

## ORIGINAL PAPER

# Analysis of transurethral resection of prostate videos on YouTube™: Educational quality assessment

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**Summary** *Background: Our aim was to evaluate the educational value of transurethral resection of prostate (TURP) videos on YouTube.*

*Methods: A comprehensive search was conducted for TURP videos on YouTube. Based on the Laparoscopic Surgery Video Educational Guidelines we created a checklist which includes 20 items for evaluation of the videos. IBM SPSS statistics was used for analysis.*

*Results: A total of 104 surgical videos were assessed. The mean view count was 15647.3 (21-324.522, SD 47556.4). Video image quality found as low for 57.7% of videos. Both staff (76%) and resident (75%) rated most of the videos low educational quality. No statistically significant difference was found between staff's total points (mean 4.35 ± SD 2.9) and resident's total points (mean 4.63 ± SD 3.3) (p: 0.761). Positive correlation was found between view count and staff's total points (r: 0.242 p < 0.05), resident's total points (r: 0.340 p < 0.01). There was also positive correlation between number of likes and staff's total points (r: 0.375 p < 0.01) and resident's total points (r: 0.466 p < 0.01).*

*Conclusions: Most TURP surgical videos on YouTube are low quality. Higher educational quality videos with detailed explanation of the procedure are needed on this subject. We believe this study could be a guide for future high quality TURP videos.*

**KEY WORDS:** *Transurethral resection of prostate; Benign prostatic hyperplasia; Social media; Video recording; Data quality.*

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## INTRODUCTION

Benign prostatic hyperplasia (BPH) is a histologic diagnosis which is characterized by proliferation of smooth muscle and epithelial cells of the periurethral prostatic tissue. Its prevalence increases with age reaching 90% by the ninth decade of life at autopsy studies (1). BPH is the leading cause of male lower urinary tract symptoms (LUTS) (2). Most men after 45 suffer at least one component of LUTS and symptoms are mostly mild (3). With aging global population and high prevalence of LUTS especially in elderly men, treatment of male LUTS will become even more important in the future.

Treatment options for BPH related male LUTS are conservative treatment, pharmacotherapy and surgery. Surgical management of BPH can basically divided into three main groups; open prostatectomy, minimally inva-

sive techniques (laparoscopic, robotic prostatectomy) and endoscopic interventions. First resectoscope and the first transurethral resection of prostate (TURP) procedure was introduced by Maximilian Stern in 1926 (4). With technological advances, TURP became more and more popular and has been considered the reference technique for the surgical management of BPH. Despite the decline in the rate of TURP for BPH surgery due to development of various alternative techniques such as Holmium laser enucleation of prostate (HoLEP), TURP is still the most frequently taught and performed surgical technique for BPH (5).

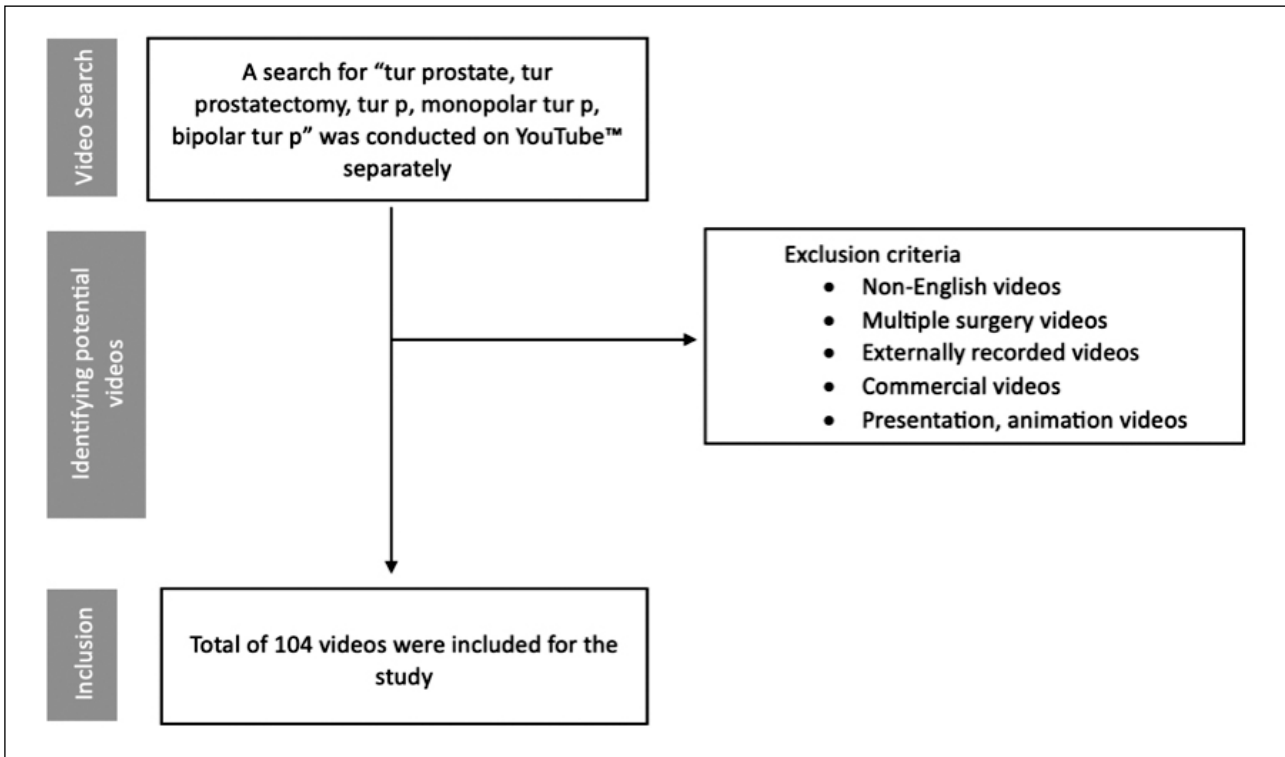
The internet's baby steps began to be taken in the 1960's and accelerated in the 80's (6). Nowadays, 60% of the world's population has access to internet (7). With portable electronic devices online resources have become an important part of education in general. Videos are easily accessible, allow creating personal time and space for learning. By watching videos online, one can learn different techniques from various surgeons, interact with colleagues around the world, exchange ideas and improve skills. With fewer opportunities being found lately by trainees in the operating rooms due to work hour restrictions, high costs, patient safety measures (8), videos became a crucial learning method in surgical training. Many surgical videos are available online and advantages of these videos in surgical education have been shown in various studies (9, 10).

YouTube™ (Google, LLC) which was founded on 2005, is the second most popular website in the world with over 33 billion total visits in June 2022 (11) and the biggest source of videos on the internet. Studies showed that YouTube™ is the most widely used platform by both residents and surgeons for surgical education (12, 13). There is a great opportunity to learn about surgical techniques and improving skills with watching videos on YouTube™. However, since there is lack of professional peer review and quality check of the videos on YouTube™, surgical videos may be untrustworthy. In this study we aimed to evaluate the educational quality of TURP videos on YouTube™.

## MATERIALS AND METHODS

In this study we evaluated TURP surgery videos which are available for the public. Therefore, no ethical approval is

**Figure 1.**  
PRISMA diagram showing the selection of the videos.



required. A comprehensive search was performed in October 31, 2022 on *YouTube™* (<https://www.youtube.com>) using the search terms “tur prostate”, “tur prostatectomy”, “tur p”, “monopolar tur p”, “bipolar tur p” separately. The videos were selected by the first author based on following criterias: traditional resection of the prostate must be performed either with monopolar or bipolar systems, live surgery recorded by endoscopic camera systems, videos made by professionals and videos in English language. Videos including multiple surgeries, externally recorded videos, commercial videos, slide based presentation videos and animation videos and non- English videos were excluded from the study. 104 videos met these criterias and were included the study (Figure 1). Characteristics of the videos were view count, number of likes, days online, video length, region, video image quality (480p resolution: low, 720p resolution: medium, 1080p resolution: high). There are several reports assessing *YouTube™* videos from patient’s perspective, rating their understandibility and patient educational value (14, 15). In this report, we tried to evaluate TURP videos on *YouTube™* as tools for surgical education. No guideline for assessing the educational value of TURP videos were present. First author which is a junior staff urologist and the third author which is a senior staff urologist created a video quality checklist based on the checklist that was developed for the evaluation of laparoscopic surgery videos (16). The checklist included five major categories which were author’s information, case presentation, critical steps of the procedure, outcomes of the procedure, supplementary contents with a total of 20 items. Each item represented one point (Table 1). First author and second author which was a junior res-

**Table 1.**  
The checklist for the evaluation of TURP surgical videos' educational quality.

Items of checklist
Author's Information
1. Author's information
2. Title of the video including the procedure
3. Conflict of interest disclosure
Case Presentation
4. Patient privacy protection
5. Patient characteristics
6. Preoperative work-up
7. Prostate volume
Critical steps of the procedure
8. Introduction of the equipments
9. Setting of cut and coagulation
10. Anatomic demonstration
11. Step by step explanation
12. Explanation of the critical steps
Outcomes of the procedure
13. Operating time
14. Volume of resected specimen
15. Length of hospitalization
16. Intraoperative and postoperative complications
17. Functional outcomes
Supplementary contents
18. Educational tables and photos
19. Audio commentary
20. Video commentary

ident evaluated the videos and scored each video from 1 to 20. Videos were divided into 4 educational quality groups according to their total score; low quality (0-5 points), medium quality (6-10 points), high quality (11-16 points) and very high quality (16-20 points). With scoring videos separately by a staff surgeon and a resident we aimed to not only evaluate the educational quality of the videos but to determine if there is a difference between a resident's and a surgeon's evaluation.

### Statistical analysis

Statistical analysis was performed with IBM SPSS software (version 26 for MacOS, IBM Corporation, NY, USA). The characteristics of the videos were presented as mean, median, ranges, *standard deviation* (SD). The distribution of the variables was measured by Kolmogorov-Smirnov test. Mann-Whitney U test was used for the comparison of two reviewers mean points. Pearson's correlation coefficient was used to evaluate the correlations between variables.  $P < 0.05$  was considered statistically significant.

## RESULTS

Total of 104 videos were evaluated. The mean view count was 15647.3 (range 21-324.522, SD 47556.4). Mean like count was 30.8 (range 0-285, SD 54.7). The median days available online was 1856.5 (137-5943) (Table 2). Videos were sourced from Asia (65.3%), Europe (15.3%), Unknown region (14.4%), USA (2.8%) and Australia (1.9%). 73 (70.1%) videos were uploaded by private users, 15 (14.4%) videos by medical organizations and 16 (15.3%) videos by unknown users. Video image quality was found as low for 60 (57.7%), medium for 25 (24%) and high for 19 (18.3%) videos. No statistically significant difference was found between staff's total points (mean  $4.35 \pm$  SD 2.9) and resident's total points (mean  $4.63 \pm$  SD 3.3) for the evaluation of the videos ( $p: 0.761$ ) (Table 3). No video received full points from the checklist. Both staff urologist (79/104, 76%) and resident (78/104, 75%) rated most of the videos low educational quality. Resident rated 8 (7.7%) videos high quality while staff urologist rated 5 (4.8%). Only one video rated very high quality and it was by the staff urologist.

**Table 2.**  
Characteristics of the videos.

	Mean $\pm$ SD	Median (min-max)
View count (n)	15647.3 $\pm$ 47556.4	894 (21-324522)
Video length (m)	864 $\pm$ 988.6	528 (77-6236)
Like (n)	30.8 $\pm$ 54.7	7 (0-285)
Days online (d)	1961.1 $\pm$ 1297.4	1856.5 (137-5943)

Number (n); Minute (m); Days (d).

**Table 3.**  
Comparison of staff's and residents' mean points.

	Staff Urologist's points	Resident's points	P-value
Mean $\pm$ SD	4.35 $\pm$ 2.9	4.63 $\pm$ 3.3	0.761
Median (min-max)	3 (2-16)	3 (2-15)	

**Table 4.**  
Correlation analysis of between video features and scores.

	1	2	3	4	5	6
1. View count	1					
2. Video length	0.150	1				
3. Like	0.787**	0.190	1			
4. Point 1	0.242*	-0.072	0.375**	1		
5. Point 2	0.340**	0.004	0.466**	0.887**	1	
6. Days online	0.477**	-0.207*	0.086	-0.195*	-0.134	1

\* Correlation is significant at the 0.05 level (2-tailed).  
\*\* Correlation is significant at the 0.01 level (2-tailed).

The correlation test showed positive correlation between view count and number of likes ( $r: 0.787$   $p < 0.01$ ), staff's total points ( $r: 0.242$   $p < 0.05$ ), resident's total points ( $r: 0.340$   $p < 0.01$ ) and days online ( $r: 0.477$   $p < 0.01$ ). There was also positive correlation between number of likes and staff's total points ( $r: 0.375$   $p < 0.01$ ) and resident's total points ( $r: 0.466$   $p < 0.01$ ). There was a positive correlation between staff's total points and resident's total points ( $r: 0.887$   $p < 0.01$ ). Negative correlation was found between days online and video length ( $r: 0.207$   $p < 0.05$ ) and staff total points ( $r: 0.195$   $p < 0.05$ ) (Table 4).

## DISCUSSION

In this study our purpose was to evaluate TURP videos on YouTube™ to estimate their educational value, define the pros and cons of the videos and try to set a standard for future high quality videos. To our knowledge, this is the first report to review the quality of TURP videos on YouTube™.

In this report we demonstrated that most of the TURP videos on YouTube™ have low educational quality. In the majority of videos; there was limited information regarding patient's data. Most videos consisted of edited or unedited footage of the surgery and did not include any explanation of the critical steps regarding the procedure. Very few of the videos have mentioned outcomes of the procedure. Additionally image quality were low in most videos. These major defects resulted in videos that were not suitable for educational purpose.

There are several studies in the literature assessing surgery videos on YouTube™. A study on videos about surgical treatment of LUTS/BPH indicated low quality content in the vast majority of the videos (17). Yang *et al.* evaluated 70 ThuLEP videos on YouTube™ and concluded that there is lack of high educational valued videos on this topic (18). A review of 32 mid urethral sling videos on YouTube™ showed that none of the videos demonstrated the complete list of critical steps of the procedure (19). Loeb *et al.* reported that overall information quality was moderate to poor in 67% of 150 bladder cancer videos on YouTube™ and moderate to high misinformation was present in 21% of the videos (20). Haslam *et al.* assessed 23 robotic pyeloplasty videos on YouTube™ and found out that only 6 videos included all critical steps of the procedure (21).

These studies along with our's outlined that, although

YouTube™ has a wide variety of medical videos, there are great heterogeneity in their quality. Great care must be taken when using YouTube™ videos as a source of information, because most of the videos contain inaccurate and incomplete information about the procedures, which may prove to be harmful than educational, especially for inexperienced learners. Videos from academic institutions tend to be more high quality than videos from single users (22). Sources with rigorous review processes like official websites of urological associations (i.e. American Urological Association, European Association of Urology) or video sections of certain urology journals may be used for more credible information.

Our study has limitations. Firstly, we evaluated videos on YouTube™ solely hence more websites should be included for more comprehensive view of the quality of TURP videos. But since YouTube™ is the most popular source for surgical videos we believe these results have great value. Secondly, the fact that one of the reviewer was a junior resident with little experience on TURP could have introduced bias into the study. However no statistically significant difference was found between two reviewers evaluations thus this suggests that his inexperience did not have any effects on our findings and our findings are reliable. Lastly we were obligated to create a checklist for evaluation of TURP videos because no other study has addressed this subject before. More studies are needed to develop a standardized and validated checklist.

## CONCLUSIONS

YouTube™ lacks high educational quality videos of transurethral resection of the prostate. It is important to detect high quality videos and verify the information with multiple sources. We believe that this study can guide future high educational quality videos.

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