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"YouTube" Hastalara ve Yakınlarına PEG Kullanımı ve Evde Bakımı Konusunda Yardımcı Olabilir mı?

Can "YouTube" Help Patients and Relatives with PEG Use and Care at Home?

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ÖZET

Amaç: Bu çalışma, gastrostomi bakımıyla ilgili YouTube videolarını, ana bileşenleri ve kullanılabilirlikleri açısından değerlendirerek, özellikle taburculuk sonrası bakımda bakım verenlerin karşılaştığı zorluklara odaklanmaktadır. Çalışmanın birincil amacı, bu videoların kalitesini ve yararlılığını değerlendirmek ve taburculuk sonrası gastrostomi bakımını yönetmede bakım verenlere etkili bir şekilde destek sağlayan kaynakları belirlemektir.

Materyal ve Metot: Belirli kriterlere dayalı olarak YouTube arama sonuçlarının ilk beş sayfası incelendi. 19-29 Ocak 2023 tarihleri arasında, "peg tube," "percutaneous endoscopic gastrostomy tube," "gastrostomy tube," "g-tube," ve "stomach tube" ifadeleriyle ilgili arama terimleri kullanılarak videolar analiz edildi. Her video, ana kriterlere 2 puan, alt kriterlere ise 1 puan verilerek bir puanlama sistemiyle değerlendirildi. Ana kriterleri karşılayan ve 13 veya daha yüksek puan alan videolar yararlı olarak kabul edildi.

Bulgular: Toplamda 500 video incelendi, bunlardan 219'u (%43) dahil edilme kriterlerini karşıladı ve 101 video yararlı olarak sınıflandırıldı. Yararlı videolar genellikle daha yüksek izlenme sayılarına, daha uzun süreye ve daha yüksek puanlara sahipti. Bireysel kaynaklardan gelen videoların yararlı olarak sınıflandırılma olasılığı daha düşüktü. Toplam video puanı ile izlenme sayısı, günlük izlenme sayısı, Video Güç İndeksi (VPI) ve genel puan gibi metrikler arasında anlamlı korelasyonlar tespit edildi ve gözlemciler arası güçlü bir uyum gözlemlendi.

Tartışma ve Sonuç: İzleyici tercihleri, video etkinliği ile güçlü bir şekilde ilişkilidir ve YouTube'un PEG bakımı için değerli bir kaynak olmasını sağlamak adına etkili arama tekniklerinin önemini vurgulamaktadır. Çalışma, kaynak güvenilirliği ve izleyici katılımının kritik rolünü öne çıkararak, PEG'in güvenli uzun vadeli enteral beslenmeyi desteklerken, taburculuk sonrası bakımda bakım verenlere önemli sorumluluklar yüklediğine dikkat çekmektedir.

Anahtar Kelimeler: Bakıcılar, Gastrotomi, Hastanın taburcu olması, Sosyal Medya, YouTube

ABSTRACT

Objective: This study evaluates YouTube videos on gastrostomy care, focusing on their key components and usability, with particular attention to caregivers' challenges during post-discharge care. The primary goal is to assess the quality and usefulness of these videos and identify resources that effectively support caregivers in managing gastrostomy care after discharge.

Material and Methods: The first five pages of YouTube search results were analyzed based on specific criteria. Between January 19 and 29, 2023, videos were analyzed using search terms related to "peg tube," "percutaneous endoscopic gastrostomy tube," "gastrostomy tube," "g-tube," and "stomach tube." Each video was evaluated using a scoring system, assigning 2 points for major criteria and 1 point for minor criteria. Videos meeting the major criteria and scoring 13 or higher were considered useful.

Results: 500 videos, 219 (43%) met the inclusion criteria, with 101 classified as useful. Useful videos tended to have higher view counts, longer durations, and better scores. Videos from individual sources were less likely to be categorized as useful. Significant correlations were identified between the total video score and metrics such as views, daily views, Video Power Index (VPI), and overall score, with strong interobserver agreement observed.

Discussion and Conclusion: Viewer preferences strongly correlate with video efficacy, underscoring the importance of effective search techniques in making YouTube a valuable resource for PEG care. The study highlights the critical role of source credibility and viewer engagement, particularly given that PEG supports safe long-term enteral nutrition while placing significant responsibilities on caregivers post-discharge.

Keywords: Caregivers, Gastrostomy, Patient Discharge, Social Media, YouTube

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INTRODUCTION

Nutrition is essential for human well-being, and maintaining a healthy lifestyle requires proper nourishment (1). In the 1980s, Dr. Gauderer and colleagues introduced percutaneous endoscopic gastrostomy (PEG) as a medical technique for patients with compromised swallowing abilities but a normal gastrointestinal tract (2). PEG is suitable for patients expected to live more than 6 months and need nutritional support for over 4 weeks (3). However, post-discharge care for PEG patients, including tube feeding and stoma care, places a significant burden on caregivers, leading to physical, psychological, and economic challenges for both patients and caregivers. Moreover, caregivers' questions about PEG often go unanswered by medical personnel (4). Consequently, many caregivers turn to alternative sources of information, such as YouTube, to fill the gaps in their knowledge about PEG.

YouTube is one of the most popular social media platforms worldwide. With over 2 billion users, it functions as an online video-sharing platform. Its usage extends beyond business and entertainment, serving as a hub for gathering and disseminating scientific knowledge and medical experiences. This trend reflects the increasing reliance on YouTube for accessing health-related information, where content producers, including health professionals, share insights, and viewers access content free of charge. Despite its prominence as a primary online platform, YouTube's role as a vital source of medical information raises concerns due to the absence of a pre-upload critique mechanism, unlike peer-reviewed sources. Consequently, erroneous information can swiftly reach large audiences, underscoring the necessity to scrutinize the reliability of medical content on the platform (5).

Studies in the literature examine the educational value and potential misinformation in YouTube videos on various diseases (6, 7). However, our research investigating YouTube videos about the use and care of PEG, which poses a significant care burden on patients and their families, is the first of its kind in the literature. We believe our study will uniquely contribute to the literature in this area.

The study was prompted by the increasing challenges faced by caregivers of patients with PEG post-discharge. The physical, psychological, and economic burdens associated with PEG care, coupled with the lack of sufficient support and information for caregivers, highlighted the need to comprehensively investigate the post-discharge experiences of PEG patients and their caregivers.

Can YouTube help patients and relatives with PEG use and care at home? Additionally, how can YouTube be effectively used to support patients with PEG use and care at home? The existing literature provides limited data on evaluating YouTube videos as educational tools for

healthcare professionals and patients in the context of PEG care and use. We aimed to answer this question by systematically evaluating the key elements and ease of use of YouTube videos disseminating information about PEG care and use.

MATERIALS AND METHODS

On YouTube [https://www.youtube.com; YouTube, LLC, San Bruno, CA, USA], the terms 'peg tube,' 'percutaneous endoscopic gastrostomy tube,' 'gastrostomy tube,' 'g-tube,' and 'stomach tube' were searched between January 19 and January 29, 2023. These search words were identified from 5 main resources (8-12). 2 anesthesiologists independently examined each search word's first five pages of videos. Following this, the authors reviewed the videos alongside a third anesthesiologist, with no disagreements observed. Only the videos in the first five pages were analyzed because videos irrelevant to the search words are shown more frequently after the first five pages, and previous research has indicated that viewers tend to watch the initial videos (13, 14). Our study is outside the scope of the ethics committee.

Exclusion criteria

Non-relevant,

Non-English,

No sound or performance

Prepared for pediatric patients,

Academic (inappropriate for non-healthcare personnel),

Ad-containing,

Non-medical,

Repetitive videos.

Assessment of the suitability of videos

By modifying Azer SA's criteria, it was possible to determine whether the videos met the requirements to be categorized as educational (14-16) (Table 1). These criteria, which have been utilized in many past studies, consist of 5 major and six minor criteria according to the accuracy of the video content, clarity of the message's presentation, expert commentary on the subject, and educational and technical design (13, 15, 16).

Similar to other studies in literature (17), each major criterion met received 2 points, and each minor criterion received 1 point. A total score of 13 for the videos was considered useful as all major criteria were met.

Data Collection

The total number of views, duration of presence on YouTube, number of daily views, video length [seconds], like/dislike rating of the videos, and the upload source of every video were noted. The degree of popularity of the videos was calculated using the video power index [VPI] (18).

VPI=like rating x view rating /100

Like rating = number of likes x 100/ [like + dislike]

View rating=number of views/day

Video Upload Source

Similar the other studies (19), the videos were classified according to their sources as "Universities/professional organizations/non-profit physician/physician groups," "Stand-alone health information websites," "Medical advertisement/for-profit companies," and "Individual".

Evaluation of the Currentness and Accuracy of Videos in Terms of Content:

Table 2 shows parameters created using reference publications to standardize the evaluation of each video's content and the PEG care procedure and to guide the evaluations (20) (Table 2).

Statistical Analysis

The data from the study were analyzed using the program IBM-Statistical Package for Social Sciences (IBM-SPSS Inc., Chicago, IL, USA) 26.0. The conformity of the data to normal distribution was examined using 'Shapiro–Wilk or Kolmogorov-Smirnov tests.' Continuous variables were expressed as median (25-75 percentile) according to their distribution, and categorical variables were expressed as numbers and percentages. To analyze continuous variables, the 'Mann-Whitney U test or Kruskal Wallis test' was applied in cases where parametric test assumptions were not met. The "Chi-Square test" was used to analyze categorical variables. The association between the total video score and fundamental video features was examined using Spearman's correlation. Interobserver agreement was determined using Cohen's kappa score. The level of statistical significance was accepted as $p < 0.05$.

RESULTS

The words "peg tube," "percutaneous endoscopic gastrostomy tube," "gastrostomy tube," "g-tube," and "stomach tube" were searched on YouTube, and the results on the first five pages were evaluated. Accordingly, 500 videos, 100 videos from each search word, were assessed. Based on the exclusion criteria, 271 videos were excluded from the study. Of these, 82 were non-relevant, 64 were ad-containing, there was no performance or sound in 25 videos, 31 were academic, 14 weren't in English, 10 contained information for pediatric patients, and 45 were

repetitive videos. Consequently, 219 videos were included in the study, 101 of which were evaluated as useful and 128 as non-useful (Figure 1).

In the study, the mean number of views was determined as 10372 (2121-50161), the mean video length as seconds (181-589), the mean duration of presence on YouTube as 44 months (24-76), the number of daily views as 8.93 (2.71-31.49), the mean VPI as 8.93 (2.71-31.49). The mean total watch time of videos containing useful educational information [16664 (4399-60991)-6748 (1288-36326))], daily views [14.42 (5.71-46.29)- 6.31 (1.64-23.76)], VPI value [14.42 (5.71-46.29)-6.31 (1.64-23.76)], Comprehensive score percentage [20 (10-40)-10 (0-20))] and Total video score [15.00 (15.00-16.00)-8.00 (4.00-11.00)] were found to be higher when compared to non-useful videos ($p < 0.05$). No significant difference was found in video length and duration of presence on YouTube ($p > 0.05$) (Table 2).

When the videos included in the study are evaluated according to their upload sources, the parameters "number of views", "video length", "time spent on YouTube", "number of daily views", "VPI value", "Comprehensive score" and " Total video score" were found to be statistically similar among the "Universities/professional organizations/non-profit physician/physician groups", "Stand-alone health information websites", "Medical advertisement/for profit companies" and "Individual" sources.($p > 0.05$). Besides, the rate of useful videos turned out to be significantly lower statistically in the "individual" source than in other sources ($p < 0.05$) (Table 3).

Regarding "How do I use the PEG tube?", "How do I take care of my PEG tube?", “How do I care for the skin around my PEG tube?”, “How do I deliver drug from Peg tube?”, “What to do if the PEG tube becomes clogged?”, “Have the situations of irritable odor, color change, and bubble formation been explained?”, “Has the balloon deflation situation been explained?” there was no difference between the groups when the video content was evaluated based on the uploader's source ($p > 0.05$). Additionally, the parameters “What is a PEG tube?” and “When should I contact my healthcare provider?” in the "Individual" group, were statistically significantly lower (Figure 2).

The correlation between total video score and total views, daily views, VPI, and Comprehensive score was significant. These values were determined as ($r = 0.303$, $p < 0.001$), ($r = 0.326$, $p < 0.001$), ($r= 0.326$, $p <0.001$) and ($r=0.457$, $p <0.001$), respectively. No significant correlation was found between the total video score, the length of the video, and the duration of the video's presence on YouTube. These values were determined as ($r= 0.016$, $p = 0.806$) and ($r = 0.068$, $p = 0.303$), respectively (Table 4).

Kappa statistics were used to assess the interobserver agreement on the total video scores for PEG tube care videos, resulting in strong agreement among observers (0.976 (95% CI: 0.968–0.981)).

Table 1. Criteria used in evaluating the videos

Major criteria	1. Contents about PEG care are scientifically correct
	2. Images are clear
	3. The creator/organization is mentioned
	4. The topic is clearly presented
	5. Sounds are clear, and background is free from noise
Minor criteria	1. The video covers the topic identified in the title
	2. Designed at the level of undergraduate medical science students
	3. The time to download is reasonable
	4. Information about the creator is up-to-date
	5. The educational objectives are stated
	6. Demonstrating the PEG care procedure on a human instead

Table 2. PEG tube care video content criteria

What is a PEG tube?
How do I use the PEG tube?
How do I care for my PEG tube?
How do I care for the skin around my PEG tube?
How do I deliver drug from PEG tube?
When should I contact my healthcare provider?
What to do if the PEG tube becomes clogged?
Have the situations of irritable odor, color change and bubble formation been explained?
Has the balloon deflation situation been explained?
Was there any mention of washing with water?(after each feeding or medication)

Table 3. Evaluation of PEG tube care videos by video characteristics and type of information

Characteristics	**All Videos (n=229)**	**Useful Information (n=101)**	**Misleading Information (n=128)**	***p* value**
Total view	10372 (2121-50161)	16664 (4399-60991)	6748 (1288-36326)	**0,002**
Video length, second	313 (181-589)	295 (208-510)	324 (144-658)	0,769
Duration on YouTube (month)	44 (24-76)	47 (24-70)	42 (24-80)	0,709
Views per day	8,93 (2,71-31,49)	14,42 (5,71-46,29)	6,31 (1,64-23,76)	**<0,001**
Video Power Index (VPI)	8,93 (2,71-31,49)	14,42 (5,71-46,29)	6,31 (1,64-23,76)	**<0,001**
Comprehensiveness score (%)	10 (0-30)	20 (10-40)	10 (0-20)	**0,002**

Data presented as median (25-75 percentile).

Total video score	8,00 (4,00-11,00)	15,00 (15,00-16,00)	8,00 (4,00-11,00)	0,769

Table 4. Evaluation of PEG care videos by video characteristics and upload source

Characteristics		Universities/professional organisations/non-profit physician/physician groups (n=127)	Stand-alone health information websites (n=53)	Medical advertisement/ for profit companies (n=8)	Individual (n=41)	*P* value
Total view		10651(1635-49889)	8228(3332-38437)	13587(3826-37860)	13243(2121-68897)	0,876
Video length, second		314(193-603)	258(148-412)	210(195-483)	465(172-736)	0,128
Duration on YouTube (month)		46(24-83)	36(21-67)	30(24-33)	48(28-83)	0,447
Views per day		8,96(2,48-29,61)	7,62(3,34-26,95)	11,25(5,05-31,24)	9,83(2,00-37,43)	0,939
Video Power Index (VPI)		8,96(2,48-29,61)	7,62(3,34-26,95)	11,25(5,05-31,24)	9,83(2,00-37,43)	0,939
Comprehensiveness score (%)		10,00(,00-30,00)	20,00(,00-40,00)	15,0(05,00-25,00)	10,00(,00-20,00)	0,876
Total video score		14,00(9,00-15,00)	15,00(10,00-15,00)	12,00(11,00-15,00)	4,00(2,00-9,00)	0,128
Usefulness	Non-useful, n(%)	62(48,8%)[a]	23(43,4%)[a]	5(62,5%)[a]	38(92,7%)[b]	**<0,001**
	Useful, n(%)	65(51,2%)[a]	30(56,6%)[a]	3(37,5%)[a]	3(7,3%)[b]	

Data presented as median (25-75 percentile), or n(%). Each similar superscript (a, b) indicates subsets of group categories with no statistically significant difference from each other at p=0.05 level.

Table 5. Relation between total video score and video characteristics

	Total video score	
Characteristic	**R value**	***P* value**
Total view	0,303	**<0,001**
Video length, second	0,016	0,806
Duration on YouTube (month)	0,068	0,303
Views per day	0,326	**<0,001**
Video Power Index (VPI)	0,326	**<0,001**
Comprehensiveness score	0,457	**<0,001**

Spearman's correlation analysis was used.

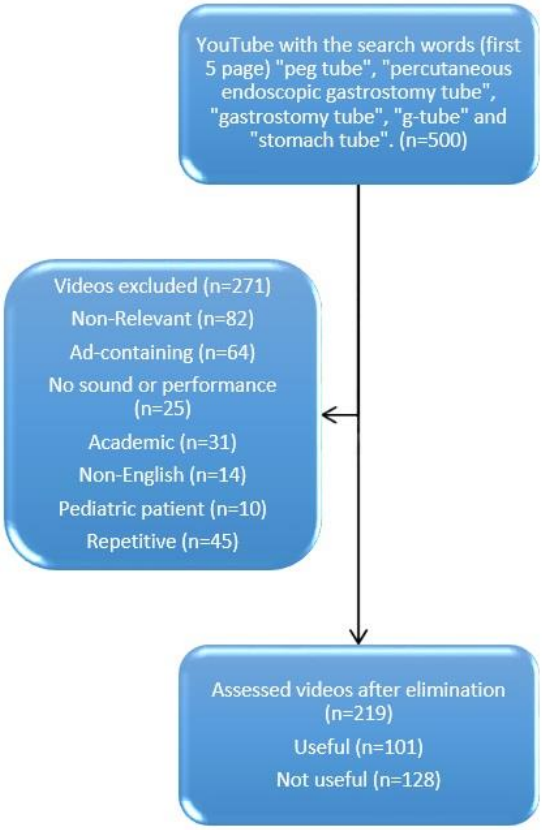

Figure 1: Selection of eligible YouTube videos for research

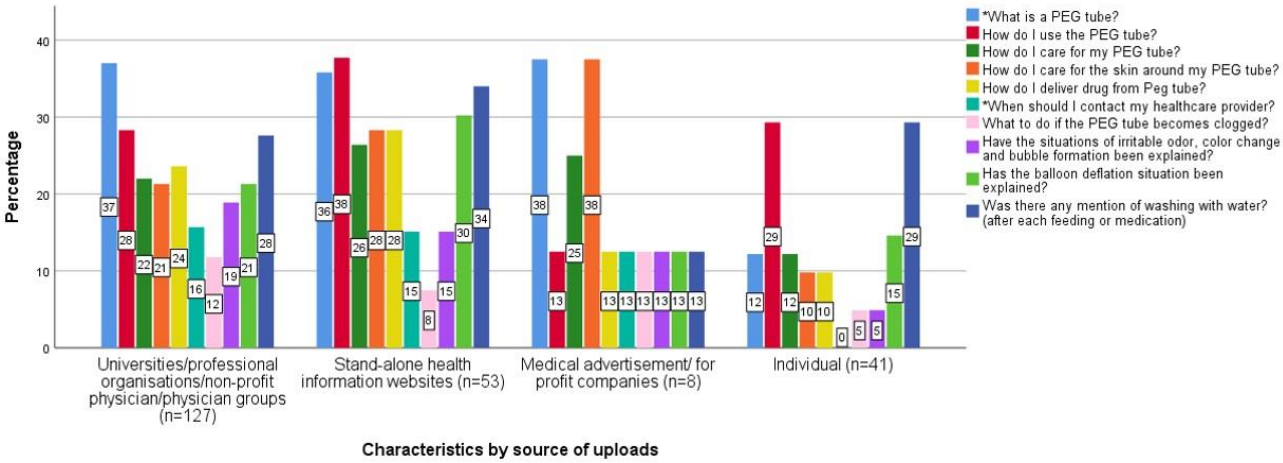

Figure 2: Evaluation of video content properties based on upload source

DISCUSSION

Previously, patients relied solely on doctors for medical information; now, the internet aids in self-diagnosis, improves understanding of conditions, reduces anxiety, explores treatments, and provides community support, thus expanding healthcare knowledge beyond traditional

medical advice (21). With the rise of the internet and social media, accessing medical information has become easy and free. Every patient has the right to obtain online medical information. Enhancing the quality of this information can involve using public platforms like YouTube to provide thorough treatment details and guide individuals to healthcare professionals for final decisions (22).

While improving access to accurate medical information online is valuable, using YouTube as a source can present issues. Videos may reflect the opinions of non-healthcare professionals or lack the necessary expertise, and some may serve commercial purposes (23). Healthcare professionals should evaluate online medical information from the patient's perspective to ensure accuracy (24).

The literature shows an increasing use of YouTube as an educational resource among learners and practitioners. YouTube offers user-friendly feedback tools, allowing viewers to ask questions, share resources, and evaluate content (25). Given its widespread use, it's crucial to identify which videos are most useful for PEG education.

Two key questions arise regarding YouTube use for patients and their relatives: Is YouTube genuinely useful, and how can users select truly useful videos? Through educational videos, personal experiences, and expert advice on health conditions, YouTube can provide valuable information and community support. However, the quality of content varies, raising concerns about misinformation. Users should prioritize videos from credible sources, such as medical institutions, verified healthcare professionals, and patient advocacy groups. It’s also crucial to cross-check information with trusted resources to ensure reliability. For instance, a study on videos about familial Mediterranean fever found that uploads by healthcare professionals were more reliable than those by non-professionals (26).

Despite numerous PEG education videos on YouTube, there is a lack of literature on their usefulness for patients and relatives. This study investigated whether YouTube videos on PEG feeding and care are useful for patient education, finding a strong correlation between the number of views and the perceived usefulness of the videos. This is the first study to examine this in the literature.

While scrolling through YouTube might seem like a waste of time, significant educational material can be found if users are selective (27). Burke et al (28) found that YouTube videos foster discussion and critical thinking by linking theory and practice.

Murugiah et al (29) evaluated YouTube videos on CPR, finding that while many videos explained CPR steps adequately, some lacked crucial information or demonstrated incorrect techniques. Accurate medical information videos were not the most viewed, but YouTube has

potential as an educational tool. We believe that, like CPR, YouTube can also be a valuable resource for information about PEG."

While relatively simple, PEG procedures often necessitate post-discharge care and patient assistance. YouTube is a valuable educational resource for PEG feeding due to its easy and free access, but users must be cautious of misinformation given the varying quality of videos (30). Standardizing PEG care is crucial to prevent adverse events, emphasizing correct component positioning, cleanliness, and regular tube flushing. Evaluations and standardizations of video content were based on reference publications. Studies indicate that most users do not search beyond the first five pages of YouTube results (31). The key aspects of routine PEG care include proper positioning to avoid tissue compression, maintaining the cleanliness of the gastrostomy site, and regular tube flushing to prevent blockages (20). We used reference publications to evaluate and standardize the content of the videos we reviewed. Patients and relatives likely seek answers to PEG-related questions online, often on YouTube. Effective education on PEG care can alleviate adverse events (32). This study categorized videos based on their educational value, finding that videos deemed useful had higher view counts. Videos uploaded by universities, professional organizations, and independent health websites had higher scores and were more educational than those created for medical advertising.

Kalayci et al.'s study (33) found that most YouTube videos about keratoplasty were submitted by approved medical professionals or providers and were generally useful for patient education. Similarly, our results indicate that nearly half of the examined videos were educational. The useful videos were primarily created by universities, professional organizations, and independent health information websites, whereas companies and individuals mostly produced non-useful videos for medical advertising (Table 5).

In studies, an index called VPI is used to evaluate the popularity of videos on YouTube. Thus, it can be measured which videos are more popular (18). In our study, it was observed that videos with useful content had statistically higher VPI values.

A study conducted by Azer SA showed that videos that are medically beneficial have higher total and daily views (15). Similarly, in our results, the total watch time and daily views of the videos that were more useful in terms of PEG education were higher than those of the non-useful videos.

According to the study's findings, patients and their relatives should use an appropriate search strategy to locate videos with the most comprehensive and high-quality content. Videos uploaded by universities/professional organizations and independent health information

websites had higher video scores. They were found to be more useful for education compared to videos created by companies and individuals with medical advertising purposes. Therefore, users should consider the correct video source and total watch time to access appropriate educational videos on PEG care on YouTube, as also highlighted in Satici MH's study (34).

There are various limitations to this study. Firstly, the videos were searched only on YouTube, in English, and for adult patients. Secondly, although the evaluation of video content is based on scientific and objective criteria, some of the criteria used in the educational assessment of videos, such as image quality, clarity, and upload times, are subjective and can be listed as research limitations.

CONCLUSION

Our study shows that viewer preferences significantly impact the effectiveness of educational videos on YouTube, especially for PEG care. YouTube can be a valuable resource for patients and their families, providing accessible and engaging content. A structured search process helps find high-quality videos that meet informational needs and enhance learning. Assessing video sources and viewer engagement metrics, such as view counts, helps identify reliable content. When used correctly, YouTube is a powerful tool for learning PEG care, offering essential resources for confident home-based care management.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Ethics Approval and Consent

This study did not use human or animal subjects and does not require ethics committee approval.

Conflict of Interest

The authors have no conflicts of interest to declare.

Author Contributions

Concept – M.E.Z; Design – M.E.Z.; Supervision – M.E.Z., B.H.; Resources – M.E.Z.; Materials – M.E.Z.; Data Collection and/or Processing – M.E.Z.; Analysis and/or Interpretation – M.E.Z., B.H.; Literature Search – M.E.Z., B.H.; Writing – M.E.Z., B.H.; Critical Review – M.E.Z., B.H.

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