Original Article

Information on YouTube: Orthodontics and COVID-19

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Abstract

Aim: The aim of this study was to assess YouTube videos about COVID-19 in relation to orthodontics.

Methodology: A YouTube search using the keyword "coronavirus orthodontics" was conducted on January 11, 2021. The top 50 videos were evaluated. The exclusion criteria were as follows: videos in other languages, duplicates, irrelevant videos, and duration longer than 15 minutes. The remaining 22 videos were scored by one examiner. Each of these videos was classified into one of three categories: useful, misleading, or news update. The modified DISCERN reliability index, number of views, number of comments, duration (in minutes), number of likes and dislikes, interaction index, viewing rate, and source of each video were also recorded.

Results: Useful videos accounted for 77% of those examined, misleading videos accounted for 14%, and news updates accounted for 9%. Most of the videos were uploaded by orthodontists (95%) and most of these were classified as useful (81%). Useful videos had a significantly higher DISCERN score than misleading videos ($p<0.05$).

Conclusion: Most of the orthodontics-related YouTube videos about COVID-19 were useful, and the most popular video was uploaded by an orthodontist.

Keywords: COVID-19, discern, internet information, youtube dental

Introduction

In December 2019, in Wuhan, China, a new coronavirus was discovered, and this virus was reported to have caused an epidemic in February 2020, at which point the World Health Organization (WHO) dubbed the virus COVID-19 and expressed concerns about its spread worldwide. The epidemic quickly spread worldwide and was declared a pandemic by the WHO on March 11, 2020. According to data from March 2021, more than 124 million people worldwide have been infected with the virus since the start of the epidemic, and more than 2.5 million people have died (1, 2).

Like other coronavirus infections, COVID-19 is thought to be transmitted via respiratory secretions. Drops of respiratory secretion from infected individuals—including those produced by coughing, sneezing, laughing, and speaking—enter the mucous membranes of uninfected individuals, causing them to get sick. Close contact (at less than 1 meter of distance) is necessary for the disease to be transmitted from person to person in this way. When an infected person coughs or sneezes, respiratory droplets can

enter the mouth and be inhaled into the nose, thus possibly entering the lungs of nearby people (3).

It has been reported that for people infected with COVID-19, the asymptomatic incubation period can range between 1 to 14 days or even up to 24 days (4). Thus, it has been confirmed that those without symptoms can also spread the virus. Live viruses have also been reported in the saliva of infected individuals. The rapidly increasing number of cases and the human-to-human transmission have begun to suggest that the virus is more contagious than SARS-CoV and MERS-CoV. Dental patients and employees may be exposed to pathogenic microorganisms, including viruses and bacteria that infect the oral cavity and respiratory tract. Individuals within the dental treatment environment are always at risk of COVID-19 infection given the procedures involving face-to-face contact, frequent exposure to body fluids (e.g., saliva and blood), and the use of sharp instruments (5).

Due to this high risk of transmission, states around the world have begun implementing measures such as social isolation, quarantine, and social distancing to prevent the spread of the virus and combat the epidemic.

Studies show that during the pandemic, people have exhibited an increase in certain behaviours to reduce their anxiety, such as watching TV series and videos, using social media, surfing the internet, and playing video games. Individuals who receive orthodontic treatment can consult their orthodontist for information or use the Internet as a source of information (6–8). Therefore, the purpose of this study is to evaluate the content of YouTube videos in relation to orthodontics during the COVID-19 pandemic.

Materials and Methods

The Google Trends application was used to identify popular searches about coronavirus and orthodontics. The following search filters were used: "last 1 month" and "worldwide." After exploring several keywords, "coronavirus orthodontics" was identified as the most popular search term (Google Trends, 2021). A YouTube (https://www.YouTube.com) search was conducted on January 11, 2021 using relevance based filtration with the keyword "coronavirus orthodontics." The top 50 videos were evaluated. The exclusion criteria were as follows: videos in other languages, duplicates, irrelevant videos, and duration longer than 15 minutes. After excluding videos, the remaining videos were saved in a playlist for further analysis and scored by an examiner (HKO: experienced orthodontist). Each of the videos was classified as useful, misleading, or news update (9–11). The modified DISCERN reliability index (12), number of views, number of comments, duration (in minutes), number of likes and dislikes, interaction index, viewing rate, and source of each video were also recorded. The interaction index and viewing rates were calculated according to the formulas reported by Hassona et al. (13).

Video Analysis

To adapt the classification to orthodontics, a modified classification system was created as follows:

Useful: Videos containing scientifically correct information about any aspect of coronavirus as it relates to orthodontics (e.g., symptoms, treatment, prevention of disease, or measures being taken to combat the disease).

Misleading: Videos containing scientifically unproven information.

News Update: Videos uploaded by news agencies with information about the current status of the disease in terms of mortality and extent of spread only, devoid of information regarding prevention, treatment, or measures to combat the disease.

A modified DISCERN instrument was used to assess the reliability of the videos using 5 questions. The DISCERN handbook was used before the assessment. The reliability of the websites was evaluated using a five-point Likert scale (1=no, 2, 3=partially, 4, 5=yes). A score of 5 indicates the highest degree of reliability.

The researcher began this research after thoroughly reviewing the WHO and CDC websites and reading articles related to coronavirus in the literature (14–20).

Statistical analysis

Statistical data was analyzed using SPSS software version 18.0 (IBM Corp.; Armonk, NY, USA). An unpaired student's t test was used to compare the video parameters between useful and misleading information content. The level of significance was set at $p<0.05$.

Results

Of the original 50 videos found, 28 were excluded (irrelevant=23 and >15 minutes duration=5). The total duration of all the remaining 22 videos was 2.33 hours. These videos attracted a cumulative number of 82,411 views and 16,666 likes. The kappa coefficient of agreement regarding the usefulness of the videos and DISCERN was 0.84 and 0.73, respectively (P < 0.001). 77 % (n=17) of the videos were classified as useful, 14 % (n=3) as misleading, and 9 % (n= 2) as news update. Most of the videos were uploaded by orthodontists (95%), and most of them are useful (81%) (Table 1). Comparison of video parameters between useful and misleading information content is shown in Table 2. Useful videos had a significantly higher DISCERN score than the misleading group (p<0.05) (Table 2). The most viewed, the most liked, and the most commented video was uploaded by an orthodontist (55006 views, 16000 likes, and 267 comments). This video answering the following questions "what is coronavirus?" "what are viruses?" "how to prevent the spread of coronavirus" and "what impact does coronavirus have on braces or Invisalign?"

Table 1. Video source distribution of different video types.

Video source	Total videos	Useful	Misleading	News
	(n=22)	(n=17)	(n=3)	(n=2)
Orthodontist	21	17	2	2
Independent users	1	0	1	0

Table 2. Comparison of video parameters between Useful and Misleading information content.

	Useful (n=17)		Misleading (n=3)		p value
	Mean	SD	Mean	SD	
Number of views	4615,53	13580,33	1160,33	1463,98	0.32
Number of likes	978,82	3872,84	5,00	8,70	0.32
Number of dislikes	1,41	4,20	0,33	0,58	0.33
Duration(minute)	3,91	3,77	7,37	5,46	0.39
Number of comments	27,71	77,42	12,00	10,44	0.44
Interaction index	3,32	6,72	0,74	1,29	0.17
Viewing rate	197,25	528,65	52,09	44,79	0.28
DISCERN score	2,98	1,27	1,33	0,31	0.00*

Discussion

To our knowledge, this is the first study to evaluate the quality of information about the COVID-19 outbreak in terms of orthodontics on YouTube.

In this study, Google Trends, an application that helps to find the most popular keywords, was used to find the most popular keyword. Only the top 50 videos were evaluated in this study since most internet users were reported to only look at the first two pages of search results. The optimal time for a video on YouTube is reported to be 10-16 minutes (21). For this reason, videos longer than 15 minutes were not included in this study.

Except for emergencies, routine dental treatments have been suspended in many countries at the request of governments. In orthodontic treatments, there are usually no emergencies involving the risk of death. In orthodontic patients, emergencies such as breakage of appliances, brackets, or tubes are not life-threatening, but their rapid resolution is recommended in terms of prolonging the treatment period, decreasing patient motivation and preventing patients from losing confidence in treatment. With the quarantine, many orthodontists started to share a lot of information about the pandemic, the processes of

orthodontic treatments, methods of dealing with possible problems that may occur to their patients on social media. One of the most used social media accounts is YouTube (22). Since it is one of the platforms where not only physicians but everyone shares information, the reliability of the information is important. In this study, the most viewed video was uploaded by an orthodontist. It wasn't surprising that most of the videos were uploaded by orthodontists, because YouTube is one of the simplest ways orthodontists can use to inform their patients about the outbreak. However, some clinics encouraged their patients to come to clinics because of possible economic reasons, whose pandemic precautions were not mentioned in detail.

Özdede and Peker (23) reported that 47.4 % of videos were moderately useful on YouTube about COVID-19 in relation to dentistry. Li et al. reported that about 25% of videos contained misleading information about COVID-19 (24). Controversially, in this study 77% of videos were helpful.

Olkun and Olkun reported that American, Australian, and British Orthodontic Societies' websites were the most reliable websites, and when GoogleTM search was done they were appeared on the first page (25). However, this study showed that orthodontic associations do not have primary access as an

information source for YouTube users. Although the British Orthodontic Society has very descriptive videos for orthodontic emergencies, one reason why it doesn't rank first on YouTube may be due to the keyword entered in the search engine. Videos should be uploaded by selecting the most used keywords; otherwise, the videos will not appear on the first pages. In this sense, informative video uploads of orthodontic associations will be beneficial for both patients and orthodontics staff to reach reliable sources of information.

Internet is a dynamic platform where information is constantly changing. There is still much unknown about the COVID-19 virus. For this reason, studies in which such internet information is evaluated should be repeated at regular intervals. This study was conducted in English only. It only measures the information that people are searching for in this language will reach. Therefore, the results of this study cannot be generalized. There are many social media platforms such as Instagram, Twitter, Facebook, etc. Evaluating the quality of the information on these platforms will provide more comprehensive data.

Conclusions

This study showed that most of the orthodontics-related YouTube videos about COVID-19 were useful, and the most popular video was uploaded by an orthodontist.

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