

The Silver Surfer: Trends of Internet Usage in the Over 65 and the Potential Health Benefits

Abstract:

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Abstract

The Internet provides medical information and interventions with promising benefits. This cross-sectional study explores trends in Internet use among the elderly in Ireland from 2002 to 2010 and considers possible implications for health benefit. Data were analysed on 1606 Irish individuals. Internet use in Ireland is increasing at similar rates to the rest of Europe; the percentage of over-65s using the Internet in Ireland nearly trebled from 2002 to 2010, from 26(8.3%) to 92(24.1%) ($p < 0.001$). Subgroups of this population displayed significantly higher rates of Internet usage; namely those with a better education, living with a partner, males and urban dwellers. Of those with good subjective general health, 230 (21%) had internet access, versus 36 (7.1%) with poor health. Web-based interventions targeting the elderly should become more available. These could be particularly useful in populations with limited access to transport and mobility.

Introduction

Since the advent of the Internet in the mid-1990s, its availability and range of uses have grown enormously. Nearly 80% of Europeans have access to the Internet¹. While the internet has been used to provide healthcare information since its creation, the quality of this information has long been debated² and many of the pros and cons of web-based information have been discussed³. Parents use the Internet to gain medical information about their children's conditions⁴ and how people seek information pre-operatively⁵. Many go online seeking a diagnosis, although diagnostic skills of the Internet are somewhat lacking⁶. Recently, the Internet has been used for healthcare interventions. Many studies have looked at online peer-based support groups and, while these studies have had mixed results, it is an area with great potential that warrants further study⁷. Self-guided programmes delivered via the Internet aim to promote awareness and knowledge about medical issues enabling positive change⁸. These interventions⁹ are effective in the self-management of chronic illnesses. It is best demonstrated in diabetes¹⁰, and chronic pain¹¹ but there is emerging evidence for online interventions in cardiovascular disease¹² including smoking cessation¹³. The interventions aid in the practical aspects of a disease (e.g. reminders to take medication¹⁴, advice on how to control risk factors) and help with the emotional aspects of illness via chat-rooms and forums¹⁵. In addition to directed interventions there is preliminary evidence that Internet and e-mail use, in and of themselves, may improve cognitive functioning in the elderly¹⁶.

Web-based interventions have shown promising results in mental health, specifically depression^{16,17}, anxiety¹⁸ and substance misuse¹⁹. Internet Cognitive Behavioural Therapy (ICBT) has comparable efficacy to face-to-face treatment. Web-based interventions are a useful adjunct to clinician-delivered treatment, as well as an initial treatment for those reluctant to seek help²⁰. The studies represent only the tip of the emerging iceberg. There has been a large interest in this area in recent times and much research is being conducted. The benefit of Internet therapies is that information can be delivered in a way that is appealing to patients, such as using audio-visual cues, interesting graphics and, perhaps most importantly, 24-hour access. Another key advantage is cost-effectiveness, as they require minimal expenditure after development²¹; a particularly appealing idea in the current economic climate. In the elderly population, the Internet has the potential to improve mental health. The increased rates of chronic illness, bereavement and social isolation expose older people to many risk factors for mental illness. Use of the Internet in the elderly can prevent loneliness²² and online interventions are a viable option for those who have trouble seeking face-to-face healthcare (e.g. those with poor mobility or limited access to transport)²³. Moreover, substance misuse and depression are common in the elderly and these disorders have been shown to be successfully treated via the Internet. This study will look at the trends in Internet use in the elderly over the last 12 years in Europe and, in particular, Ireland.

Methods

A cross sectional study was used to address the research question. Data from the European Social Survey (ESS) were analysed. The ESS is an academically driven biennial cross-sectional survey that has conducted surveys between 2002 and 2012. ESS data are available on an open-access basis at (<http://www.europeansocialsurvey.org/>). Data were collected by an hour long face-to-face interview²⁴. In this study the primary outcome was Internet usage, recorded as a binary variable. Individuals who reported having a no Internet access at home or in work²⁵ and individuals who reported never using the Internet were classified as non-Internet users. Individuals who reported using it less than once a month or more were classified as Internet users. The primary exposure was the year the data were collected in. A number of potentially confounders were also examined. These included age, gender, living with a partner, level of education, physical health and whether the respondent lived in an urban or rural area. Living with a partner was chosen ahead of marital status as the data set was more complete and it was coded as a binary variable. Educational status was divided into those with a less than lower secondary education completed²⁶ and those with a lower secondary education completed²⁷ or higher. Individuals who described their domicile as being either a farm or home in countryside²⁸ or a country village²⁹ were rural dwellers and those who reported themselves to be living in a town or small city³⁰, a Suburbs or outskirts of big city³¹ or in a big city³² were classified as urban dwellers. In terms of physical health, people who reported their subjective health as good or very good were classified as having good health while people who reported fair, poor or very poor health were classified as fair to poor. Subjective well-being was a measure of life satisfaction and happiness. Happiness and life satisfaction were ranked on a Likert scale ranging from 0 to 10. Higher scores corresponded to higher levels of subjective well-being. The response to both these questions were added together to provide a measure of subjective well-being. As a result, the range for subjective well being was from 0 to 20.

Binary logistic regression was used to assess the association between the year the data was collected and whether people had access to the Internet or not. Analysis was also stratified by potentially confounders. This study primarily focused on those over 65 living in Ireland but, where it was relevant, comparisons were made to other countries in Europe. All data were weighted according to the ESS guidelines³³. Data were analysed using IBM SPSS statistics version 20.

Results

Data were analysed on 43,120 individuals over 65 across Europe. Our analysis focused especially on 1606 Irish individuals. The characteristics of the Irish and European population are presented in Table 1. Internet usage in all age groups in the European countries studied has nearly doubled over the five ESS rounds; from 37.2% to 62.7%. In the over-65s Internet usage has trebled across Europe; in 2002, 7.3% of the elderly used the Internet and, in 2010, this figure was 21.1%. Internet use among the elderly has increased broadly in line with the rest of Europe but we still lag far behind some European countries (Table 2). Older people in the Netherlands, Denmark, Sweden and Norway are more than twice as likely to have access to the Internet when compared to Irish people. Over the five ESS rounds, Internet usage in Ireland has continually increased. Overall, comparing 2002 to 2010, there was a 290% rise in Internet use. We found that on average there was a 41% rise every two years in the proportion using the Internet ($p < 0.000$, 95%CI 28 to 55). After controlling for age, gender, subjective health, whether a person lives with a partner or not, educational history and area of residence there was a 63.0% (95% confidence intervals 44.5% to 83.6%, $p < 0.001$) increase in Internet access every two years. This is compared to TV watching in the over-65s which only saw a 3.1% rise (64.1% to 66.1%) and both radio listening and newspaper reading which have actually decreased since 2002. Stratified analysis identified a number of sub-groups who had lower rates of Internet access (Table 3).

Gender

Irish females were less likely to have access to the Internet compared to their male counterparts OR 0.69 (95% CI 0.53 to 0.90). While Irish females are less likely to have access to the Internet, their Internet access is growing at nearly twice the rate of their male counterparts. Males on average see a 28.7% (95% confidence interval 13.6% to 45.6%, $p < 0.001$) rise, while females have seen a 61.2% (95% confidence interval 37.8 to 88.7%, $p < 0.001$) rise during each two year period.

Age

While those aged over 74 are much less likely to have access to the Internet, again, this group is seeing a more rapid increase. In the 65-74 year olds there was a 38.4% (95% confidence interval 24.4% to 54.0%, $p < 0.001$) increase in those with Internet access in each two year period, however, there was a much larger increase in those over 74 of 66.4% (95% confidence interval 28.4% to 66.4%, $p < 0.001$)

Living Alone

Table 3 shows those who live alone are less likely to have access to the Internet but what is also worrying is that those who live alone have seen a slower growth in access to the internet over the ten year period of the study (28.9% compared to 47.8% every two years).

Education

Those with a history of leaving education earlier are less likely to have access to the Internet but this population has a faster rate of increase in online access (62.2 compared to 46.0% every two years)

Geographical Location

The increase in access of the Internet has occurred at a similar rate in urban and rural settings.

Subjective Wellbeing and Subjective Health

Internet access has increased at similar rates between those with good and poor subjective health. Analysis was done on the Irish population to see if there were higher rates of subjective wellbeing in those with Internet usage compared to those without and, whilst there was a small increase in subjective wellbeing in those with access to the Internet, no statistically significant difference was found ($p = 0.178$).

Discussion

This study highlights the potential of Internet-based interventions to improve healthcare in the elderly. We demonstrated how Internet use amongst over-65s both in Ireland and the EU is increasing; nearly trebling over the ten year period. Online interventions have many benefits for older people as they may overcome impaired mobility, social isolation and limited access to transport. Existing online interventions should be tailored to older people and new services should be developed. Such interventions could include appointment reminders, medication reminders, medical education and ICBT. The ESS data did not allow analysis of how older people use the Internet. This is a significant limitation of the study as we cannot establish that the internet is being used as source of health related information for older people. Future research on what older people use the Internet for and levels of online literacy would be helpful. In comparison with reading the newspaper, listening to the radio and watching TV, this study shows that Internet access is the most rapidly growing medium for conveying information in those over 65. Internet access is becoming an important factor in healthcare and has a similar level of importance as literacy. As such, it is a key component of any social history and physicians should routinely enquire about it.

This study identified populations less likely to have access to the Internet, namely - those over 74, females, rural dwellers, those living alone, those with poor health and those who spent less time in formal education. Those living alone may be at particular risk. These populations may be more socially isolated and may benefit the most from access to the Internet. Where possible, linking these individuals with classes on how to use the Internet could improve quality of life and have health benefits. We would support the establishment of Internet courses for elderly people and further study into the potential of Internet access and online-based interventions in older people.

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