

Comparison of Websites Offering Nutrition Services Controlled by Registered Dietitians and Those Controlled by Non-dietitian Nutrition Consultants

Brigette Hires,¹⁾ Sunny Ham,^{2)†} Hazel W. Forsythe²⁾

Ohio Department of Education,¹⁾ Columbus, Ohio, USA

Department of Nutrition and Food Science,²⁾ University of Kentucky, Lexington, Kentucky, USA

ABSTRACT

Health care is one of the most popular reasons for accessing the Internet. Of concern is the amount of information from disreputable sources available on the Internet. A review of websites offering nutrition consulting services suggests sites are controlled by both registered dietitians and non-dietitian professionals marketing themselves as nutrition consultants. The purpose of this study was to investigate structure and content of websites controlled by registered dietitians and non-dietitians professionals marketing themselves as nutritionists or nutrition consultants. Internet search queries of "dietitian", "dietitian consultant", and "nutrition consultant" were completed for website selection. Thirty websites controlled by registered dietitians and 10 websites controlled by nutrition consultants were reviewed using an 18-item website evaluation instrument developed for this study. Five evaluators were recruited from the dietetics program at the University of Kentucky. Overall, websites controlled by registered dietitians ranked higher than websites controlled by nutrition consultants in a majority of categories. Sites controlled by registered dietitians ranked statistically higher for the following categories: "accuracy of information" ($p < .0001$), "inclusion of professional resume of owner or primary manager" ($p < .05$), and "explanation of the affiliation to external links" ($p < .05$). A majority of sites controlled by both dietitians and nutrition consultants achieved a poor ranking in regards to provision of a legal disclaimer and inclusion of a privacy policy. Prior studies suggest personal privacy is the most important concern for consumers accessing health information on the Internet. Findings from this project will benefit dietitians to assist in development of reputable nutrition related websites. (*J Community Nutrition* 8(1): 9~15, 2006)

KEY WORDS: websites · evaluation · nutrition services · registered dietitians · nutrition consultants.

Introduction

The first cyber connections were installed with the intention of military and business usage; however, commercialization of the Internet in the late 1980's to 1990's caused landslide attention and growth from people interested in free and open access to documents (Leiner et al. 1997). Today approximately 68 percent of the U.S. population has online access (Internet Coaching Library 2005). One of the most popular topics to research on the Internet is healthcare. Among

† Corresponding author: Sunny Ham, Hospitality and Tourism Management, Department of Nutrition and Food Science, College of Agriculture, University of Kentucky, 121 Erikson Hall, Lexington, Kentucky 40506-0050, USA
Tel: (859) 257-4332, Fax: (859) 257-4095
E-mail: sham2@uky.edu

the adult users, about 41 percent use the Internet to search for health information (US Department of Commerce 2004). Consumers access online health information to search directly for health information, participate in support groups, and consult with health professionals (Cline, Haynes 2001).

With the advent of reimbursable Medical Nutrition Therapy (MNT) and the growing realization of the nutritional connection to development of certain chronic diseases, consumers are certain to gain a heightened attention and interest in dietetic services. The multitude of customers who have the ability to investigate healthcare services via the Internet prior to choosing a provider stresses the need for dietitians, especially ones in private practice, to be willing and able to develop appealing, informative, consumer oriented websites to attract future clients. However, dietitians must be cautious when providing nutrition counseling and support online as

potentially ethical questions and legal concerns could be raised. For example, communication via email can lead to consumer confusion, misrepresentation and deception and potential breach of patient confidentiality (Cline, Haynes 2001). Such a situation indicates a need for dietitians who embrace Internet technology in marketing their services to address the issue of patient privacy and legal ramifications in service delivery. Additionally, consumers who desire nutrition information online are subject to numerous websites offering nutrition education from sources other than registered dietitians. No study as yet has evaluated this type of websites for validity of education information offered.

The purpose of this study was to investigate the availability, structure, and content of websites accessed under the search queries of “dietitian”, “dietitian consultant”, or “nutrition consultant”. The results from this project will be beneficial for dietitians who are considering building or who currently maintain websites to evaluate their web design techniques. The study also provides an indication as to the validity of online nutrition information available to the public.

Methods

1. Website selection

An investigation of dietitians and nutritionists advertised as web-based consultants was conducted between October and November 2002. Websites appearing under the query search “dietitian”, “dietitian consultant”, or “nutrition consultant” were reviewed. The websites were included in the study if the site was controlled by a primary individual or group of individuals advertising individual nutrition counseling or consulting services for American consumers. Business sites with unknown ownership, or “generic” information or sites listing nutrition information but not offering consulting services were excluded. Sixty five websites were screened under the criteria, and forty websites were selected for evaluation.

2. Research instrument

Selection of website evaluation criteria is often subjective. Most current web design checklists are based on individual author opinions or preferences (Zhang, von Dran 2000). Following this assumption, a multifaceted approach with integration of two previously published Internet website evaluation checklists was performed to develop evaluation criteria

for the study in attempt to decrease author subjectivity. Kim and colleagues (1999) completed an analysis of 29 previously published rating tools and journal articles with explicit criteria for evaluating health related websites and formulated a master list of 12 key criteria recommended for appraising health care websites. This list was used as a basis for developing the emphasis areas and corresponding individual criteria to include on the evaluation checklist for this study. The guidelines for medical and health information sites on the Internet published by the American Medical Association (AMA) (Winker et al. 2000) were utilized to develop additional individual criteria for each emphasis area. In agreement that quality should be a comprehensive assessment rather than a

Table 1. Website evaluation criteria for assessment of dietitian and nutrition consultant websites

Criteria
Content of a site
Freedom from spelling and grammatical errors
Accuracy of Information
Design and aesthetics
Prominent graphics or photographs related to the field of nutrition
Pleasing background color preferably not white
Disclosure of site authors, sponsors, developers
Statement of owner and company name on main page
Stated mission or purpose for existence
Currency of information
Indication of website updates
Authority of source
Inclusion of professional resume of owner or primary manager
Ease of use
Division of site into subpages with sitemap
Accessibility and availability
URL associated with business name
Specification of services provided with prices listed
Links
Functional external links
Explanation of affiliation to external links
Attribution and documentation
Provision of basic nutrition information with source citation
Intended audience
Definition of intended audience
Contact addresses or Feedback Mechanism
Provision of information to contact company
User Support
Easily accessed legal disclaimer
Easily accessed privacy policy

single criterion (Cline, Haynes 2001), a total of 18 criteria were developed to analyze content of the websites. A 5-point rating scale was used to evaluate the individual criteria as demonstrated in the website evaluation study by Wan (2002).

The evaluation criteria utilized for this study are posted in Table 1.

3. Website evaluation and data collection

Multiple evaluators were utilized to examine chosen websites in order to reduce bias in the evaluation process as suggested by Wan (2002). One of the study authors (BH) and four additional recruited individuals conducted the website evaluations. One individual was randomly selected representing each of four different categories of students in dietetics programs at the University of Kentucky. Students were enrolled in dietetics programs including Coordinated Program-Junior ranking Students, Coordinated Program-Senior ranking Students, Dietetic Interns, and Graduate Students. The rationale for selecting students was based on frequent usage of website health information, and knowledge of health information more advanced than the typical lay person. In addition, the dietetics students are competent at reviewing website to evaluate dietetics and health information. It is a requirement in their education program and is used to meet the Foundation Knowledge and Skills required of dietetic students by the Commission on Accreditation for Dietetic Education (CADE). These reviews are well within their expertise. Each person received a 2-hour training session related to using the website criteria and were offered Internet access to complete the task. Each participant examined the websites by rating the overall merit of each criteria based on a 5-point rating scale. Upon completion of the website evaluation, each participant received \$25 compensation.

Each evaluator rated each individual website based upon the 18 selected criteria. Per website, ratings for each participant were summated, a mean value was calculated, and the mean value was taken as the final rating for each criterion point. Data obtained from the website evaluation was analyzed using the Statistical Program for Social Sciences (version 11.5, 2002, SPSS Inc.). Mean and standard deviation were computed from the ratings of the 18 items, and *t*-test was conducted to determine if significant differences exist in the ratings of criteria between the websites controlled by dietitians and the websites controlled by individuals marketing their services as nutrition consultants.

Results and Discussion

Table 2 presents the mean and standard deviation scores for the registered dietitian websites and the nutrition consultant websites as relates to each individual criterion. Of the forty websites, 30 listed a Registered Dietitian as the owner, manager, or staff member. Nutrition consultants with various backgrounds/training including chiropractors, physical trainers, pharmacists, holistic counselors, and individuals advertising themselves as certified nutritionists operated the other ten sites. Although people without Registered Dietitian certification maintained these sites, nutrition information was advertised.

Overall, the means for the websites controlled by Registered Dietitians ranked higher than the Nutrition Consultants sites in 13 of 18 categories with three of the differences statistically significant. These included accuracy of information ($p < .0001$), inclusion of professional resume of owner or primary manager ($p < .05$), and explanation of the affiliation to external links ($p < .05$). The Registered Dietitian controlled sites and Nutrition Consultant controlled sites achieved the same mean average in two categories including freedom from spelling errors (4.88) and Provision of information to contact the company (3.82). Nutrition Consultant sites achieved a higher mean average in two categories including usage of prominent graphics or photographs related to the field of nutrition and easily accessed privacy policy although neither comparison was statistically significant.

In general, the sites controlled by Registered Dietitians achieved a mean average between 4.0 and 4.99 or "good" ranking for the purposes of this evaluation in 6 of 19 categories compared to 4 of 19 for the Nutrition Consultant sites, a mean average between 3.0 and 3.99 or "fair" ranking in 8 of 19 categories compared with 6 of 19 for the Nutrition Consultant sites, a mean average between 2.0 and 2.99 or "poor" ranking in 2 of 19 categories compared with 5 of 19 for the Nutrition Consultant sites, and a mean average between 1.0 and 1.99 or "very poor" ranking in 2 of 19 categories compared with 3 of 19 for the Nutrition Consultant sites.

The Internet is a powerful tool that can offer interactivity, tailored information, and potential to facilitate interpersonal interaction and social support for dietitians in communicating with present and future clients (Cline, Haynes 2001).

Table 2. Scores for websites controlled by registered dietitians(RD) and nutrition consultants(NC)*

Item	RD	NC	p-value
Content of a site			
Freedom from spelling and grammatical errors	4.88 ± 0.24	4.88 ± 0.19	1.0000
Accuracy of Information	4.38 ± 0.40	3.66 ± 0.54	0.0001***
Design and aesthetics			
Prominent graphics or photographs related to the field of nutrition	3.96 ± 0.96	4.00 ± 0.64	0.9012
Pleasing background color preferably not white	3.99 ± 0.57	3.72 ± 0.51	0.1901
Disclosure of site authors, sponsors, developers			
Statement of owner and company name on main page	4.15 ± 0.52	3.74 ± 0.65	0.0516
Stated mission or purpose for existence	3.28 ± 0.87	2.88 ± 0.70	0.1941
Currency of information			
Indication of website updates	2.99 ± 0.75	2.64 ± 0.50	0.1786
Authority of source			
Inclusion of professional resume of owner or primary manager	3.98 ± 0.86	3.26 ± 0.74	0.0245*
Ease of use			
Division of site into subpages with sitemap	4.25 ± 0.59	4.06 ± 0.59	0.3918
Accessibility and availability			
URL associated with business name	4.10 ± 0.80	3.66 ± 0.77	0.1393
Specification of services provided with prices listed	4.16 ± 0.65	4.22 ± 0.68	0.7946
Links			
Functional external links	3.03 ± 1.48	2.12 ± 1.06	0.0837
Explanation of affiliation to external links	2.96 ± 1.49	1.90 ± 1.04	0.0457*
Attribution and documentation			
Provision of basic nutrition information with source citation	3.38 ± 1.11	2.86 ± 1.05	0.2068
Intended audience			
Definition of intended audience	3.21 ± 0.79	2.94 ± 0.57	0.3291
Contact addresses or Feedback Mechanism			
Provision of information to contact company	3.82 ± 0.48	3.82 ± 0.79	1.000
User Support			
Easily accessed legal disclaimer	1.85 ± 1.02	1.62 ± 0.81	0.5240
Easily accessed privacy policy	1.29 ± 0.41	1.38 ± 0.86	0.6581

#: Data in this table was calculated using t-test with two groups.

*: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$

However, a person looking for a provider on the Internet must be cautious as virtually any one with computer access can launch and maintain an Internet site (Schanz 1999). The purpose of this investigation was not only to evaluate nutrition related websites for structure and eye appeal, it was also intended to investigate validity of nutrition information offered on websites controlled by registered dietitians and professionals advertised as nutrition consultants. Investigation of the availability, structure, and content of websites accessed under the search queries of “dietitian”, “dietitian consultant”, or “nutrition consultant” was the purpose of this study.

Both subjective and objective criteria were chosen as a basis for assessing the websites. Subjective criteria, defined by the authors as criteria that relate to the visual appeal, ori-

ginality, and recognition of a site, were included to address consumer desire to access attractive and visually appealing websites. Criteria in this study indicating this explored the use of graphics, photographs, color, texture, and URL address utilized. Behind website content, people cite design and aesthetics of a site, including layout, appeal, presentation, graphics and use of media, as the most important criterion to evaluate healthcare websites (Kim et al. 1999). Aesthetics of a website not only contribute to visual appeal of a website, but may also aid in increasing long-term consumer interest in, attention to, and retention of website information which are characteristics that are lacking in the general population. A study by Eysenback and Kohler (2002) found that volunteers who participated in an Internet search exercise could ackno-

wledge the name of a website or company name where they obtained their information only 20% of the time. In addition to visual aids, selection of a URL address associated with the company and/or nutrition may help increase the ability of a person to remember a site, and allow enhanced search engine capability. Dietitians who take steps to build their websites with originality, visual appeal, and recognition may aid their customer's ability to retain the web site information and remember the business name and address for future reference and recommendation to other consumers.

Objective criteria in this study related to general structure and content of the websites. When selecting a website to utilize, consumers tend to choose sites that are easy to navigate and allow for web based contact with the company. A focus group discussion conducted by Eysenback and Kohler (2002) indicated that participating internet users were especially interested in provision of a site map, outbound links to further recommended websites, and ability to send email to the site owner. In relation to contacting the company, because health related information is critically important (Schanz 1999) consumers should go a step further and identify sites that provide full company address and phone numbers in addition to web based contact links. Provision of a company phone number and postal address can help verify legitimacy (Alexander, Tate 2002) and allow consumers an avenue to inquire further where appropriate (Schanz 1999).

Registered Dietitian websites were significantly more likely to provide links to sites affiliated with nutrition than Nutrition Consultant sites; however, the sites often fell short in explaining the significance of the related sites. Although external links can be a useful tool to for a website builder to add information specific to their practice population (Howitt et al. 2002), placement of an external link on a website gives the implication of endorsement of that site and potentially every site that it endorses in turn (Rothschild 2001). It is of usefulness for a Dietitian who is building a website to produce an explanation as to the scope of the endorsement to a site. Providing external links without assurance of their functionality can also be a major blemish to a website. As Zhang and vonDran (2000) pointed out, a live link is taken for granted, but a broken link causes frustrated and dissatisfied users.

Two other criteria included were Provision of a professional resume for the owner or manager, and Statement of the owner and company names on the main website page.

Alexander and Tate (2002) emphasized the importance of this point to establish authority and legitimacy of the company. Rodriguez (1999) stressed websites should include author full name, title, other credentials, association or affiliation, and other areas of expertise or interest. In general, health care related information posted on a website with little or no information on the sponsor should be viewed with caution (Schanz 1999).

Inclusion of a list of services provided by the company with associated costs is recommended and was included as a criterion point in this evaluation. Prior acknowledgement of fees involved with provider services allows a consumer advance warning to determine if services are within their budget. Both Registered Dietitian and Nutrition Consultant controlled sites achieved a mean average between 4.0 and 4.99 or "good" rating for the purposes of this study as most websites provided a list of their services with an explanation of benefits; however, most sites fell short in providing a detailed cost list associated with the services.

Publication of website updates reveals currency of the information to the consumer, and attention paid to the site by the company. Website administrators should ensure information provided is of high quality and current (Turisco, Kilbridge 2000). If significant changes are made to existing nutrition information, notification of changes should be posted to the website with suggestion to disregard previous information (Winker et al. 2000). A majority of websites accessed in this study did not provide a date in which the website was updated or obvious signs of neglect would be apparent such as outdated notices about events would be provided.

Absence of grammatical and spelling errors is a website necessity. Spelling and grammatical errors not only suggest a lack of internal quality control, but may produce inaccuracies in the information itself (Alexander, Tate 2002).

Provision of nutrition information can serve several purposes. It can serve as a marketing tool to demonstrate expertise of the company and give website visitors a reason to revisit the site on a regular basis for updates (Turisco, Kilbridge 2000). A regular visit to a site by a consumer enhances the chance that the visitor will utilize other services provided by the site (Turisco, Kilbridge 2000). Disclosure of the citation for the nutrition information helps to enforce legitimacy of the information. Internet searches may yield false and deceptive service, product and treatment claims without supporting evidence or sources permitting verification (Zhang,

von Dran 2000).

Perhaps the two most important criteria, and the most overlooked in this study, was an easily accessed legal disclaimer and privacy policy. Legal disclaimers are statements utilized to specify intent of information presented and limitations the sponsor imposes (Schanz 1999). A danger exists in that users of a website may believe the site is offering professional advice and may seek legal claims against sponsors should unsatisfactory results occur (Schanz 1999). Disclaimers can be visible as a heading on the site map that is always available, or sensitive sites can impose a restriction by having a user agree to the disclaimer by checking a box before they can further navigate the site. Professionals practicing over the Internet must also address proper licensure of their services. If email or website interaction is sufficient to create a patient - health care provider relationship, the health-care provider should address the issue of licensure laws in the home state of the patient (Schanz 1999).

Among Internet users seeking medical information, personal privacy was ranked as the most important concern (Winker et al. 2000). Patients and individuals interested in a particular condition should feel confident that their identification will not be used without their permission (Winker et al. 2000). The United States Department of Health and Human Services acknowledged the concern of patient safety and privacy with the enactment of the Health Insurance Portability and Accountability Act (HIPPA) in 1996. The HIPPA, a law with provisions to encourage electronic transactions in order to lower healthcare costs, does not require a company to collect health information electronically, but defines new safeguards to protect security and confidentiality of health information of patients transmitted electronically (Moynihan, McClure 2000). Regulations cover health plans, health care clearing houses, and health providers who conduct certain financial and administrative transactions electronically including enrollment, billing, and eligibility verification (USDHHS 2002). The rule stipulates patient health information may only be used for their healthcare and strictly limits information use for marketing purposes (USDHHS 2002).

Privacy policies are statements about the privacy policy of the website that inform users of how user information will be collected and with whom the information will be shared (Graber et al. 2002). In order for privacy policy statements to be useful, creators of privacy policies should address user reading ability of their intended audience. A study by Graber

and colleagues (2002) found that privacy policies displayed on internet health websites are generally inappropriate for audience reading ability. Of 80 sites surveyed, 30% did not have a privacy policy posted at all, and the sites that did post a policy on average required a 2-year college education level in order to comprehend the statement. No website privacy policy assessed was comprehensible by most English speaking individuals in the United States as tested by the Flesch, Fry and SMOG readability tests (Graber et al. 2002).

Summary and Conclusion

Dietitians who maintain professional websites should take measures to address their patient's confidentiality and privacy. The AMA suggests provision of a company privacy policy on the website home page or the site navigation bar for easy access (Winker et al. 2000). Although we have attempted to provide a comprehensive assessment of Dietitian affiliated and Nutrition Consultant affiliated websites from a professional perspective, one weakness of this study is the perspective of the general public was not assessed in completing this study evaluation. A future study may involve the investigation of the utilization of these sites by the general public and the features they look for when accessing sites of this nature. The limitation of the study lies in the aging of the data. However we authors believe that disseminating the research is useful to the dietitians in demonstrating on the efforts and methodology to evaluate nutrition services websites, because the sort of research has little been conducted in dietetics and the website evaluation research is abundant in other management arenas reflecting the growth of e-commerce and the Internet users accordingly.

This study holds implications as follows:

- Healthcare commerce associated with the Internet is growing at a staggering rate.
- Dietitians should be willing to explore the use of the Internet, especially in private practice, as an avenue for attraction for future clientele and enhanced notoriety of the Dietitian profession.
- Dietitians should also recognize the availability of nutrition counseling by non-Registered Dietitian professionals on the Internet, and, when developing websites, Dietitians should ensure their websites are of high quality both structurally and content wise.
- Further research should be conducted to determine the

utilization of sites operated by Dietitians and Nutrition Consultants by the general public, and evaluate the features that consumers desire when accessing sites of this nature.

References

- Alexander J, Tate MA (2002): How to recognize a business/marketing web page. Checklist for a business/marketing web page. Available at: <http://muse.widener.edu/Wolfgang-Memorial-Library/webevaluation/busmark.htm>. Accessed May 11, 2002
- Cline RJW, Haynes, KM (2001): Consumer health information seeking on the Internet: the state of the art. *Health Education Research* 16: 671-692
- Eysenbach G, Kohler C (2002): How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests, and in-depth interviews. *British Medical Journal* 324: 573-577
- Graber MA, D'Alessandro DM, Johnson-West J (2002): Reading level of privacy policies on Internet health web sites. *J Fam Pract* 51: 642-645
- Howitt A, Clement S, de Lusignan S, Thiru K, Goodwin D, Wells S (2002): An evaluation of general practice websites in the UK. *Fam Pract* 19: 547-556
- Internet Coaching Library (ICL) (2005): Internet usage statistics for the Americas. Available at: <http://www.internetworldstats.com/stats2.htm>. Accessed October 3, 2005
- Kim P, Eng TR, Deering MJ, Maxfield A (1999): Published criteria for evaluating health related web sites: review. *British Medical Journal* 318: 647-649
- Leiner BM, Cerf VG, Clark DD, Kahn RF, Kleinrock L, Lynch DC, Postel J, Roberts LG, Wolff SS (1997): The past and future history of the Internet. *Communications of the Association of Computing Machinery* 40: 102-108
- Moynihan JJ, McClure ML (2000): HIPAA brings new requirements, new opportunities. *Healthcare Financial Management* March: 52-56
- Rodriguez JC (1999): Legal, ethical, and professional issues to consider when communicating via the Internet: A suggested response model and policy. *Journal of American Dietetics Association* 99: 1428-1432
- Rothschild MA (2001): Building and Implementing Physician Practice Web Sites. The American Medical Association, Chicago, IL
- Schanz S (1999): Using the Internet for Health Information: Legal Issues. The American Medical Association, Chicago, IL
- Turisco F, Kilbridge PM (2000): Developing a value-added web site. *Healthcare Financial Management* March: 40-46
- Wan CS (2002): The web sites of international tourist hotels and tour wholesalers in Taiwan. *Tourism Management* 23: 155-160
- Winker MA, Flanagan A, Chi-Lum B, White J, Andrews K, Kennett RL, DeAngelis CD, Musacchio RA (2000): Guidelines for medical and health information sites on the internet. *Journal of American Medical Association* 283: 1600-1606
- United States Department of Commerce (USDC) (2005): A Nation Online: Entering the Broadband Age. 2004. Available at: <http://www.esa.doc.gov/Reports/NationOnlineBroadband04.htm>. Accessed October 3, 2005
- Zhang P, von Dran GM (2000): Satisfiers and dissatisfiers: a two-factor model for website design and evaluation. *Journal of the American Society for Information Science* 51: 1253-1268