

Does YouTube videos have reliable information on Penile Doppler Ultrasonography?

YouTube videoları Penil Doppler Ultrasonografi hakkında güvenilir bilgiye sahip mi?

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Özet

Amaç: Amacımız, erektil disfonksiyon (ED) tanısında kullanılan penil doppler ultrasonografi (PDU) ile ilgili YouTube videolarının doğruluğunu ve güvenilirliğini değerlendirmektir.

Gereç ve Yöntemler: "Penile Doppler Ultrasonografi" ifadesi kullanılarak YouTube üzerindeki videolar araştırıldı. PDU ile alakalı en popüler 48 video çalışmaya dahil edildi. Videoların kim tarafından yayımlandığı (doktor, hasta veya YouTuber), hedef kitle (doktorlara veya hastalara), video süresi, yüklenme tarihi, günlük izlenme sayısı, toplam izlenme sayısı, beğeni ve yorum sayısı kaydedildi. Çalışmaya dahil edilen bu videoların içeriğinin güvenilirliği ve kalitesi ise JAMA, DISCERN ve GQS skorları kullanılarak değerlendirildi.

Bulgular: Çalışmaya dahil edilen videoların tümünün doktorlar tarafından yüklendiği görüldü. Videoların 27 (%56) sınıfın doktorlar için, kalan videoların ise doktor dışı izleyiciler için hazırlandığı saptandı. Tüm videoların PDU hakkında genel bilgi içerdiği, 32 (%67) videoda teorik bilgi, 23 (%48) videoda ise PDU uygulaması ile ilgili bilgi verildiği görüldü. Hedef kitleye göre videolar incelendiğinde doktorlar için hazırlanan videoların süresinin daha uzun olduğu ($p=,001$) ancak yorum ve izlenme sayısının daha az olduğu gösterildi (sırasıyla $p=,012$ ve $p=,046$). Ayrıca video içerik kalitesi ve güvenilirliği incelendiğinde ortalama JAMA skoru 2,5, GQS skoru 3,44 ve DISCERN skoru ise 52,2 olarak hesaplanmış olup doktorlar için hazırlanan videolarda kalite ve güvenilirliğin istatistiksel olarak daha yüksek olduğu saptandı ($p<0,05$).

Sonuç: Sağlık hizmetleriyle ilgili bir bilgi kaynağı olarak YouTube, doktorlar ve diğer insanlar

Abstract

Objective: Our objective was to evaluate the accuracy and reliability of YouTube videos about penile doppler ultrasonography (PDU), a diagnostic tool for erectile dysfunction.

Material and Methods: Videos on YouTube were searched using the term "Penile Doppler Ultrasonography". The most related 48 videos were included in to study. For each video, uploader type (physician, patient, or YouTuber), target group (physicians or non-physicians), video duration, upload date, daily view count, the total number of views, and the number of likes and comments were recorded. The reliability and quality of the content of these videos included in the study were evaluated using JAMA, DISCERN, and GQS scores.

Results: The physicians uploaded all of the videos used in the study. It was shown that 27 (56%) of the videos were prepared for physicians, and the remaining videos were prepared for non-physicians. All the videos had general information about the PDU, 32 (67%) videos gave theoretical information, and 23 (48%) videos gave information about the application of the PDU. When the videos were examined according to the target group, it was shown that the videos prepared for physicians had a longer duration ($p=,001$) but had a lower number of comments and views ($p=,012$ and $p=,046$, respectively). In addition, when the video content quality and reliability were examined, the average JAMA score was 2.5, the GQS score was 3.44, and the DISCERN score was 52.2. It was found that the quality and reliability scores were statistically higher in the videos prepared for physicians ($p<0.05$).

Conclusion: As a source of knowledge about health care, YouTube is frequently used by doc-

All research was performed in accordance with relevant guidelines/regulations.

(hastalar dahil) tarafından sıklıkla kullanılmaktadır. Yüksek kaliteli bilgi hem doktorlar hem de hastalar için çok önemlidir. Bu çalışmada doktorlar tarafından yüklenen videoların daha güvenilir içeriğe sahip olduğunu ancak bu yüksek kaliteli videoların daha uzun süreli ve daha düşük izlenme sayısına sahip olduğunu gösterdik. PDU ile ilgili videoların kalitesinin yükselmesi hekimlerin yüksek kaliteli videolar üretmesi ve YouTube algoritmasının ise hastaları bu yüksek kaliteli videolara yönlendirmesi ile olabileceğine inanmaktayız.

Anahtar Kelimeler: penil, doppler, ultrasonografi, youtube

tors and other people (including patients). High-quality information is very important for both physicians and individual patients. In this study, we showed that videos uploaded by physicians had reliable content, but these high-quality videos had longer duration and lower view count. In order to improve the quality of PDU-related videos, physicians should upload high-quality videos, and YouTube algorithms should direct patients to high-quality videos.

Keywords: penile, doppler, ultrasonography, YouTube

INTRODUCTION

Social media is becoming increasingly essential in the field of health care. Many people turn to these online tools for information about their medical issues because there is an increasing amount of easily accessible medical information on social media (1). Although there is a great deal of public interest in andrological issues, the information now accessible in this area has not been fully analyzed (2). According to Sansone et al.'s research on the subject, therapy alternatives for sexual dysfunction are regularly discussed on Twitter (3).

Erectile dysfunction (ED) is the chronic inability to obtain and sustain an erection strong enough to allow for acceptable sexual performance. The pathophysiology of ED may be vasculogenic, neurogenic, anatomical, hormonal, drug-induced and/or psychogenic. ED can have a vasculogenic, neurogenic, anatomical, hormonal, drug-induced, or psychogenic etiology. Most ED patients' medical and sexual histories can be used to make a diagnosis; however, certain patients might require particular diagnostic tests (4). A diagnostic procedure known as penile doppler ultrasound (PDU) is used to examine the haemodynamic pathophysiology of ED. Consequently, it is typically used in clinical practice in situations where there is a chance that ED has a vasculogenic cause. Doppler Ultrasonography is important in the diagnosis of hemodynamic parameters such as PSV, end-diastolic velocity (EDV), and the resistance index (RI) as diagnostic criteria (5).

Only a few studies on the accuracy of the information in social media and YouTube videos have been conducted on ED and its diagnosis with PDU. Our study aims to rate the accuracy and reliability of PDU-related information in YouTube videos.

MATERIAL AND METHODS

Videos on YouTube were searched using the term "Penile Doppler Ultrasonography". The study excluded videos that were not in English and videos that kept repeating. After the exclusion, the most related 48 videos were included to study for statistical analysis. Since neither humans nor animals were included in our study and the recordings were available to the general public, no ethics committee permission was necessary.

While determining the target groups of the videos, YouTube videos were divided into two groups. Scientific meeting videos, physician training, information videos, and universities' professional educational videos were included in the physician group. Informative videos for patients and others were included in the non-physician group.

For each video, uploader type (physician, patient, or YouTuber), target group (physicians or non-physicians), duration length, view count, like, and comment counts were recorded. The videos' daily views were counted (calculated as follows: daily views = total views x (reviewing date x uploading date)) and recorded. Using JAMA, DISCERN, and GQS scores, the reliability, and quality of the content of these videos included in the study were assessed.

One of the quality analysis scales is the Global Quality Scale (GQS) used for all kinds of videos. A 5-point scale (1–5) is used to determine the video's usefulness and quality for GQS. According to this scale, 1 or 2 points indicate low quality, 3 point indicates medium, and 4 or 5 points indicate high-quality videos (6).

We also utilized the Quality Criteria for Consumer Health Information (DISCERN) scale to assess data accuracy on transdermal TT. The DISCERN scale, which comprises 15 questions, is used to assess the quality of

health-related information. Each question is scored 1 to 5 points. Question numbers 1-8 are used to evaluate reliability, question numbers 9-15 are used to evaluate treatment choice quality, and question 16 is used to evaluate the general quality of the video information. According to the DISCERN scores, videos are grouped as <28 points as very poor, 28–38 points as poor, 39–50 points as average, 51–62 points: as good, and 63–75 points: as excellent quality videos (7).

JAMA (Journal of the American Medical Association) benchmark criteria are another scoring system used to evaluate the quality of internet information. Four criteria include authorship (authors with their affiliations and relevant credentials), attribution (all copyright information noted, references for all content are listed clearly), disclosure (video ownership, conflicts of interest, funding, and advertising are disclosed), and currency (posted and updated dates as indicated) are used. Each criterion has 1 point, and the maximum score is 4 (8).

This study’s data analysis was performed using the SPSS 22.0 (Statistical-Package-for-Social-Sciences, IBM Inc, USA) application. Results were recorded as a minimum - maximum, mean - median, standard deviation - IQR values for continuous variables. Categorical variables were recorded as percentages and numbers.

The Kolmogorov-Smirnov (KS) test was used to analyze whether the variables were normally distributed or not. Duration (p=,001), daily view ratio(p=,008), number of views(p=,001), number of comments(p=,001), and number of likes (p=,001) were found not normally distributed using the KS test. Mann-Whitney U test was used for not normally distributed these variables. JAMA, GQS, and DISCERN scores (Total, reliability, treatment choice, and quality) were normally distributed using the KS test. For these variables, the independent samples T-test was used for analysis. The Pearson correlation test was performed in order to perform correlation analysis. A value of p <0.05 was considered statistically significant.

RESULTS

Forty-eight videos were used for statistical analysis. Table 1 shows the various characteristics of the videos. The physicians uploaded all of the videos used in the study. According to the target group, it was shown that 27 (56%) of the videos were prepared for physicians, and the remaining videos were prepared for non-physicians. The video content review showed that all videos had general information about the PDU, 32 (67%) videos had theoretical information, and 23 (48%) videos had information about the application of the PDU.

Table 1. Characteristics of the YouTube videos

	YouTube Videos	
	n (%)	
	48 (100)	
Target group		
Physicians	27 (56)	
Non-physicians	21 (44)	
Content		
General information	48 (100)	
Theoretical information	32 (67)	
Practical information	23 (48)	
	Median (IQR)	Min - Max
Duration (min.)	8 (18)	0,47 – 64,07
Daily view ratio	15,4 (35,8)	1,1 - 156
Number of views	7 570 (28 758)	339 – 120 215
Number of likes	106 (167)	6 – 1932
Number of comments	13 (51)	0 - 382

min.: minutes

When the videos were examined according to the target group, it was shown that the videos prepared for physicians had a longer duration ($p=.001$), but had a lower number of views and comments ($p=.046$ and $p=.012$, respectively). The daily view ratio and the number of likes were not different between groups ($p=.094$ and $p=.399$, respectively) (Table 2).

In addition, when the video content quality and reliability were examined, the average JAMA score, GQS score, and the total DISCERN score were calculated 2.5, 3.44, and 52.2, respectively. It was found that all types of quality and reliability scores were statistically higher in the videos prepared for the physicians' group than in the non-physician group ($p<0.05$) (Table 3).

Table 2. Video Characteristics by target group

	Physicians n (%)	Non-physicians n (%)	
	27 (56)	21 (44)	
	Median (IQR)	Median (IQR)	p value
Duration (min.)	12 (51)	6 (6)	0.001*
Daily view ratio	15.4 (14.3)	23.1 (81)	0.094*
Number of views	5 862 (28 800)	10 083 (30 611)	0.046*
Number of comments	10 (18)	58 (262)	0.012*
Number of likes	67 (189)	145 (529)	0.399*

min.: minutes

*: Mann-Withney U

Table 3. JAMA, GQS and DISCERN scores by target group

	Total n (%)	Physicians n (%)	Non-physicians n (%)	
	48 (100)	27 (56)	21 (44)	
	Mean \pm Std	Mean \pm Std	Mean \pm Std	p value
JAMA	2.5 \pm 0.8	3.13 \pm 0.8	1.88 \pm 0.3	0.002*
GQS	3.4 \pm 1.1	4.25 \pm 1	2.63 \pm 0.5	0.003*
DISCERN				
Reliability	26.3 \pm 7.7	32.6 \pm 4.3	20.6 \pm 5	0.001*
Treatment choice	22.5 \pm 6.3	26.8 \pm 5.7	18.1 \pm 2.9	0.002*
Quality	3.1 \pm 0.7	3.63 \pm 0.5	2.63 \pm 0.5	0.003*
Total	52.2 \pm 14.4	63.1 \pm 10.4	41.3 \pm 8.1	0.001*

JAMA: Journal of the American Medical Association Criterias Score

GQS: Global Quality Scale Score,

DISCERN: Quality Criteria for Consumer Health Information Score,

*: Independent samples T test

DISCUSSION

People are accessing social media, especially YouTube, more frequently to find information about their health. Men's health issues are especially important because some people may be reluctant to discuss them with their healthcare provider. Before visiting a urologist, males with sexual symptoms can be more likely to use the internet (9). Although ED is a frequent men's health issue, most studies on YouTube and men's health have focused on prostate cancer. There was little research examining the accuracy or dependability of videos connected to ED, and there was little investigation into the accuracy of ED diagnoses like PDU. This study is the first to show whether there is a piece of reliable information on YouTube about PDU. We aimed to examine the quality and reliability of PDU-related videos on YouTube.

Anyone easily uploads every kind of health-related content on YouTube uncontrolled, cost-free, and un-audited manner. According to research by Warren et al., most YouTube content directly connected to men's health is unreliable, and reliable videos are not seen more frequently than unreliable ones (10). Similarly, in this study, it was seen that videos with low-quality content had higher viewing rates.

In general, previous studies have shown that who produced the videos affects video quality and reliability. According to Ovenden et al., videos submitted by doctors received considerably better DISCERN and JAMA scores than videos uploaded by non-physicians (11). In this study, all videos included are uploaded by physicians because PDU is a piece of technical information, not general information. For this reason, we could not examine the effect of who uploaded it on video quality.

Instead of the video uploader type, the videos were divided into 2 groups in this study according to the target group, physicians and non-physicians. It has been shown that the videos prepared for physicians have higher GQS, DISCERN, and JAMA scores, and the quality of the video content is higher than the non-physicians group. It was determined that the content quality of the videos produced for physicians was higher since they were videos about scientific meetings, training meetings, or how the PDU procedure was per-

formed. Similarly, videos prepared for the non-physician group were found to have lower content quality since they had more general information and did not contain sufficient scientific information.

There are numerous videos that include misinformation and get many views. More views do not necessarily indicate that the content is more well-liked and accurate, as Salman et al. Similar to other studies, the number of views was shown to be inversely proportional to the DISCERN score. Many articles showed that a worse DISCERN score was actually associated with more views (12). Similarly, in this study, we found that although the GQS, JAMA, and DISCERN scores of the videos prepared for physicians were higher, the total number of views was lower.

Ozsoy-Unubol et al. showed that more video duration is associated with more high-quality videos. We also found that the duration minutes of the videos were positively correlated with the DISCERN, GQS, and JAMA scores similarly ($p < 0.001$). The videos prepared for physicians were much longer duration than other videos. Since the videos prepared for physicians have to content such as scientific meetings and PDU practice training, they are thought to have longer video durations because they may contain technical and practical information apart from general information (13).

Some ways to propose solutions to this problem are considered in the literature. First, rules governing the use of social media for patient education must be established by the European Association of Urology, American Urological Association, and British Journal of Urology International (14).

Second, Warren et al. recommended that physicians and medical organizations keep posting high-quality videos while working to improve their views by adhering to recommendations included in the YouTube Creator Academies (15). Third, the YouTube algorithm should direct patients to high-quality videos, especially on health-related topics (16).

CONCLUSION

Patients and others (such as doctors and students) use YouTube as a resource for health information, yet the majority of the videos that are seen are unreliable. The importance of PDU's accurate information neces-

sitates uploading high-definition videos that are the ideal length. High-quality information is very important for both public health and also physicians. This study showed that videos prepared for physicians are reliable content. To raise the standard of health-related videos, it is important that physicians should upload high-quality, reliable videos, and YouTube algorithms should direct the patients to high-quality videos.

Conflict of Interest

The authors declare to have no conflicts of interest.

Financial Disclosure

The authors declared that this study has received no financial support.

Ethical Approval

The design of the study does not require ethical committee approval. The study protocol conformed to the ethical guidelines of the Helsinki Declaration.

Author Contributions

Conception and design; DS, BKS, ZS, ETK, Data acquisition; DS, BKS, Data analysis and interpretation; DS, BKS, ZS, Drafting the manuscript; DS, BKS, ZS, ETK, Critical revision of the manuscript for scientific and factual content; DS, BKS, ZS, ETK, Statistical analysis; ZS, ETK, Supervision; DS, ZS, ETK.

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