Are the Testicular Self-examination Videos on YouTube Misleading?

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Abstract

Objective: For early diagnosis, testicular self-examination (TSE) is crucial. Videos of TSE have increased on social media platforms. In this study, we assessed the reliability of TSE videos on YouTube.

Materials and Methods: The keywords including "testicular self-examination", and "testis mass" were used for searching on YouTube (http://www.youtube.com). A total of 1311 videos were investigated, and a total of 207 videos were included in the study. Shorter videos (below 1.30 minutes) and irrelevant videos were not included in the study.

Results: The median number of views was 1846 (interquartile range: 406-30310). Most of the videos were uploaded by profit organizations (57.5%). The DISCERN score and Global Quality Score (GQS) were significantly higher in the health professional group (p=0.003, and p<0.001, respectively). In addition, the degree of information was generally low in both groups. However, misinformation was statistically lower in the health professional group.

Conclusion: YouTube is a popular platform for promoting videos about TSE. In particular, not checking health-related videos while uploading causes poor quality videos to be uploaded. Videos of TSE have a low degree of misinformation. However, the DISCERN and GQS were also low.

Keywords: Testicular cancer, diagnosis, YouTube, DISCERN, JAMA

Introduction

Testicular cancer (TC) incidence peaks on the 3rd-4th decades, and it represents 5% of the urological malignancies is 5% (1). The disease cure rates are high, and the overall survival rate is over 95% (2). In addition to the rising TC incidence, the current literature showed that higher than %85 of TC deaths occur among the patients age below 50 (1). As a result, the early diagnosis of TC, which can be acquired via testicular self-examination (TSE) and awareness, becomes vital (3,4). The data regarding the TSE and awareness of TC have increased dramatically on social media platforms in the last two decades. However, the source of information and content for various urological diseases on social media platforms are inadequate (5,6).

Social media platforms vary in many fields, and the usage of social media platforms increased dramatically, especially after pandemic restrictions (7). Additionally, through technological advantages, social media platforms and video sharing applications can be used on mobile devices, and this situation provides a limitless source of information to social media consumers (8). YouTube is one of the most popular video streaming platforms and is used as an educational source for medical information and healthcare services (8). Published papers have demonstrated that videos on YouTube contain complex information for average users or sometimes misinformation due to unsupervised uploading and streaming processes (9,10). Moreover, a novel study that assessed misinformation in TC on YouTube showed that most of the content is of low quality and there is a risk of exposure to misinformation (11).

In this study, we assessed the reliability and quality of TSE videos on YouTube.

Materials and Methods

Data Search and Inclusion Criteria

A YouTube search was conducted using the keywords "testicular self-examination" and "testis mass" (http://www.youtube.com). Irrelevant videos, shorter than 1.30 minutes, or produced

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in a language other than English were excluded from the study. A total of 207 of the 1311 movies that were examined were included in the study (Figure 1).

Scoring Systems and Data

The videos were assessed by independent surgeons specializing in urological oncology. In the event of inconsistent evaluation between surgeons when results do not match, an additional urologist assessed the recordings. The viewer reactions were also evaluated by tracking total views, views per month, and video likes and dislikes. Based on the source of upload, the data were separated into two groups: Group 1: healthcare professionals including doctors, nurses, academic publications, and academic or nonprofit medical professionals, whereas group 2 comprised commercial companies or for-profit organizations. The degree of misinformation was determined using the most recent evidence on TC as stated by the guidelines (12). Additionally, we used a Likert scale of 1 to 5 to score (none, low, moderate, high, and excessive) the extent of disinformation in the videos (13). The verified DISCERN quality criteria were used to analyze all the videos.

Individuals without specialized knowledge can utilize DISCERN, a standardized index that evaluates the quality of consumer health information regarding treatment options. The items comprise the questionnaire (total 15), in addition to an overall quality assessment. Each item represents a distinct quality criterion, graded from 1 to 5 points (1-2 points: low, 3 points: moderate, and 4-5 points: good quality). As a result, a total score of 80 is possible, with higher scores signifying higher quality. Although not all of the videos were directly related to treatment options, they were scored using all relevant factors and given an overall quality grade for the purposes of this study. A five-point Global Quality Score (GQS) was used to assess the overall quality of the videos (1 being bad quality, and 5 being great quality). This instrument assesses a video's overall content flow and degree of accessibility (14).
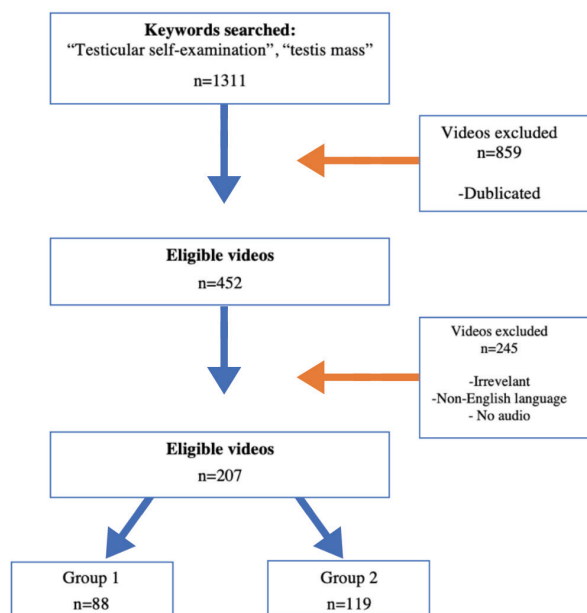
JAMA is a four-point rating system that assesses whether the video clearly identifies the authors, institutions, references, and sources; whether copyright information is present; whether there is an obvious conflict of interest; and whether the uploading and publication dates are provided (15).

Statistical Analysis

The Statistical Package for the Social Sciences version 25.0 software on MacOS (SPSS Inc.,) was used for analysis. To determine normalization, the Shapiro-Wilk test was performed. Continuous variables are given as median and interquartile range (IQR). The categorical variables are given as count and frequency. The chi-square test was used to compare the categorical variables. The Mann-Whitney U test was used for comparing the continuous variables. The Spearman test was used for correlation analysis. Inter-rater agreement was evaluated with the Kappa coefficient. The statistical significance level was set at $p < 0.05$.

Results

A total of 207 videos were included in the study. The median length of videos was 222 min. (IQR: 123-374). The median number of views was 1846 (IQR: 406-30310). Most of the videos were uploaded by profit organizations (57.5%) (Table 1). Detailed information about TC was provided in only 40.6% of the total videos. The commercial bias was 29.5%,

Figure 1. Selection of eligible videos from YouTube for the study

Table 1. General characteristic of videos

		Value
Video length (min.)[a]		222 (123-374)
Number of views[a]		1846 (406-30310)
Number of comments[a]		0 (0-11)
Number of like[a]		7 (1-93)
Upload by[b]	Healthcare professional	88 (42.5%)
	Profit organization	119 (57.5%)
Detailed information[b]	Absent	123 (59.4%)
	Present	84 (40.6%)
Commercial bias[b]	Absent	146 (70.5%)
	Present	61 (29.5%)
DISCERN score[a]		35.00 (27.00-44.00)
Degree of misinformation[b]	None	26 (57.5%)
	Low	62 (30.4%)
	Moderate	82 (6.9%)
	High	15 (5.3%)
	Extreme	1 (0.0%)
GQS[b]	GQS1	52 (24.2%)
	GQS2	69 (33.33%)
	GQS3	65 (31.4%)
	GQS4	20 (9.7%)
	GQS5	1 (0.5%)

[a]Data expressed as median and range, [b]Data expressed as numbers and percentages, GQS: Global Quality Score

and the degree of misinformation was generally absent or low (57.5% and 30.4%, respectively). However, the GQS was generally lower than 3 scores. When the distribution of the videos by years was assessed in particular, the upload rate peaked in 2018, but gradually lost interest and the number of uploaded videos decreased (Figure 2).

The median video length was similar between the groups (p=0.577). The median number of views, number of comments, and the median number of likes were similar between the groups (p=0.212, p=0.119, and p=0.503, respectively) (Table 2). However, the DISCERN score was significantly higher in group 1 (p =0.003). Additionally, the degree of information was generally low in both groups. However, misinformation
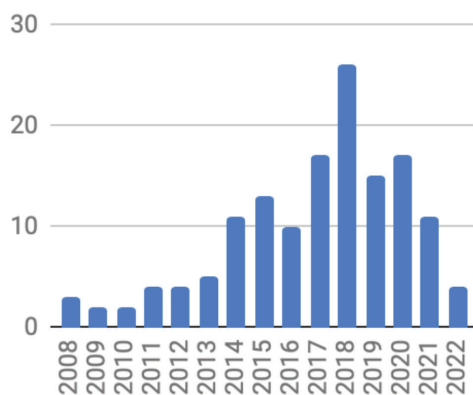
was statistically lower in group 1 (p<0.001) and the GQS was significantly higher in group 1 (p<0.001). The JAMA score was significantly higher in group 1 (p=0.002), but there was a statistically significant difference in the JAMA score subgroup (p=0.063).

Discussion

Our study showed that TSE is an attractive area for social media. Although it is crucial to protect public health, more videos prepared by health professionals are needed in this field. With technological advancements, the use of smart phones and social media platforms are spreading widely. People seeking health information on the internet have increased recently (14). However, increasing health information on the internet does not indicate that people have obtained the right information or are able to read or interpret its content (15). YouTube is a common platform for seeking or learning health information and has gained popularity on the internet (16). However, many studies have shown that YouTube contains many low-quality or misinformative videos (6,9,11,17). A novel mini-review showed that misinformation was highest in prostate cancer videos (70%), followed by kidney cancer (30%), bladder cancer, and TC (20% each) (5). The literature has shown that kidney cancer videos were generally reliable (mean DISCERN score of 3.9) or moderate quality (mean GQS score of 3.7), and prostate cancer videos (mean DISCERN score of 3.0) (18,19). In addition, Duran and Kizilkan (11) evaluated the reliability of videos about TC on YouTube and showed that most of the videos were uploaded by non-healthcare professionals, and the JAMA score, DISCERN score, and GQS were statistically significantly

Figure 2. Video upload rate in years

Table 2. Comparison of video scores between the groups				
		Group 1 (n=88)	**Group 2 (n=119)**	**p-value**
Video length (min.)[a]		232.00 (132.00-356.00)	208.00 (120.00-401.00)	0.577
Number of views[a]		1447.00 (464.00-5703.00)	2161 (401.00-57397.00)	0.212
Number of comments[a]		0.00 (0.00-5.00)	0.00 (0.00-20.00)	0.119
Like[a]		6.00 (2.00-35.00)	15.00 (1.00-182.00)	0.503
Discern total[a]		38.00 (27.00-50.00)	34.00 (25.00-40.00)	0.003*
Degree of misinformation[b]	None	17 (22.4%)	9 (8.2%)	<0.001#
	Low	31(40.8%)	31 (28.3%)	
	Moderate	27 (35.5%)	55 (50.0%)	
	High	1 (1.3%)	14 (12.7%)	
	Extreme	0 (0.0%)	1 (0.9%)	
JAMA score[a]		0.00 (0.00-1.00)	0.00 (0.00-0.00)	0.007*
JAMA group[b]	JAMA <2	82 (93.2%)	117 (98.3%)	0.063
	JAMA >2	6 (6.8%)	2 (1.7%)	
GQS[b]	Very low	9.0 (10.2%)	43.0 (36.1%)	<0.001#
	Low	29.0 (33.0%)	40.0 (33.6%)	
	Moderate	36.0 (40.9%)	29.0 (24.4%)	
	Good	13.0 (14.8%)	7.0 (5.9%)	
	Very good	1.0 (1.1%)	0.0 (0.0%)	
[a]Data expressed as median and range, [b]Data expressed as numbers and percentages, *The Mann-Whitney U test was used, #Chi-square test was used, GQS: Global Quality Score				

higher in videos uploaded by healthcare professionals (1.59, 2.13 and 2.61; p<0.001, p<0.001 and p<0.001 respectively). Similar to these results, our study demonstrated that the degree of misinformation was generally low; however, similar to the literature, DISCERN and GQS scores were also lower than 3 points. Comparable to the literature, a study by Esen et al. (20) assessed breast self-examination videos on YouTube and showed that 33.3% of the useful videos were uploaded by healthcare professionals. The GQS, reliability, and comprehensiveness scores were significantly higher among healthcare professionals (p<0.05 for each). In another study which assessed the reliability and quality of YouTube videos related to TSE demonstrated that less than 25% of useful videos were uploaded by healthcare professionals and also pointed that GQS was significantly lower in healthcare professionals when compared to the stand-alone health information websites (p<0.001) (17). Similarly, our study showed that DISCERN, JAMA, and GQS were lower in both groups and these scores were significantly lower in videos uploaded by profit organizations.

TSE is a key point for the early diagnosis of TC and seems to be an easy method to learn and apply. There are many useful tools such as realistic models, well-edited step-by-step instructional videos, and some cards used in the videos. However, not providing sufficient information about TSE may actually cause this method to be considered less important than desired. In addition, our study showed that the video upload rate has decreased after the recent pandemic. Unfortunately, this may lead to a gradual decrease in the importance and habit of TSE. Additionally, an early review, which assessed intervention TSE studies, pointed out that a knowledge gap regarding awareness and the efficacy of preventative behavior is brought on by the general population's lack of access to information on the cancer's occurrence, prevalence, etiology, treatment, and prevention strategies. Moreover, the authors summarized that there was a significant increase in pre- and posttest reported TSE among the experimental group. However, three of 10 participants did not meet the statistically sufficient criteria (21). On the other side of the coin, all of this also shows how difficult it is for this subject to learn or acquire a habit. Again, in the first evaluation, the fact that more than half of the videos were completely irrelevant or inadequate also prevented people from reaching the truth. Furthermore, distorting the subject with prank videos, even if they are few in number, may give the audience false impressions about the disease's importance. Here again, we healthcare professionals play an important role to play, and we should promote this important issue and upload quality videos on social media platforms.

Study Limitations

Our study has some limitations. Videos from other social media platforms such as Vimeo or TikTok or websites of academic institutes were not included. However, YouTube is still one of the most popular video sharing platforms for professionals and individuals who seek health information. Another important point is that the videos were not assessed with other scoring systems such as Patient Education Materials Assessment Tool. However, there is still no consensus on scoring systems to evaluate the health information videos.

Conclusion

YouTube has become a popular platform for individuals seeking health information. It is considered to be an appropriate tool for explaining and disseminating TSE. The majority of videos were uploaded by non-healthcare professionals, and even though the misinformation rating was low, the videos also had low global quality and DISCERN scores. Health professionals should upload more videos so that people can access accurate and quality information on this important issue.

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