Content Analysis of Youtube Videos Related to Maxillary Central Incisor Tooth Manipulation

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Abstract

Background: Today video sharing platforms on Internet like YouTube has become an important source of information in many areas like health. purpose of this investigation is to evaluate the suitability, usefulness, and quality of YouTube video contents related to 'Maxillary Central Incisive Tooth Manipulation' used by dentistry students for first-year preclinical education.

Material and Methods: A scoring system consisting of 10 parameters was used to assess the video content quality. The viewership, likes, comments, reliability of information, global quality scores(GQS), and video duration were recorded for evaluation with parameters by two dentists according to the uploader (dentist, dentistry student, dental technician) and the information content (high, medium, poor quality). Group comparisons were analyzed using the Kruskal Wallis H and post-hoc Tamhane's T2 test.

Results: 20 relevant videos were classified as 55% high (GQS 4.7±0.6), 35% medium (GQS 3.3±1.6), and 10% considered poor quality (GQS 1.0±0). Evaluated according to their quality, no significant difference was found between the parameters except GQS($p=0.013$). The videos are as follows, in order of their sources: dentists (n=6,30%), dentistry students (n=11,55%) and dental technicians (n=3,15%).

Conclusion: The fact that there was no difference in the viewing and popularity of useful and misleading videos revealed that the high quality video could not be chosen by the video viewers. In this study, it was concluded that dentistry students should pay particular attention to the video provider while providing video access to support their preclinical education. Health academics and health institutions need to increase studies on 'pre-clinical practice courses' and try to raise awareness by uploading more useful and systematic videos to the internet/YouTube.

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Introduction

The internet; due to the fact that it is accessible to a large part of the world's population and there are a wide variety of information sources in its content. It has become an important source of information for health as well as many areas that have been used quite frequently in recent years (1,2)**.** Technological developments have been reached in a short time with the Internet from different sources and distance learning environments have differentiated (3).

YouTube is a website that can be easily accessed through communication tools such as smart phones, computers and televisions. As most widely used video sharing platform in the world for education and information purposes in health (4,5). Education systems and the accessibility and measurability of information have been affected by the outbreak of covid-19 epidemic. In this way, the interest in online education platforms has

also increased (6). Online education, communication, electronic library access, student communications on social networking sites and videos uploaded for educational purposes are easily accessible with today's internet and technological advances. YouTube™ is a subjective website due to the lack of any control mechanism before video upload, which can be useful for users and can lead to misleading information (7). Many studies have mentioned uncertainties about the reliability and accuracy of video content and have shown that the information provided by these videos is not homogeneous (8,9).

Dentistry education program, like other medical school programs, focuses more on technical skills due to the scientific nature of the curriculum. A dentist must have the ability to think and produce in three dimensional ways and students' skills must be developed before clinical education. The aim of dentistry education is to develop students in practical and theoretical applications with preclinical trainings and to enable them to start the clinic in that way. The objectives of the preclinical courses are: 1. Recognition and understanding of dental anatomy 2. Adequate understanding of the 3D anatomy of the tooth 3. Understanding the relationships between teeth (10).

Laboratory and clinical conditions are the main components in dental education, it is important in terms of bringing them together and applying different areas of learning, including intellectual-conceptual, sensory-emotional and psychomotor-physical (11). For this reason, students are entitled to move on to clinical studies after taking preclinical courses, working on various materials, gaining sufficient experience and having sufficient theoretical knowledge. Many dental instructors have observed that dental students have difficulty at the beginning of their practical training (12). YouTube, social media and video sharing platform is one of the most frequently used resources for educational and information purposes in the process of students getting used to preclinical practical training.

Studies in the literature are scarce on analyzing the videos on the YouTube video platform about the information given to dentistry students in the preclinical and the practical exercises performed. The aim of this study is to evaluate the suitability, usefulness and quality of the video contents related to 'Maxillary Central Incisor Tooth carving on YouTube. The null hypothesis of this study was 'The videos on YouTube™ about Maxillary Central Tooth Sculpting are inadequate and/or misleading.'

Materials and Methods

In this study, videos related to the Upper Central Incisor tooth carving on YouTube, were examined on 12-20 February 2023. For data collection, we explored "http://www.youtube.com" using the google chrome web browser. Internet search history has been reset to avoid restrictions on past searches. In the video searches, the terms "maxillary central tooth carving" and "upper central incisor tooth wax up " were entered as keywords. Previous studies have shown that 95% of YouTube™ video platform users focus on watching the first 60 videos (13,14). The first 60 videos that came out of the searches were watched and a total of 35 videos were found suitable for evaluation. Duplication videos - which are follow through to each other- (2 of them), which provide insufficient practical information on the subject (5 of them), and which are shorter than ten minutes (8 of them) are excluded from the study. A total of 20 videos were included in the study. Human and animal biological materials were not used in this study so there was no need for an ethics committee report.

The URL address, number of views, video duration, time elapsed since the video was uploaded (days), number of likes, number of comments, video uploader (dentist, dental student, dental prosthesis technician) information were recorded for each video included in the study. Based on this information, the view rate [number of views / time since upload x 100%] parameter was calculated. In addition, the Global Quality Score (GQS) and information reliability parameters, which provide general quality information of the videos, were also calculated (15). In order to evaluate the video content quality, a scoring system consisting of 10 parameters in Table 1 was used. Rating parameters used to determine video quality were kron length, root length, mesiodistal width, labiolingual width, cervical line, cingulum, incisal edge, root apex, contour crests and polishing. (Table1)

Each video was monitored by two physicians who were experts and specialized in their field and video information qualities were scored by taking these parameters. The total video content score was determined with the scores given to these parameters (1 if any, 0 if not) and according to the total score of each video, it was included in one of three categories: poor quality information content (0-3 points), medium quality information content (4-7 points) and good quality information content (8-10 points). Also these videos were classified according to the uploader; dentist, dentistry student and dental prosthesis technician.

The narrative language, sound intangibility, comprehensibility, video narrator-source, material selection, tool selection and use, naming of tooth areas and contributing to the narrative by drawing a large tooth image of the videos were examined.

Data collected from YouTube videos was summarized using a standard form and saved using the Microsoft Excel 2016 program. Statistical Package of Social Sciences (SPSS, Ver. 16.0, IBM Inc., Armonk, USA) statistical analysis program was used for all statistical evaluations. Analysis of variables according to video source category [(1) dentist, (2) dentistry student, (3) dental prosthesis technician] and video quality category [(1) poor, (2) moderate, (3) good] was performed using Kruskall Wallis H and post-hoc Tamhane T2 test. 0.05 was taken as significance value.

Table 1: Rating parameters used to determine video quality

	RATING PARAMETER	DEFINITION	SCORE
1	KRON LENGTH	The dimension between the neck of the tooth (chole-collum dentis) and the highest point of the incisor face.	0-1
2	ROOT LENGTH	The size between the neck of the tooth (chole-collum dentis) and the root tip.	0-1
3	MESIODISTAL WIDTH	The length between the most mesial and the most distal of the tooth.	0-1
4	LABIOLINGUAL WIDTH	The length between the front (lip) and back (lingual) of the tooth.	0-1
5	CERVICAL LINE	The enamel-cementum boundary forms a line called the cervical line.	0-1
6	SINGULUM	Convex protruding field in the cervical third region on the lingual surfaces of the anterior teeth.	
7	INCISAL EDGE	It is the edge formed by the union of the labial and lingual surfaces of the anterior teeth.	0-1
8	ROOT APEX	End point of tooth roots.	0-1
9	CONTOUR CRESTS	Mesial -distal lateral tooth contact points.	0-1
10	POLISHING	Polishing, loss of imperfections and traces by abrasion.	0-1

Results:

The descriptive characteristics of the videos included in the study, such as the number of views, video durations, time elapsed after the video upload date, number of likes, number of comments, viewing rate, reliability of information and GQS values are presented in Table 2. And also video quality scores are shown in Table3.

When the distribution of the 20 videos included in the study according to their uploaders was evaluated, it was seen that the most videos were uploaded by Dentistry students (n=11, 55%). Dentistry students followed by dentists (%30) and dental technicians (%15), respectively. (Table 4)

It has been found that the video quality varies depending on the uploader of the videos shown in Table 5. It has been determined that the information content of the videos uploaded by dentists is of higher quality and that these videos provide sufficient and accurate information for dentistry students in preclinical practice.

The distribution of videos according to the parameters used in the evaluation of video quality is shown in Figure 1. Crown length, root length was indicated and cervical line was defined in 16 videos (80%), the concepts of cingulum and incisal edge were emphasized and applied practically in 17 videos (85%). Mesio-distal and bucco-lingual tooth widths were indicated in 13 videos (65%). And the model was polished after manipulation in 15 videos (75%).

In half of the videos (n= 10, 50%), the root apex was identified and processed on the model. The contour crest

is not shown in the model in 11 videos (55%). So based on this section, there is a lack of contour crest identification in this study.

20 relevant videos were classified as 55% good (GQS 4.7±0.6), 35% medium (GQS 3.3±1.6), and 10% considered poor quality (GQS 1.0±0). Evaluated according to their quality, no significant difference was found between the parameters except GQS(p=0.013). (Figure 2)

Table3: Video quality scores

VIDEO QUALITY	SCORE
1. Poor Qualıty	1(1-3 poınts)
2. Medium Qualıty	2(4-7 poınts)
3. Good qualıty	3(8-10 points)

Table 4: Numerical distribution of videos by uploader

Video Uploader	Number of videos	%
Dentist	6	30
Dentistry Student	11	55
Dental Technician	3	15

Table 2: Descriptive attributes of videos

VIDEO UPLOADER	VIDEO QUALITY	TOTAL SCORE	NUMBER OF VIEW	VIDEO DURATION	NUMBER OF DAYS AFTER UPLOAD TIME	NUMBER OF LIKES	NUMBER OF COMMENTS	VIEWS RATE (number of views/time after upload 100%)	RELIABILITY OF INFORMATION	GQS*(0-5)
Dentist-1	3	9	194000	23:39 min	1460	1900	433	132,8	9	5
Dentist-2	3	9	5300	24:56 min	365	276	52	14,5	9	5
Dentist-3	2	6	11000	29:52 min	1095	154	24	10,4	6	5
Dentist-4	2	6	84000	11:58 min	1825	1100	72	46	6	5
Dentist-5	3	10	8400	01:28:38 min	730	130	0	11,5	10	5
Dentist-6	3	10	4800	51:42 min	365	80	3	13,1	10	5
Dentistry Student-1	2	4	34000	31:50 min	1095	759	186	31,05	4	1
Dentistry Student-2	1	3	198000	25:01 min	365	1600	0	542,4	3	1
Dentistry Student-3	3	9	68000	27:11 min	730	1600	165	93,1	9	5
Dentistry Student-4	3	10	23000	22:30 min	730	269	47	31,5	10	5
Dentistry Student-5	3	9	24000	01:25:00 min	365	480	15	65,75	9	5
Dentistry Student-6	1	3	7000	12:24 min	730	146	28	9,5	3	1
Dentistry Student-7	3	8	6300	16:04 min	730	60	7	8,6	8	4
Dentistry Student-8	2	7	31000	23:49 min	730	448	21	42,4	7	3
Dentistry Student-9	2	4	7500	37:53 min	730	207	42	10,2	4	2
Dentistry Student-10	2	6	6800	20:11 min	1460	87	21	4,6	6	3
Dentistry Student-11	3	8	25000	18:45 min	1095	427	112	22,8	8	4
Dental Technician-1	3	9	23000	19:58 min	730	434	29	31,5	9	5
Dental Technician-2	3	8	5100	23:29 min	730	97	2	6,9	8	5
Dental Technician-3	2	4	150000	19:12 min	2190	1000	65	68,5	4	4

*GQS: Global Quality Score

Table 5: Videos classified according to the uploader and quality scores

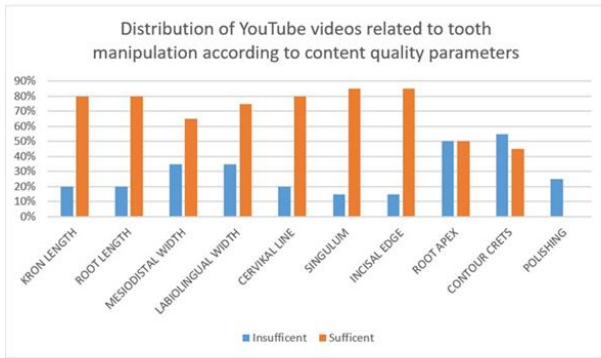| VİDEO UPLOADERS		TOTAL SCORES	QUALITY OF VİDEOS
Dentists	1	9*	3
	2	9*	3
	3	6	2
	4	6	2
	5	10*	3
	6	10*	3
Dentistry Students	1	4	2
	2	3	1
	3	9*	3
	4	10*	3
	5	9*	3
	6	3	1
	7	8*	3
	8	7	2
	9	4	2
	10	6	2
	11	8*	3
Dental Technicians	1	9*	3
	2	8*	3
	3	4	2

*Videos which have high quality scores.

Figure 1: Distribution of YouTube videos related to tooth manipulation according to content quality parameters
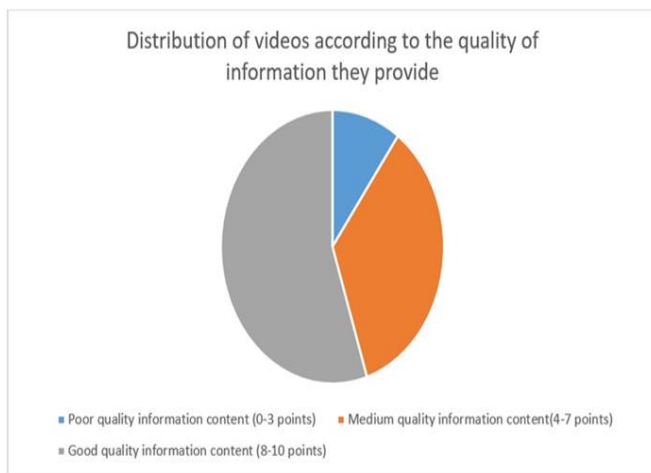

Figure 2: Distribution of videos according to the quality of information they provide

Discussion:

According to the results the videos on YouTube™ about Maxillary Central tooth Sculpting are inadequate and/or misleading observation there was no difference between the number of views, likes, comments and viewing rates of YouTube videos related to maxillary central tooth sculpting and it was determined that the quality of the information content varied depending on the video uploader. Evaluated according to their quality, no significant difference was found between the parameters. The null hypothesis of the study is accepted.

In previous studies in the field of dentistry; oral hygiene (14), root canal treatment (17), buried upper jaw canine teeth (18), patients with cleft lip and palate (1) and the contents of the videos on the YouTube™ video platform related to their subjects were evaluated.

In the study conducted by Kaya et al. (19)in the evaluation of videos about oral devices for bruxism on YouTube, it was understood that when the videos were grouped as the source they were uploaded to, the reliability scores of the videos uploaded by health professionals were significantly higher than the other groups. In addition, 17 of the 60 videos examined (28.3%) were determined to be in the category of misleading videos.

In the study conducted by Yağcı et al.(20) evaluating YouTube as a source of information about digital dentistry, the content quality and demographic characteristics of their videos were studied and it was seen that the information about digital dentistry on the YouTube™ video platform was limited. In the study, it was concluded that it would be beneficial for dentists and academicians who are experts in the field of digital dentistry to take a greater role in sharing accurate information.

With the increasing use of the Internet, YouTube™ has become a frequently used website and video sharing platform to obtain information in the field of health. However, the fact that the videos shared on the YouTube™ video platform are not standardized in terms of content, the videos can be easily uploaded to the platform without being subject to control, and the fact that there is misleading / deceptive information about the subject in some videos leads to the questioning of the video content (21).

The content of the study shows a variable structure as it is made on the YouTube™ video platform, which has video results that are uploaded-deleted every day or that change according to subjective search criteria (keyword selection, interest, video watching times, etc.). The fact that the data collection method is instantaneous affects the results of the study. In addition, this study was carried out only on the YouTube platform, and it will contribute to the subject by examining other video sharing platforms.

As a result of the statistics of the scoring made by two different physicians, there was no significant difference between the raters and it was determined that there was a linear correlation.

The research data showing that there is no statistical difference in the viewing and popularity rates of useful and misleading videos, and a previous studies on this subject: YouTube as a source of information about digital dentistry, the content quality and demographic characteristics of their videos (20) and using website and video sharing platform to obtain information in the field of health (21) have supported that quality video cannot be selected by video viewers.

In this study, it was concluded that when providing video access to dental students in order to support their pre-clinical education, they should pay attention to the fact that the video provider/uploader is a dentist, the storytelling of the uploader, and that the video content is sufficient and contains the necessary theoretical and practical information. Studies have shown that storytelling in clinical dental anatomy teaching is effective in increasing students' satisfaction and encouraging reflective learning (22), and that the connection between theory and practice in dental anatomy education is important and should be addressed together. (23)

Health academics and health institutions should increase the work on 'pre-clinical practice courses' and try to raise awareness by uploading more useful and systematic videos to the internet / YouTube.

The number of videos examined in this study creates a major limitation on the results. Results can be improved by examining and comparing more videos on various video sharing platforms. In addition, the evaluation of the suitability, usefulness of the videos by the preclinical dentistry students, who are the main audience, will affect the results.

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