Original Article

Readability and content assessment of patient information texts on oral cancers found on Turkish websites

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Abstract

Aim: Oral cancer is one of the health problems that results in high mortality in the community. It is known that, when diagnosed in the later stages (3 or 4), the disease is difficult to treat. Patient education on heredity and early diagnoses are critical for the successful treatment of oral cancer. This study aimed to evaluate Turkish texts about oral cancers found online in terms of their readability and content.

Methodology: The first 100 websites returned from a Google search using the keywords "Ağız kanseri" ("oral cancer," in Turkish) were examined. The patient information texts obtained were evaluated according to the Ateşman Readability Index. Their contents were also evaluated in terms of whether or not they provided sufficient information about the disease.

Results: It was understood that the texts examined in the study were of medium difficulty according to the Ateşman Readability Index (mean 61.73± 11.81). The content of the information on the websites examined in the study was deemed sufficient and useful. Most of the websites examined were those of private clinics and hospitals.

Conclusion: The results of the study indicated that the patient information texts found on Turkish websites were of medium reading difficulty. Although they are sufficient in terms of content, if they are not understood by the patients, their intended effects on readers will not be seen.

Keywords: oral cancer, readability, patient information texts

Introduction

As online healthcare information becomes increasingly popular, the internet has become the first source for many users when looking for information about their health-related problems. The benefit of this resource in conveying health information to ordinary patients has been scientifically proven (1, 2), and internet use has spread throughout the world.

According to Turkey Statistics Institute data, the number of individuals in Turkey aged 14-74 years using the Internet in the last five years (2016–2021) increased from 53.8% to 79% (3).

Oral cancer is one of the health problems that results in high mortality in the community. It is known that, when diagnosed in the late stages (3 or 4), is difficult to treat. While the 5-year survival rate is 80% in the presence of a localized tumor, this rate is only 40% in the presence of metastasis. Despite the

technological advances in cancer treatments, this rate of increase cannot be seen in the treatment of oral cancers (4). For this reason, early diagnosis and patient awareness are important.

Patient education about heredity and early diagnosis is critical for the treatment of oral cancer (5), and the use of the internet may be an appropriate choice for increasing the public's awareness of important diseases, such as mouth cancer. However, it is important that the texts contain sufficient and understandable information accessible to ordinary citizens. In short, they should be written using language that can be easily followed and understood by readers. The concept of readability is a mathematical one, therefore its evaluation yields objective results (6).

This study aimed to evaluate Turkish texts on oral cancers found on the internet in terms of their readability and content.

Materials and Methods

In March 2021, the first 100 websites reached during a Google search using the keywords "Ağız kanseri" ("oral cancer" in Turkish) were examined. Texts shorter than 20 sentences, articles written for academic purposes, forum sites, sites created for healthcare professionals, and sites for commercial purposes were not included in the analysis. In all, 56 texts containing educational texts for patients were removed from these sites and transferred into Microsoft Word. The authors and address information of the analyzed websites were recorded.

Readability Measurement

We used the formula developed by Ateşman in 1997 in our study (7). This formula was developed by adapting the Flesch Ease of Reading Formula to Turkish (Table 1).

Table 1. Ateşman Turkish readability ranges

Ateşman Value Range of Readability
90-100 Very easy
70-89 Easy
50-69 Medium difficulty
30-49 Hard
1-29 Very Hard

Given that Turkish is a unifying language, the average numbers of syllables and words are higher than is typical among European languages. For this reason, Ateşman used mathematical values suitable for the structure of the Turkish language in the coefficients in this formula (7).

A free online readability program was used to determine the Ateşman readability level (http://okunabilirlikindeksi.com/). The data obtained were then transferred to Microsoft Excel.

Evaluation of the Content of the Texts

We asked the following questions to evaluate the content of patient information in the texts: "Has the disease been defined?," "Has the etiology of the disease been explained?," "Has the importance of early diagnosis been mentioned?," "Have the treatment options been specified?," and "Are the symptoms of the disease specified?" An oral and maxillofacial surgeon and a general dentist evaluated the text contents.

Statistical analysis

Normally distributed data, mean, and standard deviation were calculated according to the Kolmogorov Smirnov test. SPSS software version 21 (IBM SPSS Inc., Armonk, NY, USA) was used for data analysis. The contents of the texts were calculated by percentage according to whether or not they answered the questions mentioned above. A separate table on contextual competence has been created.

Results

In March 2021, we conducted a Google search using the term "Ağız kanseri" ("oral cancer" in Turkish). The first 100 websites returned were examined. Considering the exclusion criteria, some websites were omitted from the study. Patient information texts on a total of 56 websites were evaluated for their readability and content. Of these 56 sites, 43 were corporate sites belonging to private clinics and hospitals (Table 2).

Table 2. Evaluation of the examined websites by type

Type of website	Percentage of sites	Total number of sites
Private health institutions	77	43
Newspapers	9	5
Professional organizations	8	4
Commercial institutions	4	2
Public institutions	1	1
Universities	1	1

In the study, the language properties of the patient information texts on the 56 websites examined were examined. The averages of word count, character count, sentence number, average word length, and average sentence length were determined (Table 3). The average of the Ateşman index and readability level of the texts are also included in the same table.

While the readability average of all sites is moderate according to Ateşman, it is seen that the readability level can be understood by individuals with an education level of 9th-10th grade and beyond. (Mean 61,73 ± 11,81) The readability level of 10% of the texts was determined as difficult, and the readability level of 17% was determined as easy.

Table 3. Linguistic statistics of texts on oral cancer

Textual features	Mean	Standart Deviation	Minimum	Maximum
Number of words	568,32	438,22	245	2730
Number of characters	4329,37	3255,72	2086	19669
Number of sentences	53,33	43,76	22	243
Average word length	2,68	0,37	2,44	2,93
Average sentence length	11,15	3,05	6,4	22,1
Ateşman index	61,73	11,81	36,7	75,2
Readability level	9.-10. Grade		7.-8. Grade	Undergraduate Graduate

For the evaluation of text content, patient information texts on 56 websites examined in the study were examined. The examination was performed by a general dentist with at least 5 years of professional experience and an oral and maxillofacial surgeon. The description of the disease in the texts, etiological factors, the importance of early diagnosis, treatment options, and symptoms of the disease were evaluated in terms of subtitles. Sixty-six percent (n = 37) of the patient information texts clearly defined oral cancer.

The etiology and treatment method of the disease is specified in 67% (n = 38) of the websites. The importance of early diagnosis, which is an important element in oral cancer treatment, appears to be included only in 69% (n = 39) patient information texts. The findings of the disease are seen to be as high as 82% (n = 46). In 21% (n = 12) of the texts examined, all of the sub-titles in content evaluation are mentioned (Table 4).

Table 4. Evaluation of the content of patient information texts

Description of the disease	%66	n=37
Etiology of the disease	%67	n=38
The importance of early diagnosis	%69	n=39
Treatment method	%67	n=38
Symptoms of the disease	%82	n=46

Discussion

The increase in the number of internet users and the ease of accessing the information on the internet have made it more accessible, especially for patients, to access health information. For serious health problems such as cancer, patients and their relatives frequently use the internet to get information on issues such as treatments, disease-related tests, and understanding the course of the disease (8). The study is the first to evaluate patient information texts on oral cancers written in Turkish. As a result of the study, it was observed that the patient information texts on Turkish websites were of medium difficulty.

It is known that when individuals experience health problems, they first seek information from the internet instead of consulting a doctor (9). Understanding this information correctly and turning it into useful information depends on the understanding capacity of the people. At this stage, it is important that the information on the internet is understandable. The concept of readability is a concept that was first introduced in America in the 1800s (10). Readability is a matter of whether the text written in a language can be easily followed by the reader. A text written in English must be written in short sentences with few syllables so that it can be read easily by a reader with 6-8 years of education (11). The readability value in Turkish, which is a suffixed language, does not depend solely on the length of the sentence and the number of syllables of the words. For this reason, coefficients for the Turkish language have been added to the readability formulas created for the English language (7).

It is recommended that the readability of patient education texts should not be higher than the 6th-8th grade level (12-14). In the study, the average readability levels of texts on oral cancer are at the 9th-10th grade. Accordingly, it is understood that the texts about oral cancer on the internet do not appeal to the majority of the public.

According to Ateşman, the average sentence length in the Turkish language is 9-10 words, and the average syllable length is 2.6 (7). The syllable length in the texts examined in our study is consistent with these data. However, it is seen that the sentence length average in the texts we examined is higher. This value shows that the texts are difficult to understand in terms of readability. Decreasing this parameter can increase the readability of the texts.

Working in our patient information texts, it seems to be in poor readability level according to Turkey's profile. A study with oncologists in Canada reveals that the healthcare professional sees the availability of health information on the internet as a positive development (15). However, some healthcare professionals may be irritated by patients who compare their medical proficiency with internet information (16). Therefore, healthcare professionals and patients should collaborate in obtaining and analyzing information. It will have positive results if physicians direct their patients to websites that contain reliable health information and are understandable.

When the contents of the texts on the 56 websites evaluated in the study were evaluated, it was seen that the definition, etiology, treatment options, and the importance of early diagnosis of oral cancer were mentioned on most websites. In addition, it is seen that the number of websites that mention the symptoms of the disease is more. It is important to be able to diagnose a disease with high mortality, such as oral cancer early (4). It is pleasing that the findings of the disease are mentioned in almost all of the texts analyzed in terms of early diagnosis of the disease. In content reviews, it has been observed that there is no false information on any website. It is seen that most of the sites examined belong to health institutions in the private sector. Only one website belonging to public institutions was included in the study.

Conclusions

It has been observed that the readability of the Turkish language texts on oral cancer on the internet is of medium difficulty. However, this value is higher than the overall profile of Turkey's population. Although the texts are sufficient in terms of content, if they are not understood by the patients, the intended effect on the reader will not be seen. Public health institutions and professional organizations should revise the texts on oral cancer by considering the readability principles.

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