The quality and reliability of Turkish websites in Google containing information about amputation rehabilitation in the shadow of the earthquake disaster

Deprem felaketinin gölgesinde ampute rehabilitasyonu hakkında bilgi içeren Google'daki Türkçe web sitelerinin kalitesi ve güvenilirliği

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Abstract

Aim: Health-related online information has become an important part of patient education. In this context, we aimed to examine the information content, readability, reliability, and quality levels of websites that provide online information about amputee rehabilitation.

Methods: On April 1–7, 2023, all websites scanned by typing "amputee rehabilitation" into the Google search engine were examined. The websites are divided into two groups (group 1= hospitals, universities, health-related associations, and other official institutions; group 2= health professionals, news websites, and others) according to the creator of the websites. The information content was determined according to nine sub-topics in line with the online education programs of the Disaster Rehabilitation Working Group of the Turkish Physical Medicine and Rehabilitation Association and the relevant literature. According to the readability formula of Ateşman and Bezirci-Yilmaz, reliability and quality assessments were made with the Journal of the American Medical Association (JAMA) score, Quality Criteria for Consumer Health Information (DISCERN) scale, the Global Quality Score (GQS), and the Physician's Global Quality Score (PGQS).

Results: 109 websites were scanned, and 20 websites were included in the study, 12 (60%) in group 1 and 8 (40%) in group 2. The median of information content was 2,3 (0–7), and none of the websites had full information content. The median of the Ateşman value is 41,1 (29,5–53,0), which is difficult to read; the Bezirci-Yilmaz value was readable at the undergraduate level with a median of 15,5 (9,4–21,6). The JAMA score was 0,8 (0-3) and almost all (95%) of the websites were found to be low reliable (JAMA score ≤ 2). The DISCERN score was of very poor quality, with a median of 23,55 (16–34). GQS was 1,95 (1-3), and PGQS was 1.7 (1-3) with low quality. There was no difference between the groups or between the first two pages and the remaining pages.

Conclusion: Turkish websites providing information about amputee rehabilitation are very inadequate in terms of content, difficult to read, poor quality, and unreliable. Within the framework of these data, reliable and comprehensible online information on this subject should be provided with the necessary support of health-related public or private institutions and experienced health professionals. To be prepared for future natural disasters, health policies aiming to provide quality information online to inform the public should be developed.

Keywords: Amputation; comprehension; education; internet; natural disasters; rehabilitation

Öz

Amaç: Sağlıkla ilgili çevrimiçi bilgiler, hasta eğitiminin önemli bir parçası haline gelmiştir. Bu bağlamda, ampute rehabilitasyonu ile ilgili online bilgi sunan web sitelerinin bilgi içeriği, okunabilirlik, güvenilirlik ve kalite düzeylerinin incelenmesi amaçlanmıştır.

Yöntemler: 1-7 Nisan 2023 tarihlerinde Google arama motoruna "ampute rehabilitasyonu" yazılarak yapılan tarama sonucu çıkan tüm web siteleri incelenmiştir. Web siteleri hazırlayıcısına göre iki gruba (grup 1= hastaneler, üniversiteler, sağlıkla ilgili dernekler, diğer resmi kurumlar; grup 2= sağlık profesyonelleri, haber siteleri, diğer siteler) ayrılmıştır. Bilgi içeriği, Türkiye Fiziksel Tıp ve Rehabilitasyon Derneği Afet Rehabilitasyon Çalışma Grubunun Online Eğitim Programları ve konuyla ilgili literatürle uyumlu olacak şekilde 9 alt konu başlığına göre belirlendi. Okunabilirlik, Ateşman ve Bezirci-Yılmaz formülüne göre; güvenilirlik ve kalite değerlendirmesi The Journal of the American Medical Association (JAMA) skoru, Tüketici Sağlığı Bilgileri için Kalite Kriterleri (DISCERN) ölçeği, Genel Kalite Skoru (GKS) ve Hekim Global Kalite skoru (HGKS) ile yapılmıştır.

Bulgular: Taranan 109 siteden 20'si çalışmaya dahil edildi; 12'si (60%)'si 1. grupta, 8'i (40%)'i 2. Gruptaydı. Web sitelerinin bilgi içeriği skor ortalaması 2.3 (0-7) idi ve hiçbiri tam içeriğe sahip değildi. Ateşman değerinin ortalaması 41,1 (29,5-53,0) ile zor okunabilir; Bezirci-Yılmaz ortalaması 15,5 (9,4-21,6) ile lisans düzeyinde okunabilir bulunmuştur. JAMA skoru ortalaması 0,8 (0-3) saptanmış olup, web sitelerin tamamına yakını (95%) düşük güvenilir bulunmuştur. DISCERN skoru ortalaması 23,55 (16-34), GKS ortalaması 1,95 (1-3), HGKS ortalaması 1,7 (1-3) ile düşük kalitede izlenmiştir. Gruplar arasında ve ilk iki sayfa ile kalan diğer sayfalar arasında incelenen parametreler açısından anlamlı fark saptanmamıştır (p<0,05).

Sonuç: Ampute rehabilitasyonu ile ilgili bilgi sunan Türkçe web sitelerinin içerik açısından çok yetersiz, zor okunabilir, kalitesiz ve güvenilir olmadığı saptanmıştır. Bu veriler çerçevesinde, sağlıkla ilgili resmi veya özel kurumların ve tecrübeli sağlık profesyonellerinin gerekli desteği sağlayarak, bu konuda güvenilir ve kullanılabilir online bilgi sunumu sağlanmalıdır. Gelecekte olabilecek doğal afetlere karşı hazırlıklı olmak için, halkı bilgilendirmeye yönelik online kaliteli bilgi sunumunu hedefleyen sağlık politikaları geliştirilmelidir.

Anahtar Kelimeler: Amputasyon; doğal afetler; eğitim; idrak; internet; rehabilitasyon

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INTRODUCTION

Amputation is one of the most serious clinical conditions affecting physical and mental health, causing severe disability, reduced quality of life, and mortality. It is a serious socio-economic burden for both individuals and societies (1). The vast majority of amputations (85%) are observed in the lower extremities and are approximately three times more common in men than in women (2). Although the etiology varies with age, the most common causes (>50%) are peripheral vascular disease (80–90% due to diabetes) and trauma (>30%). Less common causes include neoplastic disease and congenital defects (2,3). While the rate due to trauma and neoplastic causes have decreased from past to present, the rate due to vascular diseases has increased (3)

Amputee rehabilitation is a very specific rehabilitation field requiring a multidisciplinary and interdisciplinary approach. It has 9 phases starting from the preoperative period and continuing with lifelong follow-up (4). Increasing the functional capacity of the amputated extremity, reducing the development of chronic pain, ensuring the static and dynamic integrity of the musculoskeletal system, and keeping the disability at the lowest level by providing psychosocial well-being and social reintegration is only possible with an adequate level of rehabilitation (5,6). Many studies have found that amputee rehabilitation improves the quality of life by reducing complications and disability in patients (6-8). However, in ideal standards, the rate of patients who can receive inpatient rehabilitation is low and there is no equal opportunity in terms of access to treatment among patients due to economic reasons (8,9).

On 6 February 2023, at 04:17 local time, an earthquake disaster of great intensity (7.7) and destructiveness occurred in Gaziantep/Turkey, affecting a wide geographical area (10). 9 hours after this earthquake (13:24), a second earthquake with a magnitude of 7,6 occurred in the neighboring province of Kahramanmaraş. The destructive power of both earthquakes was increased by their shallow depth of focus (5 km) and long duration (about 100 seconds and 45 seconds, respectively) (10,11). According to official records, more than 50,000 people died and more than 122,000 were injured (11). It is estimated that this is the first time such a large number of limb losses have occurred in our country for the first time as a result of the earthquake and that a significant number of earthquake victims will require prostheses and rehabilitation in the coming months (12). Amputation rehabilitation has become a primary health concern for earthquake survivors due to the severe catastrophic effects of both collapse and amputation. As we mentioned above, in this issue, where there is a lack of access to ideal treatment opportunities even under normal conditions around the world, rapid and safe education of patients and their relatives has become a critical need.

In recent years, as technology has evolved, the use of the Internet has spread throughout the world and has become an inseparable part of everyday life. Many studies conducted in recent years have emphasized that providing adequate education about diseases is one of the first-line elements of treatment and this education should be provided through online platforms (13,14). In particular, people who were unable to go out due to the coronavirus disease 2019 (COVID-19) pandemic began to use the Internet much more to access health-related information. This process has highlighted the importance of providing quality health-related information online and that health literacy is a major societal issue (15). Over the last 20 years, studies examining the quality of online information on a wide range of diseases have reported inadequacies in the content and quality of information, emphasizing the worrying aspect of this situation (16,17).

Access to the Internet at home has gradually increased in Turkey, reaching 94.1% in 2022, and it has been reported that nearly three-quarters of users use the Internet to access information about diseases (18). Almost all internet users use search engines to access information. Considering that online platforms are completely uncontrolled, it is clear that online information should be examined in terms of content, reliability, and readability in sensitive issues such as health. We could not find any research examining the quality of written texts in Turkish or English related to amputee rehabilitation. In this context, the present study aims to evaluate the scope, reliability, quality, and readability of Turkish websites that provide information on amputee rehabilitation. In this way, the quality of online information will be revealed with up-to-date data, and a perspective will be presented at the

point of planning strategies for online health services during major natural disasters that may occur in the future.

MATERIALS AND METHODS

Design of study and data collection

This study is a descriptive, cross-sectional web-based data collection study. Since no data is collected on humans or animals, ethics committee approval is not required as in similar studies (19).

On 1-7 April 2023, the keywords "amputee rehabilitation" were searched using Google (https://www.google.com.tr), which is the most used (99.5%) internet search engine in Turkey (20). To avoid the misleading effect of the search engine on the best preference ranking, the personal Google account was closed, and the computer's browsing history and cookie settings were deleted. Similar to studies examining online information, it was planned to scan the first 200 websites, but since there were not that many websites, all existing sites were scanned (19). Sites that did not contain information about amputee rehabilitation, chat forums, social media sites (Facebook, Twitter), magazine sites, sites containing only videos or images, sites containing academic articles, pdf or lecture notes, book content (books.google.com, etc.), sites with very little content (<10 sentences) and repetitive pages were not included in the study. The websites were divided into two groups according to their creators: 1) hospitals, universities, and health-related academic and official associations 2) medical professionals, news websites, and other websites.

Information content

The information content of the websites was determined to be compatible with the literature on amputee rehabilitation and the online education programmes of the Disaster Rehabilitation Working Group of the Turkish Physical Medicine and Rehabilitation Association (4,21). Accordingly, the scope of the texts was analyzed according to whether or not the information was given in the following nine sub-categories: 1. Preoperative period, 2. Amputation surgery/bandaging, 3. Acute postsurgical care, 4. Pre-prosthetic preparation, 5. Prosthesis prescribing and production, 6. Prosthesis education, 7. Social integration, 8. Vocational rehabilitation, and 9. Lifelong follow-up. The information content of the websites was recorded by the physical medicine and rehabilitation specialist (R.Y.), regardless of the scientific qualifications and actuality of the content, depending on whether it is present in the text or not. Total content is scored between 0 and 9.

Reliability and quality

The Journal of the American Medical Association (JAMA) criteria are an accepted, practical, and useful international measurement tool developed to assess the reliability, quality, and usability of health-related information (22). Four main elements are examined in the assessment. These; author information, attribution, transparency (sponsorship, conflict of interest), and timeliness. Each criterion is given a score of 0 in its absence and 1 in its presence. According to these criteria, points above three are defined as "highly reliable", and scores below two are "low reliable". The scoring was performed by the two researchers of this study (R.Y, S.K). When the investigators' scores differed, the final decision was reached by reviewing the relevant website with an independent physical therapy and rehabilitation specialist (H.Y).

Readability

To determine the readability level of Turkish texts, specially developed Ateşman and Bezirci-Yılmaz readability formulas were used (23,24). The informative texts on the websites included in the study were copied by removing the irrelevant text on the page, and these readability calculations were made by transferring them to a special computer program.

Ateşman Readability Formula

It was developed by adapting the Flesch Ease of Reading formula, which is its English equivalent, to Turkish (23). The calculation is made based on sentence and word length (number of syllables). The increase in sentence length and the number of syllables in words make the texts difficult to read. According to this formula, if a text is readable between 90-100, it is classified as "very easy", between 70-89 as "easy", between 50-69 as "moderately difficult", between 30-49 as "difficult" and 1-29 "very difficult".

Bezirci-Yılmaz Readability Formula

It was developed in 2010 by taking into account international readability scales and Turkish grammatical features (24). It was formulated taking into account the sentence length and the number of syllables. Similar to the "The Simple Measure of Gobbledygook" score, which was developed to assess the readability of English texts, it calculates how many years of standard education it takes to understand a text. Accordingly, 1-8 corresponds to primary school, 9-12 to secondary school, 12-16 to university, and ≥ 16 to postgraduate (academic) level.

Quality Criteria for Consumer Health Information (DISCERN) Instrument

It is an international scale developed by Charnock et al to assess the adequacy and quality of texts related to treatment options (25). It consists of a total of 16 questions in three parts. In the first part, there are 8 questions about reliability and independence, and in the second part, there are 7 questions about the adequacy of treatment options. There is one final question in the third part. With this question, the overall quality is scored in summary, based on the answers to the other questions, including intuitive judgment. The last question alone can also be used to assess the quality of treatment options. Each question is scored from 1 to 5, from "no" to "yes" according to the rate of meeting the relevant question. 5 points are awarded if the answer is an absolute 'yes', and 1 point is given if the answer is an absolute 'no'. A total score of 63-75 points for the first 15 questions is classified as excellent, 51-62 as good, 39-50 as moderate, 28-38 as poor and 15-27 as very inadequate (26). The DISCERN score was scored by R.Y.

Health on the Net Foundation Code of Conduct (HONcode) Certificate

HONcode is a certificate provided by an international non-profit organization (Health on the Net Foundation) that assesses the quality, reliability, and quality of health-related websites. Websites can receive this certificate if they are approved to have HONcode standards (27), which consist of 8 items (authors' competence, complementarity, confidentiality, attribution, verifiability, transparency, declaration of sponsorship, and honesty in advertising policy). Its use is limited in many countries, including Türkiye, due to its procedure and cost. This code is automatically displayed on the home page of websites with HONcode certificates and in the toolbar of search engines. All websites have been checked for the presence of a HONcode certificate (R.Y).

Global Quality Score (GQS) and Physician Global Quality Score (PGQS)

The Global Quality Score (GQS) was first developed using improvised, subjective criteria to assess the quality of websites on inflammatory bowel disease (IBD) and has subsequently been used in many studies (28,29). It is a scale with a five-point scale from 1 to 5 that takes into account page flow and ease of use, as well as overall quality. 1-2 points indicate low quality, 3 points indicate medium quality, and 4-5 points indicate high quality. In this study, two physiatrists with at least 10 years of rehabilitation experience were scored on a 1-5 point Likert scale, taking into account the accuracy, timeliness, visuality, intelligibility, and subject integrity of the websites, within the framework of their general opinions. This scale, which we defined as the Physician General Quality Score (PGQS), and the GQS were scored by two independent researchers (R.Y, S.K). In cases of incompatibility, the final decision was made by a third independent physician (H.Y).

Statistical Analysis

Statistical analyses were performed using IBM® SPSS Statistics 22 software (Armonk, NY, USA). Whether the data were normally distributed or not was evaluated with the Shapiro-Wilks test. Categorical data were given as frequency and percentage (n (%), non-parametric data as median (minimum-maximum), and parametric data as mean± standard deviation (SD). Cohen's kappa coefficient (κ) was used to determine the inter-rater consistency of the JAMA score, GQS, and PGQS values. The Mann-Whitney U test was used for the comparison of non-parametric data between two independent groups that did not show normal distribution, and the chi-square test was used for the comparison of categorical variables. Spearman's rho test was used for the correlation of non-normally distributed data.

Table 1. Between-group comparison of online information content according to evaluation tools

	Group 1 (n=12)	Group 2 (n=8)	p *
Information content[a]	1,5 (0-7)	1,5 (0-4)	0,473
JAMA score	0 (0-3)	1 (0-1)	0,792
Ateşman value	45,8 (17,00-67,0)	50,5 (33,0-69,0)	0,910
Bezirci-Yılmaz value	15,1 (9,4-21,6)	16,3 (12,0-19,2)	0,734
DISCERN score	26,5 (16-34)	22,5 (16-28)	0,208
Physician Global Quality Score	2 (1-4)	1 (1-2)	0,157
Global Quality Score	2 (1-4)	1 (1-3)	0,098

Mean±standard deviaton (SD) values for normal distribution and median (minimum-maximum) for non-normal distribution values were used. GQS: Global Quality Score; PGQS: Physician Global Quality Score; n: Number of websites, JAMA: The Journal of the American Medical Association, DISCERN: Quality Criteria for Consumer Health Information * Mann-Whitney U test; a possible range is 0-9

RESULTS

Of the 109 websites reviewed, 37 were PDF articles or academic lectures, 16 were commercial or advertising content, 10 were very short content, 9 were fake pages, 4 were videos, 3 were on Facebook or Twitter, 2 were excluded due to repetition, and 8 were in other irrelevant content categories. Only 20 of the websites were included in the study as they met the inclusion criteria. According to the creator, 12 (60%) of these websites were in Group 1, and 8 (40%) were in Group 2.

The median value of the sum of the topics included on the websites included in the study is 2.3 (0–7). 11 (55%) websites were about the pre-operative period, 2 (10%) with amputation surgery and bandaging; 6 (30%) with acute post-operative care; 6 (30%) with pre-prosthetic preparation; 5 (25%) with prosthesis prescription and fabrication; 3 (15%) with prosthesis training; 8 (40%) with social integration; and 4 (20%) with lifelong follow-up. There was no information on vocational rehabilitation. The most common content was related to the preoperative period. There was no information on all nine of these sub-headings in the content of the subject on any site. There was no difference in information content between the groups (p = 0.473) (Table 1).

The median JAMA score of the websites was 0,8 (0-3). According to the JAMA score, almost all (95%) were of low reliability (JAMA score ≤ 2). There was no significant difference in favor of the group in terms of JAMA score between the groups (p=0.792) (Table 1). There was excellent agreement between independent raters for the JAMA score (Cohen's κ = 0.844, p< 0.001). All websites were of poor quality, with a median DISCERN score of 23,55 (16-34). There was no significant difference in the DISCERN score between the groups (p=0,208) (Table 1). It was observed that none of the examined websites had HONcode certificates. Insufficient quality with a median of PGQS 1,7 (1-4) in all groups; the GQS was found to be of medium quality with a median of 1,95 (1-5); and no significant difference was found between the groups in terms of PGQS (p=0.157) and GQS (p=0.098) (Table 1). There was a high level of consistency between raters who evaluated the GQS and PGQS (Cohen's κ=0.853 and 0.0752; p<0.001, respectively). A strong correlation was observed between the PGQS and the GQS (r=0,91, p<0,001) and between the GQS and the DISCERN overall quality score (r=0.85, p<0.001).

The median Ateşman readability score for all websites was 41.11 (29.5-53.0), and the median Bezirci-Yılmaz score was 15.5 (9.4-21.6). These values can be read as "difficult" according to the Ateşman formula; according to the Bezirci-Yılmaz formula, they are at the "undergraduate" level. When the readability ranges are examined according to the Ateşman formula, 17 (85%) of the websites are found to be "very difficult or difficult" to read. No significant difference was found between the readability scores of Ateşman (p=0.910) and Bezirci-Yılmaz (p=0.734) between the groups (Table 1).

Comparing the websites on the first two pages with the websites on the last 9 pages; no significant difference was found between the readability scores of JAMA (p=0.699), DISCERN (p=0.067) scores,

Ateşman (p=0.588) and Bezirci-Yılmaz (p=0.9838). No significant difference was found between the first two pages and the other 18 pages in terms of GQS and PGQS (p=0.067, p=0.183, respectively).

DISCUSSION AND CONCLUSION

Our study aimed to examine the reliability, quality, information content, and readability levels of written texts on Turkish websites containing information about amputee rehabilitation. The most striking result of our study was that, unlike other diseases, the number of pages related to amputee rehabilitation and the number of websites that could be included in the search result was very low. The majority of the excluded sites had no information; only the words "amputee rehabilitation" were mentioned. Almost all of the websites (95%) had a JAMA score of low confidence. In terms of readability, it was found to be at the level of comfortable readability for the undergraduate level. In addition, it was observed that the information content was very narrow and the quality scores were quite low. Since this study is the first to comprehensively evaluate the quality of written texts in the Google search engine on amputee rehabilitation, we consider its results to be important. In addition, we did not find any studies investigating the quality of text on English-language websites.

With the rapid increase in Internet use, especially in recent years, people try to get a lot of health-related information from the Internet. Search engines, especially Google are used to access information. It is often sought to obtain information about the symptom-disease relationship, diagnostic methods, and treatment options (30). Although it has been reported that web-based health information can improve the ability of society to cope with illness and improve their quality of life by reducing anxiety and fear, it seems very difficult to access reliable and understandable information with sufficient and accurate content (16,31). If general medical information with a narrow scope of information, low quality and non-personalized, cannot be interpreted correctly, it can be misleading and confusing, causing maladaptive behavior and anxiety (32).

Patient education plays a critical role in the management of amputation rehabilitation (33). It has been reported that many amputees worldwide do not receive adequate rehabilitation for various reasons (8,9). To reduce this gap, there is a need to establish sufficient awareness about rehabilitation. As a matter of fact, in studies conducted in recent years, it has been reported that individuals with many different diseases prefer to access online information resources and the necessity of eliminating the inadequacy of online information presentation has been emphasized (14,34-35). The social restrictions caused by the COVID-19 pandemic have highlighted the provision of online-based health services such as telerehabilitation which has been recommended to reduce pain and improve physical function and quality of life in patients with musculoskeletal disorders (36). Webster et al. reported that telerehabilitation can be beneficial for amputees and provide continuity of care (37). As we emphasized above, although studies on the reliability, readability, and quality of websites on many different diseases have been published, we have not found any study that examines the status of Turkish or English websites on amputee rehabilitation. Especially in the extraordinary earthquake disaster that our country is going through, online quality and secure information presentation are needed more than ever. However, compared to other studies examining the quality of online information (19,38-39), we observed very few websites containing useful and safe information on amputee rehabilitation.

Readability is a linguistic concept that expresses the ease or difficulty with which readers understand a text by the readers. In this respect, considering that readability is a technical evaluation specific to nations using the same language and that there is no control and monitoring mechanism, online information on the Internet may vary considerably from country to country; it is clear that the online information content for each country should be examined separately in terms of readability. According to the Human Development Report published today by the United Nations Development Programme, published by the United Nations Development Program in 2022, the average length of education in Turkey is 9.3 years (40). The readability level of the texts in our study was found to be approximately 3 years above the average of the country's education period and to be difficult to read, similar to the studies investigating Turkish readability

(38-39). Wallace et al. analyzed the top 27 English-language websites for information content, relevance, readability, and quality among the three most frequently used search engines [Google, Yahoo, and Microsoft Network (MSN)] that offer online information about osteoporosis (41). He reported that although the information coverage was mostly sufficient (78%), the reliability was low with a score of 35.7 ± 18.0 according to the DISCERN scale. In addition, the readability level of the texts was 11.5 ± 2.8 years, well above the average education level of the American adult population of 8 years.

The fact that only one of the websites related to amputee rehabilitation was found to be highly reliable according to the JAMA score in our study shows the existence of JAMA criteria that cannot be compared with the results of the studies in the literature (19,38). In addition, the fact that no HONcode certification has been determined on any website, as expected, shows that online information providers share information that is deficient in international quality standards. It is not surprising that HONcode certification is not found on websites in Turkey due to the procedure and cost. However, the fact that only the author information or the date/up-to-date parameters in the JAMA criteria are mostly not specified significantly reduces the level of reliability. The readability, content, and quality of online information about fibromyalgia in Turkey were examined on a total of 80 websites in four different search engines (Google, Yandex, Bing, and Yahoo) (42). Similar to the results of our study, the information content of the websites was found to be weak, low quality (median=30) according to the DISCERN score, and moderately difficult to understand (median=55.5) according to the Ateşman score. Considering that in Turkey, search engines other than Google use negligibly (20), reliability and quality scores were worse than the literature in this research we conducted only on Google.

Ceyhan CM et al, in their recent study examining the quality of YouTube videos on amputee rehabilitation, found that the videos were generally of moderate quality (43). It was reported that the videos produced by health professionals and designed for professional training were of higher quality, and had higher JAMA, GQS scores, and modified DISCERN scores. The authors emphasized the necessity of contributing to the education of disabled patients by uploading more videos by health professionals. In this study, the JAMA score was found to be 2.9±1.6 in the videos of medical professionals and 1.8±1.0 in videos prepared by non-medical professionals. It should not be ignored that the JAMA scores in this study are significantly higher than those in our study and that it is based on the obligatory presence of server information and upload date in YouTube videos.

Since the websites on the first two pages are usually clicked on in inquiries made through search engines on the Internet, groups are compared in this respect as well (38). Contrary to expectations in our study, the evaluation parameters of the sites on the first two pages were found to be similar to the following pages. Although these findings are surprising, they are consistent with the literature (19,38).

In studies examining the quality of online information, it is important to remember that the DISCERN scale focuses specifically on treatment options, whereas the JAMA score does not reflect the scope, visuality, and academic accuracy of the content. In addition, the readability formulas make calculations by considering the technical side of grammar and cannot take into account technical and academic terms that may not be understood by the average person. However, we found that this aspect of the issue was not addressed by most of the authors (19,38,39,44). We believe that the PGQS, which also takes into account the accuracy, visuality, and intelligibility elements we used for this research, can complete the deficiencies at this point. In the present study, the PGQS median of the websites was found to be insufficient at 1.7 (1-4); it also showed a strong positive correlation with standard measurement parameters such as DISCERN score and GQS.

Study Limitation

Our study had some limitations. The most important of these is that the review belongs to a certain time period. It cannot be ignored that the information on the internet and, especially, the data presented in search engines can change constantly. This limitation becomes a strength of the research in terms of revealing the results of the online search conducted quite recently. As discussed above, it is clear that the readability formulas

do not necessarily express 'intelligibility' and different scales are needed to assess intelligibility in a healthy way. Another limitation is that although the JAMA or DISCERN scores are generally accepted measures in terms of reliability, they cannot be expected to accurately demonstrate the academic accuracy and evidence-based currency of the online information presented. We believe that this limitation may be possible with newly developed scales, such as PGQS, which involve competent physicians in the field, as we did in our study. In addition to these, this study is the first study that comprehensively examines an important issue that came to the forefront after the earthquake disaster in Turkey. In this respect, we believe that it can make an important contribution to the literature.

In the present study; It was found that Turkish websites providing information on amputee rehabilitation are very inadequate in terms of content, difficult to read, poor quality, and unreliable. It was observed that there was a lack of integrity and fluency in the websites and that the information content on residual limb care, complications, and prosthetic options was insufficient. This inability can lead to confusion and unnecessary anxiety, resulting in maladaptive behavior. Within the framework of these data, reliable and usable online information presentation should be provided by providing the necessary support of health-related public or private institutions and experienced health professionals. In order to be prepared for future natural disasters, health policies aiming to provide quality online information to inform the public should be developed.

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Conflict-of-interest and financial disclosure

The authors declare that they have no conflict of interest to disclose. The authors also declare that they did not receive any financial support for the study.

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