Original Article

Evaluation of YouTube Videos as a Source of Information About Oral Self-examination to Detect Oral Cancer and Precancerous Lesions

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ABSTRACT

Objectives: The aim of this study was to investigate quality, reliability, and comprehensiveness of YouTube videos about oral self-examination to detect oral cancer and precancerous lesions and to assess whether the source, duration, quality, reliability, and/or comprehensiveness of videos influence their visibility and popularity. **Materials and Methods:** Videos on YouTube were searched using eight keywords similar to oral self-examination. The first 100 videos for each search term were included. Strict inclusion and exclusion criteria were adhered to, and videos were assessed for quality, reliability, and comprehensiveness. Upload date, views, likes, dislikes, duration, and source of the videos were noted. Viewing rate and interaction index were calculated for each video. **Results:** A total of 800 videos were analyzed, 24 of which met the inclusion criteria. Majority of videos (87%) were uploaded by the healthcare group. The visibility, quality, reliability, and comprehensiveness were higher in videos uploaded by the healthcare group when compared with the non-healthcare group, but not at a level of statistical significance. The mean interaction index score of the non-healthcare group was found to be higher than the healthcare group, with statistically significant difference. Duration of videos showed an impact on the comprehensiveness of the videos. **Conclusion:** There are relatively few videos on oral self-examination on YouTube, and most do not have satisfactory quality, reliability, and comprehensiveness. There is a potential to increase public awareness about oral self-examination by utilizing this tool. Videos with complete and accurate information regarding oral self-examination must be uploaded to YouTube, which is currently an important source of information for the general public.

KEYWORDS: *Cancer screening, Internet, mouth cancer, oral cancer, patient education, self-examination, YouTube*

INTRODUCTION

Oral cancer is one of the most common head and neck cancers and is the sixth most common cancer globally, with approximately 529,000 new cases and 300,000 deaths every year.[1] The majority of patients with oral cancer are detected at an advanced stage, undergo morbid treatments, and have a poor prognosis.[2] Early detection of oral cancer is of the utmost importance, and this facilitates diagnosis, treatment, and monitoring of the disease.[3]

Screening aids in the detection of early stage oral cancer, which significantly improves patient prognosis and reduces mortality by 34%. Although screening has been proved to be an effective early detection approach, it is only economically feasible in high-risk populations.[4]

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Oral cavity cancer frequently develops in easily accessible areas, making it easy to identify early with a visual inspection and palpation. As a result, oral self-examination is a convenient, non-invasive, and low-cost strategy for early diagnosis of oral precancerous lesions that does not require the assistance of a healthcare expert.[5] It can also lead to a self-perception of the need for immediate professional help. As a result, it should be strongly promoted to the general population, particularly to high-risk individuals.[6] Furthermore, it is an effective technique of raising oral cancer awareness and should be made a part of oral care behaviors.[7]

Since the first web browser was developed in 1990, fast and easily accessible Internet has become the world's major and widespread source of information. Along with cellular data, it has provided patients with easy access to information about their diseases. YouTube has been frequently preferred in recent years as an educational tool and a source of information, with its varied video content for both the general population and patients.[8]

Consumers, in contrast, can be misled if inaccurate or misleading information is presented to them. In the past, studies have analyzed usefulness of YouTube videos in providing information on the sign, symptoms, and risk factors of oral cancer[9] and leukoplakia.[10] Esen *et al.*[11] and Selvi *et al.*[12] assessed YouTube videos as a source of information about breast self-examination and testicular self-examination, respectively.

To the best of our knowledge, no study has evaluated this platform as a source of information about performing oral self-examination to detect oral cancer and precancerous lesions. Therefore, the primary objective of the study was to evaluate the quality, reliability, and comprehensiveness of the YouTube videos related to oral self-examination. The secondary objective was to assess whether the source, duration, quality, reliability, and/or comprehensiveness of videos influence their visibility and popularity. The hypothesis is that few high-quality videos on oral self-examination might be found in YouTube.

Materials and Methods

This was an analytical cross-sectional study. On September 10, 2021, videos on YouTube were searched using the keywords "oral self-examination," "oral self examination," "oral self-exam," "oral self exam," "mouth self-examination," "mouth self examination," "mouth self-exam," "mouth self exam." We used YouTube default sorting option "sort by relevance," which may be the most commonly used option in the algorithms for YouTube sorting (relevance, upload date,

views count, rating). All the advertisements in the search results and in the beginning of video were ignored. Videos were searched after clearing of cache and using a new YouTube account to minimize results biased by cookies, personal settings, and browser history.

More than 90% of YouTube users clicked only the first 60 videos of search results to receive the desired information. The first 100 videos for each search term were included in this study with the assumption that users would not go beyond the first 100 videos of search results. Our methods were previously used in multiple studies that assessed YouTube as a source of patient education.[10,13-15] So the selection processes yielded a total of 800 videos.

All videos in English with information about oral self-examination for lay person were included. The following exclusion criteria were applied:

- Videos in other languages
- Irrelevant videos that defined as those in which there was no information of oral self-examination for lay person were excluded
- Repeated videos

Uniform resource locators (URLs) for all selected video samples included in the study were saved for data archiving and future reference.

Videos were classified according to the source. The source represents the person or group that uploaded the video and were classified into:

Group 1: Healthcare group: healthcare professionals, medical centers, professional organizations, and healthcare foundations.

Group 2: Non-healthcare group: company advertisement and lay persons.

The following information was extracted from each video: upload date, number of views, number of likes, number of dislikes, and duration. Based on these data, viewer interaction (i.e., visibility and popularity) was calculated by using the following formulas:

Viewing rate: number of views × 100/number of days since upload

Interaction index: (number of likes−number of dislikes) × 100/number of views

The quality of videos was subjectively classified according to Global Quality Scale (GQS)[8,10] as follows:

1   = Very poor quality, poor flow, lack of information, nothing useful for patients;

2 = Generally poor quality, low level of flow, some information is listed, but there are many important topics of very limited use for patients;

3 = Moderate quality, flow below ideal, some important information is adequately discussed, but other pieces of information are poorly discussed, somewhat useful for patients;

4 = Good quality, generally good flow, most of the relevant information is listed, but some topics are not addressed, useful to patients; and

5 = Excellent quality, excellent flow, very useful for patients.

For the evaluation of the reliability of the video, 5-point DISCERN tool[8,10,16] was used. For each aspect addressed, videos received 1 point, with possible score ranging from 0 to 5 points. The criteria used in this analysis were as follows:

(a) Are the objectives clear and achieved?
(b) Are the sources of information used reliable?
(c) Is the information presented balanced and unbiased?
(d) Are additional sources of information listed for patient reference?
(e) Are areas of uncertainty mentioned?

In DISCERN scoring, videos with a score less than 3 should be considered bad reliability and should not be used by patients. Videos with a score of 3 are considered medium reliability and require additional sources of information. Videos with scores 4 and 5 are reliable videos and contain useful information for the patient.

Table 1: Comprehensiveness analysis

Scoring items	Score
Important points related to oral self-examination	
a. Is the demonstrator standing in front of mirror in well-lighted area or using a torch?	1
b. Is it advised viewers to remove any dentures before oral self-examination?	1
c. Has it mentioned which findings should be defined as alert findings?	1
Has it properly demonstrated the viewer about following steps of oral self-examination?	
d. Extra-oral examination	1
e. Neck examination	1
f. Examination of lip mucosa	1
g. Examination of gingiva	1
h. Examination of buccal mucosa	1
i. Tongue examination	1
j. Examination of floor of mouth	1
k. Examination of palate	1
l. Examination of oropharynx	1
Total	12

The evaluation of comprehensiveness of the videos was based on the amount of information about oral self-examination. As there is no standardized system for evaluating the content of the oral self-examination videos, a comprehensiveness analysis was devised by referring to the scientific articles[17,18] and guidelines by recognized health organizations[19,20] containing 12 questions shown in Table 1. With each question, the answer "no" was scored 0 point and the answer "yes" was scored 1 point. Based on the sum of points, the videos were scored in terms of comprehensiveness as not at all useful (scores 0–3), somewhat useful (scores 4–6), moderately useful (scores 7–9), and very useful (scores 10–12).

All the videos were reviewed by two researchers (PRT, SDD) and scored. When the difference was noted for a point or step, the researchers reanalyzed the video together along with third researcher (MNG) to determine the final score. The total content score for each video was counted.

Data entry and analysis were performed using SPSS 23.0 statistical software (Statistical Package for Social Sciences, IBM, Armonk, NJ). Data distribution was assessed using a Shapiro–Wilk test. Independent t-test was used to assess the influence of source and duration of videos on visibility, popularity, quality, reliability, and comprehensiveness. The mean of duration, GQS, DISCERN, and comprehensiveness score was used as cut-off points to evaluate the influence of these variables on the visibility and popularity of the videos. A P-value <0.05 was considered significant.

RESULTS

As shown in Figure 1, 100 videos were screened for each of the eight search terms (total = 800). According to exclusion criteria, 776 were discarded, 24 unique videos met the inclusion criteria.

Tables 2 and 3 show the characteristics of the sample and overall performance of the video was evaluated. The average duration of the videos was 3 min 89 s, ranging from 1 min 1 s to 12 min 1 s. In the visibility assessment, the most seen video had 237,056 views and the least seen video had 40 views. The most popular video received 1453 likes and the most unpopular received 127 dislikes. The mean GQS, DISCERN, and comprehensiveness score of evaluated videos were 3.71 ± 1.30, 3.71 ± 0.75, and 9 ± 1.89, respectively, indicating YouTube videos are moderately useful as a source of information on oral self-examination to detect oral cancer and precancerous lesions.

Instructions regarding proper examination of the tongue, examination of buccal mucosa, and instructing viewers about alert findings were correctly displayed most of the

Table 2: Characteristics of selected YouTube videos

Variable	
Source, no. (%)	
Healthcare group	21 (87.5%)
Non-healthcare group	3 (12.5%)
Upload since (days)	
Mean (SD)	1419.04 (1093.02)
Min–Max.	135–3471
Duration (min:s)	
Mean (SD)	3.89 (3.42)
Min–Max.	1.01–12.01
Views	
Mean (SD)	32,034.79 (68,968.82)
Min–Max.	40–237,056
Likes	
Mean (SD)	144.96 (365.09)
Min–Max.	1–1453
Dislikes	
Mean (SD)	12.21 (29.84)
Min–Max.	0–127

Table 3: Video analysis according to different variables

Variable	
Viewing rate	
Mean (SD)	4384.82 (12,707.16)
Min-Max.	28.37–54,459.33
Viewers' index	
Mean (SD)	1.09 (1.80)
Min-Max.	0.09–8.33
Quality	
Mean (SD)	3.71 (1.30)
Min-Max.	1–5
Number of videos according to quality, *n* (%)	
Poor	2 (8.3%)
Limited	1 (4.2%)
Moderate	9 (37.5%)
Good	2 (8.3%)
Excellent	10 (41.7%)
Reliability	
Mean (SD)	3.71 (0.75)
Min–Max.	2–5
Comprehensiveness score	
Mean (SD)	9 (1.89)
Min–Max.	5–12

time, that is, in 24 (100%), 23 (95.8%), and 22 (91.6%) of the 24 videos, respectively. Instruction regarding removal of any denture, extra-oral examination, and neck examination scored the lowest. These steps were incorrectly displayed or missed in 23 (95.8%), 9 (37.5%), and 8 (33.3%) of the 24 videos, respectively. The results for each step are shown in Figure 2.

Tables 4 and 5 show the 10 best videos, based on the sum of the values obtained from the different evaluation criteria

used (i.e., GQS, DISCERN, and comprehensiveness score). Only one video reached the best indices according to different evaluation criteria, totalling 22, and was the only video classified as very useful.

Out of 24, 21 videos (87.5%) were uploaded by healthcare group, while 3 videos (12.5%) were uploaded by non-healthcare group. Analysis of videos with respect to sources of upload is shown in Table 6. In general, the visibility, quality, reliability, and comprehensiveness were better in videos uploaded by healthcare group as compared to non-healthcare group, but not at a level of statistical significance. The mean interaction index score of non-healthcare group was found to be higher than healthcare group, with statistically significant difference.

Table 7 shows that videos duration had positive impact on the comprehensiveness of the videos, however it did not show influence on visibility, popularity, quality, and reliability. It was also observed that the quality, reliability, and comprehensiveness of videos did not show influence on their visibility and popularity [Tables 8–10].

DISCUSSION

YouTube can reach a huge section of the general population and convey information about a variety of topics related to dentistry.[21-24] The videos examined in this study had mean views more than 30,000, suggesting that people do watch videos related to oral self-examination on YouTube. The analysis of video performance using various criteria showed that there are relatively few videos on oral self-examination on YouTube, and most do not present satisfactory quality, reliability, and comprehensiveness. Results indicate that there is strong need for high-quality videos to provide valuable information on this topic.

According to the comprehensive analysis, the number of videos with high content was very limited. We found that only one of the surveyed videos provided viewers with correct information about oral self-examination. The instructions in the rest of the videos either did not use a proper technique or they showed only a few steps of the oral self-examination.

The most commonly missed instruction was about informing the viewer, the removal of any denture before conduction of oral self-examination. Long-term irritation has been linked to a higher risk of developing oral cancer.[25,26] Chronic irritation can be caused by poor oral hygiene, poor dentition, missing teeth, and ill-fitting dentures.[27] The use of dentures alone was correlated to a higher risk of having cancer, whereas ill-fitting dentures appeared to significantly raise the chance of acquiring cancer by almost four times.[28] Thus, it is important to

inform viewers about the removal of the denture before conduction of oral self-examination and inspect the denture-bearing area.

It was concerning to find that the quality, reliability, and comprehensiveness of videos do not influence

Figure 1: Flow chart of the search results and screening process

their visibility and popularity, suggesting that the users probably cannot judge the quality of information on YouTube. The mean interaction index score of the non-healthcare group was found to be higher than the healthcare group. This could be possibly attributed to less complexity of the videos that were uploaded by the non-healthcare sources.[29] As a result, in order to increase visibility and audience interaction, healthcare professionals should use more engaging and easily understood language in their videos.

Analyzing the length of videos, the duration of videos had a positive impact on the comprehensiveness of the videos. This implies that the length of a video should be long enough to allow for content development, but not so long that the user's attention is lost.[13]

There is mixed opinion in the literature on the educational value of YouTube about medical conditions and the ability of YouTube videos to educate people.[30] Some research has determined that YouTube is beneficial, whereas others have questioned its utility. Selvi *et al.*[12] investigated the content of YouTube videos about testicular self-examination. In terms of all of the steps related to how testicular self-examination should be done, they found YouTube to be of excellent quality, reliability, and comprehensive content. However, Esen *et al.*[11] conducted a study to evaluate the YouTube videos as a source of information on breast self-examination. They concluded that the majority of breast self-examination videos were misleading. Our study result lies somewhere between these studies. Some videos provided important and correct information on oral self-examination,
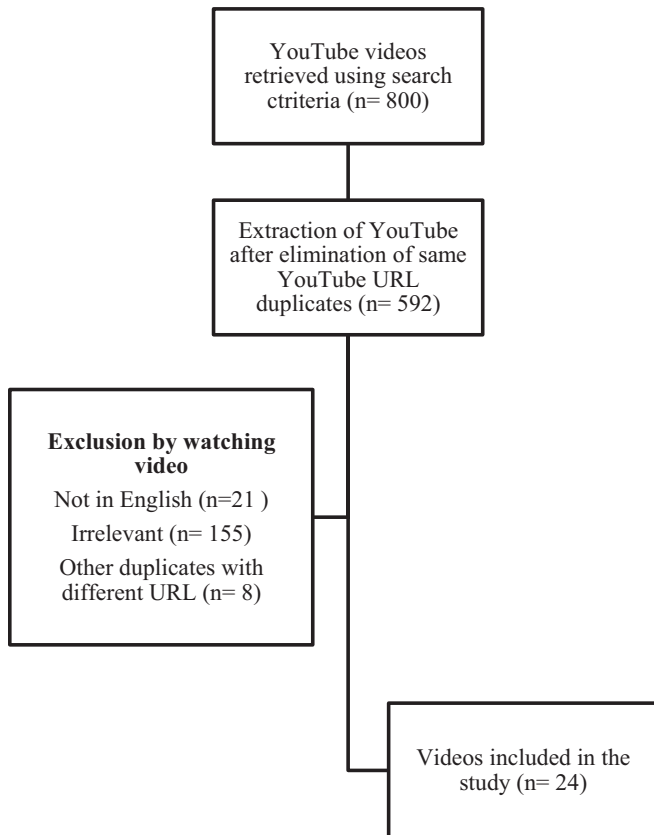
Title-channel	Source	Upload since days	Duration (min:s)	Quality	Reliability	Comprehensive-ness score	Total
Importance of oral cancer screenings	PO	1363	9.32	5	5	12	22
How to screen for oral cancer at home	HP	562	4.53	5	5	11	21
Mouth cancer awareness: watch your mouth	PO	1145	4.25	5	5	11	21
CDHO seven-step oral cancer self-exam	MC	2015	2.48	5	4	10	19
Self-examination for mouth cancer	HF	2277	3.47	5	4	10	19
Oral cancer prevention—intra-oral self-exam	HP	3160	2.34	5	4	10	19
Oral cancer screening easy steps	MC	135	8	5	4	10	19
C.O.P.E. with cancer: oral health self-exam	HP	1648	6	5	4	10	19
Oral cancer self-exam	HP	1670	1.25	4	4	10	18
Be mouth aware—head and neck cancer self-exam	LP	203	11.29	3	4	11	18

Table 4: Performance of top 10 videos according to quality, reliability, and comprehensiveness

HP = healthcare professionals, MC = medical centers, PO = professional organizations, HF = healthcare foundations, LP = lay persons

whereas the rest of the videos had inaccurate or limited information.

Oral self-examination is relatively quick, inexpensive, and simple to perform. Although some studies have found that oral self-examination has no benefit in detecting oral mucosal lesions, including oral cancer,[4] other authors have concluded that despite its low sensitivity, oral self-examination may be effective in raising awareness of oral cancer and detecting lesions early.[5] Furthermore, oral self-examination can also be very useful in treating oral cancer patients for evaluating disease status.[6] In contrast, oral self-examination alone, without the knowledge about its importance and risk factors for oral

cancer, would not be effective.[31] Hence, health education on oral self-examination is essential which unfortunately is still not being advocated in developing countries where the incidence of oral cancer is quite high.[18]

Today, a significant portion of the world's population has access to numerous websites and social media platforms that provide healthcare information.[32] Patients usually prefer using YouTube when searching for health information because this medium provides visual and audio information.[33] More than two billion users visit YouTube each month, and people watch more than one billion hours of videos, which are viewed billions of times, and 500 h of videos are added to YouTube

Title—channel	Source	Upload since (days)	Duration (min:s)	Views	Likes	Dislikes	Viewing rate	Viewers' interaction
Importance of oral cancer screenings	PO	1363	9.32	26,767	178	7	1963.83	0.64
How to screen for oral cancer at home	HP	562	4.53	187,449	1453	67	33,353.91	0.74
Mouth cancer awareness: watch your mouth	PO	1145	4.25	4808	33	4	419.91	0.6
CDHO seven-step oral cancer self-exam	MC	2015	2.48	7144	46	0	354.54	0.64
Self-examination for mouth cancer	HF	2277	3.47	11,984	28	1	526.31	0.23
Oral cancer prevention—intra-oral self-exam	HP	3160	2.34	56,681	76	17	1793.70	0.1
Oral cancer screening easy steps	MC	135	8	520	4	1	385.19	0.58
C.O.P.E. with cancer: oral health self-exam	HP	1648	6	14,191	68	5	861.1	0.44
Oral cancer self-exam	HP	1670	1.25	3531	12	0	211.44	0.34
Be mouth aware—head and neck cancer self-exam	LP	203	11.29	96	8	0	47.29	8.33

Table 5: Visibility and popularity of top 10 videos

HP = healthcare professionals, MC = medical centers, PO = professional organizations, HF = healthcare foundations, LP = lay persons
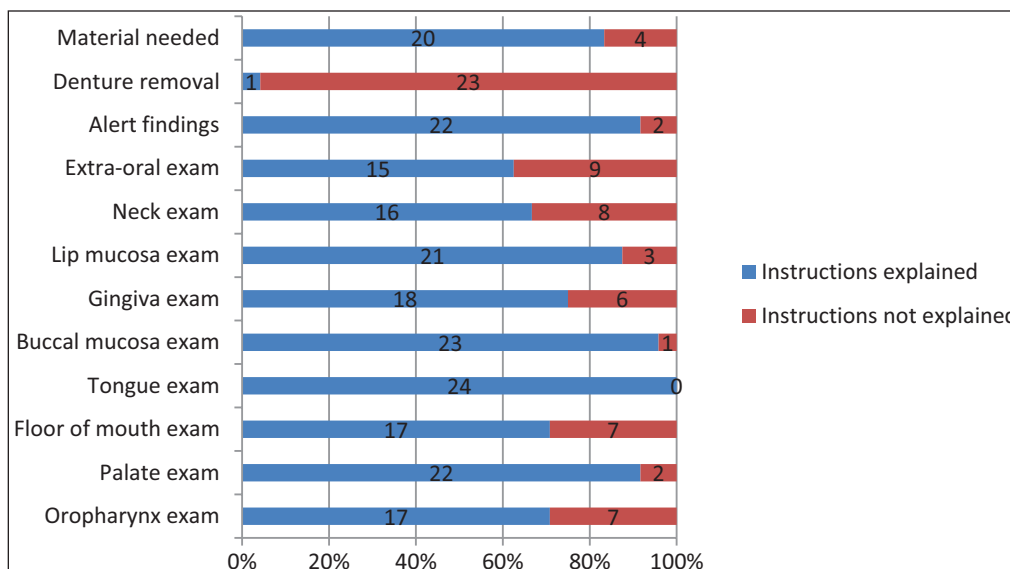

Figure 2: Analysis of instructions of oral self-examination

every minute.[34] Because YouTube is getting increasingly popular, why not use it to raise awareness among various populations? Indeed, new training and informational tools could help medical fields investigate new prevention methods. Healthcare professionals should be more encouraged to upload oral self-examination-related videos with accurate information to promote people for oral self-examination and direct them to specific highly accurate videos.

Strength of our study is that videos were found in a way that patients might also look for them; therefore, it reflects daily practice. While providing an overview of videos available for oral self-examination, it has certain limitations. Search results from YouTube and other search engines are inconsistent, as new videos are added, or old videos deleted, every day. Also, the order of search results changes over time and by interaction. Therefore, a limitation of the current study was that the data collection method was instantaneous, as for similar studies. The use of a prolonged study period can often generate an overwhelmingly large volume of social media data, which becomes unmanageable and difficult to analyze.

Furthermore, this study, which only contained English-language videos, was primarily posted from native English-speaking countries, posing a geographical limitation; yet, English is a global language, and information in English may be accessed from anywhere in the world.

Variables	Healthcare group (n= 21)		Non-healthcare group (n= 3)		P-value
	Mean (SD)	Median P25–P75	Mean (SD)	Median P25–P75	
Views	36,466.76 (72,835.91)	3531 466.5–20,479	1011 (1175.67)	600 96–2337	0.42
Viewing rate	4990.57 (13,513.28)	266.81 91.88–1327.4	144.52 (133.73)	89.23 47.29–297.03	0.55
Likes	164.52 (387.38)	16 5–72	8 (7)	8 1–15	0.5
Interaction index	0.82 (0.99)	0.47 0.22–0.69	3.03 (4.59)	0.60 0.17–8.33	0.04*
Quality	3.90 (1.22)	4 3–5	2.33 (1.15)	3 1–3	0.05
Reliability	3.76 (0.70)	4 3–4	3.33 (1.15)	4 2–4	0.36
Comprehensiveness score	9.14 (1.74)	10 8–10	8 (3)	8 5–11	0.34

Table 6: Video classification according to the upload source

*Significant difference at *P* < 0.05

Variables	Up to 3.89 (n= 15)		More than 3.89 (n= 9)		P-value
	Mean (SD)	Median P25–P75	Mean (SD)	Median P25–P75	
Views	19,815.73 (50,617.19)	2374 600–9261	52,399.89 (91,898.35)	4808 356–107,108	0.27
Viewing rate	3908.14 (13,991.37)	170.11 75–354.54	5179.27 (10,978.08)	419.91 96.94–5676.1	0.82
Likes	91.80 (290.70)	11 2–28	233.56 (470.32)	33 8–256	0.37
Interaction index	0.55 (0.62)	0.38 0.17–0.6	2 (2.68)	0.64 0.51–3.28	0.05
Quality	3.33 (1.35)	3 3–5	4.33 (1)	5 3–5	0.07
Reliability	3.53 (0.64)	4 3–4	4 (0.87)	4 3–5	0.14
Comprehensiveness score	8.13 (1.81)	8 8–10	10.44 (0.88)	10 10–11	<0.01*

Table 7: Comparison of videos according to duration (min:s)

*Significant difference at *P* < 0.05

Table 8: Influence of videos quality on their visibility and popularity					
Variables	**GQS 1, 2, 3** (*n*= 12)		**GQS 4, 5** (*n* = 12)		***P*-value**
	Mean (SD)	**Median P25–P75**	**Mean (SD)**	**Median P25–P75**	
Views	37,735.50 (83,905.72)	2221.5 272–7670	26,334.08 (53,242.37)	5976 983–23,623	0.69
Viewing rate	5424.38 (15,670.21)	123.32 53.93–289.48	3345.25 (9471.53)	402.55 145.88–1560.55	0.70
Likes	129.92 (331.63)	9.5 2.25–21	160 (410.16)	30.5 6–74	0.85
Interaction index	1.38 (2.36)	0.47 0.18–2.03	0.81 (1.02)	0.59 0.26–0.72	0.45

Table 9: Influence of reliability on their visibility and popularity					
Variables	**DISCERN 1, 2, 3** (*n* = 9)		**DISCERN 4, 5** (*n* = 15)		***P*-value**
	Mean (SD)	**Median P25–P75**	**Mean (SD)**	**Median P25–P75**	
Views	28,472 (78,267.80)	2337 (356–5817.5)	34,172.47 (65,582.28)	4808 (520–26,767)	0.85
Viewing rate	1146.62 (3091.42)	108.75 (71.98–218.46)	6327.73 (15,780.64)	385.19 (137.89–1793.7)	0.34
Likes	47 (107.82)	11 (6–19.5)	203.73 (449.96)	28 (4–76)	0.32
Interaction index	1.23 (1.4)	0.47 (0.19–2.59)	1.01 (0.25)	0.55 (0.23–0.64)	0.55

Table 10: Influence of comprehensiveness of videos on their visibility and popularity					
Variables	**Poor content 1–8** (*n*= 8)		**Rich content 9–12** (*n*= 16)		***P*-value**
	Mean (SD)	**Median (P25–P75)**	**Mean (SD)**	**Median (P25–P75)**	
Views	25,764.25 (68,595.81)	2221.5 (347.25–2763.25)	35,170.06 (71,177.96)	5976 (439.75–23,623)	0.76
Viewing rate	6915.03 (19,210.99)	123.32 (44.47–265.3)	3119.71 (8380.91)	369.87 (87.26–1560.55)	0.50
Likes	148.25 (400.76)	8.5 (1–14)	143.31 (359.75)	25.5 (8–74)	0.98
Interaction index	0.66 (0.77)	0.47 (0.22–0.59)	1.31 (2.13)	0.59 (0.22–1.21)	0.42

Finally, people need to be aware that although YouTube can act as an important platform where they can get information about oral self-examination, it is not by any means a substitute for regular screening by dental or medical professionals.

CONCLUSION

On YouTube, there are only a few videos about oral self-examination, and most do not have satisfactory quality, reliability, and comprehensiveness. YouTube due to its popularity could be quite useful in educating people about oral self-examination for early detection of oral cancer and precancerous lesions. It is the obligation for healthcare professionals, academic institutions, and professional organizations to improve YouTube content and refer patients to scientifically reliable content sources.

FUTURE SCOPE

Research, specifically randomized controlled trials, is required to further determine the effectiveness of YouTube videos on the person's willingness and ability to perform oral self-examination.

CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

AUTHORS' CONTRIBUTIONS

NDG: project administration, writing original draft. PRT: investigation, data analysis. SDD: investigation, data analysis, MNG: investigation, writing review, and editing. RNG: study conception, experimental design. SJK: data interpretation, statistical analysis. All authors have read and approved the manuscript.

Ethical policy and institutional review board statement

The names of the people/organizations who prepared the video were kept confidential. Ethical approval was obtained prior to the study process from Institutional Ethics Committee (protocol ref no. 199/2020–21).

Patient declaration of consent

Not applicable.

Data availability statement

The data set is available on request from corresponding author.

References

1. Kar A, Wreesmann VB, Shwetha V, Thakur S, Rao VUS, Arakeri G, *et al.* Improvement of oral cancer screening quality and reach: The promise of artificial intelligence. J Oral Pathol Med 2020;49:727-30.
2. Chaturvedi AK, Udaltsova N, Engels EA, Katzel JA, Yanik EL, Katki HA, *et al.* Oral leukoplakia and risk of progression to oral cancer: A population-based cohort study. J Natl Cancer Inst 2020;112:1047-54.
3. Su YF, Chen YJ, Tsai FT, Li WC, Hsu ML, Wang DH, *et al.* Current insights into oral cancer diagnostics. Diagnostics (Basel) 2021;11:1287.
4. Ghani WMN, Razak IA, Doss JG, Ramanathan A, Tahir Z, Ridzuan NA, *et al.* Mouth self-examination as a screening tool for oral potentially malignant disorders among a high-risk indigenous population. J Public Health Dent 2019;79:222-30.
5. Shah A, Bhushan B, Akhtar S, Singh PK, Garg M, Gupta M. Effectiveness of mouth self-examination for screening of oral premalignant/malignant diseases in tribal population of Dehradun district. J Family Med Prim Care 2020;9:4381-5.
6. Vaishampayan S, Malik A, Pawar P, Arya K, Chaturvedi P. Short message service prompted mouth self-examination in oral cancer patients as an alternative to frequent hospital-based surveillance. South Asian J Cancer 2017;6:161-4.
7. Shrestha G, Maharjan L. Mouth self-examination for prevention and control of oral cavity cancer. JNMA J Nepal Med Assoc 2020;58:360-2.
8. Duran MB, Kizilkan Y. Quality analysis of testicular cancer videos on YouTube. Andrologia 2021;53:e14118.
9. Passos KK, Leonel AC, Bonan PR, Castro JF, Pontual ML, Ramos-Perez FM, *et al.* Quality of information about oral cancer in Brazilian Portuguese available on Google, YouTube, and Instagram. Med Oral Patol Oral Cir Bucal 2020;25:e346-52.
10. Kovalski LNS, Cardoso FB, D'Avila OP, Corrêa APB, Martins MAT, Martins MD, *et al.* Is the YouTube™ an useful source of information on oral leukoplakia? Oral Dis 2019;25:1897-905.
11. Esen E, Aslan M, Sonbahar BÇ, Kerimoğlu RS. YouTube English videos as a source of information on breast self-examination. Breast Cancer Res Treat 2019;173:629-35.
12. Selvi I, Baydilli N, Akinsal EC. Can YouTube English videos be recommended as an accurate source for learning about testicular self-examination? Urology 2020;145:181-9.
13. Li M, Yan S, Yang D, Li B, Cui W. YouTube™ as a source of information on food poisoning. BMC Public Health 2019;19:952.
14. Oremule B, Patel A, Orekoya O, Advani R, Bondin D. Quality and reliability of YouTube videos as a source of patient information on rhinoplasty. JAMA Otolaryngol Head Neck Surg 2019;145:282-3.
15. Yüce MÖ, Adalı E, Kanmaz B. An analysis of YouTube videos as educational resources for dental practitioners to prevent the spread of Covid-19. Ir J Med Sci 2021;190:19-26.
16. Yurdaisik I. Analysis of the most viewed first 50 videos on YouTube about breast cancer. Biomed Res Int 2020;2020:2750148.
17. Jornet PL, Garcia FJ, Berdugo ML, Perez FP, Lopez AP. Mouth self-examination in a population at risk of oral cancer. Aust Dent J 2015;60:59-64.
18. Singh K, Sharma D, Kaur M, Gauba K, Thakur JS, Kumar R. Effect of health education on awareness about oral cancer and oral self-examination. J Educ Health Promot 2017;6:27.
19. American Association of Oral and Maxillofacial Surgeons. Oral Cancer Self-Exam. Available from: https://www.aaoms.org/docs/media/oral_cancer/oral_cancer_self_exam.pdf [Accessed September 10, 2021].
20. Indian Dental Association. Oral Cancer Foundation. What to do to prevent oral cancer? Available from: http://www.ocf.org.in/#/prevent [Accessed September 10, 2021].
21. Duman C. YouTube™ quality as a source for parent education about the oral hygiene of children. Int J Dent Hyg 2020;18:261-7.
22. Simsek H, Buyuk SK, Cetinkaya E. YouTube™ as a source of information on oral habits. J Indian Soc Pedod Prev Dent 2020;38:115-8.
23. Ramadhani A, Zettira Z, Rachmawati YL, Hariyani N, Maharani DA. Quality and reliability of halitosis videos on YouTube as a source of information. Dent J (Basel) 2021;9:120.
24. Bozkurt AP, Aras I. Cleft lip and palate YouTube videos: Content usefulness and sentiment analysis. Cleft Palate Craniofac J 2021;58:362-8.
25. Gupta AA, Kheur S, Varadarajan S, Parveen S, Dewan H, Alhazmi YA, *et al.* Chronic mechanical irritation and oral squamous cell carcinoma: A systematic review and meta-analysis. Bosn J Basic Med Sci 2021;21:647-58.
26. Lissoni A, Agliardi E, Peri A, Marchioni R, Abati S. Oral microbiome and mucosal trauma as risk factors for oral cancer: Beyond alcohol and tobacco. A literature review. J Biol Regul Homeost Agents 2020;34:11-8.
27. Piemonte E, Lazos J, Belardinelli P, Secchi D, Brunotto M, Lanfranchi-Tizeira H. Oral cancer associated with chronic mechanical irritation of the oral mucosa. Med Oral Patol Oral Cir Bucal 2018;23:e151-60.
28. Singhvi HR, Malik A, Chaturvedi P. The role of chronic mucosal trauma in oral cancer: A review of literature. Indian J Med Paediatr Oncol 2017;38:44-50.
29. Khalil C, Megaly M, Ekladios C, Ibrahim A, Mosleh W, Tawadros M, *et al.* Evaluation of YouTube as a reliable source for patient education on aortic valve stenosis. Cardiovasc Diagn Ther 2019;9:371-8.
30. Haslam K, Doucette H, Hachey S, MacCallum T, Zwicker D, Smith-Brilliant M, *et al.* YouTube videos as health decision aids for the public: An integrative review. Can J Dent Hyg 2019;53:53-66.
31. Motta ACF, Rodrigues KRDH. Could we benefit from oral self-examination during the Covid-19 pandemic? Oral Oncol 2020;107:104840.
32. Park E, Kwon M. Health-related internet use by children and adolescents: Systematic review. J Med Internet Res 2018;20:e120.
33. Ustdal G, Guney AU. YouTube as a source of information about orthodontic clear aligners. Angle Orthod 2020;90:419-24.
34. YouTube.com. Press. Available from: https://www.youtube.com/intl/en-GB/about/press/ [Accessed September 10, 2021].