

EVALUATION OF THE QUALITY AND CONTENTS OF OBESITY PATIENT EDUCATION ON INTERNET

Nagappa AN*, Pranov B, Pavan Kumar Allani, Sowndarya P, Nikhil S B

Department of Pharmaceutical Management, Manipal College of Pharmaceutical Sciences, Manipal, Karnataka, India.

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ABSTRACT

Objective To evaluate web-based obesity patient education material for HSWG criteria and core education concepts.

Design Evaluation of the web sites which contain information relating to obesity.

Setting Listing of web-sites was obtained from 14 search engines with the help of Copernic agent professional version 6.21. The search for websites was undertaken using the keyword "obesity".

Participants Out of 162 web-sites retrieved from meta search engine, 54 sites themselves provide patient information and so considered for evaluation.

Intervention(s) Data obtained was analyzed by cluster analysis and classified into four categories with respect to quality.

Main Outcome Measure(s) Twelve core educational concepts specific for obesity patient education were developed and the websites were evaluated for compliance. The quality of all the websites providing patient information for obesity were evaluated based on the extent of their adherence to Health Summit Working Group (HSWG) criteria. On the basis of the sum of scores obtained from "obesity core educational concepts" and HSWG criteria, websites were graded as excellent, medium, good and average.

Results Considerable variability in quality of patient education web-sites was found with respect to core educational concepts and HSWG criteria. Spearman correlation analysis showed significant correlation ($P = 0.016$) at 0.05 level, between total scores of core educational concept and HSWG criteria.

Conclusions Inclusion of stress management, role of family support, enhancement in customized content like chat rooms, discussion forums, customized alerts and easier feedback mechanisms will be a significant development in the direction of patient centred obesity care.

Keywords: *Obesity; Hon code; HSWG ; Patient education.*

INTRODUCTION

Obesity is a growing health issue around the world and is reaching epidemic proportions in some nations. The problem is not restricted to the inhabitants of the affluent countries, to the adult population, or to any one socioeconomic class. ¹ Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. ² A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). A person with BMI of 30 or more is generally considered obese. A person with a BMI equal to more than 25 is considered overweight. Once considered as a problem in high income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings.

Obesity has increased at an alarming rate in the United States during the past 30 years in all age groups. ³ In adults 20 to 74 years of age, the prevalence of obesity has increased from 15% to 33%. Similar increases have

been noted for children; the prevalence for those 2 to 5 years of age increased from 5% to 14%, for the 6 to 9 years of age from 7% to 19%, and for those ages 12 to 19, prevalence has increased from 5% to 17%. ³ Obesity is significant risk factor for many common conditions including type2 diabetes mellitus, hypertension, dyslipidaemia, coronary artery disease, congestive heart failure, stroke, hepatic steatosis, sleep apnoea, osteoarthritis, and endometrial, breast, prostate, and colon cancers. In addition, mortality rates from all causes increase with obesity.^{2,3} Weight reduction lowers the risk of morbidity and mortality and is currently accepted as one of the most preventable health risk factors.

World Health Organisation's (WHO) latest projections indicate that globally in 2005 ⁴ approximately 1.6 billion adults (age 15+) were overweight; at least 400 million adults were obese. WHO further projects that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese. At least 20 million children under the age of 5 years are overweight globally in 2005.

*Correspondence : anantha1232000@gmail.com

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Individuals with severe obesity (BMI > 40) encounter serious and potentially life-threatening complications, including diabetes, hypertension, hyperlipidaemia, asthma and arthritis, and substantial reduction in life expectancy. Repeated cross-sectional and self-repeated data suggest that severe obesity prevalence has increased substantially over the past few decades, potentially increasing at a factor rate than moderate obesity.⁵ Diet exercise and behavioural modification are recommended as initial treatments for severe obesity, resulting in short term weight loss, which, when combined with pharmacotherapy, can be associated with 5% to 10% reduction in weight. However, anti obesity pharmacological agents have substantial adverse effects, and discontinuation often results in weight regain. In contrast, bariatric surgery results in weight loss ranging from 60% to 70% for at least 10 years and commonly results in complete resolution or improvement in comorbidities after surgery. Understanding which individuals are at a risk of severe obesity is essential for determining when interventions would need to be implemented to prevent obese individuals from progressing to severe obesity.

Now-a-days internet has become the main source of information for anything and millions of people world-wide currently have access to the internet. There is an explosion in the amount of health information on the internet. This increase does not show signs of slowing down. For example, entering the word "health" in a generic search engine like Google (www.google.com) currently yields over 2140 million pages.⁶ The sources of that information are numerous and varied. For the first time in history, we have global medium that transcends geography and operates across cultures and languages. The internet has been the catalyst for the seismic shift that is happening in the doctor-patient relationships. It continues to have a profound impact on other relationships among health care actors. This shift has been in access to knowledge, and consequently in access to power.^{7, 8}

Numerous surveys and studies paint a picture of dubious information quality, widespread practices of fraud, potentially dangerous claims, and the risk of exposure of citizens to harm. One good example of such surveys is the study conducted by RAND health.⁹ Even when information appears to be of high quality it can cause unintentional harm to citizens.¹⁰ Yet, in a large number of web sites currently offering health information we cannot find credible and enforceable protection of citizens from potential harm. It is very difficult to ascertain, which of the resources are or appropriate for users.^{11, 12} While there is some degree of protection provided either by national regulatory mechanisms or through self-regulation, this modest protection is currently only afforded to a small number of people. Because of the potential of harm from misleading and inaccurate health information,¹³⁻¹⁵ many organisations and individuals now agreed on key

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principles for evaluating health-related websites,¹⁶ to develop a set of helpful key evaluation criteria for quality of these resources.^{17,18} The Health on the Net Foundation Code of Conduct (HONcode) is perhaps an oldest and best known quality label^{19,20} for medical and health websites and help to standardize the reliability of medical and health-related information available on the World Wide Web. Health Summit Working Group (HSWG) provides explicit criteria for evaluation of health-related websites^{16,20,21} and has been utilized as rating tool.²² However, web-based information is seldom the subject of systematic investigation²³ for its accuracy and appropriateness for users.^{12, 23} Quality control tests and content validity assessment are means by which the patient education credibility and accountability can be established.²⁴ Hence, the present study was conducted to evaluate the quality of web based obesity information for HONcode compliance, obesity core educational concepts and the HSWG criteria.

MATERIALS AND METHODS

Listing of web-sites were obtained from 14 search engines(altavista, AOL, ask.com, bing, CompuServe, copernic, cuil , enhance interactive, FAST search (alltheweb.com), lycos , LookSmart, Lycos, Mamma.com, Netscape Netcenter, Open Directory project, yahoo) with the help of Copernic agent professional version 6.21. Meta-search method was chosen to enlist the diverse variety of health-related and non-health-related sites. The search for websites was undertaken using the keyword "obesity". The first 50 sites from each of these search engines were retrieved. This was based on the fact that 62% of the typical search engine users click on a search result within the first page of results and 90% of search engine users click on a result within the first three pages of search results.

A total of 162 websites were enlisted from the above search strategy. Those sites that are unreachable, duplicate, highly technical (e.g. journals, conference proceeding and continuing medical education (CME) material), other than English language, search engine listings and library sites (total 108) were excluded from study before evaluation. The remaining 54 sites were further classified on their economic status, sponsorship, organization and site specificity. Health on the Net Foundation Code of Conduct (HONcode) compliance was chosen as the parameter for evaluating the quality of websites. The selected sites were evaluated for the HON code compliance by self-checker facility provided by HON website (<http://www.hon.ch>) and rated as a dichotomous indicator variable (1/0). The content validity for obesity patient counselling in the internet was evaluated using the "Core Educational Concepts" criteria. Twelve core educational concepts specific for obesity patient

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education were developed and the websites were evaluated for compliance.

The quality of all the websites providing patient information for obesity were evaluated based on the extent of their adherence to Health Summit Working Group (HSWG) criteria. Similar dichotomous ratings were allotted for evaluating the extent of compliance of each of the core patient education concepts and for each of the seven categories of HSWG criteria. On the basis of the sum of scores obtained from "obesity core educational concepts" and HSWG criteria, websites were graded as excellent (24-28), good (19-23) and average (11-18).

All the statistical analyses were performed with SPSS Version 17.01 for Windows. Relationship between total score of core educational concepts with HSWG criteria was obtained by Spearman correlation analysis. Data obtained was analysed by K-mean cluster analysis and classified as best, medium, good and average based on total score for core educational concepts and total score for HSWG criteria compatibility.

RESULTS

Out of total 162 sites retrieved, based on exclusion criteria, 54 sites were selected and evaluated according to the chosen methodology. With respect to sponsorship, commercial organizations (24 sites), lead the tally followed by non-profit organizations (14 sites), hospitals (8 sites), governments (4 sites) and universities (4 sites), refer figure 1. Out of total 54 sites, only 19 sites were HONcode compliant.

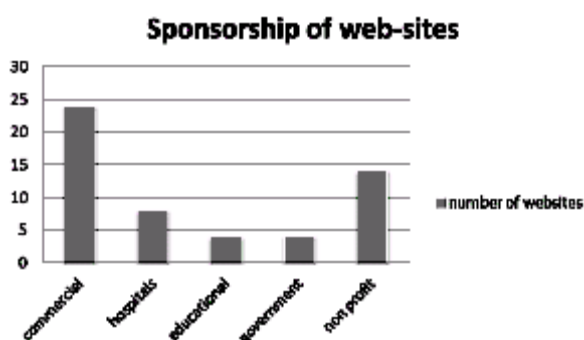


Fig.1: Categories sponsorship of website studied

Evaluation for 12 core educational concepts of obesity educational material (Table 1) resulted in average number of core educational concept complied of 8.39 (± 1.720) out of 12 concepts with median of 9 concepts (Table 1). We next evaluated the sites for their presence or absence of 23 HSWG criteria that are categorized under seven categories by addition of individual scores and the average scores of each category are presented (Table 2).

Spearman correlation analysis showed significant correlation ($P=0.016$) at 0.05 level, between total scores of core educational concept and HSWG criteria.

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Table 1 : Frequency of inclusion of obesity core educational concepts for patient education

SL NO	CORE EDUCATIONAL CONCEPTS	NO OF WEBSITES CONTAINING INFO(%age)
1	Description	50 (92.59)
2	Food habits	53 (98.14)
3	Tools for obesity	51 (94.44)
4	Lifestyle	37 (68.51)
5	Exercise	51 (94.44)
6	Stress management	10 (18.51)
7	Social support	12 (22.22)
8	Risks associated With obesity	52 (96.29)
9	Drug information	32 (59.25)
10	Community & mass Media resources	16 (29.62)
11	Bariatric surgery	38 (70.37)
12	Weight management	49 (90.74)

Table 2 : Health Summit Working Group evaluation criteria compliance by web-sites

S.NO	CATEGORY (max.score)	CRITERIA	MEAN SCORE \pm S.D
1	Credibility(5)	Source, context, currency, relevance/utility, editorial review process	2.54 \pm 0.840
2	Content(5)	Accuracy, hierarchy of evidence, original source stated, disclaimer, omissions noted	2.29 \pm 1.28
3	Disclosure(2)	Purpose of this site, profiling	1.00 \pm 0.00
4	Links(4)	Selection, architecture, content, back linkages and descriptions	1.85 \pm 1.78
5	Design(3)	Accessibility, logical organization, internal search engine	2.50 \pm 0.57
6	Interactivity(3)	Mechanism for feedback, chat rooms, tailoring	0.30 \pm 0.633
7	Caveats(1)	Active alerts	0.02 \pm 0.136

K-mean cluster analysis was done in order to classify web-sites into four groups, or clusters, based on sum of scores obtained from core educational concepts and sum of HSWG criteria scores. Each cluster thus describes, in terms of the data collected, the class to which its members belong. K-mean cluster analysis resulted in classification as best (10 sites), medium (14 sites), good (12sites) and average (18 sites), respectively.

DISCUSSION

The internet has, in the 20th century, become one of the most convenient and readily available sources of information. Of late, it has become one of the most indispensable tools in health care as it is widely being used as a source of information on various aspects. Obesity is one of the many lifestyle diseases that modern men are riddled with and many patients try to control their weight by searching for information on net rather than consulting a doctor.

But, obese patients require particularly intensive patient education and referral to appropriate sources of support. Therefore, it is of paramount importance to assess the accuracy, competence and consistency of the information available online.

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Health on the Net Foundation, founded in 1995 had issued a code of conduct (HON code) for medical and health websites to address reliability and usefulness of medical information on the Internet. HON code is not designed to rate the veracity of the information provided by a website. Rather, the code only states that the site holds to the standards, so that readers can know the source and purpose of the medical information presented.^{19,20} Therefore, to check for the quality of the material present on the Internet, HON code compliance was assessed for the websites under review. A very low number of web-sites (35%) were found to be HONcode compliant. Only one web-site complied with all the 12 core educational concepts. Nevertheless, most of the sites supply information on body mass index, risks associated with obesity and diet management. However, the role of stress management and social support were among the least addressed, refer figure 2.

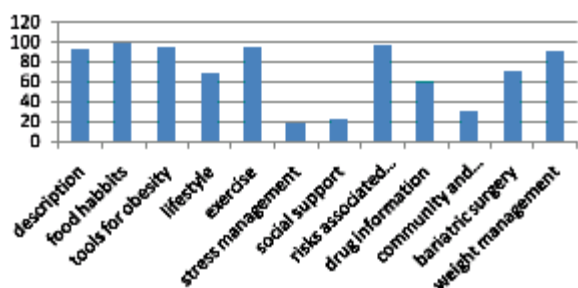


Fig.2 : Percentage number of websites containing core educational concepts

Evaluation of HSWG criteria compliance showed that vast majority of the web-sites are good in credibility criteria like, context and relevance of content and have some kind of editorial review process (Table 2). Evaluated web-sites were also good at accuracy and hierarchy of evidence, but the compliance for the content was poor with respect to omissions noted and original source statement. As evident from the data, most of the sites were technically advanced with respect to design but have poor interactivity component especially in patient education perspective like easier mechanism of feedback, chat and discussion groups, tailoring of content and customized alerts. A professionally moderated Internet discussion groups are actively visited by a broad base of patients, and appears to be a useful strategy for emotional support and information exchange.²⁵

CONCLUSION

Our study demonstrates the considerable variability in quality of obesity patient education web-sites with respect to core educational concepts and HSWG criteria. The web sites can be made more informative by including evidence-based medical concepts, emphasising the role of family support and stress

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management. Inclusion of customized content like chat rooms, discussion forums, customized alerts and easier feedback mechanisms will be a significant development in the direction of patient centred obesity care.

Although the authors do not endorse the use of particular web site, Table 3 contains the titles and web addresses a few web sites which we think will be useful for general public, policymakers, health professionals, and providers of web-based health information for obesity patient education.

Table 3: Best web-sites and their evaluation scores

S. No	Web address	Total core educational concepts score	Total HSWG criteria score
1	www.wikipedia.org	11	16
2	www.cdc.gov/obesity	9	18
3	www.pennstatehershey.org	12	14
4	www.healthscout.com	11	14
5	www.health.google.com	11	14
6	www.faqs.org	10	14
7	www.aolhealth.com	10	14
8	www.ucsfhealth.org	7	17
9	www.cipladoc.com	11	13
10	www.docguide.com	11	12

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