

Quality of YouTube video resources on total knee arthroplasty: a search in Turkish

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ABSTRACT

Objectives: We aim was to evaluate the quality and reliability of the information on knee arthroplasty available on YouTube in Turkish.

Methods: A systematic search was conducted using the term “diz protezi” (knee prosthesis) on 1 June 2020. Videos were filtered based on their degree of relevance alone. Videos that were not in Turkish, not on knee prosthesis or without audio and/or image were excluded. Copied videos were evaluated as a single video. The first 50 videos that came up in the search were included in the study. Video quality was scored using Global Quality Score (GQS). To assess reliability, modified DISCERN scale was used.

Results: The mean view count per video was 31.533 ± 100.921 and the total view count was 1.576.633. The mean duration per video was 337 ± 475 seconds. The median number of likes per video was 13 (0-426). The median number of dislikes per video was 2.5 (0-83). The mean GQS of the videos was 3.25 ± 0.9 . When the reliability of the sources was evaluated using DISCERN, the mean score of the videos was 2.18 ± 1.2 . It is striking that all videos were prepared by an orthopedic surgeon. Of the medical doctors preparing the resources, 44% had academic titles.

Conclusions: It was found that Turkish resources on arthroplasty on YouTube are promising in terms of quality. Content creators must make effort to increase their reliability according to DISCERN.

Keywords: Knee, arthroplasty, patient education, social media

Knee osteoarthritis is the most common arthritis and it constitute 3% of the total disease burden in our Turkey [1, 2]. The gold standard treatment for end-stage knee osteoarthritis is total knee arthroplasty (TKA). One of the important factors that affect the outcome after TKA, which is an elective surgery, is the patient's expectations of the treatment [3, 4]. Traditionally, when elective operations such as TKA are indicated, physician - patient consensus is required when deciding upon surgery [5]. In the meantime, the physician provides information to the patient on the procedure, its benefits, its potential complications and

what the patient must/must not do after the procedure.

Today, the amount of medical information accessible via the internet increases every day [6]. It is clear that what patients see and read online highly affects their perception of the disease and expectations of the treatment. YouTube and other social media contents can be created by numerous sources and people, and they are not subjected to any monitoring or review. Thus, the accuracy and quality of these information is unknown.

The quality and reliability of increasing amount of online medical information found in sources in Eng-

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lish are frequently discussed, but there are no studies on this subject regarding the sources in Turkish [7, 8]. In this study, our aim was to evaluate the quality and reliability of the information on knee arthroplasty available on YouTube in Turkish.

METHODS

The approval of an institutional review board was not required for the present study. To find the relevant videos on knee arthroplasty, YouTube's search functionality was used. A systematic search was conducted using the term "dizprotezi" (knee prosthesis) on 1 June 2020. The reason behind using "protez" instead of "artroplasti" (arthroplasty) as the search term is the rare use of the word arthroplasty, which is not Turkish, in colloquial language. This can also be understood from the fact that the query "dizprotezi" has a higher search volume compared to "diz artroplastisi" in Google Trends, where online search tendencies are indexed [9]. The search on YouTube was performed using a web browser without a recorded history or "cookies". Videos were filtered based on their degree of relevance alone. Videos that were not in Turkish, not on knee prosthesis or without audio and/or image were excluded. Copied videos were evaluated as a single video.

The first 50 videos that came up in the search were included in the study. Although there is no consensus on this subject, this method is frequently used in similar studies [10, 11]. The contents of videos in question were evaluated by two independent researchers (HK, OK) and their duration in seconds and the number of days between the date of upload to the date of evaluation were recorded. The source (creator) of contents, if indicated, was grouped as academic health professional (physician, nurse, physiotherapist, etc.), non-academic health professional, patient, and others. Moreover, the view count, number of likes, dislikes and comments of the videos were recorded.

Video quality was scored using Global Quality Score (GQS). GQS is a 5-point scoring system developed by Bernard *et al.* [12] for internet-based sources. The lowest score is 1, the highest is 5. Videos scored 4 or 5 were considered high quality, 3 were considered acceptable quality and 1 or 2 were considered low quality videos.

To assess reliability, modified DISCERN scale was used [13]. In this scale, using five yes/no questions, the reliability of the video regarding prejudice and objectivity, clarity and understandability, and reliability regarding references and additional resources are evaluated. Yes, corresponds to 1 point and no corresponds to 0 point. By this way, a maximum of 5 points can be obtained for reliability.

When there was a conflict between the two researchers in terms of scoring, a third independent researcher (AM) evaluated and scored the video and the decision was made by majority vote.

Statistical Analysis

Logistic regression was used to analyze the relationship between GQS score and DISCERN score and other measured variables. A p value less than 0.05 was considered significant.

RESULTS

For videos on knee arthroplasty, a total of 50 videos were analyzed. Of the videos in the first 50, 3 videos with no audio and 2 videos which were copied were excluded from the study. These 5 videos were replaced with the next 5 videos in line. The mean view count per video was 31.533 ± 100.921 and the total view count was 1.576.633. The mean duration per video was 337 ± 475 seconds. The median number of likes per video was 13 (0-426). The median number of dislikes per video was 2.5 (0-83).

The mean GQS of the videos was 3.25 ± 0.9 . Of the videos, 6% (3/50) were bad and had the inappropriate or wrong content for the patients, 12% (6/50) were of poor quality but had limited information, 36% (18/50) were insufficient but still had information for the patients although limited, 42% were of sufficient quality and had appropriate amount of information for the patients and 4% (2/50) were of perfect quality and contained all the information necessary for the patients (Table 1).

When the reliability of the sources was evaluated using DISCERN, the mean score of the videos was 2.18 ± 1.2 . While none of the videos had references to the appropriate sources, only 12% (6/50) had comments without any bias. Thus, there are no videos that meet all of the criteria and got full score from DIS-

Table 1. Te video characteristics according to the GQS and DISCERN scores (video duration, video age and view count was given by mean values and like and dislike numbers are represented by medianvalues of the specific subgroup)

		n	Video duration (seconds)	Video age (days)	View count	Likes	Dislikes
GQS	1	3	320	2709	29650	19	4
	2	6	303	2819	33328	14	7
	3	18	319	2613	38109	18	5
	4	21	315	2780	33142	13	2
	5	2	299	2400	27948	10	2
DISCERN	1	13	306	2699	37691	15	4
	2	17	317	3005	32650	13	2
	3	14	312	2778	29879	13	2
	4	6	311	2516	30382	9	3
	5	0	-	-	-	-	-

GOS = Global Quality Score, DISCERN = an instrument for judging the quality of written consumer health information on treatment choices

CERN (Table 1).

It is striking that all videos were prepared by an orthopedic surgeon. Of the medical doctors preparing the resources, 44% had academic titles. Advertisement of the employing institution (private hospital) was detected in 70% (35/50) of the videos. In one video, identity of the patient was clearly visible during surgery, and although the patient gave consent, it was found ethically controversial [14]. The most commonly discussed subjects include post-operative physical therapy (62%) and complications after knee arthroplasty (22%). Options other than surgery and general information regarding surgery were the least discussed subjects. There was no correlation between GQS and DISCERN evaluation score and other characteristic variables of the videos.

DISCUSSION

Results of our study demonstrate that, in Turkish sources on YouTube on knee arthroplasty, the level of information is at an acceptable level, but scientific reliability is low. Patients' access to data is increasing progressively through internet sources such as YouTube. Especially with the increase in the rate of internet accessibility from 2.9% to 59.6% from the start of the millennia in Turkey, the internet has almost

become the strongest source of information [15].

There are numerous studies on the reliability and quality of information in online sources on surgery and numerous internal diseases [12, 16]. However, there is a limited number of similar studies on orthopedic diseases, and in particular, there are only two studies on arthroplasty in the literature [7, 8]. There are no studies in Turkish and as far as we know, this is the first study on Turkish content. Unlike the sources in English, approximately half (23/50) of the contents were categorized as acceptable and perfect according to GQS. In the study by Wong *et al.* [7], 66% of the videos were considered to have poor quality. This was attributed to the fact that all content creators were physicians and as previously shown, orthopedists have a high rate of social media use [17, 18].

However, unfortunately, scientific reliability of the sources is insufficient according to DISCERN. This is similar to other examples in the literature. Koller *et al.* [8] stated in their paper regarding hip osteoarthritis 84% of the videos were poor. Similarly Akpolat *et al.* [19] stated DISCERN score of videos about Bankart lesion was 2.35 ± 0.91 . It is especially striking that scientific sources were not referred to in the videos. This is probably because since the content creators produced the videos for the general public, they did not refer to scientific sources. Another problem in the videos that led to poor quality was that information

transfer was biased, and most of the time, good outcomes were reported. This can be because some of the videos were broadcasts supported by the private hospital.

It is striking that all of the available content was created by orthopedists. The high quality of broadcasts can be attributed to the fact that 44% of these physicians had academic titles. In particular, there was one content creator, who was observed in 26% of the videos and was very active. Previous studies have shown the willingness of Turkish orthopedists to use social media [17, 18]. Since the information presented in the videos created by content creators include information provided to patients in face-to-face interviews, it is nevertheless clear that YouTube enables information to be widely accessible. In our case, the content on total knee arthroplasty reached to almost 1.5 billion users.

Internet, which provides a flow of information to and from various sources, does not always provide reliable and quality information. One of the areas most affected from this situation is the physician-patient relationship. Especially, the cases where the patients have unnecessary anxieties and patient expectations of the treatment have increased without any foundation following misinformation are also troublesome for the physician undertaking the treatment. In a study performed in the US, it was found that nearly 40% of the physicians believe that their diagnosis and treatment becomes ineffective when the patient has certain prejudices due to information obtained online before consulting a physician [20].

Limitations

We know our study is not free of limitations: first, there is no validated tool to assess the quality of video-based medical information. Yet GQS and DISCERN are widely used scales good inter-observer and intra-observer reliability. Second, YouTube's search code/algorithm is not openly disclosed, and the various factors effecting which videos delivered to a certain search is an important confounding factor. Even the internet protocol (IP) where the site is reached could impact the results. However, this variability is not adjustable, and we believe since the algorithm affects any search equally, we believe this discrepancy is negligible.

CONCLUSION

Again, it was found that Turkish resources on arthroplasty on YouTube are promising in terms of quality. Content creators must make effort to increase their reliability according to DISCERN. Scientific facts should be cited with a plain language, and controversial topics about any procedure should always be highlighted. Any effort to increase the "social media abilities" to the medical doctors' armament, like addition of a social media course to medical curriculum, can be valuable for the future [21].

Authors' Contribution

Study Conception: HK, AM; Study Design: HK, AM; Supervision: HK, AM, OK, AÖ; Materials: OK, AÖ; Data Collection and/or Processing: OK, AÖ; Statistical Analysis and/or Data Interpretation: HK, AM, OK, AÖ; Literature Review: HK, AM; Manuscript Preparation: HK and Critical Review: HK, AM, OK, AÖ.

Conflict of interest

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