

# Analyzing quality of youtube videos about premature ovarian failure in the past decade

## Geçtiğimiz on yılda prematür over yetmezliği ile ilgili youtube videolarının kalitesinin analizi

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### ABSTRACT

**Aim:** To determine the quality of YouTube videos about premature ovarian failure (POF), and variations in quality of professional YouTube videos about POF.

**Materials and Methods:** The selected terms including 'POF', 'premature ovarian insufficiency', 'POF, infertility', 'POF, symptoms', 'POF, diagnosis', and 'POF treatment' were searched on YouTube. Totally, 100 videos each uploaded by professional and non-professional sources were included. Characteristics of videos were noted and quality of YouTube videos were analyzed according to Global Quality Score (GQS) and modified DISCERN scale. The two groups were compared in terms of video characteristics, GQS, and modified DISCERN score. Videos uploaded by professional sources were categorized into two different groups from the first 5 years and the last 5 years, and compared.

**Results:** The mean number of views was 2961 for professional videos and 2003 for non-professional videos ( $p= 0.006$ ), and the mean duration of videos was 10 minutes for professional videos and 6 minutes for non-professional videos ( $p= 0.001$ ). When professional videos in the last 10 years were evaluated, number of views and 'likes' were significantly higher in favor of professional videos between 2014-2018 ( $p= 0.033$  vs.  $p= 0.037$ ). Video duration was significantly shortened for videos between 2019-2023 ( $p= 0.002$ ). Patients as the target audience dominated videos prepared in the last 5 years ( $p= 0.001$ ). Professional videos had significantly higher GQS and modified DISCERN score ( $p= 0.001$  for each parameter). Moreover, GQS and modified DISCERN scores of professional videos increased significantly in the last 5 years ( $p= 0.001$  vs.  $p= 0.023$ ).

**Conclusions:** Professional YouTube videos about POF had significantly higher quality and 'like' numbers, and the quality of professional YouTube videos about POF significantly increased in the last five years. The proportion of professional videos about POF being prepared for patients increased significantly in the last 5 years, but video length of professional videos significantly decreased.

**Keywords:** DISCERN score, GQS, premature ovarian failure, YouTube

### ÖZ

**Amaç:** Prematür ovaryen yetmezlik (POF) ile ilgili YouTube videolarının kalitesini ve POF ile ilgili profesyonel YouTube videolarının kalitesindeki farklılıkları belirlemek.

**Gereç ve Yöntemler:** 'POF', 'premature ovaryen yetmezlik', 'POF, infertilite', 'POF, semptomlar', 'POF, tanı' ve 'POF tedavisi' dahil olmak üzere seçilen terimler YouTube'da arandı. Profesyonel ve profesyonel olmayan kaynaklar tarafından yüklenen toplam 100 video dahil edildi. Videoların özellikleri not edildi ve YouTube videolarının kalitesi Global Kalite Puanı (GQS) ve modifiye DISCERN ölçeğine göre analiz edildi. İki grup video özellikleri, GQS ve modifiye DISCERN skoru açısından karşılaştırıldı. Profesyonel kaynaklar tarafından yüklenen videolar ilk 5 yıl ve son 5 yıl olmak üzere iki farklı gruba ayrılarak karşılaştırıldı.

**Bulgular:** Ortalama görüntülenme sayısı profesyonel videolar için 2961, profesyonel olmayan videolar için 2003 ( $p= 0,006$ ) ve ortalama video süresi profesyonel videolar için 10 dakika, profesyonel olmayan videolar için 6 dakikaydı ( $p= 0,001$ ). Son 10 yıldaki profesyonel videolar değerlendirildiğinde, görüntülenme ve 'beğeni' sayıları 2014-2018 yılları arasında profesyonel videolar lehine anlamlı derecede daha yüksekti ( $p= 0,033$  vs.  $p= 0,037$ ). Video süresi 2019-2023 yılları arasındaki videolar için anlamlı derecede kısaydı ( $p= 0,002$ ). Hedef kitle olarak hastalar son 5 yılda hazırlanan videolarda baskındı ( $p= 0,001$ ). Profesyonel videoların GQS ve modifiye DISCERN puanı anlamlı derecede daha yüksekti (her parametre için  $p= 0.001$ ). Ayrıca, profesyonel videoların GQS ve modifiye DISCERN skorları son 5 yılda önemli ölçüde artmıştı ( $p= 0.001$  vs.  $p= 0.023$ ).

**Sonuçlar:** POF ile ilgili profesyonel YouTube videolarının kalitesi ve 'beğenme' sayıları önemli ölçüde daha yüksektir ve POF ile ilgili profesyonel YouTube videolarının kalitesi son beş yılda önemli ölçüde artmıştır. Hastalar için hazırlanan POF ile ilgili profesyonel videoların oranı son 5 yılda önemli ölçüde artmış ancak profesyonel videoların video uzunluğu önemli ölçüde azalmıştır.

**Anahtar Kelimeler:** DISCERN skoru, GQS, prematür ovaryen yetmezlik, YouTube

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## BACKGROUND

Premature ovarian failure (POF) is one of the most common causes of young female infertility and is characterized by cessation of ovarian functions including hormonal and germinative functions, hypergonadotropic hypogonadism, and amenorrhea in women under 40 years of age (1). Although clinical presentation of the disease and underlying pathology may differ for each case, previous reports demonstrated that the prevalence of POF is more than 1% for women under 40 years (2). Moreover, Jankowska stated that POF was detected at higher rates in regions with low human development indexes (3). Heterogeneity of POF with regards to patient symptoms and lack of awareness about POF may contribute to delayed diagnosis of the disease. In recent years, patients and their relatives increasingly consult internet resources regarding their symptoms, diseases and treatments (4).

YouTube is the most preferred social media platform and more than 3 billion people from more than 120 countries watch YouTube videos. Free and easy access to YouTube videos, and the presence of numerous sources about any topic are the most important factors affecting this preference. Freeman and colleagues found that people pay more attention to visual sources than only audio or only written sources (5). On the other side, YouTube does not have a mechanism to check the accuracy of uploaded videos. Yuksel and Cakmak analyzed the quality of YouTube videos about COVID-19 and pregnancy, and concluded that despite the high view rates, videos included much misleading information (6). In another study, Cetin and colleagues emphasized the low quality and insufficiency of YouTube videos about coronary artery bypass grafting. Moreover, Cetin et al. found that YouTube videos about coronary artery bypass grafting uploaded by professional healthcare providers had significantly better quality (7).

Although quality and reliability of YouTube videos were examined for many different diseases, to our knowledge, no study has focused on the quality of YouTube videos about POF. In the present study, the aim was to determine the quality of YouTube videos about POF, and variations in quality of professional YouTube videos about POF.

## METHODS

The present study was conducted between January 1 and January 15, 2024. The selected terms including 'POF', 'premature ovarian insufficiency', 'POF, infertility', 'POF, symptoms', 'POF, diagnosis', and 'POF treatment' were searched on YouTube, and listed by relevance. While only videos uploaded to YouTube in the last 10 years were examined, 100 videos each uploaded by

professional and non-professional sources were included in the study, and playlists were created for each group. Only videos with a duration of 1 to 15 minutes were included in the study. Videos which were uploaded by doctors and other healthcare providers, and healthcare institutes were accepted as professional videos, and videos shared by patients and patient relatives, and from new agencies were accepted as non-professional videos. Silent videos, videos with languages other than English, repetitive videos, videos with self-promotional content, and videos unrelated to the study were excluded from the study. Two experienced gynecologists evaluated all selected YouTube videos with regards to video characteristics.

YouTube video characteristics including 'view number', 'video duration', 'likes', 'dislikes', and 'comment number' were recorded. In addition, videos were categorized in two groups; professional health care providers or patients. Reliability and quality of YouTube videos were analyzed according to Global Quality Score (GQS) and modified DISCERN scale.

### Global Quality Score (GQS) and Modified DISCERN Score

The GQS, which included five questions, evaluates the reliability and quality of video content. Each question on the scale is scored between 1 point and 5 points. A score of 5 shows the highest quality and reliability of visual content, and score of 1 indicates lowest quality and reliability (8). The modified DISCERN scale is a shortened 5-question version of the DISCERN questionnaire, and use of modified DISCERN scale in assessing visual contents was externally validated. Each inquiry on the modified DISCERN scale answered with 'no' is given zero points, and 'yes' is given one point. Five points show the highest quality and reliability of visual content (9).

In order to analyze the quality of YouTube videos about POF in the last ten years, YouTube videos were classified into two separate groups with 1:1 ratio, as professional videos and non-professional videos. The two groups were compared in terms of video characteristics, GQS, and modified DISCERN score. Moreover, to clarify the evolution of professional YouTube videos about POF, videos uploaded by professional sources were categorized into two different groups from the first 5 years and the last 5 years, and compared in terms of the aforementioned properties.

### Statistical analysis

Statistical analysis was done with Statistical Package for the Social Sciences version 27 (SPSS IBM Corp., Armonk, NY, USA). The normality of variable distribution was determined with the Shapiro-Wilk test. Normally distributed continuous data were compared with the independent student's t test, and data without

normal distribution were compared with the Mann Whitney U test. Categorical variables were compared using the  $\chi^2$  test. Data were analyzed at 95% confidence level and a p value less than 0.05 was accepted statistically significant.

## RESULTS

According to the study design, 200 videos comprising 100 professional videos and 100 non-professional videos were included into the study. A total 12 videos with different languages other than English, 6 reposted videos, 4 silent videos, and 19 videos that included advertisements were excluded from the study.

The video characteristics including 'likes', 'dislikes', and 'comment' numbers were similar between the groups ( $p= 0.395$ ,  $p= 0.291$ , and  $p= 0.286$ , respectively). The mean number of views was 2961

for professional videos and 2003 for non-professional videos ( $p= 0.006$ ), and the mean duration of videos was 10 minutes for professional videos and 6 minutes for non-professional videos ( $p= 0.001$ ). In addition, target audience of patients was significantly higher for non-professional videos (83.0% vs. 96.0%,  $p= 0.001$ ) (Table 1).

When professional videos in the last 10 years were evaluated, 34 of them were uploaded between 2014-2018, and 66 were uploaded between 2019-2023. The number of 'dislikes', and 'comments' were not significantly different between the groups ( $p= 0.884$  and  $p= 0.107$ ), but the number of views and 'likes' were significantly higher in favor of professional videos between 2014-2018 ( $p= 0.033$  vs.  $p= 0.037$ ). Video duration was significantly shortened for videos between 2019-2023 (11 minutes and 8.5 minutes,  $p= 0.002$ ). Patients as the target audience dominated videos prepared in the last 5 years ( $p= 0.001$ ) (Table 2).

**Table 1.** Comparison of features of professional videos and non-professional videos

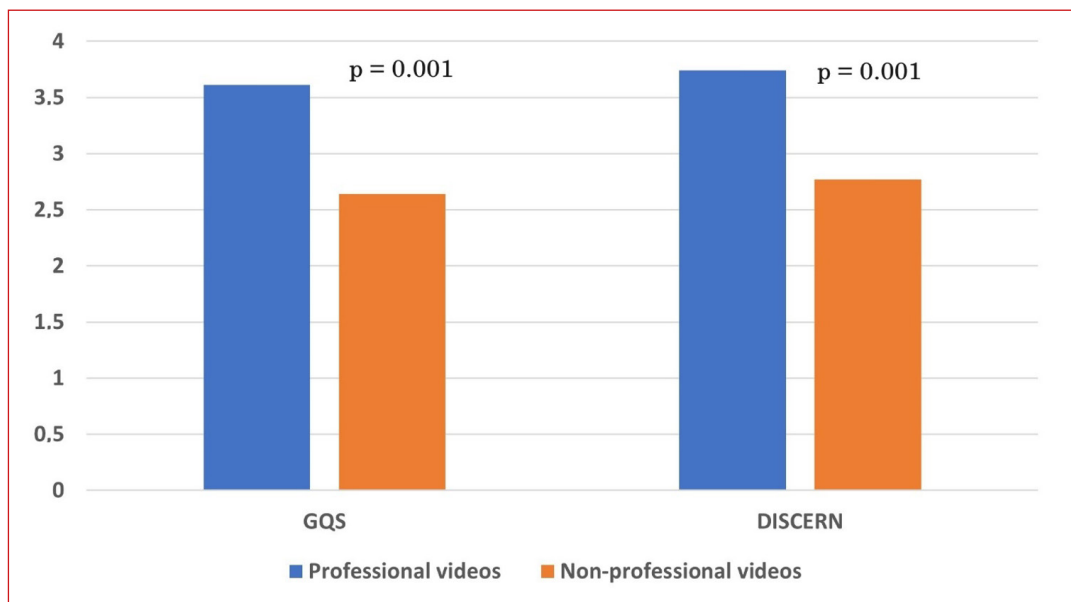
	Professional videos	Non-professional videos	p value
<b>Number of videos</b>	100	100	
<b>Video parameters*</b>			
Number of views	2961 (1196 - 4345)	2003 (659 - 3207)	<b>0.006</b>
Video length (min)	10 (5 - 14)	6 (2 - 10)	<b>0.001</b>
Likes	89 (42 - 139)	88 (58 - 129)	0.395
Dislikes	10 (4 - 15)	8 (3 - 14)	0.291
Comments	24 (11 - 36)	23 (9 - 32)	0.286
<b>Target audience, n (%)</b>			<b>0.001</b>
Doctors or health workers	17 (17.0%)	4 (4.0%)	
Patients	83 (83.0%)	96 (96.0%)	

\*: median (interquartile range)

**Table 2.** Comparison of professional videos by years

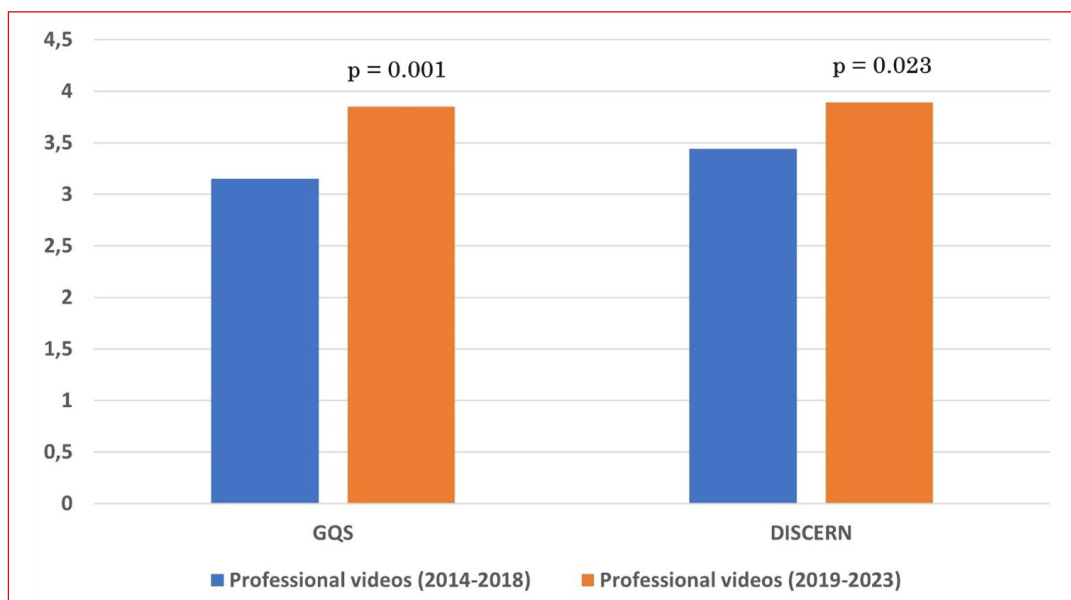
	Professional videos (2014-2018)	Professional videos (2019-2023)	p value
<b>Number of videos</b>	34	66	
<b>Video parameters*</b>			
Number of views	3487 (2464 - 4548)	2276 (766 - 4177)	0.033
Video length (min)	11 (9 - 21)	8.5 (3 - 12)	0.002
Likes	105 (66 - 130)	79 (46 - 123)	0.037
Dislikes	9 (6 - 16)	10 (4 - 14)	0.884
Comments	29 (14 - 39)	22 (8 - 35)	0.107
<b>Target audience, n (%)</b>			
Doctors or health workers	10 (29.4%)	7 (10.6%)	0.001
Patients	24 (70.6%)	59 (89.4%)	

\*: median (interquartile range)



**Figure 1.** Comparison of DISCERN and GQS scores by category

GQS: Global quality score



**Figure 2.** Comparison of DISCERN and GQS scores for professional videos by year

GQS: Global quality score

Comparison of GQS and modified DISCERN scores between professional and non-professional videos revealed that professional videos had significantly higher GQS and modified DISCERN score ( $p=0.001$  for each parameter) (Figure 1). Moreover, GQS and modified DISCERN scores of professional videos increased significantly in the last 5 years ( $p=0.001$  vs.  $p=0.023$ ) (Figure 2).

## DISCUSSION

Internet-based sources have become an important tools for the public to get information about diseases. Previous reports about YouTube revealed that more than 90% of internet users watched videos that uploaded to YouTube (10). Despite high view rates for

videos, quality and accuracy of YouTube videos is debatable. Because of these concerns, our study examined the features, adequacy and quality of YouTube videos about POF. Outcomes of the present study demonstrated that view number was significantly higher and video durations were significantly longer for professional videos. Also, according to GQS and modified DISCERN questionnaire, quality and reliability of videos were significantly better for professional videos. While the rate of professional videos being prepared for patients increased significantly in the last 5 years, the duration of the videos has significantly decreased and their quality has significantly increased.

To achieve objective analysis for video quality and reliability, GQS and modified DISCERN score were developed and externally

validated. Cakir and Caglar evaluated YouTube videos about pediatric urological disease with using the modified DISCERN questionnaire and GQS, and the authors found that YouTube videos about pediatric urological diseases had low quality. However, Cakir and Caglar also found that videos shared by professional sources had significantly better modified DISCERN score and GQS (11). Furthermore, when Aglamis et al. evaluated YouTube videos on vulvodynia according to their origins, they showed that videos uploaded by professional sources ('universities/professional organizations/nonprofit physicians/physicians') had higher modified DISCERN scores and GQs. (12). In another research, Ferhatoglu and colleagues emphasized that professional YouTube videos about obesity surgery had significantly higher DISCERN score than non-professional YouTube videos about obesity surgery (13). Similarly, GQS was significantly higher for professional YouTube videos for orthodontic surgery in a study by Kilinc and Sayar (14). In accordance with the literature, our findings showed that professional YouTube videos about POF had significantly higher quality according to GQS and modified DISCERN scores. However, the aforementioned studies did not analyze the evolution of professional video quality over time. For the first time, the present study found that the quality of YouTube videos uploaded by professional sources significantly improved in the last 5 years.

Video duration and audience target may play roles in the number of views videos receive. Cetin and colleagues analyzed the features of YouTube videos about coronary artery bypass grafting, and did not find significant differences between professional and non-professional videos with regards to video duration. The authors stated that professional videos had higher view numbers (7). However, Andan and Aydin found that the quality of YouTube videos on ovarian cysts was generally considered to be of poor quality. They emphasized that poor quality videos were uploaded by non-physicians and attracted more attention than videos uploaded by doctors. (15). In another study, Ergul investigated the characteristics of YouTube Videos about surgical management of uterine leiomyomas. The author did not find significant differences between professional and non-professional videos in terms of video length and number of views (16). Results of the present study found that video length was significantly longer for professional videos, but duration of professional YouTube videos about POF significantly reduced in the last five years. Moreover, professional videos were more attractive for YouTube users according to view number.

The target audience for YouTube videos is critical for interaction rate. Baytaroglu and Sevgili analyzed YouTube videos about peripheral artery diseases, and did not find significant differences

in term of target audience (17). Similarly, Yuksel and Cakmak showed similarity for target audience of YouTube videos about pregnancy and COVID-19 in their study (6). In contrast, our findings indicate that professional videos were prepared significantly more for doctors and healthcare professionals. However, in the last 5 years, the target audience for professional videos has changed significantly in favor of patients.

Although this is the first study investigating YouTube video quality about POF, the present study has some limitations. The study was performed only in English, as it is thought that analyzing multiple languages could be difficult. In addition, there may not be enough video to perform statistical analysis in less common languages. Moreover, English is the most frequently used language in YouTube and the scientific area. Also, this study encompassed a certain time period, but videos are continuously being uploaded to YouTube. Finally, analysis was based on searching for some keywords about POF, but people may use different terms when searching for YouTube videos about POF.

## CONCLUSIONS

The findings of the present study showed that professional YouTube videos about POF had significantly higher quality and 'like' numbers, and the quality of professional YouTube videos about POF significantly increased in the last five years. The proportion of professional videos about POF being prepared for patients increased significantly in the last 5 years, but video length of professional videos significantly decreased.

### Conflict of Interest

The authors declare no conflicts of interest.

### Funding

None

### Human Ethics and Consent to Participate Declarations

Not applicable'

### Availability of Data and Materials

All data analyzed during this study are included in this published article and its supplementary information file. The datasets analyzed during the current study are available from the corresponding author on reasonable request.

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