Quality and Readability Analysis of Information on Cleft Lip and Palate: Sample of Online Resources in Turkish*

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Abstract

Aim: Cleft lip and palate is one of the most common congenital craniofacial conditions with follow-up of many different professionals usually beginning at birth and continuing throughout life. Internet resources can influence people's decisions on health-related issues. The purpose of this study was to examine the information quality, verifiability, standard compliance, and readability of websites that offer information on cleft lip and palate.

Method: The first 100 websites accessed through "http://www.google.com.tr/" using the keyword "cleft lip and palate ("*dudak damak yarıkları*" in Turkish)" were evaluated and 64 websites were included in the analysis. The information quality, conformity to standards, and verifiability of the websites were scored according to HONcode criteria (0=lowest; 16=highest); Ateşman (0–29=very difficult; 90–100=very easy) and Çetinkaya (0–34=disabled level; 51+=independent level) readability indices were applied.

Results: The mean HONcode score of the websites was 4.79±2.07 (min=0; max=9). The average word length was 2.77±0.12 (min=2.44; max=3.13) and the average sentence length was 11.46±2.44 (min=5.4; max=19.1). The mean of Ateşman readability analysis was 57.57±8.92 (min=32.9; max=77.4) and the mean of Çetinkaya readability analysis was 57.93±3.27 (min=49.72; max=64.64).

Conclusion: The results indicate that the web pages have limited standards compliance, verifiability, and information quality. The Ateşman index places readability at a medium difficulty level, while the Çetinkaya index places it at an independent level. It is emphasized that content producers should pay attention to quality standards while developing the reading material on websites related to cleft lip and palate and pay attention to readability features so that visitors can easily access information.

Keywords: Cleft lip, cleft palate, readability, quality improvement, internet.

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Dudak Damak Yarığı ile İlgili Bilgilerin Kalite ve Okunabilirlik Analizi: Türkçe Çevrimiçi Kaynak Örneklemi

Öz

Amaç: Dudak damak yarıkları, genellikle doğumda başlayan ve yaşam boyunca devam eden, birçok farklı profesyonelin takip ettiği en yaygın konjenital kraniyofasiyal durumlardan biridir. İnternet kaynakları, insanların sağlıkla ilgili konulardaki kararlarını etkileyebilir. Bu çalışmanın amacı, dudak damak yarığı hakkında bilgi sunan web sitelerinin bilgi kalitesini, doğrulanabilirliğini, standartlara uygunluğunu ve okunabilirliğini incelemektir.

Yöntem: "http://www.google.com.tr/" adresinden "dudak damak yarıkları" anahtar kelimesi kullanılarak erişilen ilk 100 web sitesi değerlendirilmiş ve 64 web sitesi analize dahil edilmiştir. Web sitelerinin bilgi kalitesi, standartlara uygunluğu ve doğrulanabilirliği HONcode kriterlerine göre puanlanmış (0=en düşük; 16=en yüksek); Ateşman (0–29=çok zor; 90–100=çok kolay) ve Çetinkaya (0-34=engelli düzeyi; 51+=bağımsız düzey) okunabilirlik indeksleri uygulanmıştır.

Bulgular: İnternet sitelerinin ortalama HONcode puanı 4,79±2,07 (min=0; max=9) idi. Ortalama kelime uzunluğu 2,77±0,12 (min=2,44; max=3,13) ve ortalama cümle uzunluğu 11,46±2,44 (min=5,4; max=19,1) idi. Ateşman okunabilirlik analizi ortalaması 57,57±8,92 (min=32,9; max=77,4) ve Çetinkaya okunabilirlik analizi ortalaması 57,93±3,27 (min=49,72; max=64,64) olarak bulunmuştur.

Sonuç: Sonuçlar, internet sayfalarının sınırlı standartlara uygunluk, doğrulanabilirlik ve bilgi kalitesi özelliklerine sahip olduğunu göstermektedir. Ateşman indeksi okunabilirliği orta zorluk seviyesine yerleştirirken, Çetinkaya indeksi bağımsız bir seviyeye yerleştirmektedir. İçerik üreticilerinin dudak damak yarığı ile ilgili internet sitelerindeki okuma materyalini geliştirirken kalite standartlarına dikkat etmesi ve ziyaret edenlerin bilgiye kolay ulaşabilmesi için okunabilirlik özelliklerine dikkat etmesinin önemi vurgulanmaktadır.

Anahtar Sözcükler: Dudak yarığı, damak yarığı, okunabilirlik, kalite iyileşmesi, internet.

Introduction

Nowadays, individuals quickly access a wide range of information from online sources using internet-connected PCs, tablets, and cell phones[1]. However, online sources are frequently exempt from quality control and verifiability procedures[2]. Research has indicated that people are more likely to have their medical decisions changed as a result of the online health information they obtain when they search for answers to their medical concerns[3]. Cleft lip and palate is one of the most common congenital craniofacial conditions[4]. The multi/interdisciplinary follow-up and intervention processes for people with cleft lip and palate begin at birth and may occasionally last a lifetime. These processes may involve but are not limited to surgery, orthodontics, speech and language development, audiology, and psychosocial support. This will make it inevitable for

affected individuals or their families to consult online information as a source of information from time to time. Thus, the importance of the quality, verifiability, and readability of online information sources that individuals access in the field of cleft lip and palate emerges.

Information quality is a concept that refers to the standard and verifiability of information. HONcode Code of Conduct, from the Health on the Net Foundation (http://www.HealthOnNet.org), establishes accepted elements of the accuracy and reliability of health websites[5,6]. Readability refers to the degree of difficulty of texts, and researchers have put forward various formulas to evaluate readability. Readability index formulas are usually based on the number of letters, words, and sentences used in the text, the average number of syllables used in a word, and the average number of words used in a sentence. Ateşman readability index and Çetinkaya readability index have been frequently used in the Turkish literature to calculate the readability of different online resources in the fields of medicine and health[7–10]. When the studies conducted for Turkish online resources to date are examined, no research on cleft lip and palate has been found. Therefore, this study aimed to reveal the information quality and readability levels of online resources in Turkish related to cleft lip and palate.

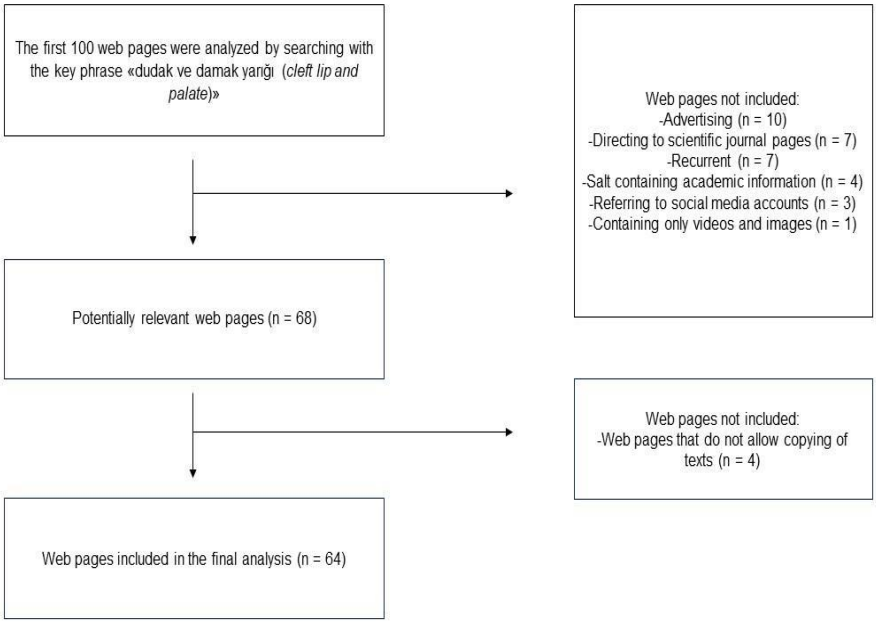
Material and Methods

The evaluated websites that provided information about cleft lip and palate with reading text were grouped according to the source and the academic title of the author. The standardization, verifiability, information quality, and readability features of the web pages were scored according to HONcode criteria with the consensus of the researchers. The readability features of the texts were leveled according to Ateşman and Çetinkaya readability indexes. This study does not require ethics committee approval.

Selection of Web Pages

In September 2023, according to 'Alexa' website data ["The top 500 sites on the web", 2021], the first 100 websites accessed through the most frequently used search engine "http://www.google.com.tr" using the keyword "cleft lip and palate" were evaluated. After excluding websites containing advertisements, directing to scientific journal pages, repetitive, containing only academic information, directing to social media accounts, and containing only videos, 68 websites were evaluated as potential, then four websites were excluded because they could not be replicated, and 64 websites were included in the final analysis (Figure 1).

Figure 1. Flowchart for the included web pages



Quality Evaluation

The quality of information, conformity to standards, and verifiability of the websites were scored by the researchers by consensus according to the HONcode criteria (min = 0, max = 16). All websites were scored on a 0–2 scale (0 = no information, 1 = insufficient information, and 2 = sufficient information) according to 1) author authority/authority, 2) complementarity, 3) confidentiality, 4) attribution, 5) verifiability, 6) transparency of sources and authors, 7) transparency of sponsorship and 8) honesty in editorial and advertising policy. Scores were determined by consensus after comparison by the researchers.

Readability Measurement

For the readability level calculations of the websites scanned for the study, *Ateşman[11] and **Çetinkaya[12] readability score calculations from the Turkish text readability calculation formulas were used.

**Ateşman readability formula = 198.825 - (40.175×mean length of words) - (2.610×mean length of sentences)*

***Çetinkaya readability formula = 118.823 - (25.987×mean length of words) - (0.971×mean length of sentences)*

The number of letters, sentences, and words used in the readability index formulas and the average sentence (word count) and word lengths (syllable count) were calculated by copying the web page texts and transferring them to the online calculation tool (http://okunabilirlikindeksi.com/). Ateşman and Çetinkaya readability index scores and classification of reading levels are presented in Table 1.

Table 1. Information on Ateşman and Çetinkaya Readability Indices

Ateşman Readability Index		**Çetinkaya Readability Index**		
Score	**Level**	**Score**	**Level**	**Grade**
90–100	Very easy	51+	Independent	5, 6, 7
70–89	Easy			
50–69	Medium	35–50	Scholastic	8, 9
30–49	Difficult			
0–29	Very difficult	0–34	Challenged	10, 11, 12

Data Analysis

IBM Statistical Package for Social Sciences (IBM-SPSS Inc., Chicago, IL, USA) 22.0 program was used for data analysis. Means, standard deviations, and percentages were provided.

Results

The type, author, readability, and quality findings of the web pages are given in Table 2. According to these findings, it was observed that information about cleft lip and palate was mostly shared on personal web pages (71.8%). The majority of the text authors did not have an academic career (93.75%). The majority of the texts were at the intermediate level according to Ateşman[11] readability scores, (71.8%), and the majority of the texts were at the independent level according to Çetinkaya[12] readability scores (93.75%). The HONcode score of the web pages, descriptive findings, and readability score findings of the texts are given in Table 3.

Table 2. Type, author, readability, and quality findings of web pages

Variable		**n**	**%**
Type of the web page	University	2	3.1
	Special education and rehabilitation center	1	1.6
	Hospital	8	12.5
	Personal website	46	71.8
	Newspaper	1	1.6
	Foundation	5	7.8
	Oral care products company website	1	1.6
Total		64	100
The academic career of the author	+	4	6.25
	-	60	93.75
Total		64	100
HONcode certificate	+	-	-
	-	64	100
Total		64	100
ARI	Difficult	12	18.6
	Medium	46	71.8
	Easy	6	9.4
Total		64	100
ÇRI	Scholastic	4	6.25
	Independent	60	93.75
Total		64	100

ARI: Ateşman readibility index; ÇRI: Çetinkaya readibility index.

Table 3. HONcode score of web pages, numerical data of texts, and readability score findings

Variable	Mean	SD	min	max
HONcode score	4.79	2.07	0	9
Number of sentences	61.42	41.8	10	181
Number of words	879.5	1787.32	120	14525
The mean length of sentences (number of words in sentences)	11.46	2.44	5.4	19.1
The mean length of words (number of syllables in words)	2.77	0.12	2.44	3.13
Ateşman readability index	57.56	8.92	32.9	77.4
Çetinkaya readability index	57.93	3.27	49.72	64.64

Discussion

Cleft lip and palate is one of the most common congenital craniofacial conditions and can require the intervention of many different professionals, with follow-up usually beginning at birth and continuing throughout life. This increases the likelihood that affected individuals or their families may occasionally turn to online information as a resource. It is of serious importance that online information resources are of certain standards, accurate, guiding, and easy to understand to guide people who want to access information, for their family members or themselves at various times throughout their lifetime, about cleft lip and palate, specialists, perhaps intervention types and timing, and many other content. Since this seriousness is emphasized in many health-related fields, criteria have been set for the regulation of the structure of websites. In this study, the conformity to standards, verifiability, information quality, and readability features of the web pages providing information about cleft lip and palate with reading text were evaluated. It was observed that the web pages were limited in conformity to standards, verifiability, and information quality according to HONcode criteria and that their readability characteristics were medium according to Ateşman and independent according to Çetinkaya readability indices.

Although the knowledge accumulation in this field has increased with the research on the websites that provide information with the HONcode criteria established to regulate the content of online information resources in health-related fields, studies generally report that the average scores of the websites providing health-related information are low according to the criteria[10]. In the current study, it is observed that online reading texts providing information about cleft lip and palate have limited compliance with standards, verifiability, and information quality. Preparation of the information contained in online web pages providing information about cleft lip and palate by competent professionals in the field, including contact information that visitors can reach when they want to get more detailed information, making arrangements to protect the personal data of visitors, citing the sources from which the information is cited, and specifying the identities of all individuals and organizations that contribute to the production of the content are among the issues that can be taken into consideration to improve the quality of the pages[13]. Since information obtained from reliable sources has the potential to have a positive impact on the treatment process by considering these factors content producers can improve the quality of their work and guide visitors in the proper path. In addition to possessing specific quality attributes, the content must be readable for the visitors to find the web pages appealing.

The importance of readability in the field of health is particularly emphasized for online information to appeal to and be accessible to the general reader, and the readability level should be at the fifth or sixth-grade level due to the generally low health literacy in society[14,15]. In order to best meet the needs of visitors, attention should be paid to ensuring the ease of reading text that appeals to the general reader. The findings obtained in this study showed that the readability of the majority of the texts according to the Ateşman index was at the medium level, while the Çetinkaya index showed that it was at the independent level. Accordingly, it is thought that the readability of Turkish online resources providing information about cleft lip and palate can be made a little easier. Compared with studies targeting other health fields in the literature, it can be interpreted that the readability of Turkish online resources providing information about cleft lip and palate is close to the targeted level. For example, Yaran and Özkan's study on occupational therapy content published in 2022 revealed that the readability of Turkish websites was at least at the level of high school graduates and above[10]. Although the level of readability in this study evaluating cleft lip and palate resources was found to be at an intermediate and independent level (i.e., 5th, 6th, and 7th-grade level), considering the

low level of health literacy and the difficulty in comprehending medical terms, the importance of organizing the content in a way to increase readability as much as possible emerges.

The key limitation of this study is that while the evaluation tools used in this study are valuable tools for providing information on quality and readability, they do not provide information on the level of *understandability* and *actionability* of the content. Further research is required after standardized tools have been adapted into Turkish such as the Patient Education Materials Evaluation Tool (https://www.ahrq.gov/health-literacy/patient-education/pemat.html).

Conclusion

The study is the first standards compliance, verifiability, information quality, and readability study for Turkish internet reading resources that provide information about cleft lip and palate and has the feature of guiding content producers about the important issues to be considered in preparing text content. The results of the study show that it would be useful to improve the information content of websites related to cleft lip and palate and to facilitate readability so that every reader can have access to information more easily.

Author Contribution

Planning the research: İK; literature review, data collection, data analysis, and reporting the research: İK and AİM. All authors reviewed and approved the final version of the manuscript.

Ethical Approval

Ethical committee approval was not needed for this study.

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Conflict of Interest Declaration

There is no conflict of interest.

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