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Analysis of the Accuracy and Quality of Information in YouTube Videos on Female Urethroplasty

Alper ŞIMŞEK[1], Aykut BAŞER[2], Kürşat KÜÇÜKER[3], Yusuf ÖZLÜLERDEN[3], Sinan ÇELEN[3], Güngör BINGÖL[2]

[1] Siverek State Hospital, Department of Urology, Şanlıurfa, Türkiye
[2] Bandırma Onyedi Eylül University, Medical Faculty, Department of Urology, Balikesir, Türkiye
[3] Pamukkale University, Medical Faculty, Department of Urology, Denizli, Türkiye

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Abstract

Objective

Bladder outlet obstruction is a relatively rare problem in women. Experience in diagnosing and managing female urethral stricture disease is limited. The literature emphasizes that urethral dilatation is usually not successful, but surgical reconstruction is successful. Physicians and patients want to obtain information from social media because surgery cannot be performed in every center. With this study, we aimed to make an integrative review of the quality of the information in YouTube videos in the field of female urethroplasty.

Material and Method

Using the keyword female urethroplasty, we searched https://www.youtube.com/ for the last 5 years. Video features, quality, and reliability analysis were performed. The reliability and quality of the medical information in the videos were determined by the JAMA (Journal of American Medical Association) scoring system, the Global Quality Score (GQS), and the DISCERN questionnaire.

Results

39 videos out of a total of 49 were included in the study. India was the country with the most video uploads (43.6%). There was no significant correlation between DISCERN score and the number of views and video comment count (rho;-0.101 p=0.539, rho;0.018 p=0.924, respectively). The DISCERN score, GQS, and JAMA scores of videos from Academic institutions or societies were found to be higher than personal videos (p=0.037, p=0.037, p=0.001, respectively).

Conclusion

Although there are limited videos about female urethroplasty on YouTube, the accuracy and reliability of the medical information in the most watched videos are low.

Keywords: Female urethroplasty, Social media, Urethroplasty, YouTube

Correspondence: A.S. /drsimsekalper@gmail.com
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ORCID IDs of the Authors: A.S: 0000-0002-0513-4505; A.B: 0000-0003-0457-512X; S.C: 0000-0003-4309-2323; Y.O: 0000-0002-6467-0930; K.K: 0000-0002-5558-327X; G.B: 0009-0008-2907-3701.

Introduction

In women, lower urinary tract symptoms (LUTS) primarily arise from storage problems, and bladder outlet obstruction (BOO) is a relatively rare issue in women (1). Female urethral stricture disease (FUSD) is a rare entity reported in approximately 1% to 4.9% of women presenting with lower urinary tract symptoms (LUTS) (2, 3). Even those in the field of education have very limited experience in diagnosing and managing female urethral strictures (4, 5). While endoscopic and open surgical techniques are available for the treatment of recurrent female urethral strictures, the literature emphasizes that urethral dilation is usually unsuccessful, while surgical reconstruction is successful (4). Many patients consult by searching the internet to manage their health issues, determine whether they need professional assistance, and verify information provided during clinical consultations. In recent years, the increased accessibility to the internet has contributed to the rise in the use of web resources for accessing medical information (6). According to a survey conducted by the American Urological Association, 74% of urologists reported using social media platforms such as Facebook and YouTube, with 33% stating that it influenced their clinical practices (7). Particularly, YouTube has emerged as a potential resource for obtaining and disseminating health-related information, surpassing traditional text-based information sources (8). While a recent survey indicated that 86% of individuals who use the internet for health information believe that online health information is reliable, it is important to note that the quality of health-related information on the internet varies significantly and is often uncontrolled and unregulated (9). The aim of this study was to conduct a comprehensive review of the quality of information currently available in YouTube videos related to female urethroplasty.

Material and Method

On February 16, 2023, we searched https://www.youtube.com/ using the keyword "female urethroplasty" and listed the videos added in the last 5 years. Videos that were not related to female urethroplasty, not in English and those that were for commercial/advertisement purposes were excluded from the study.

Ethics Approval

Since all the videos were publicly available on the social media website (YouTube.com) and no human or animal participants were involved in the study, ethical approval was not required.

Video Characteristics, Quality, and Reliability Analysis

The videos were categorized based on the following criteria: video length (seconds), time since upload on YouTube (days), number of views, view rate (number of views/number of days since upload), number of comments, video source, target audience, language format, and categorization of video content.

The categorization of the video source was divided into two groups: academic institutions or associations, and personal uploaders. The target audience of the videos was categorized into two groups: physicians and patients. The categorization of video content was divided into three groups: theoretical, practical, and theoretical+practical. The rate of video likes wasn't calculated because YouTube removed the public dislike count from all videos in November 2021. So Video Power Index wasn't calculated like the rate of video likes.

Once included videos were listed, they were independently analyzed and scored by researchers trained in female urethroplasty. In video scoring, a common score was given by achieving moderate consensus.

The evaluated videos were assessed using the JAMA (Journal of the American Medical Association) scoring system, which was developed by Silberg et al. (10) to assess the quality of online information based on four criteria: authorship, attribution, disclosure, and currency. Additionally, the videos were evaluated using the Global Quality Score (GQS), a Likert scale ranging from 0 to 5, which was developed by Singh et al. (8) to analyze the usefulness of web publications for patients. The GQS scored the videos based on their educational value. These evaluation methods were utilized to determine the accuracy, reliability, and overall quality of the medical information presented in the videos. These two scoring systems allow for a non-specific evaluation of health-related websites (11). The quality and reliability of treatment options information provided by patients and information providers in health-related videos were assessed using the DISCERN questionnaire, developed by Charnock et al. (12) The DISCERN questionnaire consists of 15 questions, with each question being scored on a scale of 1 to 5.

Statistical Analysis

In the statistical analysis of the study results, the Statistical Package for the Social Sciences version 22.0 software (SPSS Inc., Chicago, IL, USA) was used. Median, minimum, maximum, number, and

percentage were used as descriptive methods. The Shapiro-Wilk test was performed to evaluate the normality of the distribution. The chi-square test was used for comparing categorical variables. The Kruskal-Wallis test was used to compare the means, and the Mann-Whitney U test was used to determine the group that caused the difference. Pearson and Spearman rho correlation analyses were used to evaluate the correlation between parameters. A significance level of $p<0.05$ was considered statistically significant.

Results

Between February 16, 2023, and February 16, 2018, a total of 49 videos were listed on YouTube using the keyword "Female Urethroplasty." Out of these, 8 videos were in a language other than English and were excluded from the study. Additionally, two videos were excluded because they were commercial. The study included a total of 39 videos, as there were no specific lower or upper limits applied to the video duration. The total duration of all videos combined was 50,860 seconds, with a total of 91,632 views and 842 likes. It is worth noting that no dislikes were observed for any of the videos. 97.4% (n=38) of the videos are targeted to physicians. The country with the highest number of video uploads is India with 43.6% (n=17), while 9 videos (23.1%) did not have a specified country identification. Classification and descriptive statistics of videos are presented in Table 1.

The correlation analysis between DISCERN score and GQS, JAMA score, and video features to measure the reliability and quality of information about treatment options for patients and information providers in health-related videos is shown in Table 2. A moderate

Table 1 Classification and descriptive statistics of videos

Video length (second) [median, (min.-max.)]		483 (197-11845)
Time since upload on YouTube (day) [median, (min.-max.)]		880.50 (21-1859)
Number of views [median, (min.-max.)]		821.50 (80*33012)
Video comment count [median, (min.-max.)]		1 (0-7)
Video source	Academic institutions or societies (n; %)	6 (15.4)
	Personal (n; %)	33 (84.6)
Video content	Only theoretical information (n; %)	3 (7.7)
	Only practical information (n; %)	28 (71.8)
	Theoretical + practical information (n; %)	8 (20.5)
Language format	English audio (n; %)	28 (71.8)
	English subtitles (n; %)	11 (28.2)
Target audience	Physicians (n; %)	38 (97.4)
	Patients (n; %)	1 (2.6)
Videos country origin	India (n; %)	17 (43.6)
	United States of America (n; %)	4 (10.3)
	France (n; %)	4 (10.3)
	Other country (n; %)	5 (12.8)
	Unknown origin (n; %)	9 (23)
Video view rate [median, (min.-max.)]		1.51 (0.11-29.98)
DISCERN Score [median, (min.-max.)]		30 (21-61)
GQS [median, (min.-max.)]		2 (1-5)
JAMA Score [median, (min.-max.)]		1 (0-3)

GQS: Global Quality Score, JAMA; Journal of American Medical Association

Table 2 Correlation analysis between DISCERN score and video parameters, GQS, and JAMA scores.

			GQS	JAMA Score	Video length	Number of views	Video view rate	Time since uploaded on YouTube	Video comment count	Video source	Video content	Language format	Target audience
Spearman's rho	DISCERN Score	Correlation Coefficient	0.660	0.579	0.431	-0.101	0.393	-0.603	0.018	0.339	0.579	0.596	0.166
		Sig. (2-tailed)	**<0.001**	**<0.001**	**0.006**	0.539	**0.013**	**<0.001**	0.924	**0.035**	**<0.001**	**<0.001**	0.312

GQS: Global Quality Score, JAMA; Journal of American Medical Association

Table 3 Analysis of videos in terms of evaluator scores and video parameters in the target audience, video source, video content, and language format classification

	Video source		p	Video content			p	Language format		p
	Academic institutions or societies	Personal		Only theoretical information	Only practical information	Theoretical + practical information		English audio	English subtitles	
DİSCERN Score [median, (min.-max.)]	48 (25-61)	29 (21/48)	**0.037**	25 (23-37)	28.50 (21-48)	40.50 (34-61)	**0.001**	33.50 (21-61)	25 (21-31)	**<0.001**
GQS [median, (min.-max.)]	3 (2-5)	2 (1-4)	**0.037**	2 (1-3)	2 (1-4)	3 (2-5)	0.134	3 (1-5)	2 (1-3)	**0.025**
JAMA score [median, (min.-max.)]	1.50 (1-3)	1 (0-2)	**0.001**	1 (1-1)	1 (0-2)	1 (1-3)	**0.024**	1 (0-3)	1 (1-1)	0.375
Video length (second) [median, (min.-max.)]	2930.50 (350-11845)	400 (132-5386)	**0.049**	350 (243-890)	390 (112-1859)	551 (213-1039)	**0.001**	483 (234-11845)	390 (132-5386)	0.391
Time since upload on YouTube (day) [median, (min.-max.)]	370.50 (213-1296)	726 (21-1859)	0.185	491 (21-1296)	805.50 (112-1859)	551 (213-1039)	0.383	491 (21-1859)	1240 (598-1812)	**<0.001**
Number of views [median, (min.-max.)]	728 (273-3819)	821 (60-33012)	0.669	80 (60-359)	1045 (110-33012)	821.50 (272-3819)	**0.039**	688 (60-33012)	1227 (110-3853)	0.212
Video views rate [median, (min.-max.)]	2.19 (0.28-3.94)	1.50 (0.11-29.98)	0.371	0.27 (012-3.81)	1.42 (0.11-29.98)	1.85 (0.26-3.94)	0.440	1.69 (0.12-29.98	1.09 (0.11-3.08)	0.086
Videos comment count [median, (min.-max.)]	0 (0-1)	1 (0-7)	0.163	0 (0-0)	1 (0-7)	0.50 (0-2)	0.256	0 (0-7)	1 (0-6)	0.560

GQS: Global Quality Score, JAMA; Journal of American Medical Association

correlation was found between DISCERN score and the other video evaluation parameters, GQS, and JAMA score (rho: 0.660, p<0.001; rho: 0.579, p<0.001, respectively). There were no significant correlations observed between DISCERN score and the number of views and video comment count (rho: -0.101, p=0.539; rho: 0.018, p=0.924, respectively).

The evaluation scores for video sources, video content, and language format categories are presented in Table 3. Videos originating from academic institutions or societies exhibited higher DISCERN scores, GQS scores, and JAMA scores compared to personal videos (p=0.037, p=0.037, p=0.001, respectively). However, a similar trend was not observed for the

number of views, video view rate, and video comment count (p=0.669, p=0.371, and p=0.163, respectively). Regarding video content, theoretical and practical videos obtained higher DISCERN scores than solely practical videos, while only practical videos garnered more views (p=0.001, p=0.039, respectively). English audio format videos demonstrated a higher DISCERN score (p<0.001).

Discussion

There is currently no consensus on the definition of female urethral stricture (FUS), and widely accepted diagnostic methods or criteria are lacking (1, 3). Even those who receive training in the management and treatment of female urethral stricture disease (FUSD) have limited experience (4, 5). The current literature indicates that video-based education can significantly contribute to the development of clinical and surgical skills in various medical specialties and postgraduate training (13). Furthermore, it has been observed that video-based education often yields more favorable outcomes compared to traditional written text, while maintaining a similar content structure (14). In this context, individuals frequently strive to acquire information by following national or international associations and renowned experts in the field. After receiving a diagnosis, patients also engage in online research, although not to the same extent as healthcare professionals. YouTube, as a popular video-sharing platform, is favored for its easy accessibility, free usage, and wide user database. It allows viewers to interact with content creators, making it a preferred platform for accessing health-related information. Both patients and medical professionals increasingly rely on the internet and video-sharing websites like YouTube to gather information about health issues (15, 16). YouTube has become a valuable resource for acquiring information about medical conditions and providing educational content to patients. However, the lack of established uploading criteria can significantly impact the quality and accuracy of instructional videos, posing a risk of misinformation dissemination (17). This is likely due to the absence of established upload criteria, which greatly influences the quality and accuracy of instructional videos.

In recent years, the quality of information on social media platforms related to female urology has been subject to increasing investigation. The reliability of YouTube information on bladder pain syndrome has been assessed using video quality criteria, and it has been found to be reliable (18).

There is limited research available on the evaluation of videos related to female urethroplasty, with only one publication found in the PubMed database. Sahin et al. (19) conducted a study employing the Global Quality Score (GQS) and an original checklist score named Female Urethroplasty Control Score (FUCS) to assess the quality and stages of female urethroplasty. The study revealed that video content from academic sources had higher GQS and FUCS scores compared to videos from urologists (19). While Sahin et al. (19) study did not utilize the DISCERN score, which is more suitable for evaluating health-related information, our study, like theirs, found higher GQS scores in videos from academic institutions or societies. Additionally, our study observed higher DISCERN and JAMA scores in videos from academic sources, contributing to the existing literature. Although the literature suggests that videos published by hospitals and clinicians tend to have higher DISCERN values, it is also noted that the reliability of videos does not differ based on the source of upload (15, 20-23). In our study, significant correlations were found between DISCERN scores and several parameters, including academic institutions or societies as the video source, theoretical+practical information as the video content, and English audio language format. These findings suggest that videos originating from academic sources, containing both theoretical and practical information, and presented in English audio format are associated with higher DISCERN scores, indicating better quality and reliability. Importantly, our study demonstrated no significant correlation between the number of views, video comment count, and DISCERN scores.

The total viewing duration of 50,860 seconds, total view count of 91,632, and total likes count of 842 for the 39 videos included in the study indicate a significant interest in this field. The high view count and positive engagement suggest that the topic of the videos, in this case, female urethroplasty, is of interest to the audience and highlights the relevance and potential impact of the content in this domain. Our study demonstrates that videos related to female urethroplasty, published on YouTube using the keyword "female urethroplasty" in the last 5 years, have shown low scores in terms of GQS, JAMA score, and DISCERN score. Indeed, our study also emphasizes the need for an increase in academic institutions or societies as sources of videos in this field. However, promoting digital health literacy and the World Health Organization's call for creating a new space dedicated to verified health information would be beneficial (19).

Some limitations of this study should be acknowledged. First, the study focused solely on the YouTube platform, which may not provide a comprehensive representation

of all available health-related videos online. Other social media platforms and websites that host health-related content were not included, which could limit the generalizability of the findings. Additionally, the study evaluated a limited number of videos, which may not capture the full range of content and quality available on the platform. A larger sample size could provide a more comprehensive understanding of the landscape of health-related videos. A strength of the study is the use of established evaluation criteria to assess the accuracy and reliability of medical information in the scored videos. By applying standardized assessment tools, such as the GQS, JAMA score, and DISCERN score, the study provides a systematic approach to evaluating the content of the videos.

Conclusion

The study highlights the limited availability of videos related to female urethroplasty on YouTube, as well as the low accuracy and reliability of medical information in those videos. This underscores the need for an increase in the production of online videos prepared by academic institutions or reputable societies that are both informative and easily understandable.

Conflict of Interest Statement
The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Ethical Approval
Ethical approval was not obtained as all videos were publicly available on the social media website (YouTube.com) and no human or animal participants were included in the study.

Consent to Participate and Publish
All patients included in this research gave written informed consent to publish the data contained within this study.

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Availability of Data and Materials
The data sets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Authors Contributions
AB: Conceptualization; Data Curation; Formal Analysis.

YÖ: Investigation; Methodology; Project Administration.

AŞ: Resources; Validation Visualization.

KK: Writing – Review & Editing.

SÇ: Supervision.

GB: Writing – Original Draft.

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