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Characteristics and Reliability of Online References Cited in the Pharmaceutical Promotional Brochures of Bangladesh

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Abstract

Medical information found in the online sources is not often reliable because of lack of proper substantiation of sources. However, such information is commonly used in the drug promotional brochures as references in many countries worldwide. The main purpose of this exploratory study was to evaluate the characteristics and reliability of online sources of information cited in the pharmaceutical promotional brochures in Bangladesh. Online sources of information presented in the conveniently collected drug promotional brochures were separated from other citations and were accessed for required information in the present study. The reliability of the online sources cited in those brochures was assessed using a short checklist based on five basic questions adopted from available and authentic literatures. A total of 53 online references from 50 pharmaceutical promotional brochures were obtained during the study. Sponsors of most (94.87%) of the online sources were recognizable. The majority (n=27, 72.97%) of the accessible online sources were found to be commercial websites. Only 27.03% (n=10) citations were adopted from reliable websites. Contact information was absent in about 31% websites. E-mail was used in about 87% of cases as the main address for correspondence. Nearly 72% websites did not provide any information about the timeline regarding the updates of contents. Information contained in a significant number (38%) of websites seemed 'too good to be true'. Online references used in the pharmaceutical promotional brochures of Bangladesh failed to comply with the basic requirement of reliability.

Introduction

The Internet is a valuable source of health information on topics such as diseases, health conditions, therapies, medical products, and health and medical organizations. However, the quality of health and medical product information on the Internet varies considerably.¹⁻³ Millions of consumers worldwide are using the Internet to get health information. And, thousands of websites offer health and health related information. Some of these sites are reliable and up-to-date while some are not.⁴ In most of the cases, authenticity of the online information is not ensured through standard review processes. Anyone can post informa-

tion on the Internet regardless of their background, medical qualifications, professional stature, or intention. Such indiscriminant practice may allow the presence of inaccurate and misleading information based on insufficient scientific evidence on the Internet. Therefore, the potential risks associated with inadequate or inaccurate information secured from the Internet cannot be ruled out.⁵

While many websites are intended for health professionals, more and more sites implicitly recommend treatments that have not been reliably established as efficacious, including self-medication with herbal remedies, high-dose

vitamin supplements, self-help guides, homeopathy, aromatherapy, and massage. Consequently, great concerns about the quality of Internet-based information and the potential dangers related to its erroneous or incongruous uses have been surfaced throughout the globe.^{5,6} In a review of more than 30 papers on the quality of health information on the Internet, almost all authors concluded that the majority of information on the Internet was poor and not evidence-based.⁷ Inevitably, health related information on the Internet is often said to be one of the most retrieved types of information. But, the lack of evaluation and oversight along with the ease of publication, other health related publications available on the world wide web are not considered trustworthy.⁸

In Bangladesh, typically pharmaceutical companies are the only readily available source of information providers for professionals. It is commonly believed that misinformation and overstatement are quite common amid various promotional practices in the country.⁹ A recent study from Bangladesh reported about 34% of the drug advertising brochures contain misleading promotional claims.¹⁰ With the rapid popularity of the Internet in Bangladesh,

pharmaceutical companies are using various online sources as references for drug and treatment information in their promotional materials. While many studies concerning the characteristics and reliability of online information has been conducted around the world to our knowledge, no such study has been undertaken in Bangladesh till date. The main objective of the present study was to gauge the quality of the online information presented in drug promotional brochures of Bangladesh. General characteristics of the online information were also explored in this study.

Methods

Promotional brochures on the ten top selling drugs (IMS Health drug index, 2nd Quarter 2006, Bangladesh Edition) in Bangladesh were collected from the local market for this investigation using a convenience sampling method. Repeated brochures of the same products or brochures containing short messages such as brand name reminders or only product lists were excluded from the study. A short checklist containing five questions was adopted from dependable guidelines^{1,4} for the evaluation process. All the online references cited in

Table 1: Characteristics of information obtained from the online sources

		Yes	No
	Evaluation Criteria	Number / (%)	Number / (%)
[1]	Can you easily see who sponsors the Web site?	37 / (94.87)	2 / (5.13)
[2]	Is the sponsor a government agency, a medical school, or a reliable health-related organization or related one?	10 / (27.03)	27 / (72.97)
[3]	Is there contact information?	27 / (69.23)	12 / (30.77)
[4]	Can you tell when the information was written?	11 / (28.21)	28 / (71.79)
[5]	Does the Web site make claims that seem too good to be true including promises of quick or miraculous cures?	15 / (38.46)	24 / (61.54)

the promotional brochures were extracted, numbered sequentially and accessed to find the answers of those questions. Each of the selected web pages was scrutinized one by one for the necessary information. All the extracted information from the accessible sites was collected and compiled in a pre-formulated table of a personal computer. Descriptive statistical analyses including frequency distribution and percentage were performed using Microsoft Excel 2002 version Windows XP Professional.

Results

A total of 216 references from 50 pharmaceutical promotional brochures were obtained during the study. Of these, 24.54% (n=53) were reported to be online citations where 73.58% (n=39) were accessible. In case of the inaccessible references (n=14, 26.42%), four were designated only as 'the Internet' without any specific web addresses. The majority (n=27, 72.97%) of the accessible online references were found to be of commercial origin. Only 27.03% (n=10) citations were adopted from the websites of government, health related or well-known non-government organizations (NGOs). Sponsorships of the accessible websites were identifiable in most of the cases except for two during the investigation. Comparatively a fewer number of websites was sponsored by reliable health-related institutions. Data obtained from the evaluation questions have been provided in **Table 1**.

7 websites were owned by governmental health agencies and universities of the USA and UK. In three other cases, the information was extracted from the websites sponsored by some well-known international NGOs including Healthy Skepticism, International Zinc Association and International Food Information Council. Eight (20.51%) of the commercial websites were official sites of different drugs sponsored by some US based pharmaceutical companies. E-mail was the single most contact address mentioned in all of the websites cited as references in those promotional brochures. Only 5 (12.82%) cited websites included complete mailing addresses with phone and fax numbers. 10 (25.64%) online sources mentioned the time within 2002-2007 when the web information was updated. A single website stated 1990 as the last update period of the information. Some websites cited in the pro-

motional brochures were found to advertise exaggerated treatment cures such as www.mercola.com, www.nutrasense.com, www.naturalhealthconsult.com, www.advance-health.com and others. None of these 'cures all' type sites included any scientific evidence to support the claims made in these web pages.

Discussion

More than a quarter of the online references were reported inaccessible because of wrong or invalid addresses cited in the drug promotional brochures. Most of the cited online references were commercial sites whereas a small number were government institutions or well-known NGOs. Complete contact including email, mailing address, phone and/or fax was mentioned only in a small number of websites. Upgrading web information was absent in a large number of the sites. A considerable number of sites were reported to promote quick or miraculous cures. More than 20% of the online references were found to be the official websites of various pharmaceutical companies.

No doubt, the Internet has become an easier and faster source of valuable health information for people everywhere. However, it has also allowed rapid and widespread distribution of false or misleading information worldwide.^{5,11} Questions about the quality, reliability, and veracity of information on the web are widespread. The web is almost by definition chaotic, certainly unregulated. Its information is worth less than it might be when it is unselective and networked activity is incoherent.¹² In a large international study, 42% of the claims contained in the health sites were found vague and unspecific.¹³ Generally, health websites sponsored by government agencies, large professional organizations and well-known medical schools constitute good sources of health information.¹⁴ Commercial sites provide small amount of accurate information compared to the not-for-profit sites.⁶ In a study, 61% of the sites concerned with information on depression were found to provide unacceptable options for the management of depression.¹⁵ Other study results suggest preferring non-commercial websites as references to scientific information for drugs.¹⁶

The present study reported about 73% of the commercial websites were used as references

in the drug promotional brochures in Bangladesh. One large scale investigation conducted in 13 countries of the world pointed out 35% of health sites with no addresses or telephone numbers at all. The same study also found that 25% of the health sites gave no clear information about who sponsored them.¹³ We also found similar result where about 31% of websites had no contact information. Unlike the previous investigation, our study reported only around 5% of websites without unidentifiable sponsorships. Earlier report mentioned that the Internet promises a means of up-to-date information both in developed and in developing countries.¹⁷ But 72% of the health sites in some developed countries failed to mention any date of last content update as reported in one large study.¹³ Interestingly, we also reported the same extent (72%) of the investigated websites who did not indicate any timeline for the update of their content. Available documents show that the information contained in the websites owned by pharmaceutical companies is superficial and aimed primarily at consumers to increase sales. They are largely promotional and provides only limited information needed for effective comparison of treatment options.^{3,18} We found nearly 21% of the commercial websites in this study as variously sponsored by some US-based pharmaceutical manufacturers. We also uncovered quackery on the web, with sites promising quick, dramatic, miraculous and breakthrough treatment options.⁴ We identified few such websites used as references to support the claims made in the drug promotional brochures of Bangladesh. One such notable website was *www.mercola.com*, which has received repeated warning letters from the US-FDA to stop misleading health advertisements on the Internet.¹⁹

Practically, it is very difficult to define a single quality standard for such a disparate collection of resources as the criteria for quality varies among different users.²⁰ For the present study, we used a very simplified checklist to evaluate the online sources for reliability. This may be a limitation of this study. Moreover, due to small and non-randomized sample, the study results may not represent the entire population. Being cross-sectional in nature, the study design fails to measure any concrete outcomes, and there is a potential for selection bias in the sample.

In conclusion, the results of the present study suggests that quality of information in the online sources used as references in the pharmaceutical brochures was not necessarily reliable. It is recommended that healthcare professionals be cautious and critical about the information in drug promotional brochures supported by online documents.

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