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Are the Websites of the Dentistry Faculties in Turkey Adequate for Informing Pediatric Patients?

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Abstract

Objective: This study aimed to evaluate the quality and readability of information provided by the websites of the Department of Pedodontics in the Dentistry Faculties of State Universities (SU) and Foundation Based Universities (FBU) in Turkey for pediatric patients.

Method: All dentistry faculties in Turkey were identified through the Council of Higher Education database and classified as public and FBU. The websites of the faculties were accessed via the Google search engine, and the information pages of the Department of Pediatric Dentistry prepared for the patients were evaluated according to the Quality Criteria for Consumer Health Information (DISCERN), Journal of American Medical Association (JAMA), and Atesman Readability Formula.

Results: No significant differences were observed among universities in terms of DISCERN scores ($p>0.05$), except in Section 1 ($p=0.041$). In Section 1, SU demonstrated higher DISCERN scores than FBU. None of the Faculties of Dentistry had an 'excellent' score. However, no significant differences were identified between universities in relation to Atesman scores ($p>0.05$), and no significant differences were found between universities on the JAMA benchmark scale ($p>0.05$).

Conclusion: Within the limitations of this study, it was determined that the quality and readability of information on websites prepared by the Faculty of Dentistry in Turkey for parents of pediatric patients are low. It is recommended that information on university websites, which are official institutions that closely follow scientific developments and are preferred by parents of patients for information purposes, should be checked with appropriate evaluation tools in terms of quality and readability.

Keyword: Dentistry Faculties Websites, Information, Quality, Readability

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INTRODUCTION

With the widespread use of the Internet, the approach to health services and the resources used has changed (1). The Internet has become one of the most common and important sources of health information (2,3).

Millions of people worldwide use the Internet daily to obtain information in the health field (4). More than 80% of Internet searches are available for medical support and information (5). According to the results of an information technology usage survey in Turkey, 94.1% of houses have the opportunity to access the Internet from home (6). According to data from the Turkish Statistical Institute, Internet use was reported to be 85% in the 16-74 age group in 2020 (6). This makes the Internet a valuable source of information in the health field (4).

Most Internet users believe that Internet-based information is of high quality and reliable (2). Patients believe that the information they receive from the Internet is equal to or better than the information provided by health professionals (7). While patients' level of knowledge in the field of dentistry increases with internet use, the potential for inaccurate or misinterpreted information remains problematic (8).

It is important to provide quality information resources that meet people's demands for information and to guide them in this regard (9). It has been reported that individuals' trust in official institutions is higher than that of other institutions for promotional and advertising purposes (10).

In the literature review, no scientific research was conducted on university websites to inform parents of pediatric patients. This study aimed to evaluate the quality and readability of information provided by the websites of the Department of Pedodontics at the Faculty of Dentistry of SU and FBU in Turkey.

METHODS

Search Strategy

All dentistry faculties in Turkey were identified through the Council of Higher Education database and classified as SU or FBU (11). The websites of the faculties were accessed from the Google search engine, and the information pages of the Department of Pediatric Dentistry prepared for the parents of the patients were evaluated. The websites included in the study were evaluated by a pediatric dentist according to the Quality Criteria for Consumer Health Information (DISCERN), the Journal of American Medical Association (JAMA), and the Atesman readability formula. To check for intra-rater agreement, 20% of the websites included in the study were randomly selected and re-examined after three weeks. Atesman readability formula scores were calculated automatically by uploading information texts to an online application (http://okunilirlikindeksi.com/).

Quality Criteria for Consumer Health Information (DISCERN)

It was the first standardized quality index of consumer health information developed by Charnock et al. (12), and was used to evaluate the quality of written information on treatment options.

The DISCERN quality criteria included a questionnaire consisting of three parts and 16 questions. The first part (questions 1-8) was prepared to determine the reliability of the website, the second part (questions 9-15) was prepared to evaluate the quality of the information about treatment options, and the third part (question 16) was prepared to evaluate the overall quality of the website.11 Each question was scored from 1 to 5, according to the Likert scale. According to the DISCERN quality criteria, websites with a score of 16-26 are considered 'very poor,' 27-38 'poor,' 39-50 'moderate,' 51-62 'very good,' and higher than 63 'excellent'(12).

Journal of American Medical Association (JAMA)

The JAMA criteria were used to evaluate the standards of information obtained from written health information sources by Silberg et al. (13), including Authorship (authors, contributors, links, and credentials), Attribution (references and sources of content and copyright information), Disclosure (potential conflicts of interest, advertising, sponsorship, and insurance), and Currency (content published and updated dates), which are the four main features that must be clearly observed on a website. Each website was examined individually, and each item meeting these criteria was scored 1. While the lowest score obtained from the evaluation of the JAMA criteria was 0, the highest was 4.

Atesman Readability Formula

This is the first study to classify the readability level of Turkish texts. The coefficients in Flesch's formula were adapted to Turkish using the average word and sentence lengths of each text (14). In the Atesman formula, the readability of texts is measured based on the variables of average word and sentence lengths in the texts. In the Atesman formula, the readability of texts is scored out of 100; the higher the text score, the higher the readability of the text. If the readability score of the information on the websites is between 90-100, it is classified as 'very easy,' 70-89 as 'easy,' 50-69 as 'moderate,' 30-49 as 'difficult,' and less than 29 'very difficult' (14).

Statistical Analysis

Statistical analysis was performed using Jamovi software version 2.3.26. Normality was tested using the Shapiro-Wilk test. The data had a non-normal distribution and ordinal variables; therefore, the Mann-Whitney U test was used to compare university websites based on DISCERN and Atesman scores. In addition, the

Fisher-Exact Test was used for categorical variables in the JAMA benchmark scale. Spearman's correlation analysis was used to compare scales. Correlation coefficients with an absolute value lower than 0.40 were considered low, between 0.40 and 0.60, moderate; and above 0.60, high strength (15). Intra-rater agreement was assessed using Cohen's kappa coefficient. The data are summarized as median (min-max) or N(%). The level of significance was set at P <0.05.

RESULTS

A total of 102 Dentistry Faculty websites were evaluated. Seventy-three websites belonged to SU and twenty-nine belonged to FBU. Data entry was not made on the websites of 26 (25.4%) SU, 17 (16.7%) FBU, and 43 (42.1%) in total. Therefore, excluding these websites, it was planned to work on the websites of the Faculty of Dentistry of 47 SU (79.6%) and 12 FBU (20.4%), 59 websites in total.

Among the SU, there were 9 (19.1%) in the Central Anatolia Region, 8 (17%) in the Aegean Region, 7 (14.8%) in the Marmara, Mediterranean, and Black Sea Regions, 5 (10%) in the Southeastern Anatolia Region, and 4 (8.5%) in the Eastern Anatolia Region. SU and FBU have been actively serving in patient care and education for an average of 18.4 years and 9.5 years, respectively. Kappa analysis revealed a high level of intra-observer agreement for DISCERN (k = 0.877) and JAMA (k = 0.853).

Table 1. Comparison of DISCERN and Atesman scores among the groups

	State Universities	**Foundation Based Universities**	**Total**	***p* value**
DISCERN Scores	24 (11-26)	21 (15-26)	21 (11-26)	0.875†
Section 1	13 (7-31)	11 (7-24)	12 (7-31)	**0.041**†
Section 2	36 (18-57)	32 (22-50)	35 (18-57)	0.336†
Total	2 (1-4)	1.5 (1-3)	2 (1-4)	0.061†
Atesman Score	31 (0.5-79.9)	43 (0.8-68.5)	32.8 (0.5-79.9)	0.516†

Quality Criteria for Consumer Health Information (DISCERN), Median (Min-Max), †Mann-Whitney U test

Based on our findings, no significant differences were observed among universities in terms of DISCERN scores (p>0.05), except in Section 1 (p<0.05). In Section 1, SU demonstrated higher DISCERN scores than FBU did. None of the dentistry faculties had an 'excellent' score (Table 1). The DISCERN scores of the university websites are shown in Figure 1. However, no significant differences were identified between universities regarding Atesman scores (p>0.05). The Atesman scores of the SU and FBU are shown in Figure 2.

While all faculty websites provided Disclosure criteria, none of them provided Attribution criteria. No significant differences were found between the universities regarding the JAMA

benchmark scale (p>0.05) (Table 2). The JAMA benchmark scores for the university websites are shown in Figure 3. No significant correlation was found between the scales (p>0.05) (Figure 4).

Table 2. Comparison of JAMA benchmark scores among the universities

	State Universities (N:47)	**Foundation Based Universities (N:12)**	**Total (N:59)**	***p* value**
Authorship[1]				0.519[†]
No	35 (74.5%)	10 (83.3%)	45 (76.3%)	
Yes	12 (25.5%)	2 (16.7%)	14 (23.7%)	
Attribution[1]				NC
No	47 (100.0%)	12 (100.0%)	59 (100.0%)	
Yes	0 (0%)	0 (0%)	0 (0%)	
Disclosure[1]				NC
No	0 (0%)	0 (0%)	0 (0%)	
Yes	47 (100.0%)	12 (100.0%)	59 (100.0%)	
Currency[1]				0.124[†]
No	39 (83.0%)	12 (100.0%)	51 (86.4%)	
Yes	8 (17.0%)	0 (0.0%)	8 (13.6%)	
Total Quality Score	1 (1-3)	1 (1-2)	1 (1-3)	0.154[††]

[1]n (%), [2]Median (min-max), NC: Not calculated. [†] Fisher-Exact Test [††] Mann-Whitney U test

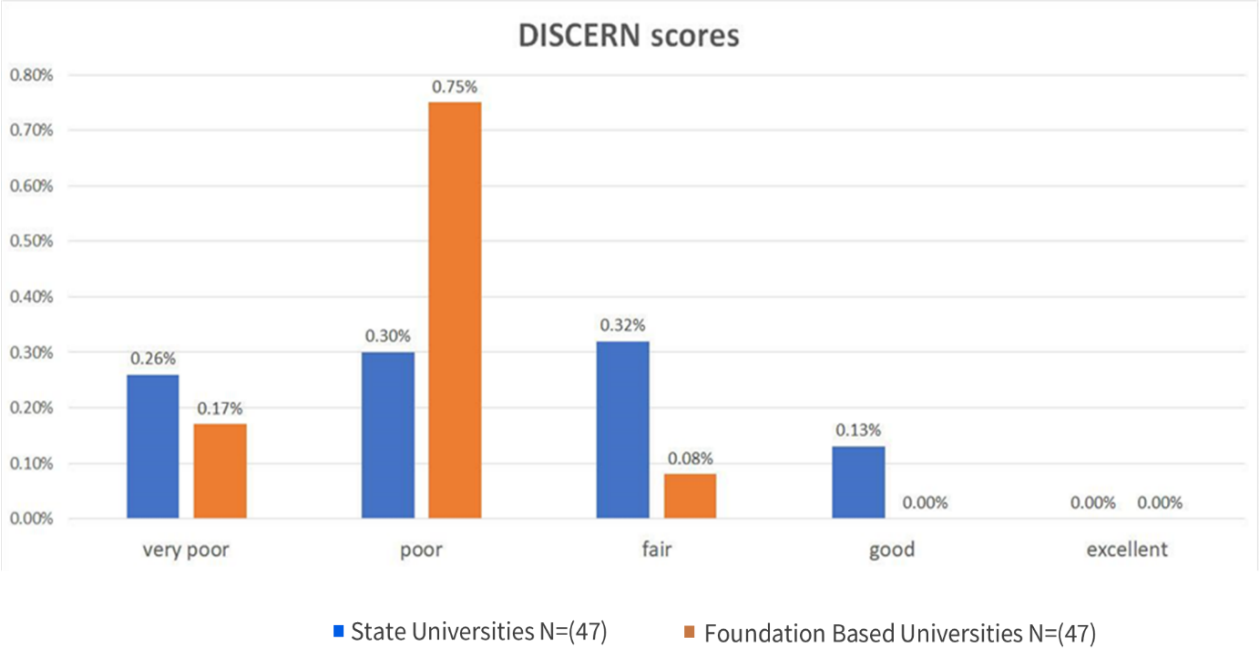

Figure 1. DISCERN Quality Index Scores of The University Websites (%)

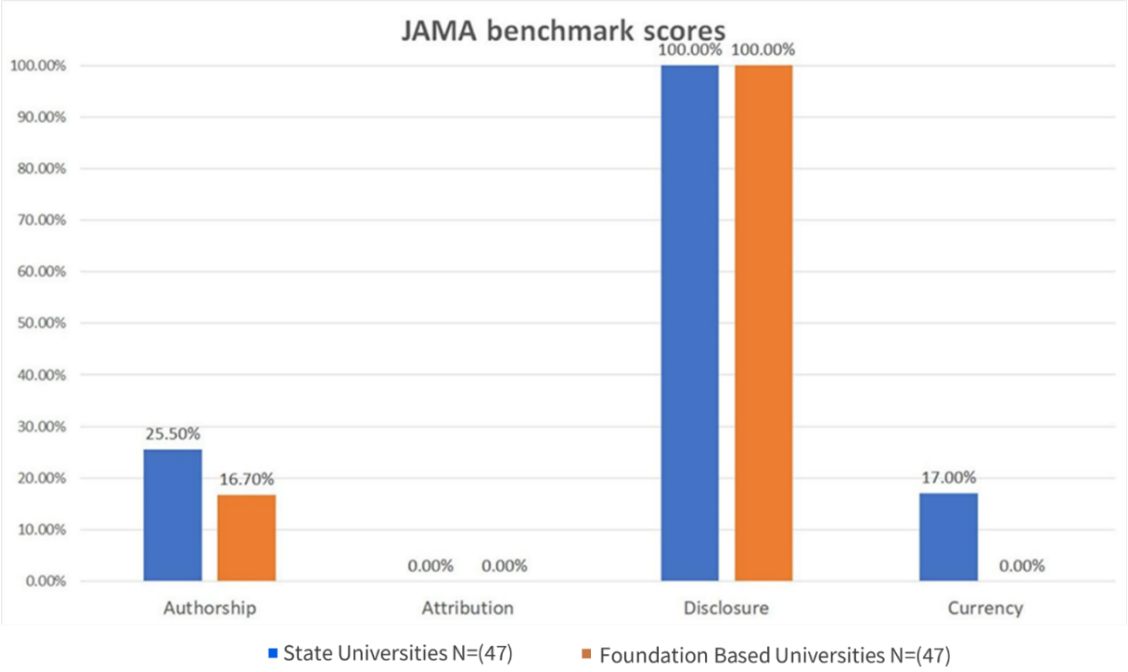

Figure 2. JAMA Benchmark Scores of The University Websites (%)

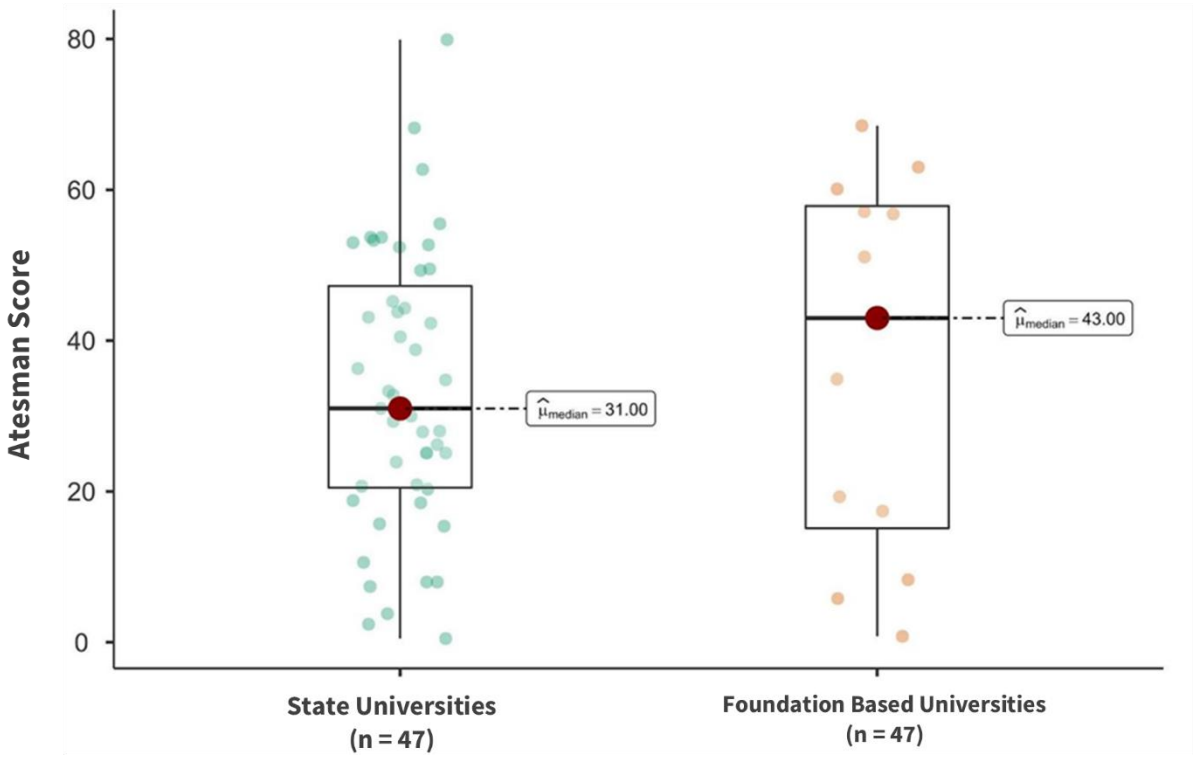

Figure 3. Atesman readability formula scores of the State and Foundation Based Universities

DISCUSSION

The internet has become the primary source of information that patients commonly use to obtain information about health (1). It is difficult for patients seeking treatment to distinguish between Internet resources that

provide quality and reliable information and those that provide low-quality information (16). For this reason, it is very important to have resources where patients can obtain accurate information through the Internet.

Despite the increasing amount of data on the Internet, there have been no studies on the websites of universities, which are official institutions where the level of trust of patients' parents is high. This study is the first to evaluate the quality and readability of information on the websites of the Faculty of Dentistry, Pediatric Dentistry Department.

To minimize the possible disadvantages of using the Internet for informational purposes, many tools have been developed to objectively evaluate the quality, reliability, and justification of online information. The DISCERN quality index and JAMA criteria are among the tools currently accepted for validity and reliability (16-18).

An important aspect of evaluating Internet information quality is whether a text is linguistically intelligible (19). Numerous tools have been developed to assess the readability of text (14,20). The Atesman Readability Formula is the first study to classify the readability levels of Turkish texts and adapt the coefficients in Flesh's formula to Turkish. The use of multiple assessment tools increased the quality of the study and allowed for a more comprehensive assessment. Therefore, in the current study, three different evaluation methods (DISCERN Quality Index, JAMA criteria, and Atesman Readability Formula) were used to evaluate the websites of dental faculties.

In the present study, Atesman scores for SU and FBU were 43 and 31, respectively. These scores indicate that the readability of websites is 'difficult'. Online information on university websites for informational purposes for pediatric dentistry patients is far beyond the recommended reading level. These data show that healthcare professionals should share content in a manner that minimizes the number of medical terms consisting of short and clear words and sentences in articles prepared for parents of patients.

Although SU scored significantly higher for Section 1 in the DISCERN Quality Index, the overall quality of information for all sites was found to be 'very poor'. The low scores on the 'reliability' of websites were due to the websites' lack of objectivity, additional sources of information, and insufficient information regarding publication dates. In a study conducted by Aghasiyev and Yilmaz(10), in which Internet information resources were evaluated in general, it was stated that the reliability and quality of information were not sufficient and that state resources, which are institutional structures, could contribute to obtaining more reliable resources with a coordinated program.

When the JAMA criteria were examined, the least provided was for the 'Attribution'

criterion. 'Authority' and 'Relevance' criteria remained at low levels in the scoring. When all criteria are evaluated, the lack of authors, reference sources, and the date on which the information was edited and updated are noteworthy regarding the information provided. In this study, most university websites did not have an author, date of writing, or update of the current content. As stated in Olkun and Demirkaya's study(21), in which they evaluated Internet information sources, the dates on which information was uploaded and updated should be clearly stated, particularly when preparing websites in the field of health. The sharing of date information by health professionals while preparing university websites plays an important role in terms of quality and up-to-date information. It is thought that this situation is of even greater importance and needs to be improved since the relevant websites belong to universities where education is given, and the current research follows. Information shared online without specifying the source causes uncertainty regarding the reliability of university websites. Therefore, health professionals should consider the sources of written material on websites.

The present study had some limitations. The results obtained from the websites in the short term are presented. Internet platforms have dynamic and constantly renewed features and websites are updated with a constant change in information.

CONCLUSION

Within the limitations of this study, it was determined that the quality and readability of information on websites prepared by the Faculty of Dentistry in Turkey for pediatric parents of patients was low. It is recommended that information on university websites, which are official institutions that closely follow scientific developments and are preferred by parents of patients for information purposes, should be checked with appropriate evaluation tools in terms of quality and readability. Considering that there are a significant number of dental faculties in Turkey and that the need for treatment of pediatric teeth is high today, it is important for the parents of patients to obtain accurate and high-quality information

Ethics Committee Approval: Since the study was conducted using online data, ethics committee approval is not required.

Peer-review: Externally peer-reviewed

Author Contributions: Concept: SEA, Design: İO, Data Collection and Processing: SEA, İO Analysis and Interpretation: SEA, Writing: SEA, İO

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