Internet use and seeking health information online in Ireland: Demographic characteristics and mental health characteristics of users and non-users

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HRB
Health Research Board

HRB Research Series 4

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HRB

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The Health Research Board (HRB) is the lead agency supporting and funding health research in Ireland. We also have a core role in maintaining health information systems and conducting research linked to national health priorities. Our aim is to improve people's health, build health research capacity, underpin developments in service delivery and make a significant contribution to Ireland's knowledge economy.

Our information systems

The HRB is responsible for managing five national information systems. These systems ensure that valid and reliable data are available for analysis, dissemination and service planning. Data from these systems are used to inform policy and practice in the areas of alcohol and drug use, disability and mental health.

Our research activity

The main subjects of HRB in-house research are alcohol and drug use, child health, disability and mental health. The research that we do provides evidence for changes in the approach to service delivery. It also identifies additional resources required to support people who need services for problem alcohol and drug use, mental health conditions and intellectual, physical and sensory disabilities.

The **Mental Health Research Unit** gathers data on patient admissions, treatment and discharges from psychiatric hospitals and units throughout Ireland. The data collected have been reported in the Activities of Irish Psychiatric Services since 1965 and continue to play a central role in the planning of service delivery. The unit is extending its service to include information about activity in community care settings in order to reflect the changing patterns of care for patients with a mental illness. Multi-disciplinary experts in the unit carry out national and international research and disseminate findings on mental health and mental illness in Ireland. These findings inform national policy, health service management, clinical practice and international academic research.

The **HRB Research series** reports original research material on problem alcohol and drug use, child health, disability and mental health.

HRB Research Series publications to date

Ward M, Tedstone Doherty D and Moran R (2007) *It's good to talk: distress disclosure and psychological wellbeing*. HRB Research Series 1. Dublin: Health Research Board.

Tedstone Doherty D, Moran R, Kartalova-O'Doherty Y and Walsh D (2007) *HRB national psychological wellbeing and distress survey: baseline results*. HRB Research Series 2. Dublin: Health Research Board.

Daly A, Tedstone Doherty D and Walsh D (2007) *Re-admissions to Irish psychiatric units and hospitals 2001–2005*. HRB Research Series 3. Dublin: Health Research Board.

Gallagher S, Tedstone Doherty D, Moran R and Kartalova-O'Doherty Y (2008) *Internet use and seeking health information online in Ireland: Demographic characteristics and mental health characteristics of users and non users*. HRB Research Series 4. Dublin: Health Research Board.

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Summary

The role of information technology, and in particular the Internet, has increased in past decades and is increasingly becoming an important part of our day to day lives. The lack of access to or inability to use information technology will result in exclusion from the information society, which may have negative implications at both an individual and at a societal level. Furthermore, the use of the Internet as a source of health information has increased over the years with people now using the Internet to research health (e.g. treatment options, medical procedures, disease/wellness information) or as a means of self-care and information (e.g. health risk assessment, support groups, clinicians advice). Information on those who use the Internet in general and, in particular, those who seek health information online is important for policy makers in a range of areas. Identifying the important factors that lead to Internet use in general and online health seeking can help identify the appropriate steps required to reduce the digital divide, ensure an e-inclusive society and ensure that everyone has access to high quality health information online.

This paper investigated the demographic attributes of Internet users in Ireland, and provided an in-depth analysis of demographic and self-reported mental health characteristics of Internet users who search for health information online. It also examined the willingness of respondents who do not use the Internet as a source of information on health, to potentially use it for health information.

The analysis was performed on data from the Health Research Board National Psychological Wellbeing and Distress Survey (HRB NPWDS) which surveyed 2,711 adults, aged 18 years and over, living in private households in Ireland (Tedstone Doherty *et al.* 2007). Internet use was measured using three items, covering past use, use specifically for health information and willingness to use the Internet in the future. Current psychological wellbeing was measured using the General Health Questionnaire (GHQ-12). Mental health problems in the previous year were measured using self-reported experience of mental, nervous or emotional problems, such as anxiety or depression, in the past 12 months. Socio-demographic variables examined included age, gender, education, employment status and geographical region.

Results found that young males, with higher levels of education, either currently employed, or in training/education, had the highest levels of Internet use in Ireland. Further analysis revealed that females and those in employment were most likely to use the Internet as a source of information on health. There was also a relatively high willingness to use the Internet for health information by non-users. In line with previous international studies there were a substantial proportion of Internet users with poor mental health who were searching for health information online.

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These findings replicate previous findings in relation to Internet use and the socio-demographic variables that differentiate users from non-users. In addition, the findings provide important information about those who are most likely to seek health information online. One of the objectives of this report was to explore mental health and Internet use. To date there has been little information in Ireland on the mental health of Internet users. This research found that there were a substantial number of people experiencing mental health problems that have used the Internet as a source of information on health. This highlights the potential of using the Internet for the promotion of mental health and wellbeing.

These findings have important implications for the areas of e-inclusion and health services. They suggest that there is a need to develop community initiatives aimed at reducing the digital divide especially targeted at older people, those not in employment and those with physical or mental health problems. The findings also showed that online health seeking is a popular activity on the Internet. An important issue that needs urgent attention is a review of Irish health websites to assess the quality of the information provided and to possibly produce a list of valid and quality sites that can be promoted as a reliable source of information on general and mental health.

1 Introduction

1.1 ICT policy and the digital divide

The European Commission has identified that Information and Communications Technology (ICT) is an important means of fostering inclusion, better public services and improved quality of life for European citizens (European Commission 2005b). In particular, its focus has been on ICT use and access for people who are disadvantaged due to age, gender, disability and limited resources or education, as well as those living in less favoured areas (European Commission 2005b). This development, known as 'e-inclusion', aims to give these social groupings, which are most at risk of exclusion from ICT, the opportunity to use the Internet to improve their quality of life and employment opportunities, and to contribute to a knowledge-based society. E-inclusion also seeks to improve economic performance, and promote social cohesion and participation within a society. In an Irish context, e-inclusion initiatives have involved the provision of Internet access in public libraries, affordable home computing initiatives (e.g. HCI), awareness schemes for marginalised groups, and ICT education programmes such as CAIT and Equalskills (O'Donnell *et al.* 2003; O'Donnell *et al.* 2004).

Inequality in Internet use and access has been found in previous Irish and international research across a variety of age groups, income levels, educational levels and employment status (Williams *et al.* 2004; Central Statistics Office 2006). There are diverging opinions on this inequality, known as the 'digital divide[1]', with some predicting an increase in the divide, ultimately leading to a widening gulf between users and non-users (Korp 2006), and others believing that ICT will become all encompassing in society (for an interesting discussion see Information Society Commission, 2004b). Women engaged in home duties, skilled tradesmen, those with long-term illnesses, retired persons, farmers and the unemployed are those most at risk in Ireland of exclusion from ICT (O'Donnell *et al.* 2003). The Irish results are supported by international literature, which maintains that use of the Internet increases with income, educational level and social and occupational status (Baker *et al.* 2003; Cotten and Gupta 2004; Fox 2005).

The digital divide can also have a geographical dimension; EU-wide research asserts that Irish households are less likely than their EU counterparts to have Internet access, and are among the lowest household users of broadband in the EU (Central Statistics Office 2006). In Ireland, there is one of the largest broadband digital divides in Europe, with much higher availability in urban than rural areas (Central Statistics Office, 2006).

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1   The digital divide is most commonly defined as the gap in achievement between those who have access to digital information and those who do not. Previously the digital divide has referred mainly to inequalities in access to a personal computer and to the Internet. More recent definitions of the digital divide have included access, skills, power-knowledge and global economy (Gil-de Zuniga, 2006).

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In addition to the availability, the digital divide can also be exacerbated by lack of appropriate services, higher prices in rural areas, low-quality connections and lack of awareness of the potential of broadband (European Commission 2005a).

In addressing the digital divide in Ireland, current ICT policy recommends improving ICT literacy and broadband provision in all areas. It also strives to motivate non-users, such as individuals in marginalised groups, to gain experience of ICT using community and voluntary programmes such as the Community Application of Information Technology (CAIT) project (Duggan and Dunne 2003).

ICT has also been stressed as an important factor in the modernisation and reform of the Irish health services. In 2004, the Department of Health and Children recommended the development of a health information portal, and improvements and advances in ICT for primary care (Department of Health and Children 2004). Policymakers foresee that in the near future individuals will be able to access comprehensive information on their own personal medical history and on public and private health services online. They will also be able to manage their own and their dependents' health and well-being through the use of ICT. It is envisaged that this will be implemented through call centres, walk-in healthcare offices, television, and Internet-accessible devices such as computers and personal digital assistants (Health Service Executive 2003).

Given the growing influence and importance of ICT on Irish health policy, this paper examines the extent of Internet use generally, and specifically its use for health information.

1.2 E-health

An area that has become of increasing importance within e-inclusion is the concept of e-health. E-health refers to the delivery or enhancement of health services and information through the Internet and related technologies (Eysenbach 2001). An aspect of e-health is the growing tendency for individuals to use the Internet for health information. These particular Internet users, who use search engines, websites, message boards and other online resources to inform themselves on health matters, are known as online health seekers (Bessel *et al.* 2002; Fox 2005). Although most people do not consider the Internet as a replacement for health professionals (Leach *et al.* 2006; McMullan 2006; Harbour and Chowdhury 2007), it is becoming ever more important to view the Internet as a source of health information because of its increased use at all levels of society (Centre for Health Promotion Studies 2003; Central Statistics Office 2006; Health Service Executive 2007). People can use the Internet, among other things, to find specific health-related information or to supplement information from a doctor. It also provides users with anonymity in health information seeking and can provide information to increase the possibility for self-care. Furthermore users can use it as

a means for information exchange and community support (Frank 2000; Information Society Commission 2004a; Harbour and Chowdhury 2007). It can also empower users to seek help and increase understanding of their medical conditions (McMullan 2006).

A UK study of doctors' experiences of their patients using the Internet for health information found that 51% of the doctors surveyed reported more benefits (e.g. improved patient self-confidence and increased support) than problems (e.g. ordering dangerous drugs and being misinformed about their condition). Some doctors perceived the Internet as helpful for informing and providing support for patients. The authors concluded that increased knowledge of medical conditions by patients can improve their self-care (Potts and Wyatt 2002).

Yet, even with all the positive outcomes that the Internet can offer to consumers of online health information, searching for specific information can throw up many difficulties and disadvantages. There have been problems with the lack of reliability and poor quality of health sites (Fox 2005), difficulties in sourcing information within websites and finding high-quality sites (O'Mahony 1998), and problems with completeness and accuracy of information (Eysenbach *et al.* 2002; Morahan-Martin 2004). Steps have been made in health website monitoring in recent times with the development of organisations that oversee and assess the content of health websites such as the Health on the Net (HON) Foundation.[2] A tool for assessing the quality of websites, called DISCERN[3], has also been created. However the content of all Irish health websites has not been suitably analysed for accuracy since 1998. Additionally, there have been user issues with trust and the quality of information provided on health websites (Huntington *et al.* 2004).

More worryingly, using health information from the Internet for decision-making purposes without expert advice could potentially have a negative impact on a patient's health (Giles 2007). Results from the Health on the Net survey (2005) found that over half of the health professionals questioned agreed that there was a 'risk' of self-treatment, and 60% of them believed that searching for health information online encourages patients to challenge a physician's medical authority (Health On the Net 2005). The Irish Medicines Board (IMB) highlighted the dangers of purchasing medicines online (Irish Medicines Board 2007), with a total of 1,900 adverse reactions reported to the IMB in 2006.

1.3 Internet use and online health seeking

Internet use in Ireland has been growing steadily in recent years, with the number of homes with Internet connections rising from 655,000 in 2005 (45.1% of all households),

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2   www.hon.ch
3   www.discern.org.uk

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to 722,200 in 2006 (48.7% of all households), and Internet use rising in all age groups since June 2005 (Central Statistics Office 2006). Of the total population aged between 16 and 74 in 2006, 48.1% had used the Internet, with females and those in the 25–34 year age group exhibiting the highest computer and Internet use (Central Statistics Office 2006). This is in line with a recent survey in the UK where it was found that 18 to 34 year old women were the highest users of the Internet. They also found that Internet use in the UK population was split almost equally between males (51.5%) and females (48.5%) (Nielsen/Netratings 2007).

Online health-seeking behaviour has been documented in Ireland since 2002, with 12% of respondents in 2002 reporting that they had used the Internet as a source of information on health-related matters (Centre for Health Promotion Studies 2003). In this study, respondents aged 18 to 34 years were more likely to use the Internet as a source of information on health (19%) than older respondents aged 35 to 54 years (13%), and those over 55 years of age (3%).

A report by the National Council on Ageing and Older People (NCAOP) highlighted the problems older people have in accessing information on health, social care and welfare services, with the Internet being at the bottom of their list of preferred methods of accessing information. Many older Irish people feel that there are barriers to new technology, with issues such as lack of confidence in use, lack of education and training, fear of embarrassment in a training setting, inability to access facilities, medical fears, cost and being 'too old to learn' impacting on use. However, a substantial number of older people have positive attitudes towards new technology and there is evidence of a growing awareness of its value for information seeking (Heuston 2002).

International studies have shown that individuals who are better educated and of a higher social class are more likely to use the Internet as a source of health information than individuals in a lower social class and educational level (Andreassen *et al.* 2002; Baker *et al.* 2003; Kalichman *et al.* 2003; Cotten and Gupta 2004; Fox 2005). A US study into the online health seeking of low-literacy adults found that low literacy levels inhibit information seeking online. Many health websites have content that requires high reading levels, which in this case made online health seeking problematic for the participants (Birru *et al.* 2004).

Results from the 2003 Eurobarometer survey reported that 23.4% of Irish people had used the Internet as a source of information on health, which was in line with the European average of 23% (Spadaro 2003). This study also found that the proportion of Internet users decreased with age, and increased with more years in education. A recent survey of health consumers in Ireland found that 18% of respondents had used the Internet as a source of information on health (Health Service Executive 2007). A survey by the European Commission in 2005 (eUSER 2005) showed higher levels of health information seeking. For example, of the ten countries surveyed just over 50% of Internet users had searched for health information online. When the total sample was taking into consideration (i.e. both Internet users and non-Internet users) this total reduced to 30%. The results for Ireland were also higher than previous surveys with 64% of Internet users reporting that they searched for health information online. This figure reduced to almost 46% when Internet users and non-users were considered.

The eUSER survey also gave details on the type of health information that online health seekers were searching for: 88.2% of Irish Internet health seekers searched for a specific health issue, 49% searched for information on a healthy lifestyle, and 38.4% searched for health services information. In addition, 77% of Irish online health seekers found the Internet quite useful for information on health topics. Difficulties in accessing health information online have been highlighted in previous studies, but in this survey only 3.8% of users reported having difficulties, and most of these were issues with the usability of health websites. The survey also indicated a sharp rise in searching for health information online in the total Irish sample from 2002 (32%) to 2005 (45.9%). However, there were a substantial percentage of Internet users who had never searched for health information online (35.6%). The main reasons being that they had no need to look up health information, or that they preferred other ways of seeking health information. The survey also highlighted the lack of online general practitioner (GP) consultation, GP websites, online pharmacies and online diagnoses in Ireland, but praised the availability of some administrative transactions available on health service websites (e.g. completion of forms etc.).

A 2006 survey into the habits of Internet users in Ireland found that the most popular online activity over a three-month period was 'information search and online services' (93%), with 200,600 (15.51%) respondents specifying 'seeking health related information' as one of the activities within this category (Central Statistics Office 2006).[4] Interestingly, more respondents used the Internet to search for health related information than to look for a job or read newspapers online. European studies have also shown socio-economic and demographic differences between health-related Internet users. A 2007 cross-country study into European citizens' use of online health services reported that 44% (71% of Internet users) had used the Internet for health

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4   This was the first year this question was on the survey so no comparisons could be made with previous data.

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purposes. Women, persons in the 30 to 44 age group, and those with higher education reported highest use (Andreassen *et al.* 2007). Another cross-country European survey reported that 41% of Internet users, from a sample of respondents in Germany, France, the UK, Italy and Sweden (n = 2,011), had used the Internet as a source of information on health issues (Europ Assistance 2007). The variations exhibited between 2002 and 2007 show the rapid growth in the use of the Internet as a source of information on health, both in Ireland and in Europe.

1.4 The Internet and mental health

The most frequent online health-information searches relate to specific diseases and illnesses. However, many other topics are commonly searched for, including advice on diet and nutrition, and information on prescription drugs, health insurance and mental illness (Fox 2005). The increase in people searching for mental health information online, and the health status of online health seekers, are two topics that have been examined in recent times. In a 2002 US telephone survey, Houston and Allison (2002) investigated the health characteristics of respondents who had accessed health information via the Internet (n = 521). They questioned respondents on their self-reported health status and online health information usage, and found that those who disclosed fair or poor health status were more frequent users of the Internet for health information. This was consistent with previous studies which found those who defined themselves as in poor or fair health, those with chronic conditions and those suffering from a long term illness or disability, were more likely to visit health sites than those who did not define themselves in this way, or did not suffer with chronic conditions or long term illnesses (Fox and Rainie 2002; Bundorf *et al.* 2006; Andreassen *et al.* 2007). The relationship between health anxiety and online health seeking was examined in another US study, which suggested that individuals with even moderate levels of anxiety tend to search for health information more frequently online than those without anxiety (Eastin and Guinsler 2006).

Powell and Clarke's (2006) UK study on online information searching found that 18% of their sample (n = 917) who had ever used the Internet, had used it to find out about a mental health issue. They used a 12-item version of the General Health Questionnaire (GHQ-12) to assess the current mental health of the respondents, with scores above two denoting mental health problems or 'cases'. Of the Internet users who had a GHQ-12 score over two, and thereafter defined as a 'case', 15.1% had used the Internet to find out about a mental health issue, as well as 20.5% of those who reported a past history of mental health problems. They reported that 24% of their total sample identified the Internet as one of the top three information sources on mental health issues. This study demonstrated the popularity of mental health information searching on the Internet for both general users, and those with mental health problems.

An interesting distinction between levels of mental and general health in Internet health seekers was found in a US study (Bowen 2003). Women with poor mental health were found to have used the Internet as a source of information on health more so than women with good mental health. Conversely, women who had good general health were more likely to be health seekers than those with poor general health. This could be attributed to health-conscious women who, albeit in good health, are interested in augmenting their health knowledge with online resources. The higher number of users with poor mental health would point to an area that warrants further research. Researchers have suggested that the Internet allows people anonymity and can provide people with support and information for stigmatised illnesses such as mental health problems (Powell *et al.* 2003). Powell at al. (2003) found that 49% of people who were using the Internet for mental health problems had not sought formal support from health services. In addition, of those who did seek help, over one-third reported that the Internet had been an important factor in deciding to seek help.

The role of the Internet as a means of providing support to those experiencing mental illness has also been explored by various studies. A 2003 report on online communities of people suffering from depression found that many users felt able to discuss topics online that they could not discuss elsewhere, and some had even revealed their depression for the first time on the community board. More than one-third of respondents reported that the online community was a factor in deciding to seek help for their illness (Powell *et al.* 2003). Those experiencing depression were found to be one of the largest groups of online health seekers with a specific illness (Bansil *et al.* 2006). The importance of the Internet as a means of imparting information to those with stigmatised illnesses, especially with regard to mental illness, was highlighted in a US study. These illnesses were defined as anxiety, depression, herpes and urinary incontinence (Berger *et al.* 2005). Respondents with these illnesses were significantly more likely to use the Internet for health information than respondents with non-stigmatised illnesses such as back pain and diabetes. More strikingly, results found that they had increased their utilisation of healthcare and had better communication with medical staff based on information they had found on the Internet. As help seeking for mental health is often delayed because of social stigma, the power of the Internet as a means of encouraging help seeking was revealed by these studies.

In an Irish context, there have been new initiatives at a local and national level to use the Internet as a resource for positive mental health. Trinity College Dublin created an online mental health community[5] where students can send messages to counsellors, contribute to discussion boards and access information on mental health issues. Spunout!,[6] an Irish online information resource, has recently been re-launched and it provides mental health and wellbeing awareness, and support for young people.

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5   www.cs.tcd.ie/~drichar/Online_Mental_Health/html
6   www.spunout.ie

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Another online initiative[7], run by The Psychological Centre in Dublin (PPD), is aimed at the Polish community in Ireland and offers online mental health assessment and counselling. These initiatives aim to provide supportive information for users and increase awareness of mental health issues in Ireland.

1.5 Willingness to use online health resources

It is evident from previous literature that a substantial percentage of Internet users are searching for health information online; however, it is important to examine those who are not using the Internet for this purpose or those who do not have access to the Internet. Their willingness to use the Internet for health seeking is an important issue for future online health provision and promotion. A study into barriers to the promotion of STD and HIV prevention on the Internet found that respondents who did not use the Internet as a source of information on STD or HIV either obtained their information elsewhere or did not know which sites to access (Bull *et al.* 2001). This issue of lack of awareness could be improved by promoting sites via television, radio and/or printed material.

Other studies found that elderly patients were reluctant to use the Internet because they felt they were too old to understand it or because of cost and education concerns (Heuston 2002; Gough *et al.* 2003). However, increased education on Internet use and health seeking for the elderly was found to boost willingness to use the Internet as a source of information on health (Campbell and Nolfi 2005). Irish older people have also been found to be somewhat willing to learn about computers in general, acknowledging that they 'could be useful in gathering information'. However, the majority preferred to have information in printed form (Heuston 2002). Further research is required to ensure that online health information is provided in such a way as to meet the needs of all citizens.

1.6 Aims and objectives

The main aims of this study were to investigate the extent of Internet use in the general population for seeking information on health, the willingness of respondents who do not use the Internet as a source of information on health to do so, and the relationship of mental health to online health seeking. The data used for this paper was obtained from the Health Research Board National Psychological Wellbeing and Distress Survey (HRB NPWDS; Tedstone Doherty *et al.* 2007), which was conducted via telephone by the Economic and Social Research Institute (ESRI) on behalf of the Mental Health Research Unit (MHRU) of the Health Research Board (HRB). The specific objectives of the study

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7   http://thepdd.eu

were to:

- examine the extent of Internet use in Ireland

- provide a demographic analysis of Internet users in Ireland

- provide a detailed demographic analysis of those who use the Internet as a source of information on health

- present an in-depth demographic analysis of respondents who do not use the Internet as a source of information on health and their willingness to do so

- explore the relationships between GHQ-12 measures of mental health status and self-reported experience of mental problems, and online health seeking

- examine the willingness of respondents with experience of mental health problems to use the Internet as a source of information on health.

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2 Method

A total of 5,678 individuals were successfully contacted via telephone in three separate, but proximate, data collection periods[8] (December 2005, January 2006 and April 2006) and were eligible to participate in the HRB NPWDS. Of these 5,678 individuals, 2,711 completed the survey. This biennial survey into the prevalence of psychological wellbeing and distress in the Irish population was conducted using a random, nationally representative sample. The data was collected by the ESRI on behalf of the HRB. In line with best practice the data were re-weighted for a number of key variables to ensure that it was representative of the population (For more information on the HRB NPWDS and the re-weighting procedure see Tedstone Doherty *et al.* 2007).

Only the valid response for each question has been used throughout the report (i.e. includes only those who answered the question).

2.1 Respondents

Of the 2,711 respondents who completed the survey, 49.2% (n = 1,334) were male and 50.8% (n = 1,377) were female; 29.3% (n = 794) were between 18 and 29 years, 37.0% (n = 1,003) were between 30 to 49 years, 19.3% (n = 523) were between 50 and 64 years and 14.4% (n = 391) were aged 65 years or older.

Figure 2.1 illustrates the sequence of questions in the HRB NPWDS using three items covering past use of the Internet, Internet use specifically for health information and willingness to use the Internet in the future. A total of 2,688 respondents of the total sample of 2,711 answered the question on whether they had ever used the Internet for any purpose. The data used for the analysis of online health-seeking behaviour is based on those who had ever used the Internet for any purpose, which was 58.3% (n = 1,566) of the total sample. Males accounted for 51.2% (n = 802) of this subset and females for 48.8% (n = 764). This subset consisted of 45% (n=704) aged between 18 and 29 years; 23.2% (n = 363) aged between 30 and 39 years; 15.9% aged between 40 and 49 years (n = 249); 13.4% (n = 210) aged between 50 and 64 years; and 2.6% (n = 40) aged 65 years and older.

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8 Sample selection methods did not allow for duplicates in the samples as phone numbers cannot be re-used within a two-year period.
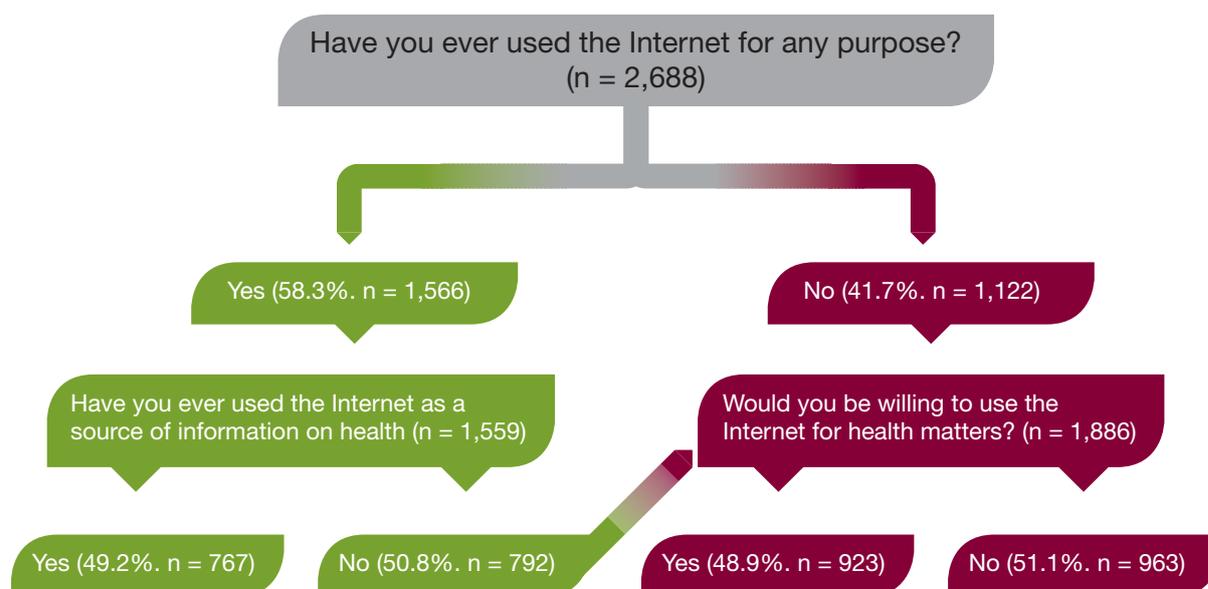
Figure 2.1 Sequence of questions on the Internet in HRB NPWDS[9]

The data relevant to analysis of the willingness to use the Internet as a source of information on health is based on respondents who had never used the Internet for any purpose or had never used the Internet as a source of information on health (n = 1,886[10]). Those who answered that they had used the Internet as a source of information on health were not asked this question. Those who had never used the Internet for any purpose accounted for 41.7% (n = 1,122) of the total sample. This subset consisted of 46.3% (n = 519) males and 53.7% (n = 603) females. The age profile of respondents in this subset was 7.8% (n = 88) aged between 18 and 29 years; 14.9% (n = 167) aged between 30 and 39 years; 19.3% (n = 216) aged between 40 and 49 years; 27.4% (n = 307) aged between 50 and 64 years; and 30.6% (n = 343) aged 65 years and older.

Respondents who had never used the Internet as a source of information on health accounted for 50.8% (n = 792) of those who had used the Internet at some stage for any purpose (29.5% of the total sample; 792 / 2,688). This subset consisted of 59.7% (n = 473) males and 40.3% (n = 319) of females. The age profile of this subset was 48.5% (n = 384) aged between 18 and 29 years; 18.8% (n = 149) aged between 30 and 39 years; 13.9% (n = 110) aged between 40 and 49 years; 15.7% (n = 124) aged between 50 and 64 years; and 3.2% (n = 25) aged 65 years and older.

9   Note that only the valid responses to each question were used in the analysis
10   28 respondents did not answer this question, thus total n is 1,886

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2.2 Measures

Internet use

As described above, there were three separate Yes/No questions in the survey in relation to Internet use. To begin with, all the respondents were asked if they had ever used the Internet for any purpose. Those who answered positively, were subsequently asked if they had ever used the Internet as a source of information on health. The respondents in the sample who answered that they had never used the Internet for any purpose, and respondents who answered that they had never used the Internet for health information, were then asked if they would be willing to use the Internet as a source of information on health (See Figure 2.1).

General Health Questionnaire

The 12-item General Health Questionnaire (GHQ-12) was used to measure the prevalence of current[11] psychological distress in the sample. This questionnaire has been used extensively in previous research in order to assess psychological distress in a population (e.g. Shaw *et al.* 1999; Penninkilampi-Kerola *et al.* 2005). Scores were calculated using a bi-modal scoring method, which involved scoring items on a scale of 0-0-1-1 with a score range of 0 to 12. This method was used in order to categorise individuals into those who were experiencing significant psychological distress and those who were not. In this study scores above 2 were defined as 'cases' of significant current psychological distress.

Self-reported mental health problems

Respondents were also asked if they had had any experience of mental, nervous or emotional problems (e.g. anxiety or depression) in the last 12 months; Yes/No response categories were provided.

Socio-demographic variables

The socio-demographic variables used in the present analysis included gender, age, employment status and educational level. In addition, the residence of respondents was recorded by region. These regions were: Dublin, Border (Cavan, Donegal, Leitrim, Louth, Monaghan, Sligo), MidEast (Kildare, Meath, Wicklow), Midland (Laois, Longford, Offaly, Westmeath), MidWest (Clare, Limerick, Tipperary North), SouthEast (Carlow, Kilkenny, Tipperary South, Wexford, Waterford), SouthWest (Cork, Kerry), and West (Galway, Mayo, Roscommon). These regions are based on the NUTS 3 (Nomenclature of Territorial Units) classification used by Eurostat.

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11 The respondents were asked about their mental health in the last few weeks.

2.3 Procedures and ethics

The survey was piloted by the ESRI before administration, and no changes were made to the research instrument. It was conducted via telephone among persons aged 18 years and over living in private households using a random sample. This sample was generated using an initial set of sampling areas from the GeoDirectory,[12] a geo-referenced relational database of over 1.5 million buildings in Ireland compiled jointly by the Ordnance Survey and An Post. This was done in order to achieve appropriate geographical coverage. This initial sample of geographical areas was then used to generate a random telephone sample using Random Digit Dialling (RDD).

The minimum information loss algorithm was used to re-weight the final sample (Gomulka 1992, 1994). This calibration technique was designed to adjust the sample distributions for a number of key variables to the corresponding population distributions. The variables that were re–weighted were age by gender (five age categories); age by marital status; region; number of adults in the household; gender by principal economic status; and level of education by two age categories. This re-weighting procedure resulted in a nationally represented sample of persons aged 18 years and over living in private households in the Republic of Ireland. Population figures were taken from the Quarterly National Household Survey conducted by the Central Statistics Office using a sample of 30,000 cases.

Interviewing and survey administration procedures were agreed between the HRB and the ESRI in order to maintain integrity and uniformity in the mental health module. The study received ethical approval from the HRB Research Ethics Committee (REC). The confidential nature of the survey data was stressed to all respondents and it was explained that the data would be used for research purposes only. The respondents were also informed that they could terminate the survey at any time.

2.4 Data analysis

Relationships between the demographic variables and Internet use variables were examined using Chi-Square tests. Socio-demographic predictors of Internet use were examined using logistic regression analysis. In contrast to Chi-Square analysis, logistic regression allows for the assessment of the effects of an individual variable after the effects of all other variables have been taken into account.

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12   www.geodirectory.ie

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To reduce the amount of standard error, two variables were recoded: employment status and geographical area. Employment status was recoded into three categories: employed, training and not in employment or training. Geographical area was recoded into a binary variable: county Dublin and outside County Dublin.

Three logistic regression models were developed for each of the Internet use variables - general Internet use, Internet use for health information and willingness to use the Internet for health information in the future. Only variables that were statistically significant in the Chi-Square analysis were included in the regression analysis. Only those variables that added significantly to the model were included in the final model (i.e. p-value ≤ than 0.25[13]).

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13 Hosmer and Lemeshow (2000) recommend any variable that has a p-value ≤ than 0.25, and known to be relevant should be included in the model.

3 Results

3.1 Extent of Internet use: demographic characteristics and self-reported mental health status

Of the total sample (n = 2,688), 58.3% (n = 1,566) had used the Internet at some stage for any purpose. Table 3.1 details Internet use in Ireland by gender, age, geographical location, employment category, educational level, self-reported mental health in the past 12 months, and GHQ-12 measure of current psychological distress.

Table 3.1   Demographic characteristics and self-reported mental health characteristics of Internet users and non-users in Ireland

	Respondents who have used the Internet for any purpose		Respondents who have never used the Internet for any purpose		Total	
	N	%	N	%	N	%
Total	1,566	58.3	1,122	41.7	2688	100.0
Gender (p<0.01)						
Male	802	60.7	519	39.3	1321	100.0
Female	764	55.9	603	44.1	1367	100.0
Age groups (p<0.000)						
18–29	704	88.9	88	11.1	792	100.0
30–39	363	68.5	167	31.5	530	100.0
40–49	249	53.5	216	46.5	465	100.0
50–64	210	40.6	307	59.4	517	100.0
65+	40	10.4	343	89.6	383	100.0
Geographical regions (p<0.000)						
Border	144	49.7	146	50.3	290	100.0
Dublin	504	64.4	279	35.6	783	100.0
MidEast	185	66.8	92	33.2	277	100.0
Midland	80	52.6	72	47.4	152	100.0
MidWest	134	57.0	101	43.0	235	100.0
SouthEast	167	57.6	123	42.4	290	100.0
SouthWest	216	53.5	188	46.5	404	100.0
West	137	52.7	123	47.3	260	100.0
Employment status (p<0.000)						
Employed	872	72.7	328	27.3	1200	100.0
Self-employed	147	60.0	98	40.0	245	100.0
Unemployed	101	58.7	71	41.3	172	100.0
Training/Education	242	93.1	18	6.9	260	100.0
Domestic duties	129	33.1	261	66.9	390	100.0
Retired	48	16.0	252	84.0	300	100.0
Long-term sickness and disability	24	22.0	85	78.0	109	100.0
Educational level (p<0.000)						
Primary	89	16.4	453	83.6	542	100.0

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	Respondents who have used the Internet for any purpose		Respondents who have never used the Internet for any purpose		Total	
	N	%	N	%	N	%
Secondary	1012	62.3	613	37.7	1625	100.0
Third Level	465	89.3	56	10.7	521	100.0
Self-reported mental health problems (p<0.000)						
Yes	169	44.7	209	55.3	378	100.0
No	1378	60.4	904	39.6	2282	100.0
GHQ-12 measure of current psychological distress (p<0.000)						
Case (2+)	292	49.7	296	50.3	588	100.0
Non-case	1225	61.3	775	38.8	2000	100.0

Base: Total sample (n = 2,688)

Overall, a significantly higher percentage of respondents had used the Internet (58.3%, n = 1,566) compared to those who had not (41.7%, n = 1,122) [$\chi^2(1)$ = 54.93, p<0.000]. Males (60.7%, n = 802) had used the Internet significantly more than females (55.9%, n = 764) [$\chi^2(1)$ = 6.42, p<0.01]. Those in younger age groups (18–29 years, 88.9%, n = 704; 30–39 years, 68.5%, n = 363; 40–49 years, 53.5%, n = 249) reported use of the Internet significantly more often than those in older age groups (50–64 years, 40.6%, n = 210; 65 years and over, 10.4%, n = 40) [$\chi^2(4)$ = 758.96, p<0.000]. With regard to geographical regions, respondents in the MidEast (Kildare, Meath and Wicklow) had the highest reported levels of Internet use (66.8%, n = 185), followed by Dublin (64.4%, n = 504), whereas counties in the Border regions (Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo) (49.7%, n = 144) and the Midlands (Laois, Longford, Offaly and Westmeath) (52.6%, n = 80) had the lowest levels. These differences between geographical regions were statistically significant [$\chi^2(7)$ = 38.43, p<0.000].

Respondents in training or education had the highest levels of Internet use (93.1%, n = 242), followed by those in employment (72.7%, n = 872). Retired respondents (16%, n = 48) and those with long-term illness (22%, n = 24) had the lowest percentage of Internet use [$\chi^2(6)$ = 613.85, p<0.000]. There were significantly lower levels of Internet use among respondents who had primary education only (16.4%, n = 89), compared with respondents who had completed secondary (62.3%, n = 1012), and third level (89.3%, n = 465) [$\chi^2(2)$ = 606.719, p<0.000].

Nearly half of the respondents (44.7%, n = 169) who reported mental health problems in the past 12 months had used the Internet [$\chi^2(1)$ = 32.75, p<0.000]. Analysis of the GHQ-12 results showed that a similar percentage of respondents defined as 'cases' (49.7%, n = 292), had used the Internet at some stage for any purpose [$\chi^2(1)$ = 25.16, p<0.000].

3.2 Extent of Internet use: logistic regression

Logistic regression analysis was performed to determine the demographic variables which predict Internet use in Ireland. See Section 2.4 for a description of the procedure used. Variables included in the initial model were gender, age, employment status, education, geographical area, self-reported mental health problems, and 'cases' of current psychological distress (GHQ score of 2 or above).

Table 3.2 presents the results of the final model. Gender, age, employment status, education, and geographical area all had a significant effect on Internet use (see Table 3.2). The variables pertaining to mental health, namely self-reported mental health problems, and 'cases' of GHQ-12 measures of current psychological distress, were not significant predictors of Internet use. The chi-squared goodness of fit test was significant [X^2 (10), 1201.82, p<0.000], and the Hosmer-Lemeshow test result not significant (p > 0.05) which suggested a good fit. Overall the final model predicted 48.7% of the variance (Nagelkerke r^2 = 0.487, Cox and Snell r^2 = 0.362).

Table 3.2   Logistic regression model predicting Internet use based on the variables gender, age, employment status, education and geographical area

Variable	ß	Odds Ratio	95% CI	Sig.
Gender (Reference Females)				
Male	0.135	1.145	0.932, 1.405	0.197
Age (Reference 18 - 29)				0.000
30 - 39	-1.026	0.358	0.258, 0.498	0.000
40 - 49	-1.497	0.224	0.161, 0.312	0.000
50 - 64	-1.794	0.166	0.119, 0.233	0.000
65+	-3.141	0.043	0.027, 0.069	0.000
Employment status (Reference Employed)				0.000
Training	0.640	1.896	1.099, 3.273	0.022
Not in employment or training	-0.624	0.536	0.427, 0.672	0.000
Education (Reference Primary Level)				0.000
Secondary Level	1.237	3.444	2.583, 4.593	0.000
Third Level	2.891	18.010	11.976, 27.086	0.000
Geographical Area (Reference Outside County Dublin)				
County Dublin	.601	1.825	1.461, 2.279	0.000

Base: Total sample (n = 2,688)

As expected, the results showed that older respondents were less likely to use the Internet than younger respondents. Respondents in the oldest age group (65+) (OR 0.043, C.I. 0.027 – 0.069) were much less likely to have used the Internet than respondents in the youngest age group (18–29).

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Respondents who were in training were almost twice as likely to use the Internet as employed respondents (OR 1.896, C.I. 1.099 – 3.273). Respondents, who were not in employment or training, were only half as likely to have used the Internet as employed respondents (OR 0.536, C.I. 0.427 – 0.672).

Respondents who had completed third level education were 18 times more likely to have used the Internet (OR 18.010, C.I. 11.976 – 27.086), than respondents who had completed primary level only. In addition, respondents who had completed secondary level, were three times more likely than primary level respondents to have used the Internet. This shows the significant difference between Internet use in primary, secondary, and third level educated respondents.

Geographical region also had a significant effect on Internet use. Respondents in Dublin were 1.8 times more likely to use the Internet than respondents anywhere else in the country (OR 1.825, C.I. 1.461 – 2.279).

3.3 Extent of online health seeking by Internet users: Demographic characteristics and self-reported mental health status

Out of 1566 respondents who reported use of the Internet for any purpose, 767 also reported that they used it as a source of information on health. Table 3.3 presents the demographic and self-reported mental health status results (gender, age, geographical location, employment category, educational level, self-reported mental health in the past 12 months, and GHQ 'case' status) of respondents who had or had not used the Internet as a source of information on health.

Table 3.3   Demographic characteristics and self-reported mental health characteristics of Internet users who had or had not used the Internet as a source of information on health in Ireland

	Respondents who had used the Internet as a source of information on health		Respondents who had not used the Internet as a source of information on health		Total	
	N	%	N	%	N	%
Total	767	49.2	792	50.8	1559	100.0
Gender (p<0.000)						
Male	325	40.7	473	59.3	798	100.0
Female	441	58.0	319	42.0	760	100.0
Age Groups (p<0.000)						
18–29	320	45.5	384	54.5	704	100.0
30–39	210	58.5	149	41.5	359	100.0
40–49	136	55.3	110	44.7	246	100.0

Table 3.3 Demographic characteristics and self-reported mental health characteristics of Internet users who had or had not used the Internet as a source of information on health in Ireland *(continued)*

	Respondents who had used the Internet as a source of information on health		Respondents who had not used the Internet as a source of information on health		Total	
	N	%	N	%	N	%
50–64	87	41.2	124	58.8	211	100.0
65+	14	35.9	25	64.1	39	100.0
Geographical Regions (p<0.000)						
Border	65	46.4	75	53.6	140	100.0
Dublin	291	58.2	209	41.8	500	100.0
MidEast	112	60.5	73	39.5	185	100.0
Midland	28	35.0	52	65.0	80	100.0
MidWest	64	47.4	71	52.6	135	100.0
SouthEast	58	34.7	109	65.3	167	100.0
SouthWest	95	44.0	121	56.0	216	100.0
West	53	39.0	83	61.0	136	100.0
Employment Status (p<0.000)						
Employed	459	52.9	408	47.1	867	100.0
Self-employed	71	48.6	75	51.4	146	100.0
Unemployed	33	32.7	68	67.3	101	100.0
Training/education	93	38.6	148	61.4	241	100.0
Domestic duties	71	55.0	58	45.0	129	100.0
Retired	18	39.1	28	60.9	46	100.0
Long-term sickness and disability	18	75.0	6	25.0	24	100.0
Educational Level (p<0.000)						
Primary	48	52.7	43	47.3	91	100.0
Secondary	447	44.5	558	55.5	1005	100.0
Third Level	272	58.6	192	41.4	464	100.0
Self-reported mental health problems (p<0.00)						
Yes	101	59.8	68	40.2	169	100.0
No	654	47.7	717	52.3	1371	100.0
GHQ-12 measure of current psychological distress (p=0.242)						
Case	150	51.9	139	48.1	289	100.0
Non-Case	587	48.1	634	51.9	1221	100.0

Base: Internet users in sample (n = 1,566)

Nearly half of the respondents, who had ever used the Internet for any purpose (n = 1,566) had used it as a source of information on health 49.2% (n = 767).

As can be seen from Table 3.3, the MidEast region (Kildare, Meath and Wicklow) showed the highest percentage of online health information seekers (60.5%, n = 112), followed by Dublin (58.2%, n = 291), and then the MidWest region (Clare, Limerick and Tipperary North) (47.4%, n = 64) [$\chi^2(7) = 54.81$, p<0.000].

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The highest proportion of respondents using the Internet for health information was those with long-term sickness or disability (75.0%, n = 18) (See Table 3.3). This was followed by those who were in domestic duties (55.0%, n = 71). Internet users who described themselves as unemployed, were the least likely to seek online health information (32.7%, n = 33) [χ^2 (6) = 36.78, p<0.000].

Table 3.3 also provides evidence of an educational divide between those Internet users who search for health information online and those who do not, with the highest percentage of online health seekers having completed third-level education (58.6%, n = 272) [χ^2(2) = 25.90, p<0.000].

Figure 3.1 presents the gender distribution of Internet users who had or had not used the Internet as a source of information on health. Of the 49.2% (n = 767) of Internet users who replied that they had used the Internet as a source of information on health, 58.0% (n = 441) were female and 42.0% (n = 325) were male. There were significantly higher numbers of women searching for health information online than men [χ^2(1) = 46.61, p<0.000].
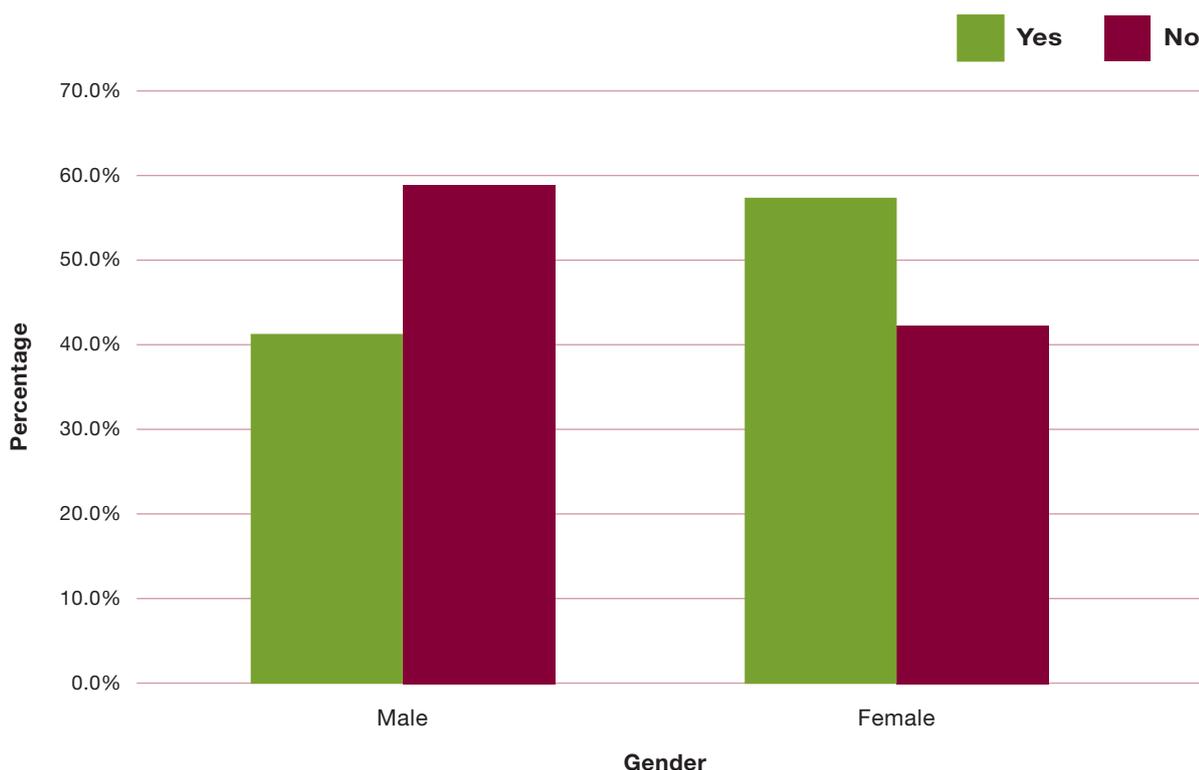
Figure 3.1 Respondents who had or had not used the Internet as a source of information on health, by gender

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This is in contrast to Internet use in general, where a higher percentage of males than females had used the Internet. Figure 3.2 illustrates this pattern.

Figure 3.2 Respondents who had used the Internet for any purpose compared with Internet users who had used the Internet for health information, by gender

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Figure 3.3 shows the age breakdown for those who had, or had not used the Internet as a source of information on health. As can be seen, Internet users in the 30–39 years age group were most likely to use it as a source of information on health, and those aged 65 and over least likely. Nearly half of the Internet users in the 18–29 year old age group (n = 320, 45.5%) had used the Internet as a source of information on health, 58.5% (n = 210) in the 30–39 age group, 55.3% (n = 136) in the 40–49 age group, 41.2% (n = 87) in the 50–64 age group and 35.9% (n = 14) in the 65+ age group [$x^2(4)$ = 28.13, p<0.000].
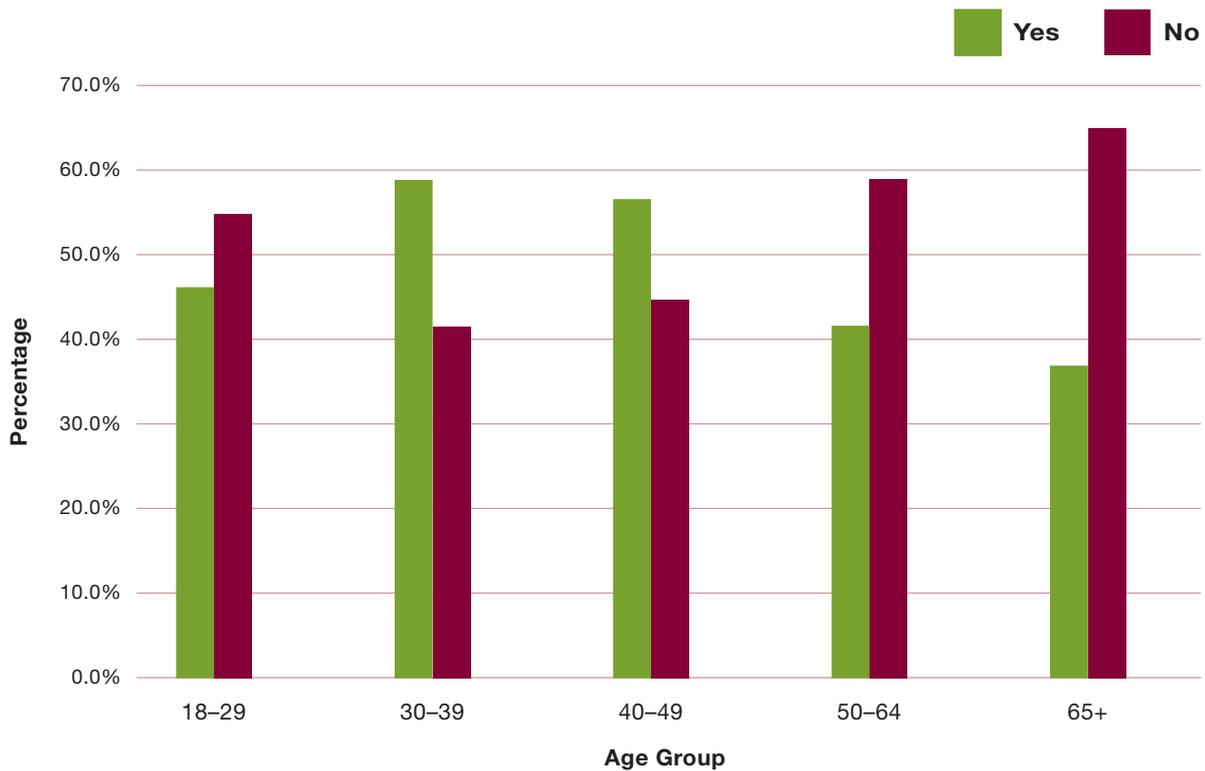
Figure 3.3 Internet users who had or had not used the Internet as a source of information on health, by age group

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There were also age differences between respondents who had ever used the Internet, and Internet users who had searched for health information online. Figure 3.4 shows a comparison of these two groups by age. Although a high percentage of younger respondents said that they had used the Internet, there were comparatively low percentages of online health seekers in this category (see Figure 3.4). Conversely, in the oldest age group there were very low percentages of Internet users, but a high percentage of online health seekers.
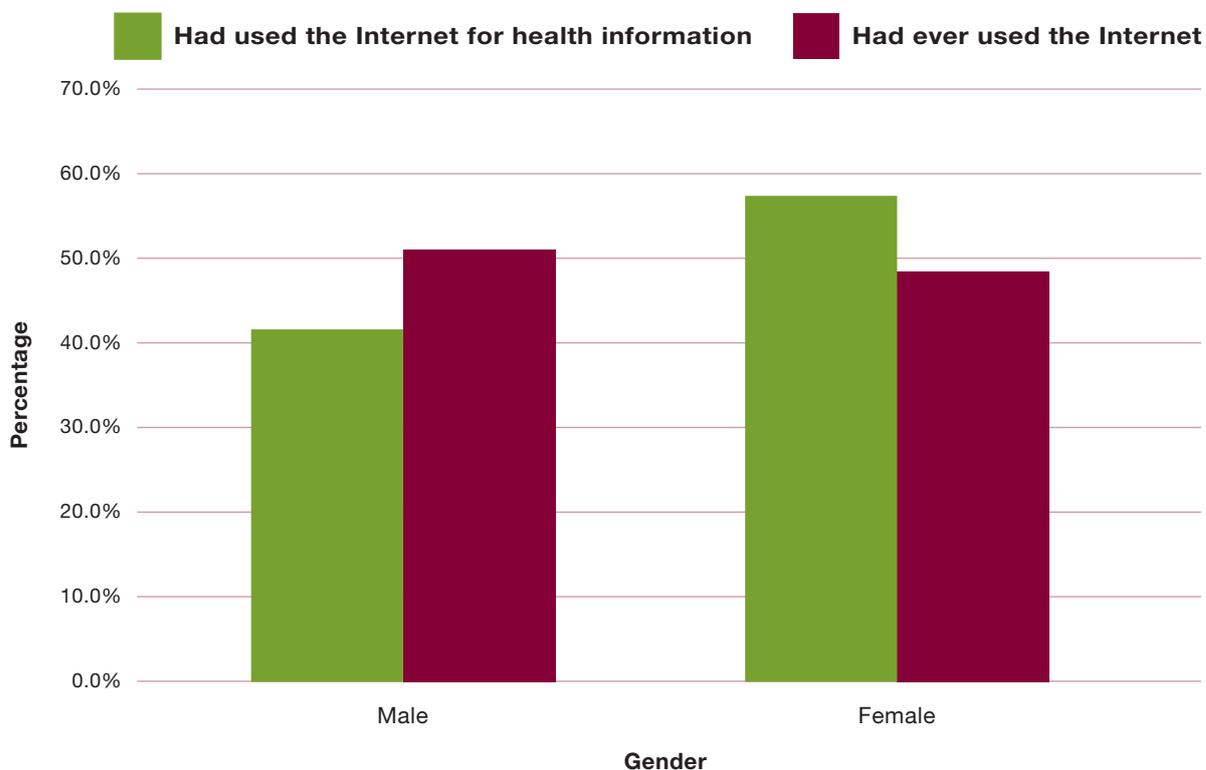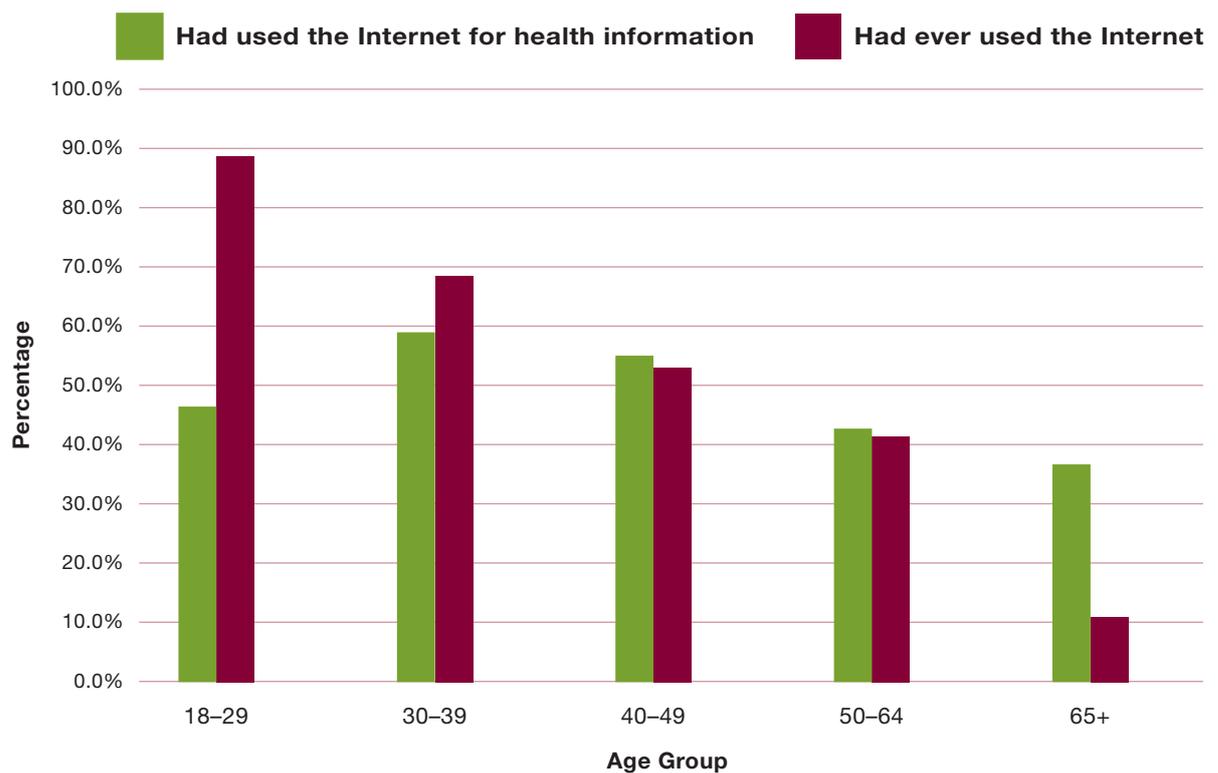

Figure 3.4 Respondents who had ever used the Internet for any purpose compared with Internet users who had used the Internet for health information, by age group

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Figure 3.5 presents the breakdown of the percentages of online health seekers by gender and by age. Of particular interest are the results from the youngest age group. Gender differences of note were found in the 18–29 age group, where only 29.1% (n = 102) of males in this age group had used the Internet as a source of information on health, compared with 61.6% (n = 218) of females. In all age groups, except those over 65 years, females were more likely to use the Internet as a source of information on health than males.
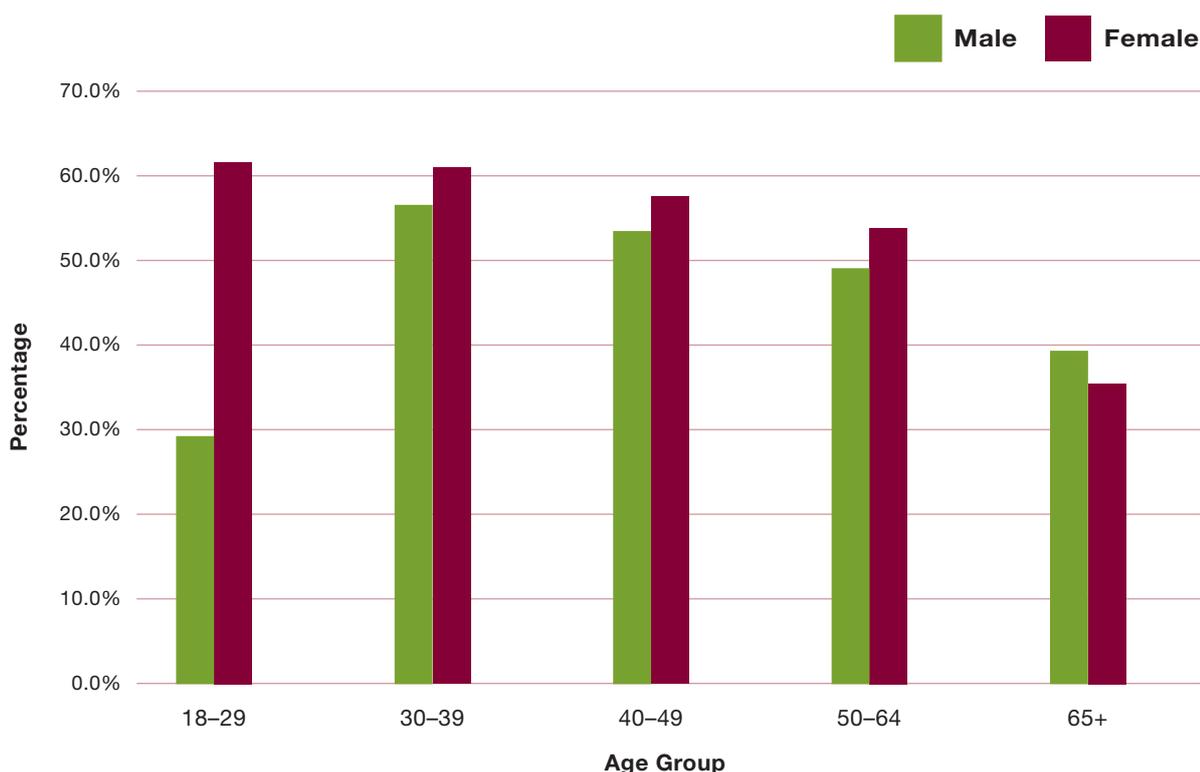
Figure 3.5 Online health seekers, by gender, by age

Finally, a significantly higher percentage of Internet users who reported mental health problems in the past 12 months had used the Internet for health information (59.8%, n = 101) than those who did not report mental health problems (47.7%, n = 654) [$X^2(1)$ = 8.75, p<0.00].

3.4 Extent of online health seeking by Internet users: logistic regression

Logistic regression analysis was used to examine the demographic predictors of Internet use for health information by Internet users. Only the variables that were significant in the Chi-Square analysis were included in the initial model (see Section 2.4). These were gender, age, employment status, education, geographical area, self-reported mental health problems in the past year, and 'cases' of current psychological distress (GHQ score 2 or above). Mental health variables, age and geographical region were not significant. Only three variables remained in the final model: employment

status, education, and gender (see Table 3.4). The chi-squared goodness of fit test was significant [X^2 (5), 89.63, p<0.000], and the Hosmer-Lemeshow test result not significant (p > 0.05) which suggested a good fit. The final model predicted 7.5% of the variance (Nagelkerke r^2 = 0.075, Cox and Snell r^2 = 0.056).

Table 3.4 Logistic regression model of Internet use for health information, based on the variables employment status, education and gender

Variable	ß	Odds Ratio	95% CI	Sig.
Gender (Reference Males)				
Female	0.776	2.174	1.760, 2.686	0.000
Employment status (Reference Employed)				0.000
Training	-0.578	0.561	0.417, 0.755	0.000
Not in employment or training	-0.390	0.677	0.515, 0.890	0.005
Education (Reference Primary)				0.000
Secondary	-0.485	0.616	0.394, 0.962	0.033
Third Level	-0.001	0.999	0.624, 1.598	0.995

Base: Internet users in sample (n = 1,566)

Results from the regression analysis show that women were twice as likely as men to use the Internet for health information (OR 2.174, C.I. 1.760 – 2.686). Employed respondents were the most likely to use the Internet for health information. There was little difference between primary and third level educated respondents and their Internet use for health information, while those with a secondary level education were less likely than those with a primary level education to use the Internet for health information.

3.5 Willingness to use the Internet as a source of information on health: Demographic characteristics and self-reported mental health status

The respondents who were asked questions on their willingness to use the Internet for health information were those who had never used the Internet for any purpose, and Internet users who had never used the Internet for health information. There was a high willingness by respondents with no experience of using the Internet and by those who had never used the Internet for health-seeking purposes to do so in the future (48.9%, n = 923).

Table 3.5 shows the results of a demographic analysis by gender, age, geographical region, employment status, educational level, self-reported mental health in the past 12 months, and GHQ 'case' status of respondents, who would or would not be willing to use the Internet as a source of information on health.

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Table 3.5 Demographic characteristics and self-reported mental health status characteristics of respondents who would or would not be willing to use the Internet as a source of information on health

	Respondents who would be willing to use the Internet as a source of information on health		Respondents who would not be willing to use the Internet as a source of information on health		Total	
	N	%	N	%	N	%
Total	923	48.9	963	51.1	1886	100.0
Gender (p = 0.76)						
Male	479	49.3	493	50.7	972	100.0
Female	444	48.6	470	51.4	914	100.0
Age Groups (p<0.000)						
18–29	325	70.7	135	29.3	460	100.0
30–39	204	64.4	113	35.6	317	100.0
40–49	168	52.0	155	48.0	323	100.0
50–64	170	40.5	250	59.5	420	100.0
65+	57	15.5	310	84.5	367	100.0
Geographical Regions (p<0.000)						
Border	91	40.8	132	59.2	223	100.0
Dublin	214	45.1	261	54.9	475	100.0
MidEast	95	59.7	64	40.3	159	100.0
Midland	51	41.5	72	58.5	123	100.0
MidWest	85	50.9	82	49.1	167	100.0
SouthEast	117	52.2	107	47.8	224	100.0
SouthWest	148	48.2	159	51.8	307	100.0
West	121	58.5	86	41.5	207	100.0
Employment Status (p<0.000)						
Employed	440	59.9	294	40.1	734	100.0
Self-employed	85	49.4	87	50.6	172	100.0
Unemployed	67	54.0	57	46.0	124	100.0
Training/education	135	83.9	26	16.1	161	100.0
Domestic duties	124	39.2	192	60.8	316	100.0
Retired	43	15.4	237	84.6	280	100.0
Long-term sickness and disability	28	30.8	63	69.2	91	100.0
Educational Level (p<0.000)						
Primary	111	22.9	374	77.1	485	100.0
Secondary	660	57.0	498	43.0	1158	100.0
Third Level	152	62.3	92	37.7	244	100.0
Self-reported mental health problems (p=0.429)						
Yes	125	46.6	143	53.4	268	100.0
No	788	49.3	812	50.8	1600	100.0
GHQ-12 measure of current psychological distress (p=0.347)						
Case	699	50.3	692	49.7	1391	100.0
Non-Case	202	47.6	222	52.4	424	100.0

Base: Respondents in the sample who had never used the Internet and Internet users who had never used the Internet as a source of health information (n = 1,886)

There were no significant differences between males and females and their willingness to use the Internet as a source of information on health.

As can be seen from Table 3.5, respondents living in the MidEast (Kildare, Meath and Wicklow) reported willingness to use the Internet as a source of information on health most often, followed by respondents in the West (Galway, Mayo and Roscommon), and in the SouthEast (Carlow, Kilkenny, Tipperary South, Wexford and Waterford) (See Table 3.5) $[\chi^2 (7) = 27.75, p<0.000]$.

Respondents who were in training and education (83.9%, n = 135) were the most willing to use the Internet as a source of information on health, and retired respondents (15.4%, n = 43) the least (see Table 3.5) $[\chi^2(6) = 265.64, p<0.000]$. Those who had completed third-level education (62.3%, n = 152) were more willing to use the Internet as a source of information on health than those who had completed primary (22.9%, n = 111) and secondary levels (57.0%, n = 660) $[\chi^2(2) = 179.228, p<0.000]$.

Figure 3.6 illustrates the differences between age groups and their willingness to use the Internet as a source of information on health. Highly significant age differences in willingness were shown in the data. A much higher proportion of younger respondents reported greater willingness to use the Internet as a source of information on health than older respondents $[\chi^2(4) = 294.09, p=0.000]$.

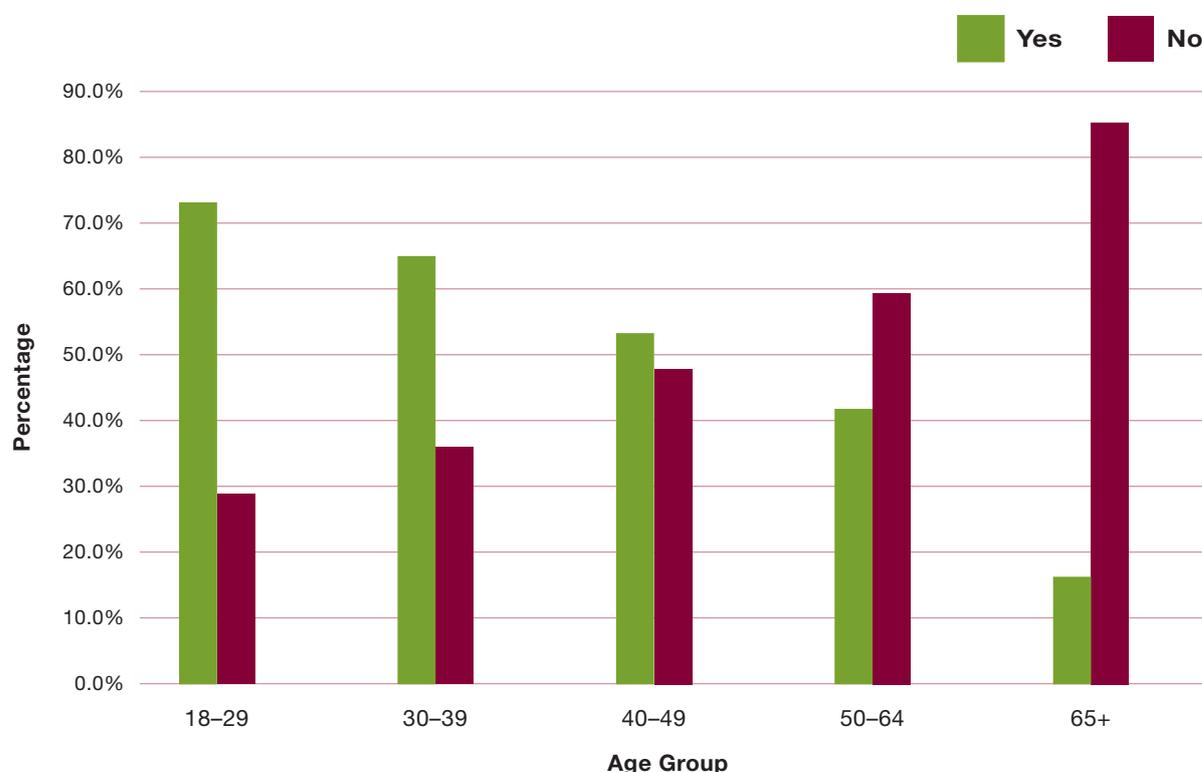**Figure 3.6** Willingness to use the Internet as a source of information on health, by age group

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There were no significant differences between respondents who were willing and not willing to use the Internet for health information by either their mental health status, or their GHQ-12 scores.

3.6 Willingness to use the Internet as a source of information on health: logistic regression

A logistic regression analysis was preformed on the willingness to use the Internet as a source of information on health (see Section 2.4 for procedure). Only variables that were statistically significant in the Chi-Square were introduced to the model. These included age, employment status, education and geographical area. The final model included three of the four variables; age, employment status, and education (see Table 3.6 for the final model). The chi-squared goodness of fit test for the final model was significant [χ^2 (8), 389.929, p<0.000], and the Hosmer-Lemeshow test result not significant (p > 0.05) which suggested a good fit. The final model predicted 25% of the variance (Nagelkerke r^2 = 0.25, Cox and Snell = 0.185).

Table 3.6   Logistic regression model of the willingness to use the Internet for health information, based on the variables age, employment status, and education

Variable	ß	Odds Ratio	95% CI	Sig.
Age (Reference 18 – 29)				0.000
30 - 39	0.087	1.055	0.755, 1.475	0.754
40 - 49	-0.321	0.706	0.507, 0.984	0.040
50 - 64	-0.618	0.521	0.375, 0.723	0.000
65+	-1.658	0.191	0.125, 0.292	0.000
Employment status (Reference Employed)				0.000
Training	0.972	2.642	1.627, 4.292	0.000
Not in employment or training	-0.399	0.671	0.526, 0.856	0.001
Education (Reference Primary)				0.000
Secondary	0.716	2.046	1.552, 2.698	0.000
Third Level	0.841	2.318	1.585, 3.389	0.000

Base: Respondents in the sample who had never used the Internet and Internet users who had never used the Internet as a source of health information (n = 1,886)

Respondents aged over 65 years the least willing to use the Internet for health information (OR 0.191, C.I. 0.125 – 0.292) compared to those aged 18–29 years.

Respondents in training were 2.6 times more likely to be willing to use the Internet for health information than employed people (OR 2.642, C.I. 1.627 – 4.292). Respondents not in training or employment were less likely to be willing to use the Internet for health information (OR 0.671, C.I. 0.526 – 0.856) than those in employment.

Respondents with primary level education only were less likely to be willing to use the Internet for health information compared to those with secondary or third level education. Respondents who had completed either secondary (OR 2.046, C.I. 1.552 – 2.698) or third level (OR 2.318, C.I. 1.585 – 3.389) education, were both twice as likely to be willing to use the Internet for health information as primary level educated respondents.

4 Discussion and conclusions

The results from the HRB NPWDS have provided an insight into the extent of Internet use and the demographic characteristics of Irish Internet users and they have highlighted inequalities in Internet use between different socio-economic groups. In addition, the survey investigated the extent of Internet use as a source of information on health and the willingness to use the Internet for this purpose in the future. Importantly, the findings provided insights into the mental health profiles of Internet users and non-users. The findings from the survey provide important information for the development and advancement of an e-inclusive society in Ireland, especially in the domain of health information. The following sections begin with a short summary of the main findings, followed by a discussion of possible measures and initiatives aimed at addressing the inequalities in Internet use to ensure a more inclusive 'e-society'.

4.1 Internet use in Ireland – a summary of findings

The findings showed that 58% of respondents had used the Internet in the past for general purposes. In line with previous findings, those most likely to have used the Internet were males, younger age groups, those in the Dublin area, those with a third level education and those in training and employment (see Table 3.2). Those least likely to use the Internet were aged 65 years and over, not in employment or training, and living outside the Dublin area. Most striking of all was that those not in employment or training were 18 times less likely to use the Internet than those in employment.

The profile of online health seekers was somewhat different. They were most likely to be female and in employment (see Table 3.4). Those least likely to seek health information online were males, individuals who were unemployed or in training/ education, with secondary level education, and older age groups.

Finally, a high percentage of respondents reported willingness to use the Internet for health information. Willingness to use the Internet for health information decreased with age. Respondents up to the age of 39, those in training, and those with a second or third level eduction were the most willing to use the Internet as a source of

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information on health in the future (see Table 3.6). The respondents who were least willing to use the Internet as a source of information on health were those in the older age groups, those who were not in employment or training, and those with only a primary level education.

It is interesting to note that the socio-demographic variables used in the present survey appeared to predict general Internet use better than they predict Internet use as a source of information on health, or willingness to use the Internet. For example, the socio-demographic variables predicted 48% of the variance in general Internet use, 25% of the variance for the willingness to use the Internet, and only 7.5% of the variance in online health seeking. The low amount of variance explained by the sociodemographic variables in online health seeking suggests that there are more important variables not included in the survey that are better predictors of online health seeking. Other individual personality characteristics such as health beliefs or perceptions of health information provided on the Internet may play a more important role in health seeking behaviours than socio-demographic factors.

4.2 The mental health of Internet users – a summary of findings

As mentioned above, an important aim of this survey was to explore the mental health status of Internet users. Fewer respondents who reported mental health problems, either in the previous year or in the last few weeks, were using the Internet for general purposes than those who did not report mental health problems. In contrast, a greater proportion of Internet users who had reported mental health problems in the last year had used the Internet as a source of information on health than those who had not experienced mental health problems. Thus, it would seem that the mental health status of respondents influences their online health seeking behaviour. The findings showed that a significant number of people who seek health information online have experienced mental health problems and this raises issues concerning the potential use of the Internet for mental health promotion or as a mental healthcare delivery system in the future. This issue will be addressed in greater detail in section 4.6.

4.3 Increasing Internet access – the provision of broadband

The findings showed that a considerable proportion of respondents (42%) in Ireland do not yet use the Internet. We are now becoming an 'e-society' whereby information technology is playing a major role in our day to day lives. Therefore, the inability to use or lack of access to the Internet may have a negative impact on an individual's social and economic life. The findings from our report showed that over forty percent of respondents, as of yet, have not used the Internet, highlighting that there is an obvious need to promote Internet use in Ireland.

Before addressing the socio-demographic factors that differentiate Internet users from non-users, there is a need to highlight the inequalities in access to high-speed Internet connections. High speed Internet access is paramount to the development of Internet use in Ireland. Previous findings showed that there is an urban-rural digital divide in terms of Internet connections in Ireland (Central Statistics Office 2006). CSO figures showed that 40% of those in the Border, Midland and Western area had an Internet connection compared with 51% of those in the Southern and Eastern area (European Commission 2005a; Central Statistics Office 2006). CSO findings also revealed that there was a low uptake of broadband in the country in general, with a much lower uptake in the Border, Midlands and Western areas than in the Southern and Eastern regions. Likewise, the findings in this report showed higher Internet use in the Dublin area compared to elsewhere in the country. Although the reason for non-Internet use requires further investigation, one explanation for this may be that those in the Dublin area have greater access to high-speed connections. The development of regional broadband infrastructure is currently uneven and needs to be provided in all Irish rural areas (O'Donnell *et al.* 2004; Information Society Commission, 2004c).

4.4 Training and education

The findings highlighted inequalities in Internet use across age, educational levels and employment status. Knowledge and awareness of both general computing skills and the Internet are obviously important factors in the use of the Internet. The importance of ICT within the education system was highlighted in a report by the Information Society Commission (Information Society Commission 2002). It was only in more recent years that computer skills have been incorporated into the primary and post-primary school curriculums at national level (Department of Education and Science 1998; National Centre for Curriculum and Assessment 2004).

An examination of the educational status of Internet users yielded highly interesting results whereby respondents with third level education were over 18 times more likely to have used the Internet than respondents educated to primary level only. Previous research into the educational levels of Irish Internet users has highlighted the association between educational attainment and Internet use (Williams *et al.* 2004; Central Statistics Office 2006). It is important that people who do not have access to ICT training are targeted so that they are not left behind in relation to the information developments. A key goal of Irish ICT policy is to 'significantly increase education and training in information technology so that as many adults as possible have the chance to become digitally literate' (Department of An Taoiseach 2002). A number of initiatives have attempted to increase knowledge and awareness of ICT. Irish educational initiatives, such as the Back to Education initiative, provide opportunities to return to learning and improve workplace skills. The Information Society's report on e-Inclusion

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recommended that increased ICT skills training for adults should be established as a key component of this Back to Education initiative, and other lifelong learning initiatives (O'Donnell *et al.* 2003). Another initiative, aimed at older adults and those with disabilities is the Access, Skills and Content (ASC) Initiative which has provided €1.45m for 76 projects focusing on digital content and skills development (Department of the Taoiseach, 2007). For these initiatives to have maximum impact there is also a need to address the negative attitudes of people to ICT, particularly among older adults. It is important that initiatives are suitably designed to meet the training needs of participants. Previous research has shown the benefits that training and use of the internet has had on the well-being of older adults. For example, Shapira *et al.* (2007) showed that learning how to use the Internet and continued use of the Internet resulted in an increase in life satisfaction and perceived self-control and a decrease in depression and loneliness. The adults studied were aged 80 years and over and were attending day centres for the elderly or residing in nursing homes. The authors suggested that the increase in well-being and sense of empowerment was due to the effect Internet use had on the participants' interpersonal relationships and cognitive functioning. Another study also found beneficial effects of the use of computers and the Internet in chronically ill and physically handicapped older adults (Fokkema *et al.* 2007). These authors found a decrease in emotional loneliness in the intervention group that were provided with computers. The authors concluded that email facilitated social contact and that the Internet appeared to pass the time for people taking their minds off their loneliness. These studies highlighted the benefit of electronic communication for older adults and those with disabilities showing that 'one is never too late to learn'.

4.5 E-inclusion

In line with previous findings, the results presented here showed that the unemployed, persons engaged in home duties, retired persons, and those with long-term sickness and disability were the least likely of the respondents to use the Internet (O'Donnell *et al.* 2003; Central Statistics Office 2006). As highlighted above, information technology is becoming increasingly important in our day to day lives. Given that many important activities can be performed online (e.g. social welfare and health information, job searches and applications), those who do not have access will be at a disadvantage, missing out on opportunities provided by information technology. This exclusion can have negative social and economic consequences for individuals. Proposals in the e-inclusion report, discussed above, recommended greater societal engagement and awareness of ICT, better ICT access, infrastructure, and broadband provision to reduce the digital divide and to improve e-inclusion (O'Donnell *et al.* 2003).

A development in 2006 designed to reduce the digital divide in Ireland was the Home Computing Initiative (HCI). This was a joint initiative by the Department of

An Taoiseach and the computer industry which aimed to promote the wider use of computers in society. The specific interest of the Department of the Taoiseach was to promote a more inclusive society especially targeting those who as yet do not use information technology or do not see the benefits of doing so. Briefly, this initiative ensures that a range of packages, including computers and support services, are tailored to meet the needs of different users. This initiative has helped shift the focus of marketing from the technical aspects of computing to the actual uses and benefits of the technology. This initiative may help encourage greater home computer ownership and increase awareness and training in the use and benefits of information technology.

Community development programmes that aim to increase social inclusion need to ensure that access to information technology is included in such programmes. An example of this was the Community Application of Information Technology (CAIT) project which was implemented and evaluated in a number of areas in Ireland (Duggan and Dunne 2003). This initiative was aimed at resourcing community and voluntary groups to allow the benefits of information technology to reach the organisations and the communities in which they were situated. The CAIT project was targeted at those who were consistently found to have lower access to and use of information technology and aimed to promote inclusion in the information society. The evaluation on the first CAIT initiative reported that the community sector, with proper resourcing, is an effective source in which to provide access to and training in new technologies for those who have not used this technology previously. Recommendations were made in the report regarding the future development of this scheme and also the way forward for further initiatives in this area. It is clear from the current findings that there are still a substantial number of people who do not yet use the Internet highlighting that there is still a need for programmes, such as CAIT, to be made available through community groups.

4.6 The Internet and health information – opportunities and challenges

The popularity of the use of the Internet as a source of information on health provides support for previous findings with almost half of the respondents who used the Internet, using it to search for health information (Centre for Health Promotion Studies 2003; Central Statistics Office 2006; Gil-deZuniga 2006). There are a number of ways in which the Internet can be used to search for health information. For example, there is the health promotion aspect to online health seeking whereby people search for sites containing information on health and wellbeing. Secondly, the Internet can be used to search for illness information, either general information on symptoms to aid diagnosis or on disease specific information. There is a need to differentiate between different types of online health seeking and to identify those who are most likely to avail of

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each. Finally, there has been an increase in the provision of healthcare interventions delivered over the Internet in recent years (Griffiths *et al.* 2006). These interventions have been aimed at a range of physical and mental health conditions (Barnes *et al.* 2007). The reasons for delivering healthcare interventions over the Internet have included low cost and resource implications, addressing isolation of users, stigma reduction, and reducing cost and increasing convenience for users (Griffiths *et al.* 2006). This development in healthcare delivery can be beneficial for those who experience difficulty in accessing face-to-face services due to financial constraints or restricted roll-out of services. For those who do not have access to the Internet, this mode of service delivery further adds to their exclusion. This is an even greater cause for concern as pointed out above; since individuals who are least likely to have used the Internet are most likely to be already experiencing social exclusion and may indeed be more in need of health services, given the well evidenced association between poor health and low socio-economic group.

The current findings showed that females were more likely to search for health information than males. This greater use by women is supported by previous studies (Baker *et al.* 2003; Dolan *et al.* 2004; Fox 2005; Bansil *et al.* 2006; Powell and Clarke 2006; Ybarra and Suman 2006; Harbour and Chowdbury 2007). The gender difference in online health seeking has been attributed to women's tendency to have more of an interest in dieting and healthy eating than men (Fox 2005), and their role as primary carers in the home (Bessell *et al.* 2002; Central Statistics Office 2003). More research needs to be conducted to ascertain exactly what sort of health information Irish women are seeking online to ensure that their needs can be met. The present findings suggested that young women are taking more of an interest in their health, in that they are more likely to actively seek health information, at least on the Internet, than young men. In a previous Irish qualitative study of help-seeking behaviour in young males, the Internet was proposed as a possible mechanism for the promotion of health issues (Russell *et al.* 2004). Results from the HRB NPWDS showed that young men, who had never used the Internet as a source of information on health, are indeed willing to use it for this purpose. This finding supports the development of future mental health information websites for younger people, such as www.Spunout.ie and www.detect.ie. Given that large numbers of young people use the Internet generally, the Internet could be used to a greater extent for the promotion of positive health, and in particular, mental health and wellbeing. More health-specific websites are being produced for young people, and this trend should continue in order to promote positive mental health and mental health awareness. Further provision of health information online directed specifically at young men is needed; for example the Black Dog[14] online initiative, which is an interactive self-help site for men coping with mental distress. Social websites such as Facebook and Bebo also present a good opportunity to provide

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14   www.theblackdog.net

health information to young people.

The findings of this study showed that Internet users who defined themselves as having a long-term sickness or experiencing disability, were noticeably more likely to use the Internet as a source of information on health than any other category. This is an interesting development which healthcare professionals should be made aware of. In terms of Internet users who had experienced mental, nervous or emotional problems (such as anxiety or depression), there was a high percentage that had used the Internet as a source of information on health (60%). This highlights the possible opportunities in using the Internet as a source of information on health. The findings replicate previous work on the health of online health seekers (Eastin and Guinsler 2006). The 2006 US study by Bansil *et al.* (2006), of online health-seeking habits of people with chronic illnesses, showed that they are 1.30 times more likely to seek health-related information on the Internet than Internet users with no chronic disease. Interestingly, one-third of the respondents with chronic illnesses were suffering from depression. Another study revealed that respondents with stigmatised illnesses (such as anxiety and depression), were more likely to look up health information online than those with non-stigmatised conditions, and that the Internet was somewhat beneficial for them (Berger *et al.* 2005; Leach *et al.* 2007). Similar reports of the beneficial nature of the Internet for mental health and stigmatising conditions were found in Powell *et al.* (2003) study into online depression communities. The benefits of using the Internet as a source of information on health cover a range of areas. Health information provided through the Internet can supplement information from a doctor, encourage help seeking and self-care and also can be used as a community forum or support group (Powell *et al.* 2003). While individuals do not see the Internet as a replacement for a medical professional (e.g. McMullan 2006), it may provide extra information that can be used in the health decision-making process. It would also appear that a substantial number of doctors perceive the Internet as beneficial for patients in that it provides information and supports (Potts and Wyatt 2002). However some doctors still have concerns over the use of the Internet as a source of information on health (Potts and Wyatt, 2002). This is a valid concern and the negative consequences of the Internet and health information will be addressed later in the discussion.

An interesting doctoral study entitled *'Personalised patient education and the Internet'* investigated the use of IT applications as effective solutions for patients' needs (Doupi 2005). The study concentrated on burn care which requires extensive rehabilitation and health care following hospital discharge. The study combined Electronic Patient Records with health information from the Internet to provide patients with personalised education and health information. The system used data contained in the Electronic Patient Record to generate a profile of the patient and to automatically select best matching web pages as suitable education material for the patient. In this study

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the doctor was able to download the most relevant Web pages for the patient. This highlights the benefits of the use of the Internet for both the doctor and the patient. However it assumes that the information downloaded from the Internet is of a high quality and standard. The quality of online information is difficult to ensure and is one of the questionable aspects of online health seeking.

Use of the Internet to search for health information has indeed many benefits but there are also negative consequences associated with searching for health information online. For example, extreme communities have been formed online, such as the 'pro-ana' or pro anorexia movement, and the phenomenon of online suicide pacts have had negative consequences (Bell 2007). As it is virtually impossible to censor information on the Internet, little can be done to prevent the creation of these sites. However, it is important to promote websites that give information and support on positive mental health.

A major disadvantage to health seeking on the Internet is that the quality of the health web sites remains a challenge and is difficult to ensure. A number of steps have been taking in recent years aimed at ensuring the quality and accuracy of health information on the Internet. These include Health on the Net Foundation which oversee and assess the content of health websites, and DISCERN which is a tool to assess the quality of the information on Internet sites (see section 1.2). An Irish review conducted in 1998 found that there was only a small number of Irish healthcare websites, none of which satisfied the Internet health information Code of Conduct (O'Mahony 1998). Given the expansion of healthcare websites in the past ten years, there is an obvious need to carry out another similar review. First of all, this will help determine if the quality of websites have increased over time and also determine the level of quality at this point in time. In addition, this review could be used to gather information on those sites that do meet appropriate standards. This information could then be circulated to ensure that it reaches the public be this either through the media or healthcare and community centres and schools. Perhaps an information leaflet could be designed with a list of accredited websites, and distributed to GP and out-patient clinics thereby increasing promotion of e-health, and advising the public on what are the best sites to access information. The HON code (Health on the Net 2005) could also be used in public health promotion to guide users to the most accurate e-health sites on the Internet, specifically in relation to mental health, since results from this and other studies have shown that mental health issues are commonly searched for by general Internet users. Concerns have been raised as to the quality of mental health information online with studies finding an overall poor level of information for disorders such as depression, schizophrenia, attention deficit hyperactivity disorder, and eating disorders (Bell 2007). Again there is a need to review the mental health web pages to ensure that they are of a sufficient standard. As above, this review can also be used to produce a list of

mental health and wellbeing websites which can be circulated to specific target groups. This could also be augmented with research into exactly what type of sites persons with physical illnesses or mental health problems are accessing (e.g. for support, information, treatment) in order to plan for future online health resources.

Another negative aspect of health and the Internet is the increase in the purchase of medicines and diagnostic kits on the Internet (Irish Medicines Board 2007). The report from the Irish Medicines Board (IMB) suggested that the majority of these medicines were for erectile dysfunction, antibiotics and anabolic steroids. While this may not be a concern in medicines that do not contain active ingredients and thus cause the individual no harm, it is a serious concern for medications that do contain active ingredients. Diagnostic kits, such as HIV diagnostic kits and automatic defibrillators, bought online have also been found to be faulty (IMB 2007). There were a total of 1,900 adverse reactions to medicines bought online reported to the IMB in 2007. Other healthcare web sites have highlighted the dangers of purchasing medicines online (www.irishhealth.com; www.vhi.ie) and it is of utmost importance that this message is distributed widely to the public.

4.7 Future research

The results of this study do not provide information on barriers to Internet use, although it is clear that there are demographic and geographic factors that influence use, such as education, employment and region. However there are other psychological and perceptual factors that may influence Internet use. For example, previous work in the EU has shown that awareness of missed opportunities resulting from non-use may influence use, as do knowledge of Internet content and how it may impact on daily living (Gil-deZuniga 2006). Reasons for non-use within an Irish context requires further investigation and should include measures of access to and knowledge of technology, as well as psychological factors. This information will assist policy makers to reduce the digital divide and help inform training and education in Internet use.

Once more, it is vital that there is a review of Irish healthcare websites to assess the quality of the information on these websites. In addition, there is a need to investigate the type of information that online health seekers need and are accessing within the Irish context. Such information could potentially be used to guide the development of current and future healthcare websites.

It is unknown whether the HRB NPWDS respondents found online health information beneficial for them. Future research should investigate this issue to ensure that the needs of online health seekers are met, and to examine the perceived effectiveness of the information in meeting their needs.

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A high percentage of Internet users with mental health problems are using the Internet for health information. Thus, increased access and promotion for new users will open up ICT and e-health to more people with mental health problems. There should be more specific research into this group of people in relation to the types of sites they are accessing and for what purposes, for example, information, diagnosis, treatment or support.

Finally the purchase of medicines online has been a cause of concern in recent times. There is a need to investigate who and why people are purchasing medicines over the Internet so that appropriate measures can be taken to prevent this problem from escalating further. There is also a need to ensure that information regarding the potential harmful effects of purchasing medication online without a doctor's advice is reaching the public.

4.8 Limitations

A limitation with the current survey was that it was a telephone survey of those aged 18 years and over and living in private households with a telephone line. As a consequence of this, it is likely that those most vulnerable to exclusion from an 'e-society' have been excluded from this survey. This includes immigrants, refugees, homeless and those in institutions. In addition, there may be a substantial number of people who do not have landlines and rely on mobile phones or Internet connections (e.g. VOIP technologies) to keep in touch. The latter individuals are obviously more likely to use the Internet for a range of purposes and would have been excluded from this survey.

4.9 Conclusions

This report has provided information, which has important implications for e-inclusion and the future development of an information society. It also added to the literature by providing information on the mental health of Internet users. It is clear from the findings that there is still an existing digital divide in Ireland in terms of general Internet use, and in terms of online health seeking. The findings highlight the need to design and develop further initiatives aimed at addressing this digital divide.

This report has shown that a substantial number of people do not yet use the Internet in Ireland. This provides further evidence of the digital divide, with those most likely to be excluded from society also the most likely to be excluded from the information society. This includes the unemployed, the older population, home makers and those with disabilities or health problems. The importance of e-inclusion is evident at the individual and at the societal level. For individuals, the lack of access or use of information technology can have a negative impact on their social and economic

functioning. At a societal level, negative impacts may include impeding economic and community development and inhibiting new forms of health and social service delivery and supports. Schemes such as free access in libraries are excellent for providing access to the Internet, but there is a need for more efforts to ensure country-wide Internet and ICT proficiency. It is important also that initiatives are developed that target specific groups that are least likely to use the Internet. Initiatives need to address access and technological issues, but also psychological and perceptual issues that may impede the use of information technology.

In line with previous studies, this survey showed that a substantial number of people are using the Internet for health seeking or are willing to use the Internet for this purpose in the future. In addition, a large number of Internet users with disabilities or long-term physical or mental health problems were using the Internet as a source of information on health. This highlights the opportunity of using the Internet as a source of health promotion and health service information within Ireland. However of primary concern is the quality of the information currently provided on healthcare websites. There is an urgent need to evaluate and assess current sites as to the quality of this information. This information then needs to be circulated widely so that health professionals and the public are made aware of the sites that are meeting appropriate standards. In addition, the public need to be made aware of the dangers of purchasing medicines or health diagnostic kits online. Further research into the specific activities of online health seekers would be useful for future health promotion, for example, the type of health information sought, the procedure involved in online health seeking, opinions about the information retrieved, and the outcomes of seeking health information online.

For those who do not use the Internet as a source of information on health, or are less willing to do so, there is a need to increase awareness of the benefits of using this medium, either for health and wellbeing or for information on specific illnesses. Information leaflets could be designed with a list of accredited websites and distributed to GP and out-patient clinics thereby increasing promotion of e-health and advising the public on what are the best sites to use to access information.

The findings presented in this report highlight the need for a comprehensive study of online and other forms of health seeking in Ireland, and an analysis of the mental health and attitudes of Internet users, in order to fully understand their needs. Given that there has been no previous research on the psychological health of online health seekers in Ireland, this survey has provided an insight into the use of the Internet by people with mental health problems, discussed the potential of the Internet to be used for mental health promotion, support and information and highlighted the need for further research into this topic.

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Appendix: Recent Publications in the Health Research Board Series

HRB Overview Series

Long J, Lynn E and Keating J (2005) *Drug-related deaths in Ireland, 1990–2002*. HRB Overview Series 1. Dublin: Health Research Board

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