The prevalence of delayed ejaculation in sexually active men is reportedly 3%. Due to its rarity and uncertain definitions, people seek information about delayed ejaculation on the internet. YouTube is one of the largest video platforms preferred globally for gathering medical information. We aimed to determine the quality of YouTube videos on delayed ejaculation. YouTube search was performed with the keywords “delayed and retarded ejaculation”, and we recorded the first 400 videos according to relevance. The search results were saved in the playlist, and the first 400 videos were evaluated by two independent urologists. DISCERN and Global Quality Scale (GQS) were used to assess the reliability and quality of videos. Repeated (n = 17), off-topic (n = 279), non-English videos (n = 37), and videos with no audio (n = 16) were excluded from the study. The remaining 51 videos were evaluated. DISCERN and GQS scores were statistically significantly associated with video durations (r = 0.329, P = 0.018 and r = 0.349, P = 0.012; respectively). A statistically significant association was also observed between DISCERN and GQS scores with video power index values (r = 0.466, P = 0.001 and r = 0.422, P = 0.002; respectively). 62.7% (n = 32) videos were low quality, 23.5% (n = 12) were intermediate quality, and 13.7% (n = 7) were high quality according to the GQS. Most of the YouTube content on delayed ejaculation was of poor quality. Physicians should be aware of this situation, and take the lead in bringing high-quality videos about delayed ejaculation to the community.
On October 10, 2021, a video search was performed with the term “delayed and retarded ejaculation” in the internet address https://www.youtube.com/. The video search was performed by two independent urologists (TT and MY) using two separate YouTube accounts. In terms of ranking the same video list by two independent urologists and so that the previous search history does not affect the new search, we deleted the search history, when the YouTube search was performed from different computers. In addition, we have also canceled the memberships of previously subscribed medical YouTube channels so that they do not affect the search process. Since we aimed to evaluate the videos on delayed and retarded ejaculation, it was essential for the results of the study to find the videos most related to delayed and retarded ejaculation. Therefore, it was listed the first 400 videos by relevance (YouTube’s default option). The search results were saved in the playlist, and the first 400 videos were evaluated by two independent urologists (TT and MY). Repeated, off-topic, non-English videos and videos with no audio were excluded from the study. Figure 1 shows the flowchart of the video selection process.

**YouTube search**

On October 10, 2021, a video search was performed with the term “delayed and retarded ejaculation” in the internet address https://www.youtube.com/. The video search was performed by two independent urologists (TT and MY) using two separate YouTube accounts. In terms of ranking the same video list by two independent urologists and so that the previous search history does not affect the new search, we deleted the search history, when the YouTube search was performed from different computers. In addition, we have also canceled the memberships of previously subscribed medical YouTube channels so that they do not affect the search process. Since we aimed to evaluate the videos on delayed and retarded ejaculation, it was essential for the results of the study to find the videos most related to delayed and retarded ejaculation. Therefore, it was listed the first 400 videos by relevance (YouTube’s default option). The search results were saved in the playlist, and the first 400 videos were evaluated by two independent urologists (TT and MY). Repeated, off-topic, non-English videos and videos with no audio were excluded from the study. Figure 1 shows the flowchart of the video selection process.

**Video features and quality analysis**

Video length, number of comments, comments rate (comments per day), number of ratings (views/day), the total number of “likes” and “dislikes”, time since the upload date and the video source were recorded. The videos containing animation was also recorded. Video sources were categorized as physician, health-related websites, independent user, non-physician health personnel, and sex therapist. The video power index (VPI) to evaluate the popularity of videos was calculated using the formula as follow: [(total likes/total likes + total dislikes) × 100]. Global Quality Scale (GQS) (Table 1) and modified DISCERN tool (Table 2) were used for quality and reliability analyses.

GQS is a five-point scale with the lowest 1 point and the highest 5 points. It is a scale for rating of internet videos that measures the videos’...
quality, ease of use and flow. A video score of 1 or 2 points is considered low quality, 3 points medium quality, and 4 or 5 points high quality [23].

Modified DISCERN tool is a five-point evaluation tool [24, 25]. We relied on it to assess the reliability of YouTube videos. There are 5 yes and no questions in this scale, and each yes answer counts as 1 point.

Characteristics and quality assessments of videos and quality scale correlations according to source and content of the video were reviewed. Inter-observer agreement between the DISCERN and GQS scores was also evaluated.

The procedures were conducted in accordance with the Helsinki Declarations of 2004.

**Table 2.** Global quality scale (GQS).

| Source of upload | Low quality, n (%) | Intermediate quality, n (%) | High quality, n (%) | Total (n) |
|------------------|--------------------|-----------------------------|---------------------|-----------|
| Independent user | 15 (78.9)          | 3 (15.8)                    | 1 (5.3)             | 19        |
| Physician        | 7 (50)             | 3 (21.4)                    | 4 (28.6)            | 14        |
| Non-physician health personnel | 4 (57.1) | 2 (28.6) | 1 (14.3) | 7 |
| Sex Therapist    | 3 (50)             | 3 (50)                      | 0                   | 6         |
| Health-related websites | 3 (60) | 1 (20) | 1 (20) | 5 |
| Total            | 32 (62.7)          | 12 (23.5)                   | 7 (13.7)            | 51        |

**Table 3.** Characteristics and quality assessments of YouTube videos.

| Video content             | Low quality, n (%) | Intermediate quality, n (%) | High quality, n (%) | Total (n) |
|---------------------------|--------------------|-----------------------------|---------------------|-----------|
| Symptoms                  | 12 (63.2)          | 4 (21.1)                    | 3 (15.8)            | 19        |
| Symptoms, treatment and suggestions | 4 (26.7) | 7 (46.7) | 4 (26.7) | 15 |
| Treatment and suggestions | 14 (100)          | 0                           | 0                   | 14        |
| Personal experience       | 3 (100)            | 0                           | 0                   | 2         |
| Total                     | 32 (62.7)          | 12 (23.5)                   | 7 (13.7)            | 51        |

**Table 4.** Characteristics of the study.

| Video features | Median (min-max) | Median (min-max) | Median (min-max) | Median (min-max) |
|----------------|------------------|------------------|------------------|------------------|
| GQS            | 2 (1–2)          | 3 (3–3)          | 4 (4–5)          | 2 (1–5)          |
| DISCERN        | 1 (1–3)          | 2 (1–4)          | 3 (1–4)          | 1 (1–4)          |
| Number of likes| 19 (0–3100)      | 12 (0–3300)      | 141 (1–4000)     | 13 (0–4000)      |
| Number of dislikes | 1.5 (0–167) | 1 (0–237)       | 8 (0–63)         | 1 (0–237)        |
| Number of comments| 2 (0–437)    | 3 (0–751)        | 44 (0–339)       | 3 (0–751)        |
| Number of comments per day | 0.001 (0–0.34) | 0.007 (0–0.97) | 0.02 (0–0.69) | 0.001 (0–0.97) |
| Number of views   | 9368.5 (72–333,255) | 2120 (116–232,187) | 27,716 (195–191,127) | 9361 (72–333,255) |
| Number of view per day | 4.58 (0–259.74) | 3.9 (0.22–302.77) | 14.91 (0.39–394) | 4.48 (0–394) |
| Duration (seconds) | 193 (49–2403)   | 458.5 (100–3747)  | 389 (156–838)    | 272 (49–3747)    |
| Time since upload (days) | 1129.5 (48–3860) | 853 (99–3027) | 1616 (346–3064) | 1026 (48–3860) |
| VPI             | 87.7 (0–100)     | 94.1 (0–100)     | 99 (84.3–100)    | 92.8 (0–100)     |

**RESULTS**

A total of 349 videos were excluded from the study. Repeated (n = 17), off-topic (n = 279), non-English videos (n = 37) and videos with no audio (n = 16) were excluded from the study. The remaining 51 videos were evaluated. Table 3 summarizes the videos’ features. Video contents were mostly about symptoms (37.2%). Most of the videos (37.2%) were uploaded by
independent users. The median DISCERN and GQS scores were 1 and 2, respectively. 23.5% of the videos contained animation, 76.5% of the videos contained real images. According to the GQS, 62.7% of the videos were low quality, 23.5% were intermediate and 13.7% were high quality. DISCERN and GQS scores by the two urologists were highly consistent with each other (0.86 and 0.85, respectively). DISCERN and GQS scores were statistically significantly associated with video durations ($r = 0.329, P = 0.018$ and $r = 0.349, P = 0.012$; respectively). A statistically significant association was also observed between and DISCERN and GQS scores with VPI values ($r = 0.466, P = 0.001$ and $r = 0.422, P = 0.002$; respectively). No significant relationship between DISCERN and GQS scales and other video features was detected (Table 4).

Although the DISCERN and GQS scores of animated videos were higher than those containing real images, there was no statistically significant difference between whether or not the videos contained animation.

DISCUSSION
People are increasingly using the internet to learn about their illnesses and often choose YouTube as it contains visual material to get information about illnesses thanks its low cost and easy 24 h access. Since the knowledge on DE is limited, people use the internet, especially Youtube, to get information on DE and its treatment as well as a myriad of others.

Although YouTube videos are easy and free to access, there is no mechanism by which to check their quality and accuracy. Anyone who is a member of YouTube can upload videos. These uploaded videos may be of poor quality and full of misleading information. On the other hand, 75 percent of internet users worry about whether such internet information is reliable [26, 27]. Many studies in the literature have assessed the quality of YouTube videos presenting information on a wide range of diseases [10, 21, 28]. However, no study to date has evaluated the quality of YouTube videos related to DE. In the present study, we evaluated DE videos on Youtube and our study showed that DE videos currently on YouTube are of low quality.

The DISCERN and GQS tools have been applied in the studies evaluating video reliability and quality [29, 30]. In the present study, according to the GQS, 13.7% of the videos were of high quality. Similar to our study, Rittberg et al. [22] reported rates of high-quality videos as 19.6% and 18.4%, respectively. However, on the contrary, Singh et al. [24] and Tolu et al. [31] reported that close to 50% of the videos were of high quality. Differences in the numbers of videos evaluated, the researchers’ evaluation of YouTube videos about various conditions and diseases, and the subjectivity of assessing YouTube videos may be reasons for the diverging results in these investigations.

When evaluating video quality in terms of their sources, we noted that the higher quality videos had been uploaded by physicians, while the primary source of low-quality videos was usually independent users (Table 1). Other studies have found that high-quality videos are predominantly uploaded by physicians, academic sources, and universities [32, 33]. Our results show that it is important to consider video sources when using YouTube as a source of health information. Furthermore, it was shown that video content may be inadequate or inconsistent despite having been uploaded by healthcare professionals [34]. Physicians were also an important source of low-quality videos in our study (Table 1). Table 5 shows the quality ratings of YouTube videos according to upload sources.

In the present study, we found that video lengths correlated positively with both the DISCERN and GQS scores. The longer the video is, the more information it can convey and be understood. In line with our study, other researchers have found that high-quality videos last longer than low-quality videos [35]. On the other hand, despite the longer-lasting video content in these studies, there is

| VPI values (r, p) | DISCERN | GQS | Video Power Index, GQS Global quality scale. |
|------------------|---------|-----|--------------------------------------------|
| 0.466, 0.001*    | 0.422, 0.002* | 0.349, 0.002* | 0.402, 0.002* |
| 0.466, 0.001*    | 0.422, 0.002* | 0.349, 0.002* | 0.402, 0.002* |

Table 5. The correlations between quality scales and video features.
The data that support the evidence that users gradually lose interest over time [35]. Videos should therefore provide high-quality information within a reasonable period of time. VPI values correlated positively with GQS and DISCERN scores in our study. This is an indication that the higher a video’s quality is, the more “likes” it attracts. We identified no correlation between DISCERN, GQS, and the number of likes, dislikes, comments or views. These parameters did not prove to be indicators of high-quality videos in our study.

Whether the video is animated or not seems immaterial in terms of quality. The study by Gokcen and Gumussuyu [36] showed that the presence of animation does not affect video quality. Independent users uploaded 37.2% of the videos in our study, which may be one reason why many videos were low quality. The inclusion and exclusion criteria in the present study resemble those of other investigations in the literature [37, 38]. Instead of evaluating all the information about DE, we aimed to analyse the information by creating an instant search model from the patients’ perspective. The effect of knowledge on the physician’s thinking is a controversial issue that requires a different perspective.

**Study limitations**

One of the major limitations of our study was that we interpreted videos in English only, which can create a bias, because the number of excluded non-English videos approximated that of English videos (37 and 51, respectively). However, if we had examined those non-English videos, we might have obtained similar rating—a factor that should not be ignored. A second limitation is that when entering a search keyword on YouTube, an instant data is obtained. The dynamic nature of YouTube caused by ongoing video uploads may make results vary.

**Table 5.** Quality assessments of YouTube videos on delayed ejaculation according to sources of upload.

| Source of upload       | GQS median (min–max) | DISCERN median (min–max) |
|------------------------|----------------------|-------------------------|
| Sex therapist          | 2.5 (1–3)            | 2.5 (1–3)               |
| Physician              | 2.5 (1–5)            | 2 (1–3)                 |
| Health-related websites| 2 (1–4)              | 1 (1–4)                 |
| Independent user       | 2 (1–4)              | 1 (1–3)                 |
| Non-physician health personnel | 2 (1–4) | 2 (1–4) |

GQS Global quality scale.

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**DATA AVAILABILITY**

The data that support the findings of this study are available from the corresponding author upon reasonable request.
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AUTHOR CONTRIBUTIONS
Conceptualization, statistical analysis, writing—original draft, writing—review and editing: TT. Conceptualization, investigation, data curation, resources: MY, MAR. Conceptualization, formal analysis, review: AV. Paper editing, review: DS, AM. Supervision: AM. All authors read and approved the final paper.

COMPETING INTERESTS
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