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# Evaluation of the quality, reliability, and popularity of Turkish YouTube videos on acne treatment

## *Akne tedavisi ile ilgili Türkçe YouTube videolarının kalite, güvenirlik ve popülarite açısından değerlendirilmesi*

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### Abstract

**Background and Design:** Social media is extremely popular for obtaining information on dermatological diseases and their treatments. The present study aimed to evaluate Turkish YouTube videos on acne treatment and compare them in terms of quality, reliability, and popularity based on the upload source.
**Materials and Methods:** The first 120 Turkish YouTube videos on acne treatments were reviewed. The number of views, likes, dislikes, comments, video age, and video length were recorded. The quality and reliability of the videos were evaluated with the video power index (VPI). Then, the findings were compared based on the upload source.
**Results:** A total of 104 videos uploaded by 52 physicians and 52 non-physicians (female: male ratio: 3.3:1) were assessed in this study. The DISCERN Score and Global Quality Score (GQS) were higher in the physicians' group (n=52, 50%) (p<0.001). The number of views, likes, dislikes, comments and VPI were significantly higher in the non-physicians group. The time elapsed since the upload day was longer in the videos uploaded by physicians, and the video duration was longer in the videos uploaded by non-physicians (p<0.001). The DISCERN and GQS in videos uploaded by dermatologists (n=30, 54%) were higher (p<0.001) than in those uploaded by non-dermatologists (n=22, 46%). No statistically significant difference was found in other findings.
**Conclusion:** This study's findings confirmed that Turkish YouTube videos on acne treatment uploaded by doctors, especially dermatologists, were of higher quality and reliable, albeit with lower viewing rates and popularity.
**Keywords:** Acne treatment, social media, YouTube

### Öz

**Amaç:** Sosyal medya dermatolojik hastalıklar ve tedavileri hakkında bilgi almak için oldukça popülerdir. Biz bu çalışmada akne tedavisiyle ilgili Türkçe YouTube videolarını değerlendirmeyi ve yüklenme kaynağına göre videoları kalite, güvenirlik ve popülarite açısından karşılaştırmayı amaçladık.
**Gereç ve Yöntem:** YouTube arama motoruna "akne tedavisi" anahtar kelimesi yazılarak bulunan ilk 120 Türkçe video incelendi. Videoların görüntülenme sayısı, beğeni ve beğenmeme sayısı, yorum sayısı, videonun yüklenme zamanı ve video süreleri kaydedildi. Videoların kalitesi ve güvenirliği DISCERN skoru ve Global Kalite Skoru/*Global Quality Score* (GQS) kullanılarak, video popülaritesi de video güç indeksi/*video power index* (VPI), video güç indeksi) kullanılarak değerlendirildi. Daha sonra bulgular videoların yüklenme kaynağına göre karşılaştırıldı.
**Bulgular:** Yüz yirmi videonun 104'ü dahil edilme kriterlerini karşılayarak çalışmaya dahil edildi. Tüm videoların ortalama DISCERN puanı 49,65±8,40 ve ortalama GQS 3,57±0 idi. Doktorların yüklediği videolardaki (n=52, %50) ortalama DISCERN ve GQS istatistiksel olarak anlamlı derecede yüksekti (p<0,001). Doktor olmayanların yüklediği videoların (n=52, %50) izlenme sayısı, beğeni sayısı, beğenmeme sayısı, yorum sayısı, ve VPI istatistiksel olarak anlamlı derecede yüksekti (p<0,001). Doktorların yüklediği videolarda yükleme gününden itibaren geçen süre daha fazla iken, doktor olmayanların yüklediği videolarda video süresi daha uzundu (p<0,001). Dermatologların yüklediği videolardaki (n=30,

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%54) DISCERN ve GQS dermatolog olmayan doktorların (n=22, %46) yüklediği videolardan istatistiksel olarak anlamlı derecede daha yüksekti (p<0,001). Diğer bulgularda istatistiksel olarak anlamlı fark saptanmadı.
**Sonuç:** Bu çalışma doktorlar özellikle dermatologlar tarafından yüklenen akne tedavisiyle ilgili Türkçe YouTube videolarının daha kaliteli ve güvenilir olduğunu ancak izlenme oranı ve popülaritesinin daha düşük olduğunu göstermiştir.
**Anahtar Kelimeler:** Akne tedavisi, sosyal medya, YouTube

## Introduction

Acne is a chronic inflammatory disorder of the pilosebaceous unit that may be encountered at any age[1]. However, it is more common among adolescents and it significantly contributes to their physical, social, and psychological burden[1,2].

In recent years, social media platforms have become extremely popular as tools to obtain information about dermatological diseases and their treatments[3]. However, the use of social media as a source of medical information may have its demerits. Information provided by unauthorized people and without reliable medical sources may mislead patients. Moreover, the contents may be prepared for advertising. All these factors make social media platforms potentially harmful and dangerous sources for users who are seeking medical information on different skin diseases[3].

Acne and its treatment are one of the popular dermatological contents on social media, and YouTube is one of the popular social media platforms used for obtaining or providing information on acne by patients and physicians[4-9]. Patients can make decisions about their treatment plans by watching YouTube videos on acne treatment. However, both patient experiences and physician videos are not evaluated for quality and reliability before they are uploaded to YouTube[10]. Therefore, patients may be misled with much inaccurate, incorrect, and potentially harmful information.

In literature, a limited number of studies have examined the sources and contents on acne treatment in the English language on different social media platforms[4-14]. In this study, we reviewed the Turkish videos on acne treatment on YouTube and compared the videos in terms of their quality, reliability, and popularity between those uploaded by physicians and non-physicians.

## Materials and Methods

Ethics committee approval was not required as publicly available YouTube videos were evaluated in the study. A search was performed on YouTube (http://www.youtube.com) on September 7, 2021, using the keywords "acne treatment." All video searches were performed by clearing the entire search history and without any user login. No changes were made to the standard search preferences of the website. The standard search preference was selected as "sort videos by relevance."

A total of 120 videos were evaluated in the study (including the first 60 videos prepared by physicians and the first 60 videos prepared by non-physicians). The inclusion criteria of the videos were as follows: presented in Turkish language, related to "acne treatment," and available at the time of access (September 7, 2021). Videos presented in non-Turkish languages, repetitive, of length <30 s, and those not mentioning acne treatment were excluded from the study. These videos were then analyzed by a dermatologist. The number of views, view ratio (number of views per day), video age (time from the date of upload to September 7, 2021), number of likes, like ratio [like x100/(like + dislike)], number of dislikes, number of comments, length (in seconds), upload source (physicians, non-physicians, dermatologists, non-dermatologists), video power index (VPI) score, DISCERN score, and the Global Quality Score (GQS) were recorded.

The VPI was calculated using the following formula to evaluate the popularity of the video: likes x view rate/100[15]. The DISCERN scoring system evaluated the reliability of a publication and the quality of information on treatment options available to the patient[16]. The DISCERN scoring system was calculated by summing the score corresponding to each question (Question Rating: No: 1, Partially: 2-3, Yes: 4-5). The minimum score was 15 and the maximum score was 75. The scoring result was evaluated as excellent (63-75 points), good (51-62 points), moderate (39-50 points), weak (27-38 points), or very poor (15-26 points) (Table 1)[16].

The GQS was applied to evaluate the didactic aspect of a video for patients. The GQS system rates the overall quality of the video content on a five-point scale (Table 2)[15].

**Table 1. DISCERN score description[16]**

| |
|---|
| **Section 1:** |
| 1. Are the goals clear? |
| 2. Does it achieve its goals? |
| 3. Is it relevant? |
| 4. Are the publication sources used to compile information compatible? |
| 5. Is it clear when the information used or reported in the publication was produced? |
| 6. Is it balanced and unbiased? |
| 7. Does it provide details of additional sources of support and information? |
| 8. Does it refer to areas of uncertainty? |
| **Section 2:** |
| 9. Does it explain how each treatment works? |
| 10. Does it explain the benefits of each treatment? |
| 11. Does it explain the risks of each treatment? |
| 12. Does it explain what can happen if no treatment is used? |
| 13. Does it explain how the treatment choices affect the overall quality of life? |
| 14. Does it explain that there may be more than one possible treatment choice? |
| 15. Does it provide support for shared decision making? |
| **Section 3:** |
| 16. Based on the answers to all of these questions, rate the overall quality of the publication as a source of information about treatment choices |

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### Statistical Analysis

The Kolmogorov-Smirnov test was performed to verify the normality of the distribution of continuous variables, which were expressed as mean ± SD or median (minimum-maximum) in the presence of abnormal distribution, and the categorical variables were expressed as percentages. Comparisons between the groups were made by chi-square or Fisher's exact test for categorical variables, independent samples t-test for normally distributed continuous variables, and Mann-Whitney U test when the distribution was skewed. Pearson's correlation test was performed to examine the relationships between the variables. P=0.05 was considered to indicate statistical significance. All statistical procedures were performed with the SPSS software version 14.0 (SPSS Inc., Chicago, IL).

## Results

A total of 120 videos were analyzed, of these 16 were excluded because 1 video was <30 s in length, 6 were unrelated to acne treatment, 3 were soundless, and the remaining 6 were repetitive. In Table 3, the data for the videos are detailed.

When comparing the videos uploaded by physicians (n=52, 50%) and non-physicians (n=52, 50%), the median age of the videos, the mean DISCERN, and GQS scores were found to be statistically significantly higher in the physicians' group. However, the factors such as the median number of views, likes, dislikes, comments, VPI and video length were statistically significantly higher in the non-physicians group (Table 4).

**Table 2. Global Quality Score[15]**

| |
|---|
| 1. Poor quality, very unlikely to be of any use to patients |
| 2. Poor quality, but contains some information, that may be of limited use to the patients |
| 3. Suboptimal flow, some information covered but important topics missing, which may be somewhat useful to patients |
| 4. Good quality and flow, most important to be discovered, useful to patients |
| 5. Excellent quality and flow, highly useful to patients |

**Tablo 3. Characteristics of the Turkish videos on acne treatment available on YouTube**

| Characteristics | Number (%) |
|---|---|
| All | 104 (100%) |
| **Sex** | |
| Female | 80 (77%) |
| Male | 24 (23%) |
| **Uploader type** | |
| Physicians | 52 (50%) |
| Dermatologist | 30 (54%) |
| Non-dermatologist | 22 (46%) |
| Non-Physicians | 52 (50%) |
| **Upload date** | |
| Earliest | 18.11.2011 |
| Latest | 26.08.2021 |

Table 5 shows the results of comparing dermatologists (n=30, 54%) and non-dermatologists physicians (n=22, 46%). The mean DISCERN and GQS scores were statistically significantly higher in the dermatologists' videos. Other findings were not statistically significantly different between the two groups.

In addition, a significant and robust correlation was noted between the GQS and DISCERN scores. Accordingly, the viewing rate was positively correlated with the number of likes, dislikes, and comments (Table 6).

A significant correlation was evident between the video length and the number of likes, dislikes, and comments. Unlike all of them, a significant negative correlation was recorded between the GQS and the number of likes, dislikes, and comments. Similarly, a significant negative correlation was noted between DISCERN and the number of comments.

## Discussion

The present results suggested that although Turkish videos on acne treatment available on YouTube were uploaded by non-physicians and were of significantly lower quality and reliability than those of videos prepared by physicians, the former were significantly more popular and more frequently viewed by users. These data are in line with those reported by studies evaluating similar English videos on acne treatment on YouTube[4,5,7]. In addition, the present study demonstrated that, among physicians, dermatologists' videos had significantly higher quality than non-dermatologists' videos, which have not been reported previously, to the best of our knowledge.

Recent studies have demonstrated that women are more likely to use social media to seek information about acne[6,17]. As a reflection of this fact, we found that almost all videos (94%) uploaded by non-physicians were prepared by women. Similarly, Xiang et al.[7] and Zheng et al.[8] reported that the vast majority (74% and 78%, respectively) of the videos about acne and its treatment were uploaded by women to YouTube and another social media platform, TikTok. The women's predominance in both seeking and uploading information about acne and its treatment in social media is an expected outcome, considering that women give more importance to physical appearance, exhibit greater distress in this context, hold negative self-concept, and have a more negative body image compared to men presenting with acne lesions[18-20].

In literature, only a few studies have evaluated the quality and reliability of the contents on acne treatment available on social media platforms[4,7]. According to our knowledge, this is the first study to evaluate YouTube videos about acne treatment in the Turkish language. Unlike past studies that evaluated English videos on acne and its treatment[4,5,7], in our study, the distribution of individuals between the physician and non-physician groups was equal. The rate of physicians' videos was notably lower in other studies (6-26%)[4,5,7]. We found that the DISCERN score, which measures both the quality and reliability and the GQS score, which measures the quality of the videos, were significantly higher for videos uploaded by physicians than for those uploaded by non-physicians. However, the number of views, daily viewing rate, number of likes, and VPI score were significantly higher for the non-physicians' videos. Borba et al.[4] reported very similar results that non-physicians' videos on YouTube about acne and acne treatment were less accurately assessed with another tool "Accuracy

in Digital Health Instrument," showing lower quality, as assessed by GQS, but a greater number of views. Zheng et al.[8] documented that acne videos on another social media platform TikTok had low content quality, as assessed by the DISCERN scoring system. The results reported by Xiang et al.[7] suggested that the majority of videos on isotretinoin treatment on YouTube are of fair or low quality. The lower quality of content on social media videos prepared by non-physicians was an expected result. What is more remarkable and worrying is that, although the number of videos uploaded by the two groups was the same and the physicians' videos had higher quality, the non-physicians' videos had significantly higher viewing rates and popularity. A possible explanation for this result may be that the physicians' videos mainly contained theoretical information, which may be less attractive to people seeking information about acne treatment. Although speculative, the patients probably preferred to watch and learn the personal treatment experiences and comments of others with a similar problem. Another possible explanation for the high viewing rates and popularity of non-physicians' videos is that patients are likely to view newer videos, and the newer videos are frequently uploaded by non-physicians, particularly by people who

**Table 4. Comparison of the video data uploaded by physicians and non-physicians**

| | Physicians, (n=52) | Non-physicians, (n=52) | Total, (n=104) | p-value |
|---|---|---|---|---|
| Views (n), median (range) | 2970 (8-985778) | 31000 (265-1300000) | 9306,50 (8-1300000) | p<0.001 |
| Daily viewing rate, median (range) | 2.69 (0-444.04) | 71.36 (0.98-1327.96) | 23.57 (0-1327.96) | p<0.001 |
| Video age (days), median (range) | 1190 (34-3652) | 367.50 (5-2007) | 673 (5-3652) | p<0.001 |
| Likes (n), median (range) | 21.50 (0-48000) | 327 (7-18000) | 134 (0-48000) | p<0.001 |
| Dislikes (n), median (range) | 1 (0-362) | 14.50 (0-1600) | 5 (0-1600) | p<0.001 |
| Like ratio, mean ± SD | 89.34±20.91 | 95.00±5.67 | 92.18±15.50 | p=0.618 |
| Comments (n), median (range) | 1 (0-1824) | 395 (1-3000) | 83 (0-3000) | p<0.001 |
| Length (seconds), median (range) | 165.50 (59-1139) | 797 (100-1681) | 458.50 (59-1681) | p<0.001 |
| DISCERN, mean ± SD | 53.60±9.79 | 45.71±3.89 | 49.65±8.40 | p<0.001 |
| GQS, mean ± SD | 4.12±0.96 | 3.01±0.37 | 3.57±0.91 | p<0.001 |
| VPI, median (range) | 2.69 (0-427.58) | 70.10 (0.98-1244.96) | 21.62 (0-1244.96) | p<0.001 |

GQS: Global quality score, VPI: Video power index, SD: Standard deviation

**Table 5. Comparison of video data uploaded by dermatologist and non-dermatologist physicians**

| | Dermatologist, (n=30) (58%) | Non-dermatologist, (n=22) (42%) | Total, (n=52) | p-value |
|---|---|---|---|---|
| Views (n), median (range) | 2841 (8-192191) | 3163 (21-985778) | 2970 (8-985778) | p=0.697 |
| Viewing rate (daily), median (range) | 1.90 (0-366.01) | 3.69 (0.01-444.04) | 2.69 (0-444.04) | p=0.553 |
| Video age (days), median (range) | 1135 (34-3652) | 1217.50 (90-2565) | 1190 (34-3652) | p=0.578 |
| Likes (n), median (range) | 18 (0-48000) | 26.50 (1-9400) | 21.50 (0-48000) | p=0.630 |
| Dislikes (n), median (range) | 1.50 (0-113) | 1 (0-362) | 1 (0-362) | p=0.835 |
| Like ratio, mean ± SD | 85.62±25.57 | 94.41±10.57 | 89.34±20.91 | p=0.372 |
| Comments (n), median (range) | 0 (0-1824) | 3.50 (0-1102) | 1 (0-1824) | p=0.146 |
| Length (seconds), median (range) | 176.50 (59-979) | 159 (72-1139) | 165.50 (59-1139) | p=0.630 |
| DISCERN score, mean ± SD | 60.33±6.96 | 44.41±5.52 | 53.60±9.79 | p<0.001 |
| GQS, mean ± SD | 4.77±0.43 | 3.23±0.75 | 4.12±0.96 | p<0.001 |
| VPI score, median (range) | 1.61 (0-361.55) | 3,45 (0.01-427.58) | 2.69 (0-427.58) | p=0.505 |

GQS: Global quality score, VPI: Video power index, SD: Standard deviation

**Table 6. Correlation between the scoring systems and some video parameters**

| | DISCERN | GQS | Likes | Dislikes | Comments |
|---|---|---|---|---|---|
| DISCERN score | - | r=0.742<br>p<0.001 | r=-0.223<br>p=0.023 | r=-0.189<br>p=0.055 | r=-0.337<br>p<0.001 |
| GQS | - | - | r=-0.424<br>p<0.001 | r=-0.416<br>p<0.001 | r=-0.469<br>p<0.001 |
| Viewing rate | r=-0.312<br>p=0.001 | r=-0.433<br>p<0.001 | r=0.927<br>p<0.001 | r=0.830<br>p<0.001 | r=0.877<br>p<0.001 |
| Length | r=-0.275<br>p=0.005 | r=-0.413<br>p<0.001 | r=0.581<br>p<0.001 | r=0.503<br>p<0.001 | r=0.626<br>p<0.001 |

GQS: Global quality score

are called "YouTubers." The result of the present study confirms this fact, as we noted that non-physicians' videos were significantly newer compared to physicians' videos.

An important observation in our study was that oral isotretinoin treatment was the main topic in almost all videos of non-physicians, whereas physicians' videos provided information on all aspects of acne treatment. There may be a couple of reasons for these results. First, oral isotretinoin treatment may be the most wondered topic by patients. Second and more importantly, non-physicians may be unaware of the other acne treatments. Patients watching these videos may have the impression that there is no other effective treatment option for acne. As a result, patients may insist on oral isotretinoin treatment from physicians, although it is not appropriate, or, on the contrary, they may avoid going to the physicians because they do not want to use this treatment.

We compared the video durations between the two groups. The videos uploaded by physicians were found to be significantly shorter. This may be explained by the fact that physicians gave clear and brief theoretical information about acne treatment without adding their personal experiences and comments, whereas the non-physicians share their experiences, and comments, and interpret the treatment.

In addition to comparing the non-physicians' and physicians' videos, we further divided the physicians' videos into 2 subgroups: dermatologists and non-dermatologists. Another novel observation in our study was about the statistically higher reliability and quality of dermatologists' videos when compared with those of non-dermatologists. Based on our observation, we speculated that the higher quality of the videos uploaded by dermatologists depends on the contents that were mainly based on the medical treatment of acne. However, non-dermatologist physicians' videos highly included cosmetic procedures, such as platelet-rich plasma, chemical peelings, and laser treatments. Non-dermatologist physicians probably preferred to discuss these topics as they apply these procedures to patients and do not have comparable comprehensive information about medical treatments for acne to that of dermatologists.

Overall, these results indicate that physicians, particularly dermatologists, should focus on solutions to increase their viewing rates and video popularity such that patients can access high-quality information from social media platforms. As suggested in past research, dermatologists or dermatology societies should consider using social media platforms more intensively and use more intriguing content to provide accurate information about acne and its treatment[5-8,12]. For this purpose, the cooperation of physicians with patients in social media videos, as suggested by Patel al.[21], is a good idea. Another way to achieve this goal may be to share clinical photos of the treatment process in the video while disseminating information about the acne treatment.

### Study Limitations

The present study evaluated only the first 120 videos of YouTube search results on acne treatment. However, it is known that people who use social media to obtain information only examine the first few pages of the search engine results[22,23]. Moreover, we evaluated more videos (n=102) than other comparable studies.

## Conclusion

The present study suggested that Turkish videos on acne treatment available on YouTube and prepared by physicians, especially dermatologists, have higher quality and reliability. However, they are less viewed and less popular than those uploaded by non-physicians. In order to reverse this situation, physicians, especially dermatologists, should be motivated and supported for preparing social media videos more frequently and with more appealing and intriguing content.

### Ethics

**Ethics Committee Approval:** Ethics committee approval was not required as publicly available YouTube videos were evaluated in the study.

**Informed Consent:** It wasn't obtained.

**Peer-review:** Externally peer-reviewed.

### Authorship Contributions

Surgical and Medical Practices: Ö.K., S.S.S., Concept: Ö.K., S.S.S., Design: Ö.K., S.S.S., Data Collection or Processing: Ö.K., S.S.S., Analysis or Interpretation: Ö.K., S.S.S., Literature Search: Ö.K., S.S.S., Writing: Ö.K., S.S.S.

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