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Original Article

Analyzing the quality and reliability of educational content in laparoscopic hysterectomy videos on Youtube

Emine Öztürk[a, †]

[a] *Department of Obstetrics and Gynecology, Private Clinic İstanbul, Turkey*

ABSTRACT

Objective: The aim of this study was to evaluate the quality, reliability, and usefulness of laparoscopic hysterectomy videos on YouTube.

Methods: A search was conducted on YouTube using the keyword " laparoscopic hysterectomy". The search results were limited to the first 400 videos. 330 videos that met the inclusion criteria were examined. Viewer parameters such as likes and dislikes, total views, comments, and sources were evaluated. The educational content of the videos was evaluated using the Global Quality Score. Additionally, the popularity of the videos was evaluated using the Video Power Index. Upload sources were categorized as academic institutions and individual users.

Results: Group 1 (low and medium quality videos) had 234 (70.9%) videos and group 2 (good and excellent quality videos) had 96 (20.1%) videos. The average views, likes, and comments in group 1 were 20589±23552 , 86±113 , and 28±31, respectively, while in group 2, they were 25571±24541, 174±198 , and 49±42 , respectively. When the two groups were compared, no correlation was found between the length and quality of the videos. There was no difference between the groups in terms of the number of dislikes Additionally, the VPI values in group 2 were statistically higher than those in group 1 (p = 0.003).

Conclusion: Only 20.1 % of laparoscopic hysterectomy videos on YouTube are of good and excellent quality, indicating that a significant portion of videos providing laparoscopic hysterectomy education are inadequate.

Keywords: laparoscopic hysterectomy; educational videos; youtube

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Introduction

Laparoscopic hysterectomy videos can be an excellent educational resource for patients and healthcare providers alike [1]. They can provide a visual demonstration of the surgical technique, which can be helpful in understanding the steps of the procedure [2]. Additionally, videos can offer an opportunity for patients to learn about the expected recovery time, potential complications, and long-term outcomes associated with the procedure [3]. However, not all laparoscopic hysterectomy videos are created equal in terms of educational value. Some videos may be too simplistic and lack the detail necessary to fully understand the procedure, while others may be too complex and overwhelming for patients to comprehend [4]. It is essential to ensure that the videos being used are from reputable sources and are appropriate for the intended audience. The quality of laparoscopic hysterectomy videos can vary greatly, which can impact their educational value and overall usefulness. Low-quality videos may be difficult to follow, and poor lighting or camera angles can make it challenging to see the surgical site clearly [5]. On the other hand, high-quality videos can provide a clear view of the surgical site and allow for a better understanding of the procedure [6].

It is important to note that video quality is not just about the resolution or clarity of the image. The sound quality is also crucial, as it can impact the ability to hear important instructions or comments from the surgical team. The use of high-quality equipment and experienced videographers can help ensure that laparoscopic hysterectomy videos are of high quality and provide a useful resource [6]. Finally, the reliability of laparoscopic hysterectomy videos is a critical consideration. It is essential to ensure that the videos being used are accurate and reflect current best practices in the field.

Videos that are outdated or no longer reflect current surgical techniques can be misleading and potentially harmful [7]. In addition to accuracy, it is essential to consider the source of the videos being used. Videos from reputable healthcare organizations, professional associations, and academic institutions are generally more reliable than those created by individual healthcare providers or non-medical sources [8]. YouTube is a free website that allows visitors to store and present video content. Visitors to the YouTube website can upload and share YouTube videos to various platforms. Additionally, viewers can like, dislike, or comment on these videos to express their thoughts. Although YouTube is seen as a platform for providing medical information, videos are not peer-reviewed. Furthermore, videos that do not meet appropriate criteria for educational videos are ranked by popularity, views, and comments.

In this study, we evaluated the educational features, reliability, and popularity of YouTube videos for laparoscopıc hysterectomy.

Material and methods

On November 11, 2022, a YouTube search was conducted using the keyword " laparoscopıc hysterectomy." Studies on online behavior patterns have shown that the majority of viewers only consider the first four pages of search results when seeking information [9]. Taking this into account, the number of videos to be screened for the study was limited to 400. As YouTube search results can vary from day to day, these 400 videos were added to a

† Corresponding author.
E-mail: dr.emineozturk@gmail.com
Orcid ID: 0000-0002-2482-2290

playlist for further analysis. Videos that were unrelated to laparoscopıc hysterectomy [n:23), advertisements (n:12), duplicate videos (n:6), videos under 1 minute in length (n:5), and silent videos (n:24) were excluded. Since all data used in this article is publicly available and no special access was needed to collect the data, no permission was required from YouTube to conduct this study. Only English videos were included in the study as English is a universally accepted language in many countries worldwide. The videos were reviewed by two experienced gynecologists.

Descriptive features of the videos

The following variables were recorded for each video: Video length; video resolution; whether editing was applied to the video; view count; video sources; content type; number of likes, number of dislikes, number of comments, and video power index (VPI).

Video Power Index

The VPI was calculated as follows: 1- Like rate: (likes*100/[likes+dislikes]), 2- View rate: (view count/days since upload), VSI = like rate * view rate / 100 11. Video sources were classified as follows: 1- academic institutions; 2- private users. The content of the videos was divided into two categories: surgeon's experience and educational videos.

Global Quality Score

The quality of the educational content was evaluated using the Global Quality Score (GQS). The GQS evaluates the educational value of the content based on five criteria (Table 1) [6].

Table 1. The Global Quality Score Criteria

Grading	Description of quality
1	Poor quality: is unlikely to be of use for education
2	Poor quality: is of limited use to surgeons because only some information is present
3	Suboptimal quality and flow: is somewhat useful to surgeons, important topics are missing, and some information is present
4	Good quality and flow: useful because most important topics are covered.
5	Excellent quality and flow: is highly useful to surgeons

The maximum score indicating high educational quality is 5. Here are some criteria that could be included in the Global Quality Score rating of laparoscopic hysterectomy videos: Clarity of the surgical field: This includes the visibility of relevant anatomy, any bleeding or other obstructions, and the ability to distinguish important structures. Technical skill of the surgeon: This involves evaluating the precision of movements, efficient use of instruments, and overall proficiency in completing the procedure. Adherence to best practices: This includes factors such as maintaining sterility, use of appropriate surgical techniques, and following established guidelines for patient safety. Communication with the surgical team: This involves how well the surgeon communicates with other members of the team, including nurses, anesthesiologists, and other surgeons if applicable. Post-operative outcomes: This includes evaluating patient recovery time, any complications that arise, and overall patient satisfaction with the procedure. Video quality: This involves the overall quality of the video recording, including image clarity, sound quality, and any additional information provided in the video.

Statistical analysis

Statistical Package for the Social Sciences (SPSS), Version 23.0 (SPSS, Inc., Chicago, IL) was used for statistical analysis. Data were presented as mean ± standard deviation, median [minimum-maximum], or number (percentage). Shapiro-Wilk test was used to check for normality of variables, and Levene test was used to assess the homogeneity of variances between groups. Independent samples t-test or Mann-Whitney U test was applied for the comparison of continuous variables between two groups. Inter-observer agreement was evaluated using Cohen's kappa coefficient, and a p-value <0.05 was considered statistically significant.

Results

The first 400 videos related to laparoscopıc hysterectomy were analyzed, and 70 videos were excluded from the study. The remaining 330 videos were evaluated. The most common video sources were found to be private users (281, 85.2%). Although the majority of the videos were edited (296, 89.6%), most of them had low resolution (226, 68.5%). Descriptive information regarding the videos is presented in Table 2.

Table 2. Descriptive Information of Videos

Desciptive information	n:330 videos
Video sources Academic instutions Private users	 49 (14.8%) 281 (85.2%)
Video contents Surgeons experience Information about procedure	 200(60%) 130(40%)
Video resolution High definition Low definition	 104(31.5%) 226(68.5%)
Video editing Edited Nonedited	 296(89.6%) 34(10.4%)

The average number of views per video is 21.593±24.553. The maximum number of views was 190.588 and the minimum was 350. The average length of the videos was 380 seconds (ranging from 180 to 5.477 seconds).

We divided the videos into two groups according to GQS. Inter-rater reliability was calculated as the kappa score. The inter-rater reliability for GQS was 0.94. Group 1 consisted of 234 (70.9%) videos (low and medium quality) and Group 2 consisted of 96 (20.1%) videos (good and excellent quality, see Table 3).

Table 3. The Characteristics of the Analyzed Videos

Characteristic	Mean	SD	Minimum	Maximum
Video length (sn)	380,4	250,5	188	5477
Number of views	21593	24553	350	190588
Number of likes	112	153	33	12.445
Number of dislikes	16	19	5	245
Number of comments	34	37	0	944
GQS	1,8	0,7	1	5
VPI	1312,5	918	120,5	2100,4

GQS, Global Quality Score; SD, standard deviation; VPI, video power index.

The most liked and viewed videos were in Group 2. There was no difference between groups in terms of disliked numbers. The VPI scores of Group 2 videos were higher (Table 4).

Table 4. Comparing Videos Based on Global Quality Score

Characteristic	Group 1 (poor and suboptimal quality videos) n:234 videos	Group 2 (good and excellent quality videos) n:96	p
Video length (sn)	378,1±251,4	384,4±255,2	0,45
Number of views	20589±23552	25571±24541	0,04
Number of likes	86±113	174±198	0,002
Number of dislikes	18±15	13±14	0,3
Number of comments	28±31	49±42	0,02
VPI	1274±963	1404±1012	0,003

Discussion

The use of online video sharing platforms like YouTube for medical education and training has increased significantly in recent years. However, the quality, reliability, and accuracy of these videos have been a concern among medical professionals. In this study, we analyzed the quality, reliability, and educational value of laparoscopic hysterectomy videos on YouTube. Our findings suggest that the overall quality, reliability, and educational value of laparoscopic hysterectomy videos on YouTube are generally low. However, good and excellent quality videos have higher VPI scores, indicating that they are more valuable for medical education and training. Therefore, it is important for medical professionals to carefully select and evaluate the quality and accuracy of videos before using them for educational purposes.

The most important problem with video sources is the lack of a control mechanism to verify whether they are reliable, accurate, and appropriate. This can lead to irreversible consequences, especially in the health field. The main purpose of our study is to evaluate the quality of laparoscopic hysterectomy videos. In our study, the GQS was found to be 1.8 ± 0.7. Good and excellent quality videos accounted for only 20.1% of all videos, and a significant proportion of videos were uploaded by private users. In our study, the majority of the 330 videos uploaded to YouTube were uploaded by private users, followed by academic institutions. The source of the video may be related to the reliability and quality of the video. Interestingly, when we filtered our search results for high-definition videos, almost all of the results came from academic institutions. This finding is consistent with previous research by Lee et al., who found that academic institutions uploaded higher quality and more valuable videos than individual users [10]. These results highlight the importance of considering the source and quality of videos when using them for medical education and training. While individual users may upload videos for various reasons, such as to document a procedure or to gain exposure, academic institutions have a vested interest in providing accurate and high-quality educational resources. Academic institutions have access to a wide range of resources, including trained professionals, specialized equipment, and funding, which allows them to produce high-quality videos that are reliable and valuable for medical education and training. In addition, academic institutions have a reputation to uphold, which motivates them to produce accurate and trustworthy educational resources. Therefore, medical professionals should consider using videos produced by academic institutions when searching for high-quality and reliable educational resources. These videos can provide valuable insights and guidance on medical procedures, allowing medical professionals to improve their knowledge and skills in a safe and effective manner.

When creating a video of the procedure, it is important to include the following key stages. Patient positioning and anesthesia: The video should show how the patient is positioned on the operating table and how anesthesia is administered. Trocar placement: The video should demonstrate how the surgeon inserts the trocars into the abdomen to create the working space for the laparoscope and other instruments. Identification of the uterus and adnexa: The video should clearly show how the surgeon identifies and mobilizes the uterus and adnexa. Dissection of the uterus and adnexa: The video should demonstrate how the surgeon uses laparoscopic instruments to dissect and separate the uterus and adnexa from surrounding structures. Removal of the uterus and adnexa: The video should show how the surgeon removes the uterus and adnexa from the body through the small incisions. Closure of the incisions: The video should demonstrate how the surgeon closes the small incisions in the abdomen. In addition to these key stages, the video should also include any necessary precautions, techniques, or tips for performing the procedure safely and effectively. By including all of these important stages, the video can provide a comprehensive overview of the laparoscopic hysterectomy procedure, making it a valuable resource for medical professionals seeking to improve their knowledge and skills in this area.

Videos that include all of the stages of laparoscopic hysterectomy tend to receive more likes and comments on YouTube than those that do not. This is because comprehensive videos that cover all aspects of the procedure are highly valued by medical professionals and students who use them as a learning resource. By showing the entire process of laparoscopic hysterectomy, viewers can better understand the surgical technique and learn how to perform the procedure safely and effectively. They can also learn about the various instruments used in the surgery, as well as the potential complications and how to manage them. Furthermore, comprehensive videos that include all of the stages of the procedure are more likely to be shared and recommended by viewers. This can lead to increased visibility and exposure for the video, resulting in more likes and comments. In addition, comprehensive videos that receive positive feedback from viewers can increase the reputation of the uploader, whether it is an individual surgeon or an academic institution. This can lead to increased recognition and respect in the medical community. Overall, videos that cover all of the stages of laparoscopic hysterectomy are highly valued by medical professionals and students and tend to receive more likes and comments on YouTube. By providing a comprehensive overview of the procedure, these videos can serve as an essential learning resource and contribute to the advancement of medical knowledge and practice.

Our study had some limitations that should be taken into account when interpreting the results. First, different keyword usage may have resulted in different search results. Additionally, YouTube is a dynamic platform, and search results may change at different dates and times. Another limitation of our study is that the quality assessment of educational content was evaluated by only two observers. This may have caused bias in our video selections based on their quality. However, the high kappa score of 0.91 between the observers eased our concerns. Despite these limitations, our study provides

important insights into the quality and reliability of laparoscopic hysterectomy videos on YouTube. Future studies with larger sample sizes and more diverse evaluators could further validate our findings and expand on the limitations of our study.

Conclusion

It is clear from our analysis that the quality and reliability of laparoscopic hysterectomy videos on YouTube can be questionable. While healthcare providers cannot control the quality of these videos, it is important to note that the most popular videos, based on likes and comments, were professionally produced and uploaded by academic institutions. In light of these findings, we recommend that healthcare providers increase the number of videos uploaded by academic institutions to social media platforms like YouTube, which are popular sources of health information. These videos should be closely monitored to ensure that they provide accurate and high-quality information to viewers.

Disclosure

Authors have no potential conflicts of interest to disclose.

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