A survey of patient satisfaction and use of the internet for health information

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Introduction

Easy access to the Internet has revolutionised worldwide communication and provision of all types of information including healthcare information (1–3). However, there are few studies focusing on the access to validated web sites as Internet sources of health information for patients. Various authors have claimed that health information from the Internet, can be misleading and confusing, yielding little dividend compared with the time spent browsing and searching (4–9). Others have recommended the use of validated and trustworthy Internet sites for educating patients online. However, there is little published evidence determining the willingness of patients to access such validated information (10,11).

Fox et al. (12) demonstrated that the Internet is revolutionising healthcare systems in the USA and is helping Americans to take better care of themselves. Access to the Internet has increased dramatically in the UK over the last decade and it was estimated that 43% of the UK households and 40% of the UK population had access to the Internet in 2004 (13).

We aimed to survey patients’ use of the Internet for health information, to determine how useful health information over the Internet was to patients/carers and to assess the potential use of validated health information on the Internet by our patients. A multidisciplinary questionnaire survey of the use of the Internet for health information was performed. The study population consisted of patients and accompanying adults 18 years and older who attended outpatient clinics at Nottingham City Hospital for a period of two weeks in July 2005. The questionnaire captured information on demographics, frequency of use of the Internet, sources of health information, satisfaction rating of health information obtained on the Internet and their interest in using trustworthy health information on the Internet site if made available. Of the 800 questionnaires sent out, 663 responded (83%). Sixty three percent of patients had access to the Internet. 42% of the participants had used the Internet to access health information prior to this survey. 7.5% of the participants who have no access to the Internet, have had someone else look up health information on the Internet on their behalf. 95% of the respondents who had used the Internet for health information rated such information between average to excellent. 82% of those with Internet access and 21% of those with no Internet access would be interested in using trustworthy health information on the Internet. Nearly half of our population of secondary care patients have used the internet to access health information and most are interested in using validated health information. Delivery of validated health information via the internet should be a priority for health care providers.

Methods

This is a patient and accompanying adult survey into the use of the Internet for health information by patients attending a large teaching hospital in the UK. The study population consisted of patients or accompanying adults 18 years and older attending Breast, Medical, Oncology, Surgical and Obstetrics & Gynaecology outpatient clinics for a period of 2 weeks in July 2005.
The questionnaire consisted of 13 questions with explanatory notes attached as to the purpose, voluntary nature of participation and implied consent by completing the questionnaire. The questionnaire was given to the patients and accompanying adults prior to their consultation and they were asked to return them to the clinic receptionists. This process took between 5 and 10 minutes to complete. The data collected included demographics, Internet accessibility, frequency of use of the Internet, previous use of the Internet for health information, satisfaction rating of the health information obtained on the Internet, other sources of health information used and willingness to use a validated and trustworthy health information Internet site if made available.

Statistical analysis was carried out using the SPSS version 11.5 (SPSS, Chicago, IL, USA) and Microsoft Excel presenting descriptive statistics. Discrete variables were compared using the Pearson chi-square test and differences between variables were considered statistically significant when the p-value was <0.05.

Results

Eight hundred questionnaires were sent out and 663 completed and returned, giving an 83% response rate. 88% of the respondents were patients while the remaining were accompanying adults. 80% of the patients were aware of their diagnosis. The age group pattern is illustrated in Figure 1.

Sixty-three percent of the respondents had access to the Internet. Patients in the older age groups tended not to have Internet access. The difference in Internet accessibility between the younger (<65 years) and the senior age groups was statistically significant with a p-value of 0.001 (Figure 1). Fifty-seven percent of those who had access to the Internet had this at home, while others had access at public or work places. Frequency of use of the Internet by users is illustrated in Figure 2 and different sources of health information used by the respondents are illustrated in Figure 3. From Figure 3, it can be seen that the Internet is the second most common source for obtaining health information after the doctor.

Forty-two percent of the respondents had used the Internet to access health information recently and 20% of those who had never used the Internet indicated that a family member and/or a friend had used the Internet to look up health information on their behalf. The reasons why people did not access the Internet included not having access to the Internet or not knowing how to use it (37.3%), satisfaction with their doctors and nurses (family/hospital) at answering health-related questions (33.9%), lack of time (7.8%), being unaware that such information exists on the Internet (6.2%) and mistrust of information on the Internet (3.4%). The remaining 11.4% gave no response.

Ninety-five percent of respondents who had used the Internet for health information rated such information between average and excellent, as illustrated in Figure 4. 54% claimed that using the Internet for health information was easier and simpler than contacting their doctors and nurses (family/hospital). Overall, 82% of those with Internet access and 21% with no Internet access would be interested in accessing a reliable and trustworthy Internet site for health information. The various Internet sites that have been visited by the respondents for health information in this survey are listed in Appendix 1.
In this study, 57% of respondents had Internet access at home, which is in keeping with the figure released in August 2005 by the UK Office of National Statistics showing that about 55% of households have access to the Internet, and this is bound to increase in the future (13). About 60% of adults in Great Britain had used the Internet in the 3 months prior to this survey in May 2005 (13). Our survey differs from these general population surveys in that the population we surveyed either have a health problem requiring secondary care input, or are accompanying someone with such a problem. As these patients tend to be older, one might assume it is less likely that they have Internet access. We have shown that although older patients are less likely to have Internet access, a high proportion of the total group are able to access information in this way. This figure is important when planning delivery of health information over the Internet, as it is this group, with health problems that is the main target audience.

The Internet has a powerful role for dissemination of information about health and healthcare systems and enhancing communication and exchange of information between the patient population and the healthcare delivery system (11). The use of the Internet as a source of health information has therefore become increasingly popular as many patients become aware of this option. The Pew Internet and American Life Project report showed that 77 million American Internet users had used the Internet to obtain health information in March 2003 and it was estimated that 88.5 million adults will use it for this purpose in the USA alone by 2005 (12). O’Connor and Johanson (14) reported that 50% of patients who have access to the Internet were already searching it for health information. Sixty-six percent of Internet users in our survey had used it for seeking health information and one in five non-Internet users have had either a family member and/or a friend search for health information on their behalf. This latter group tend to be in the older age range. Similar trends have been shown in a previous survey (8). Therefore, by projection about 50% of the participants in this study have directly or indirectly accessed the Internet for health information. Over half (51%) of those who do not have access to the Internet were in the older age group (65 years or older) with either no accessible computer or no knowledge of how to use it. This group of patients preferred to use their local healthcare services for health information and one in five non-Internet users have had either a family member and/or a friend search for health information on their behalf. This latter group tend to be in the older age range. Similar trends have been shown in a previous survey (8). Therefore, by projection about 50% of the participants in this study have directly or indirectly accessed the Internet for health information. This high percentage is a reflection of the fact that it is people with a significant health problem who are likely to use the Internet for accessing health information.

Over half (51%) of those who do not have access to the Internet were in the older age group (65 years or older) with either no accessible computer or no knowledge of how to use it. This group of patients preferred to use their local healthcare services for health information (local doctor or nurse) and represent the group of patients who are least likely to benefit from health information provision over the Internet. Whilst a doctor–patient consultation is usually required for this group of patients it may be avoided in patients who are prepared to look for the answers to their questions on the Internet. Furthermore, subsequent consultations will be more efficient if patients have already been educated by accurate information from the Internet.
There are, however, genuine concerns about the quality, validity, reliability and confidentiality of health information on the Internet. One thing that makes the Internet popular is the fact that anyone can set up a web site providing information. However, when it comes to provision of health information, this is a major weakness as much of the information on the World Wide Web does not pass through a traditional editorial review process and many sites do not provide the source of authorship or origin (7–9,15–18). Health information can be written by individuals without appropriate qualifications and the information may not be evidence-based. A further problem is that of bias, with many web sites promoting a commercial product or company (19). Those using the Internet may be unaware of these limitations. Gilliam et al. (9) suggested that clinicians could recommend specific web sites to patients that will provide them with the best information relating to their health problems. This selected source of reliable and trustworthy information would help them to avoid being overwhelmed with irrelevant and often confusing information.

Patients do not have the knowledge to discern between good and poor quality Internet sites and tend to give higher ratings to the quality of health information obtained on the Internet than healthcare professionals (17). Similarly, 95% of our participants who had accessed health information on the Internet rated such information as being average to excellent. Wyatt (19), in his commentary on health information quality and impact on the World Wide Web, states ‘unless we evaluate the quality of clinical sites and their effects on users, we risk drowning in a sea of poor quality information’. Berland et al. (6) noted the same concerns that widespread inaccuracies and deficiencies of health information on the Internet may negatively influence patients’ decisions about their healthcare.

There is, therefore, a pressing need for healthcare providers to develop validated health information portals or sites where patients can easily access reliable information about their condition (9). One such web portal is http://www.aboutmyhealth.org where patients that will provide them with the best information relating to their health problems. This selected source of reliable and trustworthy information would help them to avoid being overwhelmed with irrelevant and often confusing information.

**Conclusion**

The Internet is becoming one of the major routes of health information dissemination. In our population of individuals attending secondary care outpatient clinics, access to the Internet was high with about half of our population having used the Internet directly or indirectly to access health information. Providers of health information need to embrace the Internet as an excellent route for delivering health information but need to develop systems for ensuring quality to protect users from misinformation.

**References**

1. Sherman L. The World Wide Web: what physicians should know when patients are surfing the net. *World Med J* 1998; 97: 31–2.
2. Watson R. The new patient power. *Newsweek* 2001; 137: 54–8.
3. Huntley AC. The need to know. Patients, e-mail and the Internet. *Arch Dermatol* 1999; 135: 198–9.
4. Impicciatore P, Pandolfini C, Casella N, Bonati M. Reliability of health information for public on the World Wide Web: systematic survey of advice on managing fever in children at home. *BMJ* 1997; 314: 1875–7.
5. Cotera E. The Internet’s challenge to health care provision. *BMJ* 1996; 312: 3–6.
6. Berland GK, Elliott MN, Morales LS et al. Health information on the Internet: accessibility, quality and reliability in English and Spanish. *JAMA* 2001; 285: 2612–21.
7. Soot LG, Moneta GL, Edwards JM. Vascular surgery and the Internet: a poor source of patient oriented information. *J Vasc Surg* 1999; 30: 84–91.
8. Durani P, Croft PG, Kent PJ. Sources used by patients seeking information about peripheral vascular disease: is the Internet relevant? *Surg Pract* 2005; 9: 46–9.
9. Gilliam AD, Speake WJ, Scholefield JH, Beckingham JJ. Finding the best from the rest: evaluation of the quality of patient information on the Internet. *Ann R Coll Surg Engl* 2003; 85: 44–6.
10. Leaffer T, Gonda B. The Internet: an underutilized tool in patient education. *Comput Nurs* 2009; 18: 47–52.
11. Baker L, Wagner TH, Singer S, Bundorf MK. Use of the Internet and E-mail for health care information. *JAMA* 2003; 289: 2410–6.
12. Fox S, Rainie L, Horrigan J et al. The Online Health Care Revolution: How the Web Helps Americans Take Better Care of Themselves. Washington, DC: Pew Internet and American Life Project, 2005.
13. Internet Access-Household and Individual Data. *Expenditure and Food Survey, Office of National Statistics*. Available at: http://www.statistics.gov.uk/statbase, accessed on 23 August 2005.
14. O’Connor JB, Johanson JF. Use of the Internet as a source of health information by a gastroenterology clinic population. *JAMA* 2000; 284: 1962–4.
15. Khan HN, Pasapula C, Hayre B, Al-Mishlab T. Survey of Internet use to access health information amongst patients attending a colorectal clinic. *Internet J Surg* 2003; S. Available at: http://www.ispub.com/ostia/index.php?xmlfilepath=journals/ijs/vol5n1/inter-net.xml, accessed on 1 August 2006.
16. 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: 180–5.
17. Ayorinde O. Patients in cyberspace: information or confusion? *Postgrad Med J* 1998; 74: 449–50.
18. Lindberg DA, Humphreys BL. Medicine and health on the Internet: the good the bad and the ugly. *JAMA* 1998; 280: 1303–4.
19. Wyatt JC. Commentary: Measuring quality and impact of the World Wide Web. *BMJ* 1997; 314: 1879.

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### Appendix 1: Examples of web sites on health information visited by patients in the past 6 months

| Names of the organisations                                      | Web sites                                      |
|----------------------------------------------------------------|-----------------------------------------------|
| 1. World Health Organization                                  | http://www.who.int/topics/en/                  |
| 2. Arthritis                                                   | http://www.arthritis.org                      |
| 3. British Medical Association                                | http://www.bma.org.uk                         |
| 4. Nursing and Midwifery Council, UK (Nursing Times)          | http://www.nursingtimes.net                   |
| 5. National Institute of Health (PubMed)                      | http://www.pubmedcentral.nih.gov              |
| 6. Coeliac UK                                                  | http://www.celiac.co.uk                       |
| 7. General Medical Council                                     | http://www.gmc-uk.org                         |
| 8. Medical Pages                                               | http://www.bowelcancer.co.uk                 |
| 9. Cancer BACUP                                                | http://www.cancerbacup.org.uk                 |
| 10. Glaxo SmithKline                                           | http://www.diabetes.com                       |
| 11. Age Concern                                                | http://www.ageconcern.org.uk                  |
| 12. Northwest Hospital and Medical Centre                      | http://www.prostatecancer.org                 |
| 13. Agency for Healthcare Research and Quality                 | http://www.healthcare.com                     |
| 14. Nottingham City Hospital NHS Trust                        | http://www.ncht.org.uk                        |
| 15. British Broadcasting Corporation                           | http://www.bbc.co.uk/health                   |
| 16. Department of Health, UK                                   | http://www.dh.gov.uk                          |
| 17. Discovery Health                                           | http://www.health.discovery.com               |
| 18. National Health Service (NHS direct)                       | http://www.nhsdirect.nhs.uk                   |
| 19. Macmillan Cancer Relief                                    | http://www.macmillan.org.uk                   |
| 20. US Board Certified Physicians and Allied Health Professionals| http://www.medicinenet.com                    |
| 21. Asthma UK                                                  | http://www.asthma.org                         |
| 22. Norwich Union                                              | http://www.norwichunion.com                   |
| 23. British Heart Foundation                                   | http://www.bhf.org.uk                         |
| 24. Arthritis Care                                             | http://www.arthritis.org.uk                   |