Annals of Medical Research

DOI: 10.5455/annalsmedres.2019.07.391 2019;26(11):2694-7

Original Article

The comparison of readability between information texts from web sites of private clinics and private hospitals

Ihsan Kuzucu

Aksaray University, Faculty of Medicine, Department of Otorinolarengoloji, Aksaray, Turkey

Abstract

Aim: Rhinoplasty is a surgery which can be done in state hospitals, private hospitals and private clinics. Patients gen-erally go to the most suitable clinic whereas most surgeons prefer to perform surgery in private clinics. Thus, patients often confuse where to attend. Social media plays a crucial role for patients to decide where and who to choose. We compared readability of the information text from internet pages of private clinics and private hos-pitals from both plastic surgeons and otorhinolaryngologists.

Material and Methods: The word "Rhinoplasty" was searched through internet and first 30 web sites were taken into account. First 100 words from information texts about rhinoplasty from both private clinic and hospital web sites were copied and studied using a program called LIDA. Gunnig-Fog index, Flesch-Kincaid and Atesman values were noted and evaluated.

Results: The readability of both private hospitals and private clinics were found to be hard. Flesch-Kincaid values showed that information texts from private clinics in web sites (23.24 ± 3.45) were significantly different (p=0,035) than private hospitals (25,19 ± 3,5). As believed to be more specific to Turkish, Atesman values in private clinics (48,58 ± 16,71) were found to be more readable than private hospitals (38.81 ± 18.06) (p=0,034).

Conclusion: Comparison of information texts between private clinics and private hospitals of plastic surgeons and otorhino-laryngologists showed that Atesman values, which are believed to be more specific to Turkish, and Flesch-Kincaid values were significantly high in private clinics suggesting it is easier to understand. To sum it up, infor-mation texts guide patients to private critics.

Keywords: Internet; otorhinolaryngologic surgical procedures; otorhinolaryngologic diseases;communication; private clin-ic; private hospital; rhinoplasty.

INTRODUCTION

For surgeons, choosing the right patient affects the success of rhinoplasty operations. However, for patients, choosing the right hospital as well as choosing the surgeon is also im-portant. Preoperative and postoperative comfort, care of medical staff and the cleanliness di-rectly affect the mood of the patients. That's why it is normal for patients to be in need of information about the operation. Patients seek out information about operation and its' com-plications, other treatment modalities and try to get contact with patients with similar diseases through internet. Generally no specific information is given in web sites of state hospitals. For this reason, information texts about rhinoplasty operation in the web sites of private clinic and private hospitals are very important for patients.

Researches about health are found to be about 59.6% in Turkey (1). Health knowledge researches through internet raise awareness only for 56%. 49% of researchers want to be aware of subjects like stress management or diet and want to make a difference in their life-styles (2). There are not many studies about the correct understanding of this information, especially in Turkish.

We compared the readability of information texts from web sites of both private clinic and private hospitals in Turkish. The subject of our study is to show if there is any difference between the readability of private clinics and hospitals and whether readability affects the choice of a patient.

MATERIAL and METHODS

We divided our study into 2 groups according to information texts from the web sites of private clinics and private

Received: 10.07.2019 **Accepted:** 20.10.2019 **Available online:** 06.12.2019
Corresponding Author: Ihsan Kuzucu, Aksaray University, Faculty of Medicine, Department of Otorinolarengoloji, Aksaray, Turkey
E-mail: ihsankuzucu@hotmail.com

hospitals. Location, cookies and account information were all closed in order to avoid any advertisements. We search the word "Rhinoplasty" through Google (Michigan, USA) which is believed to be largest used public search engine (3). The first 30 web sites from clinic and hospitals were taken into account and their rhinoplasty text were copied to Microsoft Office Word program (Microsoft Corporation, Mac OS X 10.10, Mexico, USA).

We used a computer program called LIDA (v1.2, Minervation Ltd, Boston, USA) which has formulas about the readability terms (1). There are many studies about the readabil-ity in otolaryngology but very few made in Turkish language (4-8). We used terms which are believed to be more related with Turkish such as Atesman, Gunning Fog, Flesch-Kincaid val-ues (1).

The first 100 words from information text were calculated automatically and copied to LIDA. Gunning Fog index, Atesman, Flesch-Kincaid values from each text were calculated through program. To ensure the sensibility of the program each value was provided via formu-la manually. Basically these formulas are;

•Gunning Fog index= 0.4x(Ratio of words with three syllables+mean number of words)

Ratio of words with three syllables= 100x (number of words with three of more sylla-bles/number of rest of the words)

Mean number of words=Total number of words/total number of sentences

Gunning Fog index defines easiness or the hardness of the text with the interest of age of the group and word length. Gunning Fog index is measured with the ratio of three syllables to average of words (9). If Gunning Fog index values are between 8 to 10 meaning the text is easy, above 11 is hard to read (9).

Table 1. Readability scores according to Flesch-Kincaid

Readability of the text	Mean length of the sentence	Level of text	Estimated Age of readers
Very Easy	<8	90-100	5
Easy	11	80-90	6
Quite Easy	14	70-80	7
Standard	17	60-70	8-9
Quite Hard	21	50-60	10-11
Hard	25	30-50	13-16
Very Hard	>29	0-30	Adults

Flesch-Kincaid is measured with the length of words and sentences.

Lenght of words= number of syllables/number of words Lenghtofsentences=numberofwords/numberofsentences

The lower syllables per words, the easier of the readability of the text (Like 1:Easy; 10:Hard) (Table 1)(10). In addition, whenever the length of the words and sentences become higher, the readability and understanding of the texts get lower.

•Atesman = 198,825 – [40.175 x (number of syllables / number of words)] – [2.610 x (number of words / number od sentences)]. Atesman is believed to be relevant with the readability of the text (Table 2). The value of 100 is believed to be very easy, where as 0 is believed to be very hard (11).

After all of the values were calculated through LIDA program and compared. Statisti-cal analysis of our study was done with SPSS 25.0 (IBM Corparation, Armonk, New York, USA). The data was calculated with Kolmogorov Smirnov test and independent T-test and Mann-Whitney U test.

Our study was done according to Helsinki Principles and Declaration.

Table 2. Readability scores according to Atesman

Atesman Score	Readability of Text
1-29	Very Hard
30-49	Hard
50-69	Mild
70-89	Easy
90-100	Very Easy

RESULTS

Gunning Fog index, Atesman and Flesch Kincaid indexes from the information texts of both private hospitals and clinic were compared in Table 3.

When compared Gunning Fog values of private hospitals were 18.87 where in clinic group values were found to be 17.60. There was no statistical difference between the groups (p=0.184) (Table 3). This result showed that both information texts were hard to read.

Table 3. Comparison of the texts between the groups according to Gunning-Fog, Flesch-Kincaid and Atesman Scores

	Private Hospitals	Private Clinics	P value
Gunning-Fog	18.87 ± 3.79	17.60 ± 3.52	0.184
Flesch-Kinkaid	25.19 ± 3.5	23.24 ± 3.45	**0.035**
Atesman	38.81 ± 18.06	48.58 ± 16.71	**0.034**

Flesh-Kincaid value in private hospitals was 25.19; whereas it was 23.24 in private clinics. As it was higher in private hospitals, it was believed to be hard to read. On the other hand, it was found quite hard in private clinics. When compared with each other, information texts of private hospitals were significantly harder to read (p=0.035) (Table 3).

Atesman values, which are believed to be more related with Turkish, were measured 38.81±18.06 in private hospitals and 48.58±16.71 in private clinics; meaning hard in both groups. However when compared with each other, it was showed that texts from private hos-pitals were harder to read statistically (p=0.034) (Table 3).

DISCUSSION

Flesch-Kincaid and Atesman values were significantly

different between information texts from web sites of private clinic and private hospitals ($p<0.05$). This difference showed that private clinics have relatively more readable texts in internet than private hospitals.

Doctor and patient relationship is not always possible in state hospitals because of high population of patients and limited time for each patient. As this relationship deteriorates or isn't properly built, patients search for private hospitals or clinics. One study showed that most of the patients forgot or misunderstood the doctor after the conversation (12). Other studies showed that patients forgot what the doctors had said to them just after 5 minutes (1). That's why a private and quiet place and written information texts are necessary. These text should be good planned and easy to read to catch patients' attention (13). In addition, infor-mation texts not only increase the knowledge of the patients but their attendance to therapy (14,15).

With more time and without panicking, information texts are easy to reach for 24/7 through internet. Internet has many advantages such as it is quicker, has a chance for meeting to similar patients, easier to follow for postoperative success with images (16). Patients gener-ally attend to surgeons who give information that are easy to access, easy to read and under-stand. In addition, patients can contact with surgeons (3). That's why surgeons also intend to use internet effectively and try to impress the patients. Experiences of similar patients through social media are known to impress the patients especially in deciding the rhinoplasty surgery (17). It is shown that patients' perception directly affects the success of the surgery (18). Nowadays, it is an obligation for private clinics and private hospitals to use information texts that patients can understand where needs and understanding of the patients are more im-portant (19). In addition, proper information texts strengthen patient and doctor relationship (20).

Increase in doctors' interest in social media strengthens the patients and doctor rela-tionship, but very less known about the readability of the texts. We believe easy readability makes the relationship stronger and directly affects the success of operations. Lower readabil-ity affect make patients bad and even can dissuade the patients from therapy. That's why readability and understanding of the information texts should be high.

We divided the information texts of private clinics and private hospitals from the first 30 pages using google into two groups and 100 words from each page is evaluated with LIDA program according to their readability. LIDA program is easy to use, quick and effec-tive that is created for the readability of health care. Data from LIDA is controlled if they are recent, related and useful (1).

Readability terms of Turkish are insufficient and studies about the readability of health researchers are very low (8,21). We intend to compare if there is any difference between the place of operation especially private hospitals and private clinics where rhinoplasty is mostly performed in regard to their readability of texts they published in web sites. Readability is relatively a new term which is found to be important as patients care and attend to hospitals where they understand the most. We wanted to see if doctors or hospital managers pay atten-tion to this term.

We found out that information texts in private clinics have more readability scores than private hospitals. Although there was a significant difference in Atesman and Flesch-Kincaid scores between the groups, Flesch-Kincaid scores were found to be hard in private hospitals, it was quite hard for private clinics. Also, Atesman scores which are believed to be more related with Turkish, showed that they were both hard to read but had more readability in private clinics like Flesch-Kincaid scores. These results suggest us that surgeons pay more attention to web sites of private clinics and more patients' satisfaction in clinics, but not enough. In a recent study, web sites of plastic surgeons and otorhinolaryngologists were in-vestigated and both results found hard to read (8). These studies prove that the term readabil-ity is still quite unknown through medical doctors.

As a result, we believe that patients have difficulty in reading the information texts written in the web sites, thus leading them to pay more attention to the pictures of the surgeon and similar patients in social media. This creates the idea as if every operation and patient are the same and there isn't any complications of the surgery or any unwanted result as no sur-geon share this kind of patients' pictures. In addition, surgeons and hospital managers should also take care of their web sites for the readability of the texts as readable texts build strong patient and doctor relationship.

CONCLUSION

Health providers such as private clinics and private hospitals where patient's satisfac-tion is important should have easy access to readable and understandable texts. These texts have also a very important role in creating a healthy relationship between patients and doctors. Also patients' expectations will be more realistic. That's why private hospitals and clinics should pay attention for the readability of the texts.

Competing interests: The authors declare that they have no competing interest. .
Financial Disclosure: There are no financial supports
Ethical approval: This study was approved by the Institutional Ethics Committee and conducted in compliance with the ethical principles according to the Declaration of Helsinki.

Ihsan kuzucu ORCID: 0000-0001-5773-4126

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