

CE Harris
IG Chestnutt

The use of the Internet to access oral health-related information by patients attending dental hygiene clinics

Authors' affiliations:

Carole Elizabeth Harris, Ivor Gordon Chestnutt,
Department of Dental Health and Biological
Sciences, Dental School, Cardiff University,
Cardiff, UK

Correspondence to:

Ivor Gordon Chestnutt
Department Dental Health and Biological
Sciences
Dental School, Cardiff University
Heath Park
Cardiff CF14 4XY, UK
Tel.: + 44 (0)29 2074 6680
Fax: +44 (0)29 2074 6489
E-mail: chestnuttig@cardiff.ac.uk

Dates:

Accepted 1 February 2005

To cite this article:

Int J Dent Hygiene 3, 2005; 70–73
Harris CE, Chestnutt IG:
The use of the Internet to access oral health-
related information by patients attending dental
hygiene clinics

Copyright © Blackwell Munksgaard 2005

Abstract: *Background:* The degree to which patients access the Internet for oral health-related information is unknown.

Objectives: This study was designed to determine if patients attending student dental hygiene clinics had: (1) accessed the Internet, (2) used the Internet as a source of information on both general health and oral health, (3) bought oral health care products on-line, and (4) were interested in being directed to appropriate on-line oral health resources by dental professionals. *Methods:* A self-complete questionnaire was administered to a quota sample of 280 new and returning patients attending the student dental hygiene clinic at either the Cardiff Dental Hospital or a nearby Primary Dental Care Unit. *Results:* A total of 269 (96%) patients consented to participate in the study. Of these, 147 (54.6%) had accessed the Internet, the majority (61.2%) from home. Internet use was significantly related to both patient age and level of education ($P < 0.001$). In total, 59 patients claimed accessing the Internet for information on general health topics. Only eight respondents had used the Internet for information on oral health/dental topics, with seven reporting that they found the information useful. On-line purchase of oral health products was reported by seven patients. However, 117 (43.5% of all respondents) patients indicated that they would be interested in the Internet as a future source of oral health information and 112 (41.6%) would appreciate being directed to appropriate sites by their dentist or dental hygienist. *Conclusions:* Patients attending student dental hygiene clinics make little use of the Internet for oral health information. However, reported interest in future access is such that dental professionals should develop and harness the potential of the Internet as an educational resource.

Key words: dental hygienists; health knowledge attitudes practice; Internet; patient education; periodontology

Introduction

The provision of information to, and education of patients, is a fundamental aspect of the role of dental hygienists and therapists. In the past, members of the dental team had a monopoly on knowledge when diagnosing, advising and treating patients. However, the advent of the Internet, has made available to the public, vast reserves of information at the click of a computer mouse, and access to medical and dental information is no longer the preserve of professionals (1).

As a result, the Internet has the potential to educate and empower the dental consumer, by providing information on oral health services and by supporting self-help and patient choice (2). Other potential benefits of educating and informing patients via the Internet include improving the quality and appropriateness of dental care, encouraging the adoption of healthy behaviours by patients, better compliance with advice, and the appropriate use of preventive agents (3). Furthermore, now and in the future, the Internet will, via practice-based websites, constitute a central forum for communication between practices and their patients. This is already common in North America (4, 5).

While there is a considerable body of research on the impact of the Internet-based patient education material as it relates to medicine in general (6), the implications for dental care are unknown (7). The first study of the quality of dental information for patients on the Internet concluded that judicious and active support from professionals would be required to aid patients' interpretation of periodontal-related patient information sites (8). In mid-2004, 61% of the adult population in the UK, claimed to have accessed the Internet (9). However, the extent to which patients attending for dental care specifically sought information on oral health issues is not known, nor is the degree to which patients would appreciate being directed to Internet-based oral health education material.

Thus the aims of this study were to determine the degree to which patients attending a student dental hygiene clinic accessed the Internet, searched for information on both oral and general health, or purchased oral health care products on-line. The survey also examined how demographic variables influenced Internet use and patients' interest in the Internet as an oral health education resource in the future.

Methods

Setting and participants

The participants in this study comprised a quota sample of 280 new and returning adult patients, attending student dental hygiene clinics, in either the Cardiff University Dental Hospital or a Primary Dental Care Unit, situated in Cardiff city centre. The study was conducted in mid-2004.

Data collection

Data were collected via a self-administered 14-item questionnaire containing a combination of open- and closed-response options. The items dealt with Internet use and access for information on general health, oral/dental health and the purchase of oral health care products on-line and future interest in Internet use for dental health education purposes. Finally data on age, gender and highest level of educational attainment were requested.

Prior to being seen in the clinic, patients were provided with a verbal explanation of the nature and purpose of the study, and were invited to participate. Subjects were advised that if they preferred, the researcher would read aloud each item and indicate their response on the questionnaire. Those agreeing to take part, completed the questionnaire in a quiet area in the patient waiting room. When the task was complete, the subject placed the questionnaire in an envelope and handed it to the clinic receptionist, who thanked them for their participation.

Data analysis

The questionnaires were coded to ensure anonymity and entered on a computer spreadsheet (SPSS, Chicago, IL, USA). Simple frequency statistics were used to describe the sample demographics and the relationship between variables was determined by cross-tabulation and chi-square analysis.

Ethics

The study was approved by the South East Wales local research ethics committee.

Results

Response and demographic data

Of the 280 patients invited to participate, only 11 declined, resulting in a 96% response rate. No significant differences in those willing to complete the questionnaire were observed between the two participating clinics. In total, 105 (39%) participants were new referrals to the dental hygiene clinic and 160 (59.5%) were returning patients, this information not being recorded in four cases.

Respondents ranged in age from 16 to 84 years, with a mean of 51.6 years. Males comprised 47.2% of the sample. Forty-nine (18.2%) participants had university-level education, 100 (37.2%) had no formal educational qualifications, while the remainder reported school-leaving qualifications.

Internet use

Overall, 147 (54.6%) respondents claimed that they had accessed the Internet at some time. The frequency of Internet use and the location from which it was accessed is recorded in Table 1. From this it can be observed that of those who access the Internet, the majority do so daily and most commonly from home.

Internet use was significantly related to age ($P < 0.001$), where 88.9% of the youngest quartile (aged ≤ 40 years) had been on-line, just 7.8% of those in the oldest quartile (≥ 65 years) had ever used the Internet. Similarly, Internet use was significantly ($P < 0.001$) related to educational attainment (83.7% of those claiming university-level education compared with 24% of those with no formal educational qualifications).

Internet and general health information

Information on general health had been sought by 59 participants, 40% of those who had been on-line (21.9% of all subjects who completed the questionnaire). Of these, 52 subjects found

Table 1. Frequency with which the 147 reported Internet users access the Internet and place of access

	<i>n</i> (%)
Frequency of Internet use	
Daily	63 (42.9)
Weekly	35 (23.8)
Less frequently	49 (33.3)
Place of access	
Home	90 (61.2)
Work	13 (8.8)
Home and work	33 (22.4)
Public Library	3 (2.0)
Elsewhere	8 (5.4)

Table 2. Dental/oral health topics which respondents claimed to have researched on the Internet

Topics
Replacement teeth (implants), oral surgery
Cosmetic dentistry
Treatment for gingivitis
Information on toothbrushes – difference between manual and electric
Information on tooth grinding
Tongue ulceration
Denture aftercare
The removal of amalgam restorations

the information useful, five were unsure and two did not find the information useful. Participants claimed to search for information on a vast array of general health topics, including back-pain, diabetes, heart-health, menopause and hay-fever.

Internet and oral health

In contrast, just eight participants (5.4% of those who have been on-line and 3% of all survey respondents) reported that they had searched the Internet for oral health information. Of these, seven reported that they found the information useful. The types of oral health information that these respondents claimed to have researched on the Internet are shown in Table 2. Just seven respondents reported that they had purchased oral health care products on-line.

However, 117 of the 269 participants in the survey stated that they would be interested in the Internet as a future source of oral health education material, and 112 (41.6%) would like to be directed to an appropriate educational resource by their dentist or dental hygienist.

Discussion

While a previous investigation reported on Internet use within a UK dental school by staff and students (10), this descriptive study is the first to report on Internet use by patients attending a dental hygiene clinic. The method of sampling (i.e. 280 consecutive patients) and the high response rate, suggests that the findings are applicable to all patients attending the clinic. Internet usage at 54.6%, is slightly lower in this cohort of patients than in the UK population, in general (61%) (9), but is likely to reflect the mean age of the patients. It is known that Internet use is related to age and educational level (9, 11) as confirmed by the current study.

The present finding that 21.9% of all participants had sought general health information on-line is similar to the 25% of such patients attending general medical practices in Wales (12). It is

however lower than the 33% of patients attending urban primary care clinics in the USA (13), who had sought general health information on the Internet. In marked contrast, just 3% of all survey respondents reported use of the Internet to access information on oral health. This compares with recent surveys of patients attending otolaryngology clinics and cancer patients where 18 and 16–46%, respectively, sought information about their condition on the Internet (14, 15).

It is interesting that the majority of patients who sought oral health information found the information useful. However, the information jungle that is the Internet, implies that patients need judicious guidance in sorting useful from less useful information (8), and dental hygienists must be prepared to discuss issues raised by patients concerning information they obtained on-line. In addition, it is the duty of oral health professions to appreciate the knowledge base of their patients.

Purchase of oral health care products was reported by a small number of patients, and it is not as yet routine practice in our clinic to refer patients to the Internet for such purchases. However, as on-line shopping becomes more common, this will provide a convenient mechanism for patients to resource items such as inter-dental cleaning aids.

Perhaps the most encouraging aspect of this survey is the interest shown by patients in the Internet as a future source of oral health education material. It is the view of the authors that the Internet as an educational resource is underutilized by the dental team, at least in the UK and probably elsewhere as well. The patients in this study claim that they would be receptive to their dental hygienist directing them to information sources on the Internet.

Patients frequently forget, or do not fully understand, information that is imparted in the course of a dental appointment. The Internet provides a means of providing educational material that patients can subsequently peruse at their leisure. Of course, the limitations of health education are well recognized, in terms of converting knowledge and attitudes into sustained behaviour change (16). However, the Internet makes possible, the provision of customized, or tailored personal feedback. This has been shown to be effective in promoting a change in diet (17) and in the area of smoking cessation (18). The potential of specifically tailored oral health information in the field of periodontal health is as yet unexplored and further research in this area is required.

Conclusions

It is concluded therefore, that while the present use of the Internet for oral health information by patients attending a stu-

dent dental hygiene clinic is low, there exists potential to harness the undoubted benefits of the Internet in the dental hygienist's role of educating and informing patients.

References

- 1 MuirGray JA. *The Resourceful Patient*. Rosetta Press: Park Ridge, 2002.
- 2 Eysenbach G. Consumer health informatics. *Br Med J* 2000; **320**: 1713–1716.
- 3 Powell JA, Darvell M, Gray JAM. The doctor, the patient and the world-wide web: how the internet is changing healthcare. *J R Soc Med* 2003; **96**: 74–76.
- 4 Schleyer TKL, Spallek H, Torres-Urguidy MH. A profile of current Internet users in dentistry. *J Am Dent Assoc* 1998; **129**: 1748–1753.
- 5 Smith K. The financial wonders of electronic patient communication. *Dent Econ* 2004; **94**: 92–96.
- 6 Diaz JA, Griffith RA, Ng JJ, Reinert SE, Friedmann PD, Moulton AW. Patients' use of the Internet for medical information. *J Gen Intern Med* 2002; **17**: 180–185.
- 7 Chestnutt IG. Patient information on the Internet – what are the issues? *Community Dent Health* 2001; **18**: 205–206.
- 8 Chestnutt IG. The nature and quality of periodontal related patient information on the world-wide web. *Br Dent J* 2002; **193**: 657–659.
- 9 Office for National Statistics. *National Statistics Omnibus Survey*. Office for National Statistics: London. 2003. <http://www.statistics.gov.uk/CCI/nugget.asp?ID=8&Pos=3&ColRank=1&Rank=160> (accessed 21/12/04).
- 10 Walmsley AD, White DA, Eynon R, Summerfield L. The use of the Internet within a dental school. *Eur J Dent Educ* 2003; **7**: 27–33.
- 11 Benigeri M, Pluye P. Shortcomings of health information on the Internet. *Health Promot Int* 2003; 381–386.
- 12 Dolan G, Iredale R, Williams R, Ameen J. Consumer use of the Internet for health information: a survey of primary care patients. *Int J Consumer Studies* 2004; **28**: 147–153.
- 13 Dickerson S, Reinhart AM, Feeley TH, Bidani R, Ricj E, Garc VK, Hershey CO. Patient Internet use for health information at three urban primary care clinics. *J Am Med Inform Assoc* 2004; **11**: 499–504.
- 14 Tassone P, Georgalas C, Patel NN, Appelby E, Kotecha B. Do otolaryngology out-patients use the Internet prior to attending their appointment? *J Laryngol Otol* 2004; **118**: 34–38.
- 15 Ziebland S, Chapelle A, Dumelow C, Evans J, Prinjsa S, Rozmovits L. How the Internet affects patients' experience of cancer; a qualitative study. *Br Med J* 2004; **328**: 564.
- 16 Kay EJ, Locker D. *Is Dental Health Education Effective: A Systematic Review of Current Evidence*. Health Education Authority: London. 1996.
- 17 Brug J, Oenema A, Campbell M. Past, present and future of computer-tailored education. *Am J Clin Nutr* 2003; **77**: 1028s–1034s.
- 18 Takahashi Y, Satomura K, Miyagishima K, Nakahara T, Higashiyama A, Iwai K, Nakamura K. A new smoking cessation programme using the internet. *Tob Control* 1999; **8**: 109–110.

Copyright of International Journal of Dental Hygiene is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.