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EVALUATION OF YOUTUBE VIDEOS ON CALCANEUS FRACTURES IN TERMS OF RELIABILITY AND QUALITY

KALKANEUS KIRIKLARINA İLİŞKİN YOUTUBE VİDEOLARININ GÜVENİLİRLİK VE KALİTE AÇISINDAN DEĞERLENDİRİLMESİ

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ABSTRACT

Objective: The aim of the study is evaluating the realibity and quality and the reliability of Youtube video contents concerning calcaneal factures.

Methods: We searched the terms of calcaneus fracture on Youtube and total of 57 videos evaluated. The following variables were collected for each video: number of views, duration in minutes and seconds, video source/uploader type, content type, days since upload, view ratio (views/day), and number of likes. The general features of the videos were evaluated in eight categories, video uploaders were evaluated in five categories, and video contents were evaluated in three categories. The Global Quality Scale (GQS), The Journal of the American Medical Association (JAMA) score, DISCERN scores were used to assess each video.

Results: The median view ratio was 19.68 (interquartile range 9.39-37.3), median number of views were 28788 views. The median JAMA score was 2 (interquartile range (IQR) 2-3), GQS score was 3 (interquartile range 2-3) and DISCERN score was 39 (interquartile range 29,5-46). The most common video uploader were physicians (43.9%), disease specific information was the most viewed video content (52.6%). Academic sources were the best on median DISCERN (46), JAMA score (3) and GQS scores (3). Also disease specific disorders videos had the greatest median DISCERN (46), JAMA (3) and GQS scores (3).

Conclusion: The Reliability, transparency and content of YouTube videos on calcaneus fractures measured by GQS and DISCERN scores are intermediate but JAMA scores were poor. Increasing video quality will provide better guidance to patients in such diseases like calcaneus fractures that are difficult to follow and treat.

Keywords: Patient education, calcaneus fracture, Youtube, quality analysis

ÖZ

Amaç: Çalışmanın amacı kalkaneus kırıklarına ilişkin Youtube video içeriklerinin gerçekliğini, kalitesini ve güvenilirliğini değerlendirmektir.

Yöntem: Youtube'da 'kalkaneus kırığı' terimi aranarak ve toplam 57 video değerlendirildi. Her video için görüntüleme sayısı, dakika ve saniye cinsinden süre, video kaynağı/yükleyici türü, içerik türü, yüklemeden bu yana geçen gün sayısı, görüntüleme oranı (görüntüleme/gün) ve beğeni sayısı değişkenleri değerlendirildi. Videoların genel özellikleri sekiz kategoride, video yükleyicileri beş kategoride ve video içerikleri üç kategoride değerlendirildi. Her videoyu değerlendirmek için Küresel Kalite Ölçeği (GQS), The Journal of the American Medical Association (JAMA) puanı, DISCERN puanları kullanıldı..

Bulgular: Median görüntüleme oranı 19.68 (aralık 9.39-37.3), median görüntüleme sayısı 28788 görüntülemeydi. median JAMA skoru 2 (aralık (IQR) 2-3), GQS skoru 3 (aralık 2-3) ve DISCERN skoru 39'du (aralık 29,5-46). En sık video yükleyenler hekimlerdi (%43,9), hastalığa özgü bilgiler grubu, en çok görüntülenen video içeriğiydi (%52,6). Akademik kaynaklar median DISCERN (46), JAMA skoru (3) ve GQS skorları (3) konusunda en iyisiydi. Ayrıca hastalığa özgü tanımlar kategorisindeki videolar en yüksek median DISCERN (46), JAMA (3) ve GQS skorlarına (3) sahipti.

Sonuç: GQS ve DISCERN puanları ile ölçülen kalkaneus kırıkları hakkındaki YouTube videolarının güvenilirliği, şeffaflığı ve içerik kalitesi orta düzeydedir ancak JAMA puanları zayıftır. Video kalitelerinin artırılması, takip ve tedavisi zor olan kalkaneus kırıkları gibi hastalıklarda hastalara daha iyi rehberlik sağlayacaktır.

Anahtar Kelimeler: Hasta eğitimi, kalkaneus kırıkları, Youtube, kalite analizi

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Introduction

Internet use has become one of the primary options for health information sources. Studies have shown that approximately 40% of patients do a web search regarding their complaints before applying to a health institution and these numbers will increase over time.[1] YouTube is a popular site for videos containing health-related information with more than 2.7 billion users each month and one billion hours of video watched each day.[2,3] YouTube videos enable visual and audio education of healthcare personnel and patients in terms of diagnosis, treatment and follow-up of diseases.[4] It has also been shown that 75% of patients' decisions regarding the treatment of their disease are influenced by information obtained through online health searches, therefore, it is important that these videos provide accurate and reliable information.[5] However, the content quality of youtube health videos is sometimes needs to be questioned. Because YouTube does not have a process to ensure the content accuracy of videos, many patients may encounter unreliable information and misinformation about their condition. This situation has been reported in previous Youtube videos studies such as hallux valgus, plantar fasiitis, shoulder instability …vs and quality, transparency and reliability was found low.[1]

Even though calcaneal factures have difficult surgical technique, long treatment process and high morbidity and complication rates, Youtube videos on calcaneal fractures have not been evaluated yet.[6] The aim of the study is evaluating the quality and reliability of Youtube videos about calcaneal fractures.

Methods

The term "calcaneus fracture" was searched on Youtube and most suitable 57 videos were extracted to Microsoft Excel program (Redmond, WA) in January 2024. Videos with less than 10000 views were not included in the study. English language, acceptable audio and visual quality and primary content on calcaneus fractures were the inclusion criterias for the videos. The videos that have only audio or visual content were excluded from the examination.

The variables which were collected from each video are; duration of minutes, video source/uploader, number of views, days since upload, view ratio (view/days), number of likes and content type.

Physician, nonphysician, academic, medical source and patient were category of the video source/uploader.

Disease spesific information, patient experience, surgical technique or approaches and nonsurgical management were the content types. Since the number of videos in nonsurgical management was statistically insufficient, they were added to dissease specific disorders group because they were similar in content.

We used the JAMA score for evaluating the video transparency and reliability. The GQS used for measuring the educational quality of videos and the DISCERN score was used for assessing the quality of online information.[4,7-9] The JAMA score basically consists of four parts (bibliography, up to dateness, authorship and cophyright) and evaluated between 0 and 4 points by giving 1 point for each criteria. The GQS was categorized between 1 (lowest quality)- 5 (highest quality). The DISCERN consist 15 questions (each question is scored between 1-5), first 8 questions for evaluating the reliability of the video, the next 6 questions for detailing the treatment options and the fifteenth question for evaluating the overall quality of the video. The overall quality of the video. Between totally 63-75 considered excellent points, 51-62 good, 39-50 medium, 27-38 insufficient, and 16-26 are considered very insufficient.

The 'Human Ethics and Consent to Participate' statement and 'consents of participants' are not applicable, because this article does not contain any studies with human participants or animals performed by any of the authors.

Stastistical Analysis

IBM SPSS 29.0 (IBM Corp., Armonk, NY, USA) used for all statistical analysis. Kolmogorov-Smirnov and Shapiro-Wilk's tests were used to assess the normality assumption. Continuous variables were presented with median and interquartile range (IQR) since the normality assumption did not hold. Categorical variables were summarized as counts and percentages. Kruskal-Wallis test was used for carrying out the comparisions between groups and Dunn's test was used for the multiple comparisons. A p-value<0.05 was considered statistically significant.

Results

Total duration of 57 videos were 522 minutes (min) 24 seconds (sec) and the overall median video length were 320 sec (range 22 sec-726 sec). The total number of views were 2844441 (range 10000-386287), and the median were 28788 views. The total number of likes were 21564 (range 0-3500), and the median number of likes were 189 (IQR 109,5-322) likes. The total days since upload were 129420 (range 95-5110), and the median number of total days since upload were 2555 (IQR 885-3650) days. The median view ratio was 19.68 (IQR 9.39-37.3) views/day (range 2.93-433.11). The most common video source/uploader were the physicians (25 videos, 43.9%), the others were academic sources (11 videos, 19.3%), patients (9 videos, 15.8%), nonphysicians (6 videos, 10.5%) and the medical sources (6 videos, 10.5%). The disease specific information was the most common content type (30 videos, 52.6%) and the others were surgical techniques (18 videos, 31.6%), patients experiences (9 videos, 15.8%) (Table 1). The median overall JAMA benchmark score was 2 (interquartile range (IQR) 2-3), GQS score was 3 (interquartile range 2-3) and DISCERN score was 39 (interquartile range 29,5-46). Academic sources had the greatest median DISCERN (46), JAMA (3) and GQS scores (3) (p<0.001). No significant difference found in number of views, view ratio and

number of likes (Table 2). Also similarly on video content type analysis, disease specific disorders videos had the greatest median DISCERN (46), JAMA (3) and GQS scores (3) (Table 3) and no significant difference in number of views, view ratio and number of likes.

Discussion

Orthopedic studies about quality analysis of Youtube videos are usually focused on orthopaedic diseases like scoliosis, carpal tunnel syndrome, hip arthritis, knee ligament injuries, shoulder diseases and arthroplasty. Foot and ankle studies are usually about hallux valgus. According to our literature searches this is the first study which has focused on calcaneal fractures.

Low like and video ratio rates shows that YouTube videos about calcaneal fractures are not as popular as other orthopaedic topics. This low number of views can be explain by the incidance of calcaneal fractures in adeolescent and young adult population who use YouTube more actively. Also we thaught that the aesthetic and sport topics are more interesting for this group patients.[7-15]

Table 1. Descriptive statistics for YouTube videos (n=57)

	Median (IQR)
DISCERN	39 (29.5-46)
JAMA	2 (2-3)
GQS	3 (2-3)
View ratio	19.68 (9.39-37.3)
Number of views	28788 (14889.5-68000)
Days since upload	2555 (885-3650)
Duration in sec.	320 (148-726)
Number of likes	189 (109.5-322)
	n (%)
Video source/uploader	
Physician	25 (43.9)
Medical source	6 (10.5)
Patient	9 (15.8)
Nonphysician	6 (10.5)
Academic	11 (19.3)
Content type	
Surgical technique	18 (31.6)
Patient experience	9 (15.8)
Disease specific information/ Nonsurgical management	30 (52.6)

IQR: Interquartile range, n: Number

Table 2. Comparisons of video sources/uploaders

	Physician (n=25) Median (IQR)	**Medical Source (n=6) Median (IQR)**	**Patient (n=9) Median (IQR)**	**Nonphysician (n=6) Median (IQR)**	**Academic (n=11) Median (IQR)**	**p***
DISCERN	44 (30-48)[a]	35.5 (31.5-40.75)[ab]	25 (23.5-25.5)[b]	43 (41.75-43.75)[a]	46 (32-50)[a]	**<0.001**
JAMA	3 (1.5-3)[a]	2 (2-2.25)[ab]	1 (1-2)[b]	2.5 (2-3)[ab]	3 (2-3)[a]	**0.004**
GQS	3 (3-3)[ac]	2.5 (2-4)[bc]	2 (1-2)[b]	3 (3-3)[a]	3 (3-4)[abc]	**<0.001**
View ratio	23.28 (14.13-37.98)[ac]	18.45 (3.71-29.11)[ab]	9.58 (6.08-16.57)[b]	41.785 (29.39-70.89)[c]	18.26 (6.65-30.09)[abc]	**0.048**
Number of views	39201 (14889.5-73539.5)	26627 (10931-50889.5)	14000 (12593-56000)	30508.5 (24500-79960.25)	26000 (18489-71482)	0.481
Days since upload	1825 (730-3270)	3650 (2412.5-3741.25)	3650 (1277.5-4197.5)	730 (730-2007.5)	2555 (1095-2920)	0.069
Duration in sec.	278 (125.5-627.5)[a]	167 (114.25-491.75)[ab]	272 (131-458)[ab]	311.5 (219.25-947.25)[ab]	1156 (393-1723)[b]	**0.020**
Number of likes	180 (116.5-299.5)[ab]	32 (0-106.25)[a]	183 (120.5-253.5)[ab]	502 (260.75-1100)[b]	208 (177-598)[ab]	**0.014**

IQR: Interquartile range
Boldface p values indicate statistically significant differences.
The values with different superscript letters in a row are significantly different.
*Kruskal-Wallis test

Table 3. Comparisons of content types

	Surgical Technique (n=18) Median (IQR)	**Patient Experience (n=9) Median (IQR)**	**Disease Specific Information/ Nonsurgical Management (n=30) Median (IQR)**	**p***
DISCERN	30.5 (28.75-32)[a]	25 (23.5-25.5)[a]	46 (43-48.25)[b]	**<0.001**
JAMA	2 (1-2.25)[a]	1 (1-2)[a]	3 (2.75-3)[b]	**<0.001**
GQS	3 (2-4)[a]	2 (1-2)[b]	3 (3-3)[a]	**<0.001**
View ratio	21.89 (9.68-31.97)	9.58 (6.09-16.57)	23.88 (10.99-39.04)	0.108
Number of views	27741.5 (15334.25-86555.25)	14000 (12593-56000)	30508.5 (17000-68099.75)	0.383
Days since upload	2555 (1003.75-3285)	3650 (1277.5-4197.5)	2022.5 (730-3102.5)	0.415
Duration in sec.	561.5 (190.25-726)	272 (131-458)	270 (129-842.5)	0.298
Number of likes	179.5 (49.75-358.5)	183 (120.5-253.5)	242 (140.5-483.5)	0.425

IQR: Interquartile range
Boldface p values indicate statistically significant differences.
The values with different superscript letters in a row are significantly different.
*Kruskal-Wallis test

YouTube videos about calcaneus fractures were found to be of intermediate quality in terms of DISCERN and GQS scores, respectively. In addition, JAMA scores were poor. We think that the reason why they are at intermediate level is that the majority of the videos belong to academics and surgeons. However, the videos of academics and physicians were also found to be weak in terms of references and source citations. These results are better than the previously reported findings from YouTube studies of other orthopaedic topics, including hallux valgus, total shoulder arthroplasty and patellofemoral instability.[16-18]

In our study, the GQS, DISCERN and JAMA scores of videos uploaded by patients were statistically worse than those uploaded by other sources. This indicates that the doctors' videos are of a higher quality in terms of content. This may indicate that the videos uploaded by doctors are more scientific. Also we think that the patient videos are made to produce content that will artract the attention of the audience, rather than to provide medical information. However, similar to some of the previous studies, we didn't found any significant correlation between number of likes, video view ratio, number of views and the scores.[14,18,19] This shows that the likes do not correlate with the content quality of the video, and there are other studies showing that videos of low content quality have more likes.[20,21]

When the videos are evaluated in terms of video content, DISCERN, JAMA and GQS scores of the DSI group were found to be significantly higher than other content groups. Again similar to previous studies and our video uploader analysis, we didn't find any significant difference in view ratio, number of views and likes of content groups.[17] We think that if video content is scientifically and technically intense, it is more difficult to reach non-medical audience. Medical videos have the lowest like rates because they provide more tecnical information.

This study has some limitations. First of all, the search was made using a single term. In addition to calcaneus fractures, terms such as heel fractures could also be added to the search. Also, the situation we want to investigate while doing the study; The aim was to examine the data that patients who would use the internet regarding their diseases would obtain as a result of their searches. Aiming to evaluate all the data on the internet in a single study does not seem possible with today's techniques. Although the entire YouTube database is scanned, another limitation is that this search is only in English.

Conclusions

Although the overall reliability, transparency and content quality of Youtube videos on calcaneal fractures as measured by DISCERN and GQS scores were moderate, the overall educational and video quality as measured by JAMA was poor. As a result of our study, it was concluded that the videos about calcaneus fractures on YouTube do not have sufficient reliability or quality for patient education, especially about complications. Therefore, it may be an option that recommending the high-quality information websites or videos about calcaneal fractures to relevant healthcare professionals and patient.

Compliance with Ethical Standards

Because of this article does not contain any studies with human participants or animals performed by any of the authors; 'Human Ethics and Consent to participate' declaration and 'consents of participants' are not applicable.

Conflict of Interest

All authors have declared that there was no conflict of interest.

Author Contributions

ÜG: Data collection, processing; SB: Statistical analysis; ÜG: Literature search and writing.

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