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Assessment of Youtube™ Videos as a Parent Information Source for Teething Symptoms#

Burcu Güçyetmez Topal[1,a*], Melike Tıraş[1,b],.Ayşenur Tanrıkulu[1,c]

[1]*Department of Pediatric Dentistry, Faculty of Dentistry, Afyonkarahisar Health Sciences University, Afyonkarahisar, Turkey*
**Corresponding author*

Research Article

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History

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ABSTRACT

Objectives: The aim of the study was to evaluate the quality of information provided by YouTube™ for parents searching information about teething symptoms.

Materials and Methods: To simulate access to information from the parents' perspective, the terms "teething symptoms and teething signs" were searched on YouTube™. To obtain a total of 60 acceptable videos, a total of 100 videos were screened. Irrelevant videos, advertisements, non-English videos, duplicates, videos lasted greater than 15 min were excluded. General video assessment included ownership, video age, number of comments, purpose and references. Local and systemic symptoms of teething, duration of teething, and treatment options were also examined in the videos. Global Quality Scale(GQS), DISCERN, viewers' interaction, and viewing rate were calculated. Statistical analysis was performed using the SPSS Version 26.

Results: Sixty three videos were included. The videos had a mean video interaction index of 1.36±3.39. The mean viewing rate was 6915±18125 with a range of 0.7 to 115498. The mean score for GQS was 2.98±1.1, for DISCERN was 1.03±0.89. The mean DISCERN score of layperson was lesser than healthcare professionals ($p<0.05$). Local symptoms were mentioned in 85.7% of the videos and systemic symptoms in 58.7% of them. Treatments were mentioned in 61.9% of the videos.

Conclusions: The quality of information about teething symptoms on YouTube™ was variable, but the quality of videos from non-health professionals was particularly poor. Reliable YouTube™ videos published by childhealth professionals will be a good resource, especially for parents who cannot reach health institutions due to various reasons such as pandemic.

Keywords: Youtube™, Teething Symptoms, Teething Signs.

[a] dt.burcugucyetmez@hotmail.com https://orcid.org/0000-0002-9932-9169
[b] meliketiras@hotmail.com https://orcid.org/0000-0001-7723-1155
[c] tn.aysnr@gmail.com https://orcid.org/0000-0002-9644-8939

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Introduction

The eruption of primary teeth is a physiological process that starts with the eruption of the mandibular incisors when babies are 4-8 months old and continues until the eruption of the primary second molars between 30-36 months.[1,2] Local and systemic symptoms such as general irritability, sleep disturbances, crying, nasal discharge, flushed cheeks, fever, diarrhea, loss of appetite, hypersalivation, ear rubbing, gingival inflammation on the erupting teeth, in this period of time when primary teeth erupt can be seen.[3-8]

Some studies have not found any causal relationship between tooth eruption and symptoms such as fever, diarrhea, rash, or infection in infants.[3,4,9] During the eruption period, pharmacological methods such as many teething gels are recommended to reduce the symptoms of babies, and non-pharmacological methods such as teething rings, cooled or frozen fresh vegetables and fruits for babies to bite and relieve by scratching the relevant area.[7] In this difficult period for babies and parents, parents can get information about the symptoms of tooth eruption from pediatric dentists, pediatricians, family physicians and other health institutions. In addition, parents are increasingly using the internet to get more information about infant health.[10-12] While healthcare professionals remain the most important source of information in guiding a patient's decisions, the impact of information on the internet is evident.[13] YouTube™ is one of the most visited websites by patients who want to access medical information and is the second most popular website in the world after Google on the Internet. YouTube™ was founded as a video sharing site in 2005 and approximately 5 billion videos are watched per day.[14] YouTube™ videos are not reviewed by an expert due to the nature of this platform and videos can be uploaded from various sources in varying quality.[15]

In the available literature, it has been observed that there is no study examining the information content of YouTube™ videos about teething symptoms. In this study, it was aimed to evaluate YouTube™ videos as a parent information source for teething symptoms.

Materials and Methods

In this study, we searched for the most frequently searched terms "teething symptoms and teething signs" from the Google Trends on YouTube™ to simulate access to information from a parent's perspective. 100 videos were analyzed to get 60 videos with default settings and no filters. To avoid variations in the analyses, a playlist was created. Irrelevant videos, commercials, non-English videos, duplicates, videos lasting longer than 15 minutes are excluded. The videos were independently evaluated by two calibrated pediatric dentistry research assistant (Kappa value was 0.86). General video evaluation included ownership, the job of the person who shared it, the type of video channel, the age of the video, the number of likes and dislikes, the number of comments, the purpose of the video and references. Local and systemic symptoms of teething, teething process and treatment options were also examined in the videos. Interaction index and viewing rate of the videos were calculated and evaluated according to the Global Quality Scale (GQS) and DISCERN.

Interaction Index=[number of likes − number of dislikes] / total number of views × 100%
Viewing rate = number of views/number of days since upload × 100% [16]

The Global Quality Scale (GQS), preferred for quality assessment, was used to evaluate the quality of each video based on the scope of scientifically accurate information about its content.[17] Videos were rated for streaming, usability, and overall quality on the Global Quality Scale. According to this;

- Low quality, poor flow and not helping patients.
- Generally poor quality, poor flow, offered some information and limited use to patients
- Moderate quality, poor flow, provided some important information, did not cover other important issues and useful to some extent for patients
- Good quality, good streaming, covers the most important topics, useful for patients, but videos may contain minor shortcomings.
- Excellent quality, excellent flow, detailed, valid and accurate information presented and very beneficial for patients.

The reliability of the content of the videos was evaluated with the DISCERN scale.[18] This assessment consists of five questions with 'yes' or 'no' answers:

- Are the objectives clear and achieved?
- Are reliable sources of information used?
- Is the information presented balanced and unbiased?
- Are additional sources of information listed for patient reference?
- Are areas of uncertainty mentioned?

Each question was given 1 point for a "yes" answer and 0 for a "no" answer. The total score ranges from 1 to 5 points.

Statistical analysis of the study was performed with SPSS Version 26 (IBM SPSS® Statistics, IBM Corp., London: UK). Categorical data were given as percentage (%) and number (n), and Pearson chi-square test was used for comparison. Mean and standard deviation values were used for parametric numerical data; median, minimum and maximum values were used for non-parametric numerical data. The significance level will be set to $p<0.05$.

Results

63 videos out of 100 videos reviewed on YouTube™ were included in this study. Of the 37 videos excluded from the evaluation, 11 videos were excluded because they were not in English, 5 videos did not have sound, 10 videos did not have video content, 7 videos were irrelevant to the topic, and 4 videos were repetitive. Descriptive statistics of the demographics of the 63 videos included are shown in Table 1.

Table 1. Descriptive statistics of YouTubeTM videos with "Teething symptoms and Teething signs"

	Mean (SD)*	Median(Min-Max)*
Number of Views	66933.17 (128611.44)	9295 (20-723368)
Number of Likes	319.89 (721.15)	71 (0-4800)
Number of Dislikes	33.62 (60.72)	6 (0-299)
Number of Comments	29.65 50.49)	2.5 (0-245)
Age of Video	2152.35 (1505.16)	1975 (90-4745)
Interaction Index	1.36 (3.39)	0.34 (0.026-17.8)
Viewing Rate	6915 (18125)	1.36 (0.7-115498)

*SD:Standard Deviation, Min:Minimum, Max:Maximum

The mean GQS score of the analyzed videos was 2.98±1.1, and the DISCERN mean score was 1.03±0.89. While association between the GQS value and the interaction index was found statistically significant ($p=0.006$), there was no significant association between the GQS and the viewing rate ($p<0.05$). The videos of layperson have a lower average DISCERN score (0.81) than healthcare professionals (1.93; $p<0.05$).

According to purpose of videos; 55 (87.3%) videos were for informational purposes, 5 (7.9%) for transferring personal experiences, and 3 (4.8%) for product promotion (Figure 1). Occupational distribution, number and percentages of those who shared videos on the subject are shown in Figure 2.

The most frequently discussed issue regarding eruption was local symptoms (85.7%). Local symptoms were mentioned in 85.7% of the videos and systemic symptoms in 58.7% of them. Also, nappy rash (in 1 video), constipation (in 1 video), and nasal discharge (in 1

video) were mentioned among symptoms of teething. The percentages of local and systemic symptoms in the videos are shown in Table 2.

The treatment of the teething symptoms was evaluated in 61.9% of the Youtube™ videos. 57.1% of these treatments are non-pharmacological, and 30.2% are pharmacological treatments. In the two videos, teething necklaces which mislead the parents, was adviced for teething symptoms. References were included in only 3 (4.8%) of the videos.

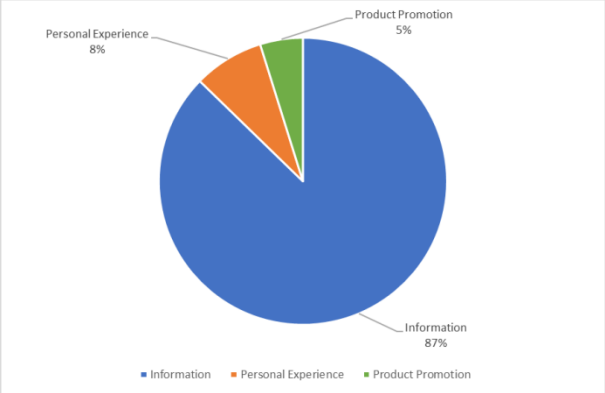

Figure 1. Percentages of the purpose of shared the videos

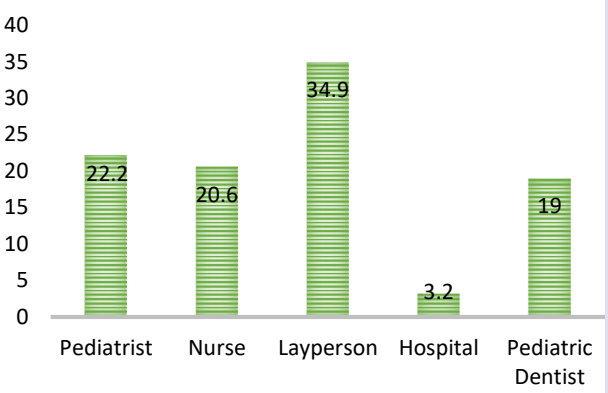

Figure 2. Occupational distribution of the people who shared the videos

Table 2. Percentages of videos that mentioned about the presence and absence of local symptoms

Local Symptoms		
	Absence	**Presence**
Gingival inflammation	20.6%	79.4%
Hypersalivation	20.6%	79.4%
Chewing	15.9%	84.1%
Ear Rubbing	57.1%	42.9%
Eruption Cyst	100%	0%
Flushed Cheeks	69.8%	32%
Ulcer in the Mouth	95.2%	4.8%

Table 3. Percentages of videos that mentioned about the presence and absence of systemic symptoms

Systemic Symptoms		
	Absence	**Presence**
Vomiting	79.4%	20.6%
Loss of Appetite	30.2%	69.8%
Cough	87.3%	20.6%
Rush	81%	19%
Stomachache	93.7%	6.3%
Crying	39.7%	60.3%
Pain	19%	81%
Unrest	15.9%	84.1%
Fever	25.4%	74.6%
Degree of Fever	61.9%	38.1%
Restless Sleep	28.6%	71.4%
Diarrhea	54%	46%

Discussion

Parents seek information on websites such as Youtube™ to learn more about their baby's health. Healthcare professionals are the most important source of information about the health of babies, but the ease of obtaining medical information on the internet and the need for remote health care due to COVID-19 increase the popularity of Youtube™ videos with medical content.[19] Within the scope of pediatric dentistry, Youtube™ videos were evaluated in many subjects such as oral hygiene, early childhood caries, fluoride use.[20-22] In the available literature, it has been seen that there is no study examining the information content of Youtube™ videos about teething symptoms in babies, and it is aimed to examine them in present study. Due to the increasing popularity of the internet and social media in recent years, it is seen that both healthcare professionals and layperson share videos about tooth eruption symptoms on platforms such as Youtube™. In

this study, layperson shared videos about tooth eruption symptoms at a rate of 34.9%. This rate was followed by pediatricians (22.2%), nurses (20.6%) and pediatric dentists (19%). Since different professional groups and layperson share Youtube™ videos on this subject, different parameters were used in the current study to evaluate the reliability of the videos.

The mean GQS score, which was used to evaluate the general quality of the videos examined, was calculated as 2.98±1.1. According to this average value, the videos that are of medium quality, provide poor flow, but provide some important information, do not mention other important issues, but still provide useful information, albeit limited for patients. In this study, the fact that the videos about eruption symptoms were mostly shared by layperson affected the mean GQS. Studies have reported that many of the videos on Youtube™ are uploaded by layperson and are of low quality.[22,23] In this study, association between the GQS value and the interaction index was found statistically significant. In a study, a statistical significance was found between the video interaction index and the quality of the videos, as same with this present findings.[24]

According to the DISCERN analysis, which evaluates the quality of consumer health information, the average score of the videos examined in this study is 1.03±0.89. The mean DISCERN score of layperson video sharers was found to be lower than that of healthcare professionals. These values highlight the low reliability of the videos according to DISCERN analysis. One study states that sharers of Youtube™ videos are not a reliable source for patients, consistent with this present findings.[25] Since Youtube™ videos adhere to the principle of freedom of expression and are mostly not editable, there may be situations such as misinformation sharing.[26] Studies agree that Youtube™ videos contain scientifically misleading or incorrect information.[27,28] Due to the dynamic nature of Youtube™, it should be taken into account that the watching rate of the videos, the values such as likes, dislikes and comments may change over time and these variables can be manipulated.

In this study, 87.3% of the videos examined were shared for informational purposes, 7.9% for personal experiences and 4.8% for product promotion. Parents can have limited information on their baby's teething symptoms, the situations they may encounter in this process, experience videos where they can compare their babies with their peers, and symptomatic treatments of brands, albeit to a limited extent.

In this study, local symptoms were mentioned in 85.7% and systemic symptoms in 58.7% of the examined Youtube™ videos. While the most frequently mentioned local teeth eruption symptom was chewing (84.1%), it was followed by gingival inflammation (79.4%) and hypersalivation(79.4%). Among the systemic symptoms, irritability (84.1%) was the most frequent, followed by fever (74.6%) and restless sleep (71.4%). Haznedaroğlu et al.(2016) evaluated websites as a source of information on teething symptoms in Turkey and reported that the most included symptoms were drooling, restless sleep, gingival inflammation and chewing.[29] HajiAhmadi et al.(2020) examined websites about teething symptoms, it was reported that the most common symptoms mentioned on the websites were increased drooling, gingival inflammation, chewing, irritability, crankiness, crying and decreased appetite, in parallel with this study.[30]

Many pharmacological and non-pharmacological methods are often recommended for the treatment of these existing teething symptoms in infants. Although there is no evidence to support the effectiveness of pharmacological preparations, parents and healthcare professionals continue to use pharmacological treatments widely.[2] In this study, 61.9% of the evaluated Youtube™ videos were included the treatment of the symptoms seen during the eruption period. 57.1% of these treatments are non-pharmacological, and 30.2% are pharmacological treatments. In the two videos, the use of teething necklaces was adviced.[31] In a study , it was found that the use of soft and cold teething rings and gum massage for non-pharmacological management on their website, and oral analgesics for pharmacological management of symptoms. It has been noticed that pharmacological treatment is not widely recommended on professional websites and on websites belonging to pediatricians.[30] It can be thought that not recommending pharmacological treatments on social media and the internet is to prevent uncontrolled drug use and drug cytotoxicity by parents without consulting healthcare professionals.

References were included in only 3 (4.8%) of the videos. In a study, it was reported that less than 50% of the sites did not have an author or reference.[29] The reliability of non-referenced information is doubtful, and people who seek information on the internet should be warned by healthcare professionals that such information may be misleading.

In the present study, parents were directed to consult different health institutions regarding symptoms. In worldwide studies, the rate of visiting the health institutions for teething symptoms was between 16-86.4%.[32-36] In another study which conducted in Turkey, it was reported that 44.4% of mothers applied to medical doctors for teething symptoms, and only 3% to dentists.[37] The preference of families to visit medical doctors may be associated with the fact that systemic symptoms cause more anxiety in families.[38] In this study, while parents were mostly directed to pediatricians about their babies; the most referrals directed to pediatric dentists were again by another dentists.

Conclusions

The quality of information about teething symptoms on YouTube™ was variable, but the quality of videos from layperson was particularly poor. Reliable YouTube™ videos published by childhealth professionals will be a good resource, especially for parents who cannot reach health institutions due to various reasons such as pandemic.

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