Research Article: YouTube as a Source of Information on Hymenoplasty

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Abstract

Aim: The aim of this study was to evaluate the quality, validity and reliability of YouTube videos regarding hymenoplasty.

Methods: On 01/03/2021, the terms "Hymenoplasty", "Hymen Repair", "Hymenoplasty Surgery" and "Virginal Membrane" were entered separately in the YouTube search bar, and the videos were listed by selecting "relevance" from the filtering options. After excluding non-English videos, videos shorter than 60 seconds and longer than 20 minutes, entertainment videos, news and repeat videos, the most relevant and most watched 100 videos were included in the study.

Results: While 50% of these videos were uploaded by physicians and 40% by private clinics, 64% were contained information about surgical technique and 28% general information. While the mean DISCERN score of the videos uploaded by physicians was 2.96 ± 0.83, it was 2.84 ± 1.27 for those who were not uploaded by physicians. While the mean GQS score of the videos uploaded by doctors was 2.96 ± 0.75, it was 2.74 ± 1.24 for the videos that were not uploaded by physicians. According to the scores given by the researchers on both DISCERN and GQS scales, 38 videos were found to be of poor quality and misleading, 31 videos were of medium quality, 23 videos were of good quality, and 8 videos were of excellent quality.

Conclusion: While general information videos uploaded by physicians and private clinics contain useful and educational information, we found that surgical technique videos provide incomplete and misleading information. We think that all videos with health content should only be uploaded by specialist doctors and health channels and these videos should be subjected to peer review.

Keywords: hymenoplasty; youtube; discern; gqs

Introduction

The hymen, known as virginal membrane colloquially, is a thin mucosal fold that partially closes the vaginal entrance. Hymen has no known physiological function [1]. However, in some beliefs and cultures (Muslim, Catholic, Indian and Chinese etc.) it has a sociological consideration rather than a physiological role. Hymen is regarded as a sign of cleanliness, virginity and purity in these communities [2,3]. This situation pushes these women who lost their virginity for any reason before marriage (sexual intercourse, masturbation, trauma in the genital area, sexual assault) to hymen repair, also known as "revirgination" [4,5].

Hymenoplasty (hymenorraphy), which is a procedure to repair or reconstruct hymen, is generally demanded by Muslim women who are at the stage of pre-arranged marriage, who were previously sexually active and who fear the absence of blood loss on the wedding night [6]. Hymenoplasty is also rarely desired by western women as a gift for their sexual partners [7]. The incidence of hymenoplasty procedures is unknown and the number of studies on hymenoplasty in the literature is limited. However, hymenoplasty is very popular on websites and social media platforms, and many posts with advertising content from both doctors and private clinics are observed. This shows that individuals thinking of hymenoplasty look for information on the internet and can easily access topics on the internet, that they cannot talk face to face.

The Internet is one of the most important sources of information used by all [8]. A previous study reported that 8 out of 10 adults search for information about their health on the internet [9]. Today's largest visual social media network is YouTube (www.youtube.com) and it is known to have two billion users worldwide [10]. There are videos on YouTube with a high level of educational information published by experts. However, the number of videos containing misleading information is quite high. Many studies have been conducted previously to investigate the accuracy of health-related video

content uploaded to YouTube [11-14]. However, in our literature search, we did not find a study that examined videos with hymenoplasty content on YouTube.

The aim of this study is to evaluate the quality, validity and reliability of videos with hymenoplasty content on YouTube.

Material and Methods

Data Collection

Before starting the study, the search terms to be used on YouTube were determined by two expert gynecologists using the Google Trends application (https://trends.google.com). Computer history and cookies have been deleted as they can affect search results. On 01/03/2021, the terms "Hymenoplasty", "Hymen Repair", "Hymenoplasty Surgery" and "Virginal Membrane" were entered separately in the YouTube search bar, and the videos were listed by selecting "relevance" from the filtering options. For each search term, all of the titles on the first three pages were examined and the videos related to the subject were recorded in an Excel file. After excluding non-English videos, videos shorter than 60 seconds and longer than 20 minutes, entertainment videos, news and repeat videos, the most relevant and most watched 100

videos were included in the study. For 100 videos included in the study, the nature of the uploaders, video content, video length, video upload date, time since upload, number of daily views, likes, dislikes, number of comments and video power index (VPI) were also recorded. The quality of the videos was evaluated by Video Power Index (VPI) values calculated according to the formula: VPI = like count / (like count + dislike count) x 100 [11-13].

Data Analysis

The collected data were evaluated and scored by two gynecologists, who are experts in their field, on the same day and in separate settings in terms of quality and reliability. The first researcher is an assistant professor and a female doctor with 17 years of professional experience. The second researcher is an associate professor and a male doctor with 23 years of professional experience. The Global Quality Scale (GQS) scale, which has been used in many studies in the literature [13,15,16], was used by the researchers to determine the quality of the videos. In the GQS scale developed by Bernard et al, 1 point for videos indicates very low quality, 2 points for low quality and limited use, 3 points for medium quality, 4 points for good quality and useful content, and 5 points for useful / excellent quality [17]. 5 questions about the GQS scale are given in Figure 1;

	Global Quality Scale (GQS)
1	Poor quality, poor flow of the content, most information missing, not at all useful for patients.
2	Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients.
3	Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients.
4	Good quality and generally good flow, most of the relevant information is listed, but some topics not covered, useful for patients.
5	Excellent quality and excellent flow, very useful for patients.

Figure 1. GQS Score Descriptions

To evaluate the reliability of the videos, the DISCERN scale, which was formed by Singh et al, was used [18]. There are 5 questions in total on the DISCERN scale, and each question is answered yes or no. Answer yes is 1

point and answer no is 0 point, and a maximum of 5 points can be obtained. High scores show the reliability of the video content [19]. Five questions of the structured DISCERN scale are given in Figure 2.

	Quality Criteria for Consumer Health Information (DISCERN)
1	Are the aims clear ?
2	Are reliable information sources used? (eg. physicians, health channels etc.)
3	Is the information balanced and unbiased?
4	Are additional sources listed for patients?
5	Are areas of uncertainty stated?

Figure 2: Questions on the DISCERN scale

As a result of the researchers' evaluations, 1 and 2 points obtained from the GQS and DISCERN scales indicate that the video content is of poor quality and misleading, 3 points are of medium quality and reliability, 4 points are of good quality and useful, and 5 points show that the video content is useful / excellent quality for patients.

Statistical Analysis

Analyzes were made on IBM SPSS Statistics 23 package program. While evaluating the study data, frequencies (number, percentage) for categorical variables and descriptive statistics (mean, standard deviation, median, minimum and maximum) for numerical variables were given. Normality assumptions of numerical variables were examined with the Kolmogorov-Smirnov normality test and it was observed that they were not distributed normally. For this reason, nonparametric statistical methods were used in the study. The relationship between two independent numerical variables was interpreted with Spearman's Rho correlation coefficient. Differences between two independent groups were analyzed by Mann Whitney U analysis.

Results

In our study, a total of 100 videos containing hymenoplasty were examined. All of the 100 videos analyzed, were consisted of real images. While the total number of views of the videos was 54,575106, the total number of comments was 6,158, the total number of likes was 150,968, and the total number of dislikes was 29,262. While 50% of these videos were uploaded by doctors and 40% by private clinics, 64% were found to be videos with surgical technique and 28% of general information. The distribution of video features is given in Table 1.

(n=100)	Number	Percentage
Image Type		
Real	100	100,0
Nature of Video Uploader		
Private Clinic	40	40,0
Doctor	50	50,0
Blog Channel	6	6,0
Hospital Channel	2	2,0
Patient	2	2,0
Video Content		
Virginity Test	6	6,0
Surgical Technique	64	64,0
General Information	28	28,0
Examination	2	2,0

Table 1: Distribution of video features

Videos uploaded by private clinics received 27,734 likes and 4,544 dislikes. Videos uploaded by doctors received 2,996 comments, 110,572 likes and 13,644 dislikes. The numbers of comments, likes and dislikes according to the nature of the uploaders of the videos are given in Table 2.

	Number of Videos	Comment	Likes	Dislikes
Private Clinic	40	2,030	27,734	4,544
Doctor	50	2,996	110,572	13,644
Blog Channel	6	1,086	12,088	7,562
Hospital Channel	2	36	190	28
Patient	2	10	384	484

Table 2: Number of comments, likes and dislikes according to video uploader

The average length of 100 videos examined is 234.38 ± 156.40 seconds. The average number of views is 545,751.06 ± 1,308,013.53. The average time elapsed after uploading the video is 922.02 ± 676.53 days. The average number of views per day is 852.09 ± 3,421.72. The average number of comments is 61.58 ± 85.89. The average number of likes is 1,509.68 ± 6,027.61. The average number of dislike is 262.62 ± 775.12. The average VPI (%) is 85.35 ± 11.58. Descriptive statistics according to video features are given in Table 3.

	Mean	Standard Deviation	Median	Minimum	Maximum
Video Length (Seconds)	234.38	156.40	186.00	23.00	780.00
Number of Views	545,751.06	1,308,013.53	92,720.00	2,541.00	8,135,385.00
Time since Video Upload (Days)	922.02	676.53	703.00	8.00	2,981.00
Number of Views (Daily)	852.09	3,421.72	129.21	4.03	24,357.44
Comment	61.58	85.89	28.50	0.00	368.00
Likes	1,509.68	6,027.61	243.50	1.00	43,000.00
Dislikes	262.62	775.12	28.50	0,00	4,800.00
VPI (%)	85.35	11.58	87.63	44.24	100.00

Table 3: Descriptive statistics according to video properties

While the average DISCERN score given by the first researcher to the videos is 2.88 ± 1.13, the average GQS score is 2.86 ± 1.08. The average DISCERN score of the second researcher is 2.92 ± 1.12, while the average GQS score is 2.84 ± 1.07. The scores given by the researchers to the DISCERN and GQS scores are shown in Table 4.

	Mean	Standard Deviation	Median	Minimum	Maximum
DISCERN (1. Researcher)	2.88	1.13	3.00	1.00	5.00
GQS (1. Researcher)	2.86	1.08	3.00	1.00	5.00
DISCERN (2. Researcher)	2.92	1.12	3.00	1.00	5.00
GQS (2. Researcher)	2.84	1.07	3.00	1.00	5.00

Table 4: Descriptive statistics for DISCERN and GQS scores

here is a statistically significant high level of positive linear relationship between the DISCERN scores of the first researcher and the DISCERN scores of the second researcher (r=0.789). There is a statistically significant At the doctors; There is a statistically significant moderately positive linear relationship between the DISCERN scores of the 1st researcher and the DISCERN scores of the 2nd researcher (r = 0.664). There is a statistically significant high level of positive linear relationship between the GQS scores of the 1st researcher and the 2nd researcher (r = 0.785).

high level of positive linear relationship between the GQS scores of the first researcher and the second researcher's GQS scores (r = 0.818).

For those who are not doctors; There is a statistically significant high level of positive linear correlation between the DISCERN scores of the 1st researcher and the 2nd researcher (r=0.866). There is a statistically significant high level of positive linear relationship between the GQS scores of the 1st researcher and the 2nd researcher (r = 0.843) (Table 5).

			DISCERN score (2nd Researcher)	GQS 2
Total	DISCERN score (1st Researcher)	r	,789**	,782**
		p	0,000	0,000
	GQS 1	r	,874**	,818**
		p	0,000	0,000
Doctor	DISCERN score (1st Researcher)	r	,664**	,604**
		p	0,000	0,000
	GQS 1	r	,809**	,785**
		p	0,000	0,000
Non-Doctor	DISCERN score (1st Researcher)	r	,866**	,877**
		p	0,000	0,000
	GQS 1	r	,928**	,843**
		p	0,000	0,000

r: Spearman's Rho correlation coefficient **: $p<0,01$

Table 5: Investigation of researchers' relationship between DISCERN and GQS scores

While the average DISCERN score of those doctors who uploaded a video was 2.96 ± 0.83, it was 2.84 ± 1.27 for those who were not physicians. While the GQS score average of those doctors who uploaded videos was 2.96 ± 0.75, it was 2.74 ± 1.24 for those who were not physicians. The VPI score average of those doctors who uploaded a video was 88.89 ± 7.66, while it was 81.8 ± 13.66 for those who were not physicians.

As a result of the Mann Whitney U Analysis applied, there was no statistically significant difference in terms of DISCERN and GQS scores between the doctor and non-doctor video uploaders ($p> 0.05$), while there was a statistically significant difference in VPI scores ($p <0.05$). Accordingly, the VPI scores of those doctors who upload videos are significantly higher than those who are not physicians (Table 6).

	Doctor		Non-Doctor		Z	p
	Mean ± SD	Median (Min.-Max.)	Mean ± S.D.	Median (Min.-Max.)		
DISCERN	2.96±0.83	3(1.5-5)	2.84±1.27	2.5(1-5)	-0.405	0.686
GQS	2.96±0.75	3(2-4.5)	2.74±1.24	2.5(1-5)	-1.149	0.250
VPI	88.89±7.66	89.96(68.8-100)	81.8±13.66	85.96(44.24-93.67)	-3.075	0.002*

Z: Mann Whitney U **: $p<0,05$

Table 6: DISCERN and GQS scores according to the nature of the video uploader

According to the scores given by the researchers on both DISCERN and GQS scales, 38 videos were found to be of poor quality and misleading, 31 videos were of medium quality, 23 videos were of good quality, and 8 videos were of excellent quality (Table 7).

Table 7. Classification of the scores given to the videos by the researchers

DISCERN	1 score	2 score	3 score	4 score	5 score
First Researcher	12	26	32	22	8
Second Researcher	10	28	30	24	8
GQS	1 score	2 score	3 score	4 score	5 score
First Researcher	11	27	36	18	8
Second Researcher	10	28	38	16	8

Discussion

Hymenoplasty is one of the most discussed and least described vulvovaginal procedures of plastic surgery and the number of scientific studies on this subject is limited. However, the number of advertising content posts by doctors and private clinics on the internet and social media platforms is quite high. In a previous study, it was reported that individuals searched for information about their health on the internet [9]. However, it has been reported in many studies that health information on the internet is misleading [11,12,16,20]. In our study, we aimed to investigate the quality and reliability of videos with hymenoplasty content on YouTube.

We found that 100 videos examined in our study were uploaded between 2013 and 2021, videos were watched a total of 54,575,106 times, and these videos were viewed an average of 1,155.80 times daily. While videos uploaded by doctors were watched 23,879,938 times, videos uploaded by non-doctors were watched 30,695,168 times and viewed 548.38 times a day on average. In a recent study, videos of female genital plastic surgery on YouTube were examined and it was reported that these videos were viewed 136,399,073 times [13]. In another study, a total of 280 videos on YouTube with plastic surgery content were examined and reported that these videos were viewed 160 million times in total [14]. In such studies in the literature, the number of views of videos varies according to the subject of the study. However, it is observed that the number of views of videos, especially those involving plastic surgery, is quite high. However, it has been reported that the videos examined in these studies generally contain misleading or medium quality information [14,21,22].

It was determined that 50 of the 100 videos examined in the study were uploaded by doctors, 40 by private clinics and 10 by other users. When these 100 videos are evaluated according to the DISCERN and GQS scales; 38 videos were found to be of poor quality and misleading, 31 videos were of medium quality and reliability, 23 videos were of good quality and reliability, and 8 videos were of excellent quality and useful. Accordingly, 100 videos were found to be of medium quality in general. In many studies examining YouTube content, it has been reported that the videos are of bad quality and misleading [11,12]. In these studies, it was reported that videos containing misleading information were uploaded by patients themselves, their relatives and unrelated people [11,12,23-25]. We think that the reason why the content of the 100 videos we examined is of medium quality in general is due to the quality of the uploaders (doctor and private clinic). In addition, no statistically significant difference was found in terms of both DISCERN and GQS scores in videos uploaded by doctors and non-doctors (p> 0.05), which is one of the interesting findings of this study.

When the contents of the 100 videos we examined in the study were examined, it was determined that 64 of them were videos with surgical technique, 28 were videos containing general information about hymenoplasty, and 8 videos were virginity test and examination videos. It has been determined that all of the videos containing surgical techniques have been uploaded by doctors and private clinics. According to the scores of the two researchers with the DISCERN and GQS scales, 32 of the 64 videos with surgical technique content were found to be of poor quality and contain incomplete information. These videos have been viewed a total of 24,290,008 times. All 28 videos with general information content were uploaded by doctors and private clinics and it was seen that all of these videos had high quality and useful content. These 28 videos have been watched a total of 18,560,782 times. The remaining 8 videos are examination and virginity test videos and have been uploaded by patients and blog channels. Six of these 8 videos contain misleading information and have been viewed 11,724,356 times in total. In previous studies, it has been reported that the videos uploaded by patients and other users contain poor quality and misleading information, but these misleading videos are viewed more than useful videos [25-27]. At the same time, some studies reported that videos uploaded not only by patients or their relatives but also by doctors were of poor quality and misleading content [11, 12].

When the VPI scores were examined according to the quality of the video uploaders, it was found that there was a statistically significant difference between the videos uploaded by the doctors and the videos uploaded by the non-physicians (p<0.05). Accordingly, it was determined that the number of likes and comments of videos uploaded by doctors was higher than that of non-doctors. In previous similar studies, it was reported that the videos uploaded by patients and their relatives were viewed more than the videos of doctors or health institutions, and that they were liked and commented more [28,29]. In our study, it was found that only two videos were uploaded by patients.

In our study, the average DISCERN score given by the first researcher to the videos was 2.88 ± 1.13, while the average GQS score was 2.86 ± 1.08. The mean DISCERN score of the second investigator was 2.92 ± 1.12, while the mean GQS score was 2.84 ± 1.07. Accordingly, there is a statistically significant high level of positive linear relationship between the DISCERN scores of the first and the second researchers (r = 0.789). However, there is a statistically significant highly positive linear relationship between the GQS scores of the first and the second researchers (r = 0.818). The agreement between researchers is consistent with similar studies in the literature [13,15,16].

The number of studies evaluating health videos on YouTube is quite high. It has been reported in some studies that videos contain misleading information, and in some studies that they provide useful and educational information [30,31]. It is also seen in our study that misleading videos are uploaded by doctors and health channels. Among the videos uploaded by doctors or health channels, out-of-date videos, videos containing incomplete information or videos made for advertising purposes can be misleading. However, it should be noted that the most useful videos are shared by doctors or health channels.

Limitations of the Study

This study has some limitations. First of all, we examined only videos with English content in our study. In addition, we only looked at videos available on YouTube. Videos on other social media accounts could also be viewed. Finally, YouTube videos were viewed and evaluated by instant visualization. The number of views, likes, dislikes and comments of videos on YouTube can change instantly. The strength of our study is that it is the first study to evaluate videos with hymenoplasty content on YouTube.

Conclusion

Despite the increasing demands, hymenoplasty is one of the most controversial procedures, the frequency of which is not exactly known. The number of studies on hymenoplasty is limited in the literature. However, there are many advertising content posts on the internet and social media platforms.

We evaluated videos with hymenoplasty content on YouTube and found that the videos were of medium quality. While general information videos uploaded by doctors and private clinics contain useful and educational information, we found that surgical technique videos provide incomplete and misleading information. We think that all videos with health content should only be uploaded by specialist doctors and health channels and these videos should be subject to peer review.

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