

Readability Assessment of Patient Information Texts on Amblyopia on the Websites of Major Hospitals in Turkey

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ABSTRACT: *Especially in the last two decades, the use of internet has increased dramatically. As expected, the patient information texts on the websites of the hospitals are also read by much more people relative to the past. In this context, this paper mainly handles the readability of patient information texts on amblyopia on the websites of major hospitals in Turkey. Since the assessed texts are in Turkish, the readability assessments are carried out by Ateşman Formula which is mainly created in order to measure the readability of the texts in written in Turkish. For this purpose, the relevant information texts of the first ten hospitals that were reached as a result of typing the keyword “göz tembelliği” -which is the Turkish of “amblyopia”- on the internet search engine Google were evaluated. Average value of the Ateşman index of examined texts corresponds to the medium difficulty classification. However, the value found is quite close to the lower limit of the medium difficulty class. This reflects that the readability level of the text is relatively low. The readers of these texts consist of people from various segments of society with various levels of education. Moreover, it is highly probable that the majority of the aforementioned readership did not have a health or medical education. For all these reasons, the readability levels of these texts should be more appropriate for the readers. Various regulations can be brought by official authorities in this regard.*

KEYWORDS: *Amblyopia, Readability, Online Educational Materials, PatientInformation Texts*

INTRODUCTION

As technology develops and becomes more widespread, people's lifestyles and habits are also completely affected by this situation and therefore, changes. In this framework, one of the most important products offered by the developing technology is the internet. With the widespread use of the internet, many activities are now carried out online. This situation has significantly increased the use of online resources in processes such as obtaining information about diseases and treatment methods and deciding whether or not to receive treatment (Boyer et al., 2016: 700). According to the “Household Information Technologies Usage Survey” conducted by Turkish Statistical Institute

(TUIK) in 2021, 92.0% of households have access to the internet from home in 2021, for instance. This is also reflected in the doctor-patient relationship (Mota et al., 2018: 692).

There are many online resources that offer information on diseases and treatment methods. One of the most important and frequently used of these is the related web pages in the websites of hospitals. For example, hospitals' websites usually contain some summarized information on various diseases, such as the nature of these diseases and treatment methods. As expected, the readability and comprehensibility of the texts containing this information is very important. In this direction, the patient information texts on the websites of the hospitals have become readable by more people. The readers of these texts consist of people from various segments of society with various levels of education. In addition, it is highly probable that the majority of the aforementioned readership did not have a health or medical education. For all these reasons, the readability levels of these texts should be suitable for the audience. Therefore, these texts should be created by considering the possible education and knowledge levels of the potential audience that is expected to read them. This requires that the texts in question be as "*readable*" as possible. The functionality of these texts, which were created to inform patients, their families, all other stakeholders and relevant persons, will increase. As a matter of fact, the readability of a text is directly related to its usability. In this context, research on the readability of medical texts now occupies a larger place in the literature than in the past. A significant number of researchers have concluded that the vast majority of medical texts encountered by patients exceed patients' ability and competence to read and understand these texts (Rudd, Moeykens and Colton, 1999).

Such undesirable circumstances and inconsistencies have the potential to negatively affect patients' health-related conditions. Indeed, Baker et al. (1998) found that patients with low health literacy were hospitalized twice as often as others. In addition, patients with high health literacy contribute more to their own care, including exploring options beyond the healthcare available to them. Patients with relatively low functional health literacy, on the other hand, are more likely to limit decisions about their own treatment only to those offered to them by doctors (Smith et al. 2009). Leroy et al. (2013) examined the effects of word simplification and coherence development on the degree of readability and found that these factors interact in complex ways with both perceived difficulty and actual difficulty.

Moreover, a review of the readability of patient information texts at the VADC (Veterans Administration Medical Center) from 1975 to 1982 found that these texts were at the undergraduate level and their readability decreased over the time period studied (Baker and Taub, 1983). Beyond patient information texts, there are also readability issues in other medical materials intended directly for lay people. For example, Temnikova (2012a, 2012b) identified ten different readability/complexity issues in an analysis of emergency first aid instructions.

This paper aims to evaluate the readability of patient information texts on amblyopia on the websites of major hospitals in Turkey. For this purpose, the relevant information texts of the first ten hospitals that were reached as a result of typing the keyword "*göz tembelligi*" -which is the Turkish of amblyopia- on the internet search engine Google were evaluated. Only the websites of hospitals are

evaluated and among them, the ones which contain only video or visual material, informal and texts containing less than 15 sentences were excluded from the evaluation. The texts obtained by this method were transferred to the Microsoft Word program and numerical data were obtained. The readability measures (values/levels) of the evaluated texts were calculated according to the Atesman (1997) formula by transferring the obtained data to the Microsoft Excel program.

As a result of the literature review conducted in Turkish and English, there is no study on the readability evaluation of patient information texts written in Turkish on amblyopia. Therefore, in addition to contributing to the literature, this study is expected to have a widespread effect in terms of benefiting decision makers and society.

Conceptual Framework and Theoretical Background

“Amblyopia, also referred to by the public as “lazy eye”, is a unilateral or infrequently bilateral condition in which the best corrected visual acuity is poorer than 20/20 in the absence of any obvious structural anomalies or ocular disease” (Rouse et al., 2004). Amblyopia is a kind of visual impairment secondary to abnormal vision experience that cannot be corrected in a short time with only the use of glasses in early childhood (Wong, 2012).

On the other hand, although it has been popular lately, the concept of readability is a fundamental concept whose roots traces back quite a long time ago. Readability provides some quantitative data about the texts, giving an idea of whether the text is easy or difficult to understand. According to Chall (1988: 3), readability studies were carried out to make the language more understandable.

The concept of *readability* refers to that *“what makes some texts easier to read than others”*. This concept is different from *legibility*. Both are often confused with each other however, the concept of *legibility* concerns typeface and layout (DuBay, 2004: 3).

The readability of a text depends mainly on the quantitative factors related to the content of the text such as the number of words, syllables, and sentences used in that text. Therefore, this concept is different from the concept of *intelligibility*, which is related to the qualitative characteristics of the text (Ateşman, 1997: 71).

In this context, Klare (1963) defines the concept of readability as *“the ease of understanding or comprehension due to the style of writing.”* This approach mainly related to the style of writing rather than the qualitative features of the text such as coherence, content and/or organization. Similarly, Hargis et al. (1998) defines readability as the *“ease of reading words and sentences”* by referring to the clarity of a text.

On the other hand, according to McLaughlin (1969) readability is *“the degree to which a given class of people find certain reading matter compelling and comprehensible”*. This approach focuses mainly on the interaction between the text and the class of readers. Therefore, it also deals with the characteristics of the class of readers such as level of reading skill, level of linguistic knowledge, motivational features, etc. Dale and Chall (1949) proposed a much more comprehensive definition. According to them, the success of a text depends on the extent to which readers understand it properly,

how optimally they read it, and find it interesting. Ateşman (1997) proposed that readability is related to that the whether the text is easy or difficult to be understood. In the studies on readability, the quantitative characteristics of the texts were taken as a criterion, and it was aimed to determine the readability of the text by interpreting these values. (Ateşman 1997: 71).

One of the most basic approaches developed to measure the readability of Turkish texts is the Ateşman formula. This formula, which was defined by Ender Ateşman in 1997, was developed based on word and sentence lengths by adapting the Flesh Reading Ease formula to Turkish (Ateşman E. 1997). Because of the feature of Turkish being a synthetic language, the syllable and word averages are higher than European languages. Therefore, in this developed formula, the coefficients are expressed with mathematical values suitable for the structure of the Turkish language.

AIM, SCOPE AND METHODOLOGY

The aim of this study is to evaluate the readability of patient information texts about amblyopia on the websites of major hospitals in Turkey. For this purpose, the relevant information texts of the first ten hospitals that were reached as a result of typing the keyword “*göz tembelliği*”-which is the Turkish of amblyopia- on the internet search engine Google were evaluated.

Only the websites of hospitals are evaluated and among them, the ones which contain only video or visual material, informal and texts containing less than 15 sentences were excluded from the evaluation. The patient information texts on the websites of the top ten hospitals determined by this method were evaluated within the scope of the analysis.

The texts obtained by this method were transferred to the Microsoft Word program and numerical data were obtained. The readability measures (values/levels) of the evaluated texts were calculated according to the Ateşman (1997) formula by transferring the obtained data to the Microsoft Excel program.

The readability levels of the information texts about amblyopia, which are suitable for the criteria determined in the Google search engine used in our study, were calculated using the Ateşman (1997) formula, one of the Turkish readability formulas. All the texts were edited in Microsoft Office 2013 Word environment, and the numerical data obtained with this program were transferred to the Microsoft Excel program and the formula calculation was carried out.

Ateşman Readability Formula

This formula, which was defined by Ender Ateşman in 1997, was developed based on word and sentence lengths by adapting the Flesh Reading Ease formula to Turkish (Ateşman E. 1997). Ateşman readability formula is:

Readability level score = 198.825 - 40.175 x (total syllables/total words) - 2.610 x (total words/total sentences)

The readability level of the text in the Ateşman formula becomes easier as the score approaches 100, and becomes more difficult when approaching 0. Although it was primarily formulated to examine the readability levels of literary texts, the Ateşman formula was also used in the evaluation of texts on health (Kozanhan and Tutar, 2017).

Table 1. Turkish Readability Ranges-Ateşman (1997) Formula

Ateşman Value	Readability Range
90-100	Very Easy
70-89	Easy
50-69	Medium Difficulty
1-29	Very Difficult

Reference formula Ateşman (1997).

RESULTS AND DISCUSSION

Average value of the Ateşman index of examined texts was found to be 52.4 which correspond to the medium difficulty classification. However, the value found is quite close to the lower limit of the medium difficulty class. This reflects that the readability level of the text is relatively low. The rapid spread of internet use in the world has made it possible for patients and their relatives to access various health information more easily in the field of health. The widespread use of the internet aims to achieve public health goals. For this reason, in order for the researches made by patients in search engines to reach their goals, the content of the information texts about the diseases should be as easily readable and understandable as the accuracy.

The readers of these texts consist of people from various segments of society with various levels of education. Moreover, it is highly probable that the majority of the aforementioned readership did not have a health or medical education. For all these reasons, the readability levels of these texts should be more appropriate for the readers. Various regulations can be brought by official authorities in this regard.

Various regulations can be brought by official authorities in this regard. In this context, certain standards can be determined for the writing of such texts. For example, the American Medical Association (AMA) and the National Institutes of Health (NIH) propose that online education resources be written between a third and seventh level of grade, for instance (John et al., 2015: 430). According to the results of the study, although the readability levels of the mentioned texts are of medium difficulty, simplification and revision are still needed due to the low level of general literacy and health literacy in our country. If the readability levels of the texts are reduced and more clear, understandable and easy-to-apply information can be presented to the patient, the patient-doctor relationships may reach at the desired level, and such an improvement directly affects the quality and continuity of the health services provided.

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