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Readability Level of 'About-Us' Section of Malaysian Hospital Websites

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Abstract: This study analysed the websites of the panel hospitals under the Malaysia Healthcare Tourism Council (MHTC) to determine their readability level. Thirty-three hospitals fulfilled the criteria for this study. SMOG and FOG readability formulae were used in this research. The study shows that there was a significantly positive correlation between FOG and SMOG. Using FOG and SMOG indices, it was found that the reading level of most of the 'About-us' sections was too difficult to the majority of the readers.

Key words: Reading Level · SMOG Readability Index · FOG Readability Index · Healthcare

INTRODUCTION

Brochures published by hospitals contain information on services that they provide. They normally aim to make known the services that are offered including the specialists that they have. The main audience is usually the general public. Since the published materials of hospitals are different from each other, the ease of comprehending the texts may be different from one hospital to another. A number of studies had been conducted to analyze the reading level of medical information and some were found to be written at a higher than the reading level of the intended audience. [1], for example, compared cancer brochures published by various cancer organizations and found that the materials were written at a level that may be too high for average readers. A similar finding was made when patient education materials in the United States were analysed [2].

[3: 45] explained in his study that many studies on the reading level of both print and web-based health materials were written at "senior high school and college level" and this could be too high for a layperson to comprehend. [4: 214] made the same discovery when he analysed the readability level of printed materials on HIV/AIDS. According to him, the materials were written "beyond the reading grade level recommended for the target audience". A similar finding was made by [5], who found that some information leaflets were too difficult for children and their parents.

Apart from printed materials, the Internet is fast becoming the main medium of communication to educate patients and simultaneously promote health services. [6] asserted that 4.5% of Internet searches worldwide look for information on health or health-related issues. Studies have been done on the ease of comprehending some of the sites and not all were found to be suitable for the reading level of the general public.[7], for example, found that major orthopedic Websites were written at a reading level that could be too high for comprehension by general viewers. Research by [8] shows that colon cancer websites were written above the 8th grade reading level on average. His study focused mainly on the background section, diagnosis section and treatment section of each website studied for data analysis. A higher grade reading level was found by [3] who examined cancer-related websites. He used SMOG formula and the analysis revealed that it was at grade 12.9.

Recommended Reading Level: Readability is the score obtained based on the ease of comprehending written materials [9, 10]. In a research conducted by [11], most states that were involved in the research requested a 6th grade reading level for printed Medicaid materials. However, [8] chose the 8th grade reading level in her study because it is the recommended benchmark by the U.S. Department of Health and Human Services.

One way of checking the readability of a text is to use a readability formula. A number of formulas have been produced to measure text difficulty and these have been

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used in teaching and testing to find materials that suit the intended audience. Among the best-known formulas are FOG and SMOG (Simple Measure of Gobbledygook) Indices. Robert Gunning Fog Readability Index or FOG Readability Index was developed by [12]. With the FOG index, a score that is higher than 12 is difficult for most people to understand and 7 or 8 is considered to be the ideal score for comprehension. Gunning took into account the total number of syllables in a word and the total number of words and sentences in a text. Rather than adding words and sentence lengths, [13] proposed that they should be multiplied and he came up with another readability test known as SMOG. According to him, college education is needed to understand texts with SMOG grade 13-16, graduate training for SMOG grade 17-18 and a higher qualification for SMOG grade 19 and above.

Background of the Study: This study was conducted in Malaysia, where its Ministry of Health is promoting the medical tourism industry to tourists. Health tourists use medical websites to get information about the treatment that they plan to obtain outside their countries. One of the common reasons why Medical Tourism industry is mushrooming is due to the costly medical procedures in the hospitals where the tourists reside. Thus, getting treatment abroad is an alternative to health tourists [14]. The Malaysian Ministry of Health established a council to fulfill this demand. This council is known as the Malaysia Healthcare Tourism Council (MHTC). Since the establishment of the MHTC, the medical tourism has become a fast-growing industry in Malaysia. A total of seventy hospitals participated in the move to attract health tourists.

One of the methods used by the hospitals to disseminate information on their product is by publishing it on their website. To date, there is hardly any research on the ease of comprehension of the information published on these websites. The objective of this study is to assess the readability level of the content of the websites of these hospitals.

MATERIALS AND METHODS

A textual analysis is employed in data collection where the SMOG and FOG index readability formulas were used. The use of several instruments can increase the "confidence" level [3: 49) of the test results and present a "more complete assessment" [8: 40] for data collection. [15] found a strong correlation between FOG and SMOG (0.99). With SMOG, three groups of ten consecutive sentences are selected at the beginning, middle and end of the document, with a total of 30 sentences. This paper focused only on the about-us section of each website because this section is considered to be the most viewed page of websites and it functions to establish trust between providers and curious visitors [16].

Sampling: All the 70 websites were analysed to see if they fulfilled the following criteria to ensure homogeneity:

- Administered by the Malaysian Ministry of Health;
- Availability of 'About-us' section; and
- There are more than 10 sentences in the about section.

Out of seventy, 33 hospitals fulfilled these criteria. Two of the about-us section consisted of 30 consecutive sentences.

RESULTS AND DISCUSSION

The FOG and SMOG scores were calculated and tabulated. Table 1 gives the FOG, SMOG and the mean of the two scores:

Pearson correlation analysis was run to determine if there is a correlation between the results of FOG and SMOG readability indices and the result is given in Table 2:

Table 2 indicates that there is a significant correlation between the readability results that were produced using FOG and SMOG readability indices. Table 1 above shows that both FOG and SMOG produced results that indicate that the 'About-us' page of the selected hospital websites is rather difficult to comprehend. A reading that is more than 12 is considered as difficult when the readability level is measured using FOG. In this study, except for KPJ Johor, the FOG readability indices of all the sites were 12 or higher. SMOG displays almost similar results. Readers would need to have at least college education in order to read with ease the content of the 'About-us' section for all websites. Five of the sites are more suitable for Internet surfers with higher professional qualifications. This finding is in line with those made by [1-5, 7, 8].All found that the reading level of the healthcare promotional materials was difficult for the general public to understand.

Table 1: Readability Scores of About-us page of Selected Malaysian Hospitals

No.	Panel Hospitals	State	FOG	SMOG
1.	KPJ Johor Specialist Hospital	Johor	11	13
2.	Mount Miriam Cancer Hospital -	Pulau Pinang	12	13
3.	Hospital Lam WahEe	Pulau Pinang	12	14
4.	KPJ Tawakkal Specialist Hospital	Kuala Lumpur	12	14
5.	KPJ Penang Specialist Hospital	Pulau Pinang	13	15
6.	KPJ Seremban Specialist Hospital	Negeri Sembilan	14	15
7.	Sentosa Medical Centre	Kuala Lumpur	12	17
8.	KpjAmpangPuteri Specialist Hospital	Selangor	13	16
9.	Prince Court Medical Centre	Kuala Lumpur	16	14
10.	Tung Shin Hospital	Kuala Lumpur	15	15
11.	Puteri Specialist Hospital (Johor) SdnBhd	Johor	14	16
12.	Mawar Renal Medical Centre	Negeri Sembilan	14	16
13.	Sime Darby Medical Centre Ara Damansara & Subang Jaya	Selangor	16	15
14.	ANOC Neuroscience And Orthopaedic Centre	Kuala Lumpur	16	16
15.	The Tun Hussein Onn National Eye Hospital	Selangor	16	16
16.	PusatPakarAmanjaya (Amanjaya Specialist Centre)	Kedah	18	15
17.	Beacon International Specialist Centre	Selangor	18	16
18.	Sunway Medical Centre	Selangor	18	16
19.	Quill Orthopaedic Specialist Centre	Selangor	19	15
20.	KPJ Selangor Specialist Hospital	Selangor	16	19
21.	DEMC Specialist Hospital Shah Alam -	Selangor	19	16
22.	Mahkota Medical Centre	Melaka	19	17
23.	Lifecare Diagnostic Medical Centre	Kuala Lumpur	20	16
24.	BP Specialist Centre	Selangor	19	17
25.	Global Doctors Specialist Centre (Hospital) -	Kuala Lumpur	19	17
26.	Assunta	Selangor	17	19
27.	Regency Specialist Hospital	Johor	20	17
28.	Columbia Asia Hospital (BktRimau)	Selangor	20	17
29.	Kuala Lumpur Sports Medicine Centre	Kuala Lumpur	20	18
30.	Kuching Specialist Hospital	Sarawak	19	19
31.	Normah Medical Specialist Centre	Sarawak	20	19
32.	Tropicana Medical Centre	Selangor	23	17
33.	Nilai Medical Centre	Negeri Sembilan	21	19

Table 2: Pearson Correlation between reading results using FOG and SMOG indices

Correlations	FOG	SMOG
FOG		
Pearson Correlation	1	.571**
Sig. (2-tailed)		.001
N	33	33
SMOG		
Pearson Correlation	.571**	1
Sig. (2-tailed)	.001	
N	33	33

**. Correlation is significant at the 0.01 level (2-tailed).

CONCLUSION

The 'About-us' page of the hospital websites in Malaysia is written at a level that is difficult for most patients to read. Low literacy information is needed if the objective is to attract health tourists of various educational backgrounds. Hence, there is a need for the Malaysian Healthcare Tourism Council (MHTC) to look into the reading level of the hospital websites that are registered under them to ensure that the suitability and readability of the content is comprehensible to health tourists and local readers. This will help to ensure the effectiveness of healthcare promotional campaigns through their corporate websites.

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