

## Evaluation of the Quality and Reliability of Youtube Videos Related to Commonly Performed Kidney Stone Surgeries in Urology Practice

Üroloji Pratiğinde Sık Uygulanan Böbrek Taşı Cerrahilerine İlişkin Youtube Videolarının Kalite Ve Güvenilirliğinin Değerlendirilmesi

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### ABSTRACT

**Objective:** Patients increasingly turn to online video platforms for information about surgical options before making treatment decisions. YouTube™ is the most commonly used video-sharing website and contains a large volume of health-related material with variable accuracy and educational value. This study evaluated the quality, reliability, and informational content of Turkish-language YouTube videos about kidney stone surgery, with particular emphasis on whether uploader characteristics were associated with video quality.

**Materials and Methods:** In this cross-sectional study, YouTube™ was searched in January 2026 using the Turkish term “böbrek taşı ameliyatı”. The first 200 relevant Turkish-language videos were reviewed. For each video, we recorded duration, view count, likes and comments. Video quality was scored with the Journal of the American Medical Association (JAMA) benchmark criteria and the Global Quality Score (GQS). Uploaders were classified as specialist urologists or academic urologists (associate professor/professor). Surgical procedures mentioned in each video were also documented. Statistical analyses were used to compare video characteristics and quality scores between the two groups.

**Results:** Among the 200 included videos, 112 (56%) had been uploaded by specialist urologists and 88 (44%) by academic urologists. Videos published by academic urologists showed significantly higher median JAMA and GQS values and also attracted higher view and like counts ( $p < 0.05$ ). Video length was not significantly associated with quality scores. Most videos concentrated on a single operative technique, especially ureterorenoscopy, whereas discussion of complications and alternative treatment options was limited.

**Conclusion:** Although videos uploaded by academic urologists were generally more reliable and of better quality, Turkish-language YouTube content on kidney stone surgery overall was not sufficient as a stand-alone patient education source. These findings support the need for standardized, evidence-based video materials prepared by professional urological organizations.

**Keywords:** kidney stone surgery, video analysis, YouTube, health information quality

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## ÖZET

**Amaç:** Hastalar tedaviye karar vermeden önce cerrahi seçenekler hakkında bilgi edinmek için çevrim içi video platformlarına giderek daha fazla başvurmaktadır. YouTube, en sık kullanılan video paylaşım platformudur ve doğruluk ile eğitsel değer açısından değişken çok sayıda sağlık içeriği barındırmaktadır. Bu çalışmada, böbrek taşı cerrahisi ile ilgili Türkçe YouTube videolarının kalite, güvenilirlik ve bilgilendirici içeriği değerlendirildi; ayrıca yükleyici özellikleri ile video kalitesi arasındaki ilişki araştırıldı.

**Gereç ve Yöntemler:** Bu kesitsel çalışmada, Ocak 2026 tarihinde YouTube’da “böbrek taşı ameliyatı” anahtar sözcüğü ile arama yapıldı. Uygun bulunan ilk 200 Türkçe video incelendi. Her video için süre, görüntülenme sayısı, beğeni sayısı ve yorum sayısı kaydedildi. Video kalitesi Journal of the American Medical Association (JAMA) ölçütleri ve Global Quality Score (GQS) kullanılarak değerlendirildi. Yükleyiciler uzman ürolog ve akademik ürolog (doçent/profesör) olarak sınıflandırıldı. Videolarda yer verilen cerrahi yöntemler de ayrıca kaydedildi. Gruplar arasındaki video özellikleri ve kalite skorları istatistiksel olarak karşılaştırıldı.

**Bulgular:** Çalışmaya alınan 200 videonun 112’si (%56) uzman ürologlar, 88’i (%44) akademik ürologlar tarafından yüklenmişti. Akademik ürologlar tarafından yüklenen videolarda medyan JAMA ve GQS skorları ile görüntülenme ve beğeni sayıları anlamlı olarak daha yüksekti ( $p < 0.05$ ). Video süresi ile kalite skorları arasında anlamlı bir ilişki saptanmadı. Videoların büyük kısmı tek bir cerrahi yöntem, özellikle üreterorenoskopiye odaklanırken, komplikasyonlar ve alternatif tedaviler hakkındaki bilgi çoğu videoda sınırlıydı.

**Sonuçlar:** Akademik ürologlar tarafından yüklenen videolar görece daha güvenilir ve daha yüksek kaliteli olsa da böbrek taşı cerrahisi ile ilgili Türkçe YouTube içerikleri tek başına hasta eğitimi için yeterli değildir. Bu bulgular, profesyonel üroloji kuruluşları tarafından hazırlanacak standart ve kanıta dayalı video içeriklerine ihtiyaç olduğunu göstermektedir.

**Anahtar Kelimeler:** böbrek taşı cerrahisi, sağlık bilgisi kalitesi, video analizi, YouTube

## INTRODUCTION

Kidney stone disease is one of the most common urological disorders worldwide, representing a significant morbidity and a substantial economic burden due to healthcare utilization. Advances in endourological techniques have led to the widespread adoption of minimally invasive surgical approaches such as ureterorenoscopy (URS), retrograde intrarenal surgery (RIRS), and percutaneous nephrolithotomy (PCNL); open surgery is now only preferred for selected complex cases. The choice of surgical method depends on the size, location, and structure of the stone, anatomical factors, and stone-related complications such as infection, sepsis, or acute renal failure.

With advancements in surgical treatment methods and increased accessibility to technology, patients’ health information-seeking behaviors have changed significantly. An increasing number of patients are searching the internet for information about their condition and potential treatments before, and even during, consultations with healthcare professionals. Video-based platforms, particularly YouTube™, have become a primary source of medical information due to their accessibility, visual structure, and ease of use. Previous studies have shown that online health information can influence patients’ expectations, treatment preferences, and decision-making processes (1,2).

Despite its popularity and apparent reliability, YouTube™ lacks a peer-review mechanism, and the accuracy and reliability of medical content vary greatly depending on the publisher. Incorrect or incomplete information can lead to unrealistic expectations, increased anxiety, and potentially harmful health decisions. Several studies across different medical and surgical specialties have shown that YouTube videos, even when uploaded by healthcare professionals, often provide low-quality or misleading information (3,4).

Previous research in the field of urology has evaluated YouTube content related to prostate cancer, benign prostatic hyperplasia, urinary incontinence, andrological procedures (5,6). However, data focusing on kidney stone surgery,

particularly in Turkish-language content, is limited and often outdated. Given the high prevalence of kidney stone disease and the frequent recommendation of surgical intervention, evaluating the quality of YouTube content in this area is of great clinical importance.

The present study was designed to assess the quality, reliability, and educational content of Turkish-language YouTube videos addressing kidney stone surgery by using established scoring systems and to determine whether the uploader's academic profile was related to better-quality material.

## **MATERIALS AND METHODS**

### **Study Design and Search Strategy**

Publicly accessible YouTube™ videos were evaluated in this cross-sectional observational analysis. In January 2026, the platform was searched with the Turkish expression for kidney stone surgery, "Böbrek taşı ameliyatı". This keyword was selected because it represents a simple, non-technical phrase that Turkish-speaking patients are likely to use when searching for information about surgical treatment of kidney stones. More technical terms such as ureterorenoscopy, retrograde intrarenal surgery, or percutaneous nephrolithotomy were not used as primary search terms because they may be less familiar to the general patient population and could have narrowed the search toward professionally oriented content. Before the search, browser history and cookies were deleted to reduce personalization effects. The search was performed using a standard web browser without logging into a personal YouTube account in order to further reduce personalization bias. Search results were reviewed according to YouTube's default relevance ranking.

### **Inclusion and Exclusion Criteria**

The first 200 videos were included if they were in Turkish, directly related to kidney stone surgery, and had sufficient audio-visual quality to allow reliable evaluation. Duplicate videos, non-medical videos, advertisements without educational content, and videos without audio narration were excluded from the analysis.

### **Data Collection**

For each video, video duration, number of views, likes, comments, uploader type categorized as specialist urologist or academic urologist, and the surgical techniques mentioned, including URS, RIRS, PCNL, open surgery, or multiple techniques, were recorded. Uploader status was determined according to publicly available professional information provided in the video channel, institutional webpages, hospital profiles, or national academic title information when available. Academic urologists were defined as urologists holding an associate professor or professor title at the time of video evaluation. University-affiliated specialists without an associate professor or professor title were classified within the specialist urologist group.

### **Quality Assessment**

Two urologists independently rated video quality and reliability using the following tools:

- JAMA Benchmark Criteria, evaluating authorship, attribution, disclosure, and currency (score range: 0–4) (7,8).
- Global Quality Score (GQS), a 5-point Likert scale assessing overall educational value and flow of information (7,8).

The JAMA benchmark criteria comprise four items: authorship, attribution, disclosure, and currency. One point is awarded for each criterion, and higher scores indicate greater transparency and reliability. The GQS is scored from 1 to 5; a score of 1 indicates poor quality and limited usefulness, whereas a score of 5 indicates excellent quality, comprehensive information, and high usefulness for patients.

Discrepancies were resolved by consensus. Inter-rater agreement between the two reviewers was evaluated before consensus scoring. Agreement for JAMA and GQS scores was assessed using the intraclass correlation coefficient.

### Ethics Statement

This study analyzed only publicly available YouTube™ videos and did not involve human participants, patient records, personal health data, or any intervention. Therefore, formal ethics committee approval and informed consent were not required.

### Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 27.0 (IBM Corp., Armonk, NY, USA). The distribution of continuous variables was evaluated using the Shapiro-Wilk test and visual inspection of histograms. Continuous variables with normal distribution were expressed as mean  $\pm$  standard deviation, whereas non-normally distributed variables were presented as median with interquartile range. Categorical variables were summarized as numbers and percentages. Comparisons between videos uploaded by specialist urologists and academic urologists were performed using the independent samples t-test for normally distributed continuous variables and the Mann-Whitney U test for non-normally distributed continuous or ordinal variables, including JAMA and GQS scores. Categorical variables were compared using the Chi-square test or Fisher's exact test, as appropriate. The association between video duration and video quality scores was evaluated using Spearman's rank correlation analysis. A 2-sided  $p$  value  $< 0.05$  was considered statistically significant. Inter-rater agreement for JAMA and GQS assessments was calculated using the intraclass correlation coefficient. The final JAMA and GQS scores used for statistical analysis were determined after reviewer consensus.

### RESULTS

Inter-rater agreement between the two reviewers was high for both video assessment tools. The intraclass correlation coefficient was 0.86 for JAMA scores and 0.89 for GQS scores, indicating good agreement before consensus scoring. Among the 200 videos analyzed, 112 (56%) were uploaded by specialist urologists and 88 (44%) by academic urologists. The mean video duration was  $4.1 \pm 3.3$  minutes. Videos uploaded by academic urologists demonstrated significantly higher quality and reliability scores than those uploaded by specialist urologists. The median JAMA score was 2.5 (IQR: 2–3) in the academic urologist group and 1.5 (IQR: 1–2) in the specialist urologist group, and this difference was statistically significant ( $p = 0.003$ ). Similarly, the median GQS score was significantly higher in videos uploaded by academic urologists than in those uploaded by specialist urologists [4 (IQR: 3–4) vs. 2 (IQR: 2–3),  $p < 0.001$ ].

### DISCUSSION

This study demonstrates that the informational quality of Turkish-language YouTube videos related to kidney stone surgery remains limited, despite the high level of public interest and widespread use of the platform for preoperative information-seeking. Although videos uploaded by academic urologists achieved higher JAMA and GQS scores, substantial content-related deficiencies were identified across the majority of analyzed videos.

One of the most important findings of this study is that information regarding potential surgical complications, postoperative care, and alternative treatment options was inadequately addressed in a considerable proportion of

**Table 1.** General characteristics of analyzed YouTube videos (n = 200)

| Variable                          | Value                      |
|-----------------------------------|----------------------------|
| Mean video duration (minutes)     | $4.1 \pm 3.3$              |
| Median number of views            | 29,800 (IQR: 6,400–74,500) |
| Median number of likes            | 215 (IQR: 62–610)          |
| Median number of comments         | 18 (IQR: 4–46)             |
| Uploaded by specialist urologists | 112 (56%)                  |
| Uploaded by academic urologists   | 88 (44%)                   |

**Table 2.** Comparison of video quality scores according to uploader academic status

| Parameter                | Specialist Urologists (n = 112) | Academic Urologists (n = 88) | p      |
|--------------------------|---------------------------------|------------------------------|--------|
| JAMA score, median (IQR) | 1.5 (1–2)                       | 2.5 (2–3)                    | 0.003  |
| GQS score, median (IQR)  | 2 (2–3)                         | 4 (3–4)                      | <0.001 |
| Views, median            | 21,400                          | 41,700                       | 0.021  |
| Likes, median            | 160                             | 330                          | 0.018  |

**Note:** Inter-rater agreement was good for both assessment tools. The intraclass correlation coefficient was 0.86 for JAMA scores and 0.89 for GQS scores before consensus scoring.

**Table 3.** Surgical techniques discussed in YouTube videos

| Surgical technique                   | Number of videos (%) |
|--------------------------------------|----------------------|
| Ureterorenoscopy (URS)               | 96 (48%)             |
| Percutaneous nephrolithotomy (PCNL)  | 28 (14%)             |
| Retrograde intrarenal surgery (RIRS) | 22 (11%)             |
| Open surgery                         | 6 (3%)               |
| Multiple techniques discussed        | 48 (24%)             |

videos. From both a clinical and ethical standpoint, insufficient discussion of these topics constitutes incomplete and inadequate patient information. In kidney stone disease—where multiple treatment modalities exist—appropriate surgical decision-making requires that patients be informed not only about the procedure itself, but also about its potential risks, expected postoperative course, and available alternatives.

Although minimally invasive procedures such as ureterorenoscopy (URS), retrograde intrarenal surgery (RIRS), and percutaneous nephrolithotomy (PCNL) are generally considered safe, they are not devoid of complications. Intraoperative events such as ureteral injury, bleeding, and infection, as well as postoperative complications including fever, sepsis, stent-related symptoms, and the need for secondary interventions, may significantly influence patient outcomes and satisfaction. Failure to address these issues in publicly accessible educational videos may contribute to unrealistic patient expectations and could influence patients' understanding of surgical risks and postoperative symptoms (9,10,11).

In addition, postoperative management—including stent-related discomfort, pain control, activity restrictions, and follow-up requirements—was frequently overlooked. As patients commonly experience lower urinary tract symptoms, hematuria, or discomfort following endourological procedures, the absence of preoperative counseling regarding these expected findings may result in unnecessary emergency department visits and dissatisfaction with surgical care.

Another notable observation is that many videos focused exclusively on a single surgical modality—most commonly URS—without adequately discussing alternative management strategies such as conservative follow-up, medical expulsive therapy, shock wave lithotripsy, RIRS, PCNL, or, in selected cases, open surgery. This single-modality emphasis may bias patient perception and undermine individualized treatment planning, which represents a fundamental principle of contemporary urological practice.

The association between academic uploader status and higher video quality observed in this study is consistent with previous YouTube-based analyses in urology and other surgical specialties. Academic urologists may be more inclined to provide balanced, evidence-based content and adhere to professional standards. Nevertheless, even among

academic uploads, discussion of complications and postoperative expectations was often incomplete, suggesting a structural limitation of the platform itself rather than solely individual content quality.

Importantly, no association was identified between video duration and informational quality, indicating that longer videos do not necessarily convey more comprehensive or reliable information. Instead, structured presentation and adherence to evidence-based principles appear to be more critical determinants of educational value.

Taken together, these findings highlight a substantial gap between patient information needs and the content currently available on YouTube. While the platform offers considerable potential as an adjunct educational tool, unregulated and incomplete information—particularly regarding surgical risks and postoperative expectations—may hinder safe and informed patient decision-making. From a clinical communication perspective, inadequate discussion of complications in publicly accessible content could contribute to misconceptions regarding surgical safety and expected postoperative outcomes.

Accordingly, professional urological societies, academic institutions, and healthcare organizations should consider developing standardized, peer-reviewed educational video materials that comprehensively address indications, alternative treatment options, potential complications, and postoperative care. This recommendation is supported by prior research demonstrating that incomplete online surgical information is associated with increased patient anxiety and misinterpretation of postoperative outcomes, and that YouTube videos lacking balanced risk-benefit discussions fail to meet fundamental standards of patient education (12).

This study has several limitations. Only Turkish-language videos were analyzed, and YouTube's dynamic algorithm may affect search results over time. In addition, although the assessment tools are validated, they still involve a degree of subjectivity. Another important limitation is that video upload date and video age were not included in the analysis. Older videos may naturally accumulate higher numbers of views, likes, and comments over time, which may influence engagement-related comparisons independently of video quality. Therefore, engagement metrics such as view and like counts should be interpreted cautiously. In addition, the study used a single Turkish search term, which was selected to reflect common patient search behavior; however, the use of additional search terms could have identified different videos. Finally, YouTube content is dynamic, and videos may be deleted, modified, or newly uploaded over time; therefore, the findings reflect the status of the platform only at the time of data collection.

## CONCLUSION

Turkish-language YouTube videos related to kidney stone surgery demonstrate generally low informational quality. Although videos uploaded by academic urologists provide relatively more reliable information, YouTube™ cannot currently be considered an adequate standalone educational resource for patients. The development of high-quality, standardized, evidence-based video content by professional urological organizations is strongly recommended.

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**Ethical Approval:** Ethical approval was not required for this study because it was based on publicly available online video content and did not involve human participants, identifiable patient data, or patient intervention.

**Author Contributions:** Abdulkadir Ozmez: Conceptualization, study design, data collection, data analysis, manuscript drafting, final approval.

Mehmet Ozay Ozgur: Data interpretation, critical revision of the manuscript, final approval.

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