study, the duration of the videos was similarly limited to 15 minutes.

In the study, it was found that there was interest in videos related to dry socket on the YouTube video platform. Indeed, the fact that videos of moderate quality receive the highest number of views on the YouTube video platform indicates that videos with insufficient flow and moderate quality content that only cover certain topics may lead to their spread.

A limitation of this study is that certain videos pertaining to the subject were divided into segments and uploaded by the same source. As only specific topics were covered in each episode, these videos received lower scores compared to videos that were uploaded as a

whole. Additionally, only videos in English were included in the study, and if videos in other languages were included, more useful videos could have been found and evaluated.

In conclusion, there are numerous videos on YouTube related to dry socket, but they are limited as a source of information because of the lack of coverage on significant headings. Despite the majority of videos being uploaded by healthcare professionals, there is no significant difference in content quality between them and other sources. This highlights the need for healthcare professionals to educate patients on dry socket in both clinical settings and through social media platforms.

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