DH03

EVALUATION OF ONLINE HEALTH INFORMATION OF TYPE 2 DIABETES MELLITUS

Boon Kie Kho[1], Syarafina Izahar[1], Kamarudin Ahmad[1,2]

[1]Pharmacy Department, Miri Hospital, Sarawak
[2]Clinical Research Centre Miri

NMRR NO: NMRR-19-2417-50511

INTRODUCTION

Diabetes Mellitus is a significant public health concern in Malaysia. Older patients constitute the majority of this population and they are more vulnerable to online resources of highly variable quality. In this study, we aimed to evaluate quality of the online information on the management of Type 2 Diabetes Mellitus (T2DM), compare the quality of online resources among different website affiliations, and between the first three pages and the next three pages of search.

METHODS

- We adopted Quality Evaluation Scoring Tool (QUEST) which quantitatively measures six aspects of the quality including **authorship, attribution, conflict of interest, currency, complementarity, and tone.**
- Two reviewers independently reviewed the content and disagreements resolved by a third reviewer.
- We performed descriptive statistics and classified the overall quality of online resources into: (a) **very poor** if the total score is < 12/28; (b) **moderate** if the score is 12-23/28 and (c) **excellent** quality if the score is > 23/28.
- We analysed the comparison of quality scores among different website affiliations using the Kruskal - Wallis test.
- Multifactorial ANOVA conducted for comparisons between the first three pages and the next three pages of search results. Statistical significance set at P ≤ 0.05 for the comparisons.

RESULTS

- Most websites (n= 50) demonstrated moderate quality, with a median quality score of 18 (IQR= 9).

Table 1. Overall Quality of Web pages on Management of Type 2 Diabetes

Quality of Webpages	n	Quality Scores		
		Minimum	Maximum	Median (IQR)
Excellent	5	24	28	27 (4)
Moderate	50	12	23	**18 (9)**
Very Poor	5	10	11	11 (0)

- There was no statistically significant difference in comparison of quality scores among website affiliations (P=0.745).

Table 2. Comparison of Quality Scores among Different Website Affiliations

Variable	Type of Affiliations	n	X^2-stat (df) [a]	P-value [a]
Website Affiliations	Non profit	17	11.988 (16)	**0.745**
	Academic	7		
	Government	5		
	Private	30		
	Communication media	1		

a. Kruskal Wallis Test

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to Dr Julie Robillard, the author of QUEST for giving us permisssion to use the evaluation tool.

RESULTS (CONTINUE)

- However, from our study, we found that the first three pages of search results scored significantly better than that of the next three pages. (P= 0.001)

Table 3. Comparison of Quality Scores between first 3 pages and next 3 pages of Search Results

Search Results	n	Adj. mean (95% CI) [a]	Adj. mean diff. (95% CI) [b]	*F* stat. (df) [a]	P-value [c]
First 3 pages	30	19.8 (18.1, 21.4)	- 4.1 (- 6.4, - 1.8)	12.39 (1, 58)	**0.001**
Next 3 pages	30	15.7 (14.1, 17.3)			

a. Adjusted Mean while the effect of website affiliations were adjusted
b. Bonferroni adjustment for 95% confidence interval for difference
c. Multi-factorial ANOVA

DISCUSSION

(A) The quality of websites are variable with most websites' quality are moderate.

- Study conducted by **Thakurdesai et al.** stated that the quality of web-sites on DM patient education materials were highly variable.
- In view of **Health Summit Working Group (HSWG) criteria**, the content of webpages on T2DM was poor with respect to hierarchy of evidence and original source statement.

(B) The quality of websites is not asscociated with website affiliations.

- Our finding is contrary to the study conducted by **Isabella et al**. which assessed the quality of websites on gum diseases. According to their study, JAMA score of websites varied according to their affiliation with journalism websites scored the highest.
- Another study conducted by **Garfinkle et al**. which assessed the quality and accuracy of online health information for patients with low anterior resection syndrome stated that governmental websites scored the highest in overall suitability and quality.

(C) The quality of websites in the first three pages of search results were significantly better than that of the next three pages.

- Our finding is consistent with findings proposed in the study by **Isabella et al.** Their findings stated that the JAMA score of the top 10 websites returned by Google was significantly higher (P<0.001) than that of the remaining 186 websites of the Google.
- The study concluded that search algorithm in Google in some way considers features that are indicators of trustworthiness and credibility. Therefore, it is possible that websites with higher quality rank well in Google.

CONCLUSIONS

For patients with T2DM where self management is crucial, the availability of good quality information is important. Based on our study, we found that the overall quality of webpages on management of Type 2 Diabetes Mellitus are sub-optimal and are independent of website affliations. Besides, we found that the first three pages of search results demonstrated better quality than that of the next three pages.

REFERENCES

1. Robillard J, Jun J, Lai JA, Feng T. The QUEST for quality online health information: validation of a short quantitative tool. BMC Medical Informatics and Decision Making [Internet]. 2018Oct19;18(1). Available from: https://bmcmedinformdecismak.biomedcentral.com/articles/10.1186/s12911-018-0668-9
2. Bizzi I, Ghezzi P, Paudyal P. Health information quality of websites on periodontology. Journal of Clinical Periodontology [Internet]. 2017;44(3):308–14. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/jcpe.12668
3. Thakurdesai P, Kole P, Pareek R. Evaluation of the quality and contents of diabetes mellitus patient education on Internet. Patient Education and Counseling [Internet]. 2004;53(3):309–13: Available from; https://www.sciencedirect.com/science/article/abs/pii/S0738399104000722?via=ihub
4. Garfinkle R, Wong‐ Chong N, Petrucci A, Sylla P, Wexner S, Bhatnagar S, et al. Assessing the readability, quality and accuracy of online health information for patients with low anterior resection syndrome following surgery for rectal cancer. Colorectal Disease [Internet]. 2019;21(5):523–31. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/codi.14548
5. Bizzi I, Ghezzi P, Paudyal P. Health information quality of websites on periodontology. Journal of Clinical Periodontology [Internet]. 2017;44(3):308–14. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/jcpe.12668