ORIGINAL ARTICLE

The Quality and Reliability of Turkish-Language YouTube Videos Providing Information on Total Shoulder Arthroplasty

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Abstract

Introduction: Our purpose was to analyze the quality and reliability of Turkish-language videos about anatomic total and reverse total shoulder arthroplasty (TSA) published on YouTube. We planned to examine video characteristics based on sources and content.

Methods: The most popular Turkish-language YouTube videos related to TSA were compiled. We analyzed the videos based on sources and content. Viewing characteristics were determined for each video. The content was analyzed according to the criteria of the Journal of the American Medical Association (JAMA), DISCERN, and Global Quality Score (GQS). Video content and quality were evaluated by two observers. Cohen's kappa was used to measure interobserver reliability.

Results: The mean DISCERN score for the 29 included videos was 44.2±14.80 (moderate), the mean JAMA score was 2.79±0.90, and the mean GQS score was 3.59±1.02. The total number of views was 290.295, with a mean of 10.010±20.119. The mean view rate was 12.1±37.1. When examined by source, videos from institutional sources had a mean DISCERN score of 35.11±11.19, while videos from individual physician sources had a mean DISCERN score of 48.30±14.62 (p=0.024). There was no significant difference in GQS and JAMA scores by source (p=0.092; p=0.350). When comparing videos by content, DISCERN, JAMA, and GQS scores were higher in videos about surgical techniques (55.50±16.89; 3.63±0.51; 4.50±0.75, respectively) than in videos about diseases (39.90±11.70; 2.48±0.81; 3.24±0.88, respectively). These differences were statistically significant (p=0.009; 0.001; 0.001, respectively).

Discussion and Conclusion: It is observed that the quality and reliability of the videos related to total shoulder arthroplasty published in Turkish on the YouTube platform is moderate. In environments where obtaining information about the disease and surgical techniques influences shared decision-making, there is a need for higher quality, reliable, and understandable video content to ensure patients have accurate information.

Keywords: Patient education; Reverse shoulder arthroplasty; Total shoulder arthroplasty.

Since YouTube is so widely used and has become more and more popular in recent years, it is one of the places where patients go to find information about health issues. The lack of any peer review or content control raises doubts about the qualification and reliability of the information obtained through YouTube. Previously, patients sought information on orthopedic topics on YouTube, such as rotator cuff tear,[1] posterior cruciate ligament,[2]

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femoroacetabular impingement,[3] lateral epicondylitis,[4] Bankart lesion, knee/hip arthroplasty,[5-7] and shoulder arthroplasty[8,9]. It was observed in these analyses that the content quality and reliability were low to moderate.

The surgical procedure known as total shoulder replacement, or total shoulder arthroplasty (TSA), has grown in popularity as a means of treating a variety of shoulder conditions, such as fractures and osteoarthritis[10]. As with any medical procedure, patient education plays a crucial role in preparing individuals for the surgery, aiding in their recovery, and managing expectations postoperatively[11]. In the digital age, YouTube has emerged as a popular platform for accessing health-related information, including patient education resources. However, the quality of Turkish-language video content on YouTube pertaining to TSA remains largely unexplored.

The quality of patient education resources on YouTube is of paramount importance, as it directly impacts the understanding and decision-making of patients. In order to address this problem, a study was carried out utilizing the DISCERN instrument as an evaluation instrument to assess the quality of YouTube videos about TSA that were posted in the Turkish language. A valid and trustworthy instrument for evaluating the quality of written information on possible treatments for a medical condition is the DISCERN instrument[12].

The purpose of this study was to shed light on the validity, excellence, and thoroughness of Turkish-language YouTube videos as a source of information for patients undergoing TSA. By evaluating the content available on YouTube, this research sought to contribute to the understanding of the current landscape of patient education resources in the digital space, particularly in the context of orthopedic surgeries. The findings of this study are expected to shed light on the strengths and limitations of the existing online patient education materials, thereby informing healthcare providers, patients, and families about the caliber of information about TSA that is available on YouTube.

The study's objective was to critically evaluate the quality of Turkish-language YouTube videos on TSA, with the ultimate goal of enhancing patient education and decision-making in the context of orthopedic surgeries.

Materials and Methods

Local ethics committee approval was obtained for the study (HNEAH-KAEK 2024/49; 25.03.2024). This study was conducted in accordance with the Declaration of Helsinki. The analysis of the YouTube video library was conducted on May 05, 2024, using eight search terms related to "total shoulder arthroplasty" and "reverse shoulder arthroplasty" in the YouTube search engine (Table 1). The most viewed and relevant videos with these keywords were listed and included in the study. Excluded from the study were videos that were either too short (<60 seconds) or too long (>30 minutes), had fewer than 500 views, were solely audio, unrelated to TSA/RSA, or were not in Turkish.

Videos were classified based on their sources into three categories: 1) individual physician, 2) academic institution, 3) commercial.

- Individual physician videos: Created by physicians in private practices or physician groups.

- Academic institution videos: Video uploads associated with medical centers, hospitals, and professional medical societies were classified as healthcare facility/hospital videos.

- Commercial videos: Commercial promotional videos of companies operating in the healthcare industry and medical equipment-related sectors.

The following parameters were examined and recorded for each video: source of content, content category, the number of days from the video upload date to the review, number of views, number of likes, number of dislikes, viewing rate, like rate (likes×100/likes+dislikes), VPI, and video length. VPI (Video Popularity Index) was defined in the literature as a tool for quantitatively measuring video popularity[13] and was used for this study.

The quality of the videos was evaluated using the DISCERN, Journal of the American Medical Association score (JAMA), and Global Quality Score (GQS) scales. DISCERN was developed to evaluate the University of Oxford's (Table 2) quality of information[12]. There are a total of 16 questions in the scoring system. A total score of 16 to 80 is obtained by assigning a number between 1 and 5 to each question. The quality of the results is categorized as follows: excellent between 63 and 75 points; good between 51 and 62 points; medium between 39 and 50 points; poor between 27 and 38 points; and very poor between 16 and 26 points. The reliability and accuracy of videos are assessed using the JAMA scoring system (Table 3)[14]. It has four criteria: currency, authority,

Table 1. Keywords searched in YouTube search engine

Total shoulder arthroplasty	Total shoulder prosthesis
Reverse shoulder arthroplasty	Reverse shoulder prosthesis
Anatomic shoulder arthroplasty	Anatomic shoulder prosthesis
Shoulder arthroplasty	Shoulder prosthesis

Table 2. The DISCERN scoring system

Question number	What Is investigated?	Question rating No partially, Yes				
Section 1	Are the aims clear?	1	2	3	4	5
	Does it achieve its aims?	1	2	3	4	5
	Is it relevant?	1	2	3	4	5
	Is it clear what sources of information were used to compile the publication (other than the author or producer)?	1	2	3	4	5
	Is it clear when the information used or reported in the publication was produced?	1	2	3	4	5
	Is it balanced and unbiased?	1	2	3	4	5
	Does it provide details of additional sources of support and information?	1	2	3	4	5
	Does it refer to areas of uncertainty?	1	2	3	4	5
Section 2	Does it describe how each treatment works?	1	2	3	4	5
	Does it describe the benefits of each treatment?	1	2	3	4	5
	Does it describe the risks of each treatment?	1	2	3	4	5
	Does it describe what would happen if no treatment is used?	1	2	3	4	5
	Does it describe how the treatment choices affect overall quality of life?	1	2	3	4	5
	Is it clear that there may be more than one possible treatment choice?	1	2	3	4	5
	Does it provide support for shared decision making?	1	2	3	4	5
Section 3	Based on the answers to all of these questions, rate the overall quality of the publication as a source of information about treatment choices	1	2	3	4	5

Table 3. The Journal of American Medical Association (JAMA) criteria

Criteria	Description
Authorship	Authors and contributors, their affiliations, and relevant credentials should be provided
Attribution	References and sources for all content should be listed clearly, and all relevant copyright information noted
Disclosure	Web site "ownership" should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding
Currency	Dates that content was posted and updated should be indicated

Table 4. The Global quality score (GQS)

1	Poor quality; very unlikely to be of any use to patients
2	Poor quality but some information present; of very limited use to patients
3	Suboptimal flow, some information covered but important topics missing; somewhat useful to patients
4	Good quality and flow, most important topics covered; useful to patients
5	Excellent quality and flow; highly useful to patients

Table 5. Features of the YouTube videos

Parameters	Mean	SD	Minimum	Maximum
Video time	9 min and 59 sec	14 min and 8 sec	60 sec	76 min and 0 sec
Views	10010	20119	510	7830
Days since upload	1.637	890	150	2920
View ratio	12.1	37.1	0.24	197
Likes	30.8	46.6	0	175
DISCERN	43.9	14.4	21.0	71.0
JAMA	2.8	0.9	1.0	4.0
GQS	3.6	1.0	1.0	5.0

JAMA: Journal of the American Medical Association; GQS: Global quality score; SD: Standard deviation; Min: Minute; Sec: Second.

Table 6. Video metrics by upload source

	Institution (n=9)	Individual physician (n=20)	Overall (n=29)	p
JAMA	2.56±0.72	2.90±0.96	2.79±0.90	0.350
GQS	3.11±0.92	3,80±1.00	3.59±1.02	0.092
DISCERN	35.11±11.19	48.30±14.62	44.2±14.80	**0.024**

JAMA: Journal of the American Medical Association; GQS: Global quality score.

quality, and clarity. Each criterion is worth one to four points. Four points denote high source accuracy; one point denotes low level, and two and three points denote partially medium level. Videos' instructional value is assessed using the GQS scoring system[15]. There are five questions in total, and each one is worth one point (Table 4). Five points are awarded for exceptional quality, and one point is for low quality.

Two physicians independently performed the reviews in a blinded manner, and interobserver reliability was assessed. The disagreements in the video reviews were resolved through discussion and consensus among the reviewers.

Table 7. Video metrics by content

	Disease (n=21)	Surgical technique (n=8)	Overall (n=29)	p
JAMA				
Mean±SD (Median)	2.48±0.81 (3.00)	3.63±0.51 (4.00)	2.79±0.90 (3.00)	**0.001**
GQS				
Mean±SD (Median)	3.24±0.88 (3.00)	4.50±0.75 (5.00)	3.59±1.02 (4.00)	**0.001**
DISCERN				
Mean±SD (Median)	39.90±11.70 (37.00)	55.50±16.89 (61.50)	44.2±14.80 (43.00)	**0.009**
VPI				
Mean±SD (Median)	4.54±8.50 (1.53)	31.83±68.42 (0.92	12.1±37.1 (1.40)	0.942

Statistics

Jamovi, an open-source program, was used for statistical analysis. The normal distribution of parameters was evaluated using the Shapiro-Wilk test. Independent Samples T-test was used for parametric tests, while the Mann-Whitney U test was used for nonparametric tests. Statistical significance was considered demonstrated for $p<0.05$. Cohen's kappa was used for interobserver agreement.

Results

The study included 29 videos that met the criteria. No commercial account videos met the inclusion criteria. Descriptive information for variables such as video sources, content types, number of views, number of likes, like rates, number of comments, video durations, number of days from the video upload date to the viewing date, VPI, JAMA, GQS, and DISCERN are presented in Table 5. The overall number of views for the 29 videos was 290,295, and the mean number of views was 10,010±20,119. The mean view rate was 12.1±37.1, and the number of days since upload was 1,637±890. The mean like rate for the videos was 30.8±46.6, with a like rate of 100 and a dislike rate of 0. The mean duration of the videos was 9.59±14.8 minutes, and the mean VPI was 12.1±37.1.

The overall mean DISCERN score was 44.2±14.80 (moderate), the overall mean JAMA score was 2.79±0.90, and the overall mean GQS was 3.59±1.02. When compared by source (Table 6), institutional videos had a mean DISCERN score of 35.11±11.19, while individual physician videos had a mean DISCERN score of 48.30±14.62. The difference was statistically significant (p=0.024). However, there was no significant difference in GQS and JAMA scores by source (p=0.092; p=0.350). Nevertheless, more than half of the videos from both sources were of good quality according to the quality scale.

When comparing videos by content (Table 7), DISCERN, JAMA, and GQS scores were higher in videos about surgical techniques (55.50±16.89; 3.63±0.51; 4.50±0.75) than in videos about diseases (39.90±11.70; 2.48±0.81; 3.24±0.88). These differences were statistically significant (p<0.05). Excellent interobserver agreement was observed (ICC: 93%, p<0.01).

Discussion

This study showed that the average quality and reliability scores in an evaluation of 29 Turkish YouTube videos about TSA were moderate. The reliability and quality indexes of videos about surgical techniques were higher than those containing disease information. Additionally, videos from individual doctor accounts tended to have higher quality, but we were not able to demonstrate this difference statistically.

In previous studies, it has been shown that content from physicians and academic sources tends to be more reliable and of higher quality[4,8,9,16-19]. Martinez et al.[8] reported a mean DISCERN score of 33 for all videos and individual physician videos having a mean DISCERN score of 34 in their shoulder replacement video analysis. In another study by Jildeh et al.,[17] the mean DISCERN score was 33.2, the mean JAMA score was 2.5, and the mean GQS score was 2.7. In the same study, videos from physicians had higher scores compared to the general. Fares et al.[18] reported a mean DISCERN score of 50.4 (moderate) and a mean JAMA score of 1.9 (low) in their study. Foster et al.,[19] in their study of shoulder and elbow arthroplasty videos, reported a mean DISCERN score of 29.5 and a mean JAMA score of 1.2. In our study, the quality index DISCERN score had a mean of 44.2, indicating moderate quality. Our mean JAMA scores were similarly measured at 2.79. We found that Turkish-language videos published on physicians' and institutional websites exhibited moderate reliability and quality.

Considering the overall quality of YouTube videos, orthopedic videos tend to exhibit low quality. However, it is

noteworthy that the videos in our study showed moderate quality. This could be attributed to the fact that the videos in our study were shared by individual physicians and institutional healthcare organizations, with no inclusion of industry sources. Previous research has found that low quality in videos can be influenced by negative contributions from industry accounts[9]. Another finding of this study was that the reliability of the videos was moderate, which is consistent with existing literature[8].

This study has several limitations. Due to the nature of YouTube's structure, search results can vary based on factors such as the user's location, search history, and previously viewed videos. Therefore, the content evaluated in this study was based on searches conducted on a specific day and may yield different results at another time. Evaluating content that meets specific criteria resulted in excellent agreement between two independent evaluators. However, subjective issues such as bias may arise, especially in scores like GQS, which are more subjective. The readability of the content was not investigated in a literary context, which is another limitation of the study.

Conclusion

In conclusion, it is observed that the quality and reliability of disease information and surgical technique videos related to total/reverse shoulder arthroplasty published in the Turkish language on the YouTube platform is medium. While the content from individual physician accounts was above average, it was not very abundant. In environments where obtaining information about the disease and surgical techniques influences shared decision-making, there is a need for higher quality, reliable, and understandable video content to ensure patients have accurate information. Physicians may play a leading role in achieving this purpose.

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