

Assessment of the Relationship Between the Quality of YouTube Videos on Penile Enlargement Surgery and Scholarly Profiles of Surgeons

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What's known on the subject? and What does the study add?

There are no restrictions on uploading Medical YouTube videos. In our study, we found a relationship between the quality of YouTube videos on penile enlargement surgery and the scholarly profiles of surgeons.

Abstract

Objective: To investigate the relationship between the quality of YouTube videos on penile enlargement surgery and the scholarly profiles of surgeons.

Materials and Methods: A YouTube search was conducted using the keyword "penile enlargement surgery". Of the first 200 videos from the search results, 66 that met the study criteria were included in the analyses. Two urologists scored each video using the DISCERN score, the Journal of the American Medical Association (JAMA) score, and the global quality scale (GQS) in a double-blind manner. After the video quality scores were determined, the number of publications and h-indexes of surgeons were obtained from Google Scholar.

Results: Of the videos, 31 (46.9%) were uploaded by plastic surgeons and 35 (53.1%) by urologists. The median duration of the videos was 4.1 min (interquartile range: 1-8.5) minutes. Eighteen (27.2%) videos had low quality, 9 (13.6%) had medium quality, and 39 (59.1%) had high quality. A statistically significant correlation was found between the h-index of surgeons and video quality scores (DISCERN, $r=0.678$; JAMA, $r=0.646$; GQS, $r=0.689$; $p<0.0001$). There was also a statistically significant correlation between the total publication counts of surgeons and the video quality scores (DISCERN, $r=0.614$; JAMA, $r=0.569$; GQS, $r=0.607$; $p<0.0001$). Lastly, a weak, statistically significant correlation was detected between the DISCERN scores of the videos and the number of likes ($r=0.278$ $p=0.029$).

Conclusion: This study revealed a significant correlation between the quality of YouTube videos on penile enlargement surgery and the h-indexes and total publication counts of surgeons. This study was the first to analyze the relationship between the quality of YouTube videos on penile enlargement surgery and the scholarly profiles of surgeons.

Keywords: Penile enlargement, andrology, publications, h-index, surgeon, quality score

Introduction

The use of the internet and social media is becoming more prominent within the healthcare sector. Many medical doctors and patients seeking medical advice refer to these resources for information (1). YouTube, a widely used platform for the

dissemination of information, offers free videos to more than 30 billion daily users (2).

Andrology holds significant interest among male patients within the context of urology, although this notion lacks scientific evidence (3). Men's interest in andrology usually stems from their pursuit of sexual self-confidence. Within the field of

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andrology, one of the popular areas of interest for men is penile enlargement techniques. There is no clear definition of a small penis (4). In the literature, a micropenis is described as having a flaccid length of less than 4 cm and a stretched or erect length of less than 7.5 cm (5). Some men may perceive their penis to be small, despite it falling within the range considered normal for penile dimensions. This psychological phenomenon is referred to as small penis anxiety (6). Another diagnosis that can be observed among these individuals is body dysmorphic disorder, a condition characterized by the presence of obsessive thoughts related to one's body image, which persist for at least one hour a day, continue during the follow-up process, and cause significant psychological problems (7). For these patients, it is essential to consult a psychiatrist before penile enlargement treatment because some cases may be suicidal.

The literature describes a variety of penile enlargement surgical materials, such as autologous grafts, biological or synthetic fillings used for injections, and synthetic implants (8-10). Autologous cartilage grafts or tissue-engineered biodegradable scaffolds can be implanted into the tunica albuginea (11,12). Filling materials injected into the penile subcutaneous tissue include acellular dermal matrix, free dermal fat grafts, free fat, hyaluronic acid, collagen, polymethylmethacrylate microspheres, polyacrylamide hydrogel, and silicone (13). A silicone implant designed to increase penile length can also be surgically inserted into the tunica albuginea (14).

Penile enlargement surgery is also often performed on patients who lack appropriate indications, such as those with body dysmorphic disorder who have a normal penis size but seek cosmetic enhancements rather than addressing a genuine micropenis condition (15). This can result in the development of mortal complications, such as fat embolism, although they are rare (16). Ensuring comprehensive coverage of significant complications related to penile enlargement surgery in online sources is crucial for patients seeking information about this treatment. However, the absence of peer-review in the uploading of YouTube videos on penile enlargement surgery raises questions concerning the educational value and reliability of such content. The scholarly profile of surgeons is another important factor that determines the quality of these videos. In this study, we hypothesized that the quality of YouTube videos on penile enlargement surgery correlates with the h-index of surgeons.

Despite the availability of research on the quality of medical YouTube videos over the past 15 years (17,18), no study has investigated the relationship between the quality of YouTube videos on penile enlargement surgery and the scholarly profiles of surgeons. The aim of this study was to fill this gap in the literature.

Materials and Methods

Ethical approval was not obtained because animal and human subjects were not included in the study, and the videos examined within the scope of the study were publicly available. Previous studies on medical YouTube videos also did not seek ethical approval (19,20). This study was conducted in accordance with the principles outlined in the 2004 Declaration of Helsinki.

YouTube Search

The YouTube search history was deleted to ensure that the results would not be affected. Two urologists accessed YouTube anonymously on separate computers. A YouTube search was conducted on September 8, 2022, using the keyword "penile enlargement surgery", and the first 200 videos from the search results were evaluated. The YouTube search engine ranked the videos according to length, number of views, likes, comments, and watch time.

Only videos in English uploaded by plastic, reconstructive, and esthetic surgeons and urologists were included in the study. Excluded from the analysis were videos that were duplicated, those that were not related to the topic, those that were presented in a language other than English, and those that had not been created by surgeons. As a result, 66 videos that met the study criteria were analyzed.

Video and Surgical Analysis

The examined video features included video duration, number of views, number of comments, number of likes and dislikes, video content, time since upload, and presence of real case videos or animations. The surgeon's specialty is stated. The video power index (VPI) was calculated using the following formula: $[(\text{total likes}/\text{total likes} + \text{total dislikes}) 100]$. Two urologists scored each video using the DISCERN score, the Journal of the American Medical Association (JAMA) benchmark score, and the global quality scale (GQS) in a double-blind manner. The average of the scores provided by the reviewers was calculated.

The DISCERN tool is a standardized quality index of consumer health information regarding treatment options (21). This index uses 15 questions to measure the reliability of materials by assessing the currency and verifiability of sources, the presence of evident biases, and the inclusion of alternative options for consideration. Based on these questions, the videos are rated on a numerical scale ranging from 1 to 5. In the DISCERN scoring system, over 50 points are considered high quality, and 38 points are considered low quality. The GQS employs a scoring system ranging from 1 (lowest quality) to 5 (highest quality). In the GQS scoring system, 1-2 is considered low quality, 3 is intermediate quality, and 4-5 is high quality content. The JAMA rating system consists of a set of criteria to evaluate the

authorship, attribution, disclosure, and currency of videos. The JAMA scores were 0-1 low quality, 2-3 intermediate quality, and 4 for high quality content.

In the current study, after the determination of video quality scores, the number of publications and h-indexes of surgeons were recorded using Google Scholar. The h-index is a quantitative metric that measures the productivity level and citation effect of a researcher's publications based on specific criteria (22). All articles written by the authors were scanned into Google Scholar. The h-index was calculated according to the citation numbers of the articles. It was noted whether the surgeon had any publications on penile surgery.

Statistical Analysis

All data were analyzed using SPSS version 25. The Kolmogorov-Smirnov test was used to test whether the data were normally distributed. Normally distributed parameters were specified using the mean and standard deviation values. Data that did not have a normal distribution were expressed as median

and interquartile range (IQR) values. Correlation analysis was performed using Pearson's and Spearman's tests. The Mann-Whitney U test was employed to compare the variables between the two groups. Results were considered statistically significant if the p-value was <0.05.

Results

Video Features

Of the videos, 31 (46.9%) were uploaded by plastic surgeons and 35 (53.1%) by urologists. Sixty-one (92.4%) of the videos contained real case videos, and five (7.6%) were animated. The median duration of the videos was 4.1 (IQR: 1-8.5) minutes. The median numbers of views and likes were 11,719 (17-118,620) and 52 (2-469), respectively. The videos were grouped according to their scores. Detailed data on video features are shown in Table 1.

	Total	Low quality	Intermediate quality	High quality
Number of videos (%)	66 (100)	18 (27.2)	9 (13.6)	39 (59.1)
Video length (minutes), median (IQR)	4.1 (1-8.5)	4.1 (1-7.2)	4.2 (1.1-12.1)	4.1 (1-11.8)
View count (n), median (IQR)	11719 (17-118620)	17655 (396-140742)	2887 (1009-8115)	34750 (17-189368)
Comments (n), median (IQR)	21 (0-83)	25 (0-103)	13 (0-39)	21 (0-149)
Likes (n), median (IQR)	52 (2-469)	65 (2-502)	14 (4-33)	86 (2-757)
Dislikes (n), mean \pm SD	41.5 \pm 36.3	37.3 \pm 29.6	49.4 \pm 32.8	42.1 \pm 34.7
Time since upload (months), median (IQR)	22 (1-66)	19.5 (5-83.5)	29 (1-73)	22 (1-66)
Video content, n (%)				
Indication	14 (21.2)	3 (16.7)	2 (22.2)	9 (23.1)
Perioperative features and techniques	59 (89.4)	15 (83.3)	7 (77.8)	37 (94.9)
Postoperative follow-up	37 (56.1)	5 (27.7)	5 (55.6)	27 (69.2)
Complications	8 (12.1)	0	3 (33.3)	5 (12.8)
VPI, median (IQR)	117.5 (1-1220.5)	178 (4-1408)	28 (10-81)	354 (1-1909)
Surgeon specialty, n (%)				
Plastic	31 (46.9)	13 (72.2)	6 (66.7)	12 (30.8)
Urology	35 (53.1)	5 (27.8)	3 (33.3)	27 (69.2)
h-index of surgeon median (IQR)	1 (0-4)	0 (0-1)	0 (0-1)	2 (0-6)
Total publication count of surgeon (n), median (IQR)	3 (0-9)	0.5 (0-2)	0 (0-3)	5 (0-15)
Presence of related publications about penile surgery n (%)	15 (22.7)	0	1 (11.1)	14 (35.9)
GQS score, median (IQR)	4 (1-4)	2 (1-2)	3 (3-3)	5 (4-5)
DISCERN score, median (IQR)	57.5 (19-68)	27.5 (20-36)	43 (40-47)	66 (51-75)
JAMA score, median (IQR)	3 (1-3)	1 (1-2)	2 (2-2)	4 (3-4)
Real case videos, n (%)	61 (92.4)	17 (94.4)	9 (100)	35 (89.7)
Animation	5 (7.6)	1 (5.6)	0	4 (10.3)

VPI: Video power index (likes / dislikes + likes) \times 100, JAMA: Journal of the American Medical Association, GQS: Global quality scale, h-index: A quantitative metric that measures the productivity level and citation effect of a researcher's publications based on certain criteria, SD: Standard deviation, IQR: Interquartile range

Quality Assessment

The quality categories of the videos were the same according to the evaluation using DISCERN, GQS, and JAMA. Eighteen (27.2%) videos had low quality, 9 (13.6%) had intermediate quality, and 39 (59.1%) had high quality. When the scholarly profiles of surgeons in the high-quality video group were examined, the median h-index was 2 (0-6), and the number of publications was 5 (0-15). Fifteen (22.7%) surgeons had published on penile surgery (Table 1). The median DISCERN, GQS, and JAMA scores were 68 (41-75), 5 (3-5), and 4 (2-4), respectively, for the videos of surgeons who had publications about penile surgery and 49 (20-73), 3 (1-5), and 2 (1-3), respectively, for the remaining videos ($p < 0.0001$ for all).

The results of the correlation analysis between the video features and the DISCERN, JAMA, and GQS scores are shown in Table 2. A statistically significant correlation was found between the h-index of the surgeons and the video quality scores (DISCERN, $r = 0.678$; JAMA, $r = 0.646$; and GQS, $r = 0.689$; $p < 0.0001$). There was less than a 10% difference between the reviews' scores. There was also a statistically significant correlation between the total publication count of the surgeons and the video quality scores (DISCERN, $r = 0.614$; JAMA, $r = 0.569$; and GQS, $r = 0.607$, $p < 0.0001$). Lastly, a weak, statistically significant correlation was found between the DISCERN scores of the videos and the number of likes ($r = 0.278$, $p = 0.029$) (Table 2).

A statistically significant correlation was found between the JAMA and DISCERN scores ($r = 0.939$, $p < 0.0001$). A statistically significant correlation was found between the JAMA and GQS scores ($r = 0.963$, $p < 0.0001$). A statistically significant correlation was found between the GQS and DISCERN scores ($r = 0.951$, $p < 0.0001$).

Discussion

In this study, there was a significant correlation between the quality of videos on penile enlargement surgery and the h-index and total publication counts of surgeons. Balta et al. (23)

reported a positive correlation between the number of likes of YouTube video-assisted thoracoscopic lobectomy videos and the h-index of surgeons. Chen et al. (24) found that the number of views of YouTube pulmonary lobectomy videos was lower among surgeons with an h-index of >10 than among those with an h-index of ≤ 10 . It can be predicted that academics with a high h-index will publish more reliable and quality videos. However, surgeons with a low h-index can also upload a video to advertise. Additionally, these videos made for advertising purposes can be viewed more often. Although the exact relationship between the scholarly profiles of surgeons and the popularity of YouTube videos remains unclear, the scholarly profiles of surgeons seem to significantly affect the quality of surgical videos.

The topics covered by surgeons in their previous publications can also have a significant effect on the surgical videos they create for YouTube. Shires et al. (25) reported that the rate of thyroid-related publications by surgeons in YouTube thyroid surgery videos was 44.8%. In our study, in which we examined YouTube videos on penile enlargement surgery, the percentage of surgeons with publications on penile surgery was 22.7%, and the quality of videos was higher among these surgeons. This suggests that the surgeon's scholarly experience on this subject can improve the quality of the videos they produce.

Existing literature indicates that medical YouTube videos exhibit low quality, and those of high quality are generally produced by medical doctors (26). Production of medical videos by non-healthcare professionals can lead to information pollution. The current study only focused on evaluating YouTube videos on penile enlargement surgery created by surgeons, and the rate of high-quality videos was 59.1%. Toprak and Tokat (27) reported that 25.8% of YouTube videos on nocturnal enuresis were of high quality, but the authors also included videos from non-medical doctors. Tolu et al. (28) determined that 50% of YouTube videos on anti-tumor necrosis factor injections (including those uploaded by non-medical doctors) were of high quality. The results suggest that medical YouTube videos produced by medical doctors are more reliable in terms of content.

Table 2. Correlations between the quality scale scores and video features

	DISCERN		JAMA		GQS	
	r	p	r	p	r	p
H-index of surgeon	0.678	<0.0001	0.646	<0.0001	0.689	<0.0001*
Total publication count of surgeon	0.614	<0.0001	0.569	<0.0001	0.607	<0.0001*
VPI values	0.229	0.065	0.205	0.099	0.184	0.138*
Video length	0.072	0.567	0.081	0.572	0.372	0.112*
View count	0.225	0.070	0.201	0.106	0.181	0.146*
Number of comments	0.064	0.651	0.019	0.895	-0.010	0.945*
Number of likes	0.278	0.029	0.248	0.052	0.231	0.071*
Number of dislikes	0.204	0.64	0.184	0.113	0.197	0.091&

VPI: Video power index, JAMA: Journal of the American Medical Association, GQS: Global quality scale, *: Spearman's test, &: Pearson's test

In the literature, there are conflicting findings concerning the relationship between the quality of medical YouTube videos and their popularity. Toprak and Tokat (27) reported no correlation between the quality of YouTube videos on nocturnal enuresis and VPI values, view rates, or the number of comments, views, likes, and dislikes. Arslan et al. (29) detected a weak correlation between the quality of YouTube videos on laparoscopic and robotic radical prostatectomy and the number of likes. In our study, there was a weak correlation between the number of likes and the quality of YouTube videos on penile enlargement surgery only according to the DISCERN score. However, there was no correlation between the quality of the videos and the view count or VPI values. Therefore, it may be misleading to evaluate the educational quality of medical YouTube videos by the number of likes.

Medical videos uploaded to YouTube do not undergo a review process; therefore, their evaluation can only be made based on their source and popularity. The number of views, VPI value, and viewer comments affect the popularity of a video, and popular videos and advertisements can influence treatment decisions regardless of the accuracy of the video content, especially for patients seeking penile enlargement surgery for cosmetic concerns. This can also lead to the dissemination of incomplete or inaccurate information among medical students and residents doing their research on similar websites.

Study Limitations

The first limitation of our study is that we were unable to compare our findings on the relationship between the scholarly profiles of surgeons and YouTube videos on penile enlargement surgery with the literature because of the absence of previous research in this area. The second limitation concerns the dynamic nature of YouTube, to which videos are continually uploaded. Finally, the evaluation of only videos in English can be considered a limitation.

Conclusion

This study revealed a significant correlation between the quality of YouTube videos on penile enlargement surgery and the h-index and total publication counts of surgeons. This study was the first to analyze the relationship between the quality of YouTube ideas on penile enlargement surgery and the scholarly profile of surgeons.

Ethics

Ethics Committee Approval: Ethical approval was not obtained because animal and human subjects were not included in the study, and the videos examined within the scope of the study were publicly available. Previous studies on medical YouTube videos also did not seek ethical approval. This study was

conducted in accordance with the principles outlined in the 2004 Declaration of Helsinki.

Informed Consent: Not necessary.

Authorship Contributions

Surgical and Medical Practices: E.B., F.Y.İ., Concept: E.B., F.Y.İ., Design: E.B., F.Y.İ., Data Collection or Processing: E.B., F.Y.İ., Analysis or Interpretation: E.B., F.Y.İ., Literature Search: E.B., F.Y.İ., Writing: E.B., F.Y.İ.

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