

Health in the Digital Era: Searching Health Information Online

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INTRODUCTION

Improving access to health information and healthcare by means of new technologies has lately come to the attention of scholars and practitioners everywhere, as ensuring better access to health information and health information technologies could help improve people's health. Despite this increasing interest in health information and new online health technologies, it is still not confirmed whether the online access to health information is beneficial or not for the consumers. There is a growing body of research linking online health information and positive or negative health-related behaviours which suggests that there is not a consensual opinion regarding the impact that online health information and health information technologies have on healthcare.

This chapter investigates the use of web-based technologies for seeking health information and personal health information management in the UK. The research investigates whether people's eHealth literacy is important for developing and enhancing online searching strategies for health information. This chapter is based on and continues the work of Lustria, Smith and Hinnant (2011) who analyse the search of health information online in the US. Furthermore, the study applies Neter and Hefer's (2012) theory to measure people's level of eHealth literacy and tests McClung et al. (1998) and Kiley's (2002) theories, according to which health information on the internet may at times be misleading or misinterpreted, compromising health behaviours and health outcomes, or resulting in inappropriate requests for clinical interventions. By employing a large survey, this chapter provides answers to questions like: What sources do people consult first in search for health information? Is the online health information affecting people's health decisions? Do people consider the online health

information reliable? How often do people use eHealth tools like emails, online test results, or online medical appointments?

Interesting and valuable results emerge. The results report on current trends in web use for health information and reveal interesting patterns in technology adoption and the need to explore further and find solutions to overcome the differences in the use of eHealth technologies in the UK.

HEALTH LITERACY AND EHEALTH LITERACY

Temporally, scholars have used the term health literacy to express many things (Rudd 2002). The term health literacy is mostly linked to literacy and it entails people's knowledge, motivation and competencies to access, understand, appraise and apply information to form judgment and take decisions in everyday life in terms of healthcare, disease prevention and health promotion, to maintain and improve quality of life (Sørensen et al. 2012). It is believed that both the term and field of study, developed through a convergence of patient comprehension, compliance studies, generally conducted by physicians (Roter 1984; Davis et al. 1990; Williams et al. 1995; Williams et al. 1998; Gazmarian et al. 1999; Schillinger et al. 2002; Zaracadoolas et al. 2005), and health education and adult literacy specialists, all looking at the mismatch between print materials and patient reading abilities (Doak et al. 1996; Root and Stableford 1999). More recent research includes the definition of health literacy as the ability to use and 'interpret documents and read and write prose (print literacy), use quantitative information (numeracy), and speak and listen effectively (oral literacy)' (Institute of Medicine 2004 cited in Sheridan et al. 2011, p. 31). For the purpose of this study we understand health literacy as the ability of people to read and understand health information generally, and to recognize reliable information online, evaluate it and use it to make informed healthcare choices.

Furthermore, electronic health care services (eHealth) have tremendous potential for improving the quality and efficiency of healthcare (Hsu et al. 2005). eHealth is considered a new concept, and as with any new concept, benefits from the interest of many scholars who try to find a definition that suits the complexity of the concept. Neter and Brainin (2012) define eHealth literacy as the ability of people to use emerging information and communication technologies to improve or enable health and healthcare. Other scholars believe that eHealth literacy includes the component of health literacy

(Hasnain-Wynia and Wolf 2010), and has the power to effectively link health consumers to the opportunities, possible dangers (Hesse et al. 2005), and inequalities that the use of the Internet brings.

Like Rudd et al. (2004) who developed the Health and Adult Literacy Survey (HALS), a typology of health activities and coded health-related items and tasks, Norman and Skinner (2006) developed an eHealth literacy scale (eHEALS) to measure eHealth literacy. Moreover, the two scholars consider that eHealth literacy ‘empowers individuals and enables them to fully participate in health decisions informed by eHealth resources’ (Norman and Skinner 2006). Norman and Skinner (2006) consider that eHealth literacy is ‘the ability to seek, find, understand and appraise health information from electronic sources and apply knowledge gained to addressing or solving a health problem.’ Furthermore, the scholars argue that eHealth literacy encompasses six different types of literacies, namely: traditional (literacy and numeracy), information, media, health, computer, and scientific. For the purpose of this study we will use Neter and Hefer’s theory (2012) in measuring people’s level of eHealth literacy. According to these two scholars, the people with high eHealth literacy, compared to people with low eHealth literacy, would: (1) use more sources of information (magazines, books, television and radio, and interpersonal resources), (2) use a variety of search strategies in addition to googling, (3) judge the information on the Internet more critically and would use more criteria for evaluating health information, and (4) experience more outcomes and in a higher valence as a consequence of using the Internet (Neter and Hefer 2012).

ONLINE HEALTH INFORMATION SEARCH

The Office for National statistics (2015, p. 1) found that in quarter 1 (January to March) 2015, 86 per cent of adults (44.7 million) in the UK had used the Internet in the last 3 months (recent users), an increase of 1 percentage point than quarter 1 (January to March) 2014. With more and more people going online, the internet is becoming an increasingly common source of health information (Thackeray, Crookston and West, 2013). Not surprisingly, in addition to seeking health information online, Wen et al. (2010) found that 15 per cent of internet users choose to go online to track their personal health information. Determinants of seeking health information online include education, gender, race, age, presence of children in the household, having a poor personal health condition, and

geographic residence (Atkinson et al. 2009, Lustria et al. 2011; Ruggiero et al. 2011). Similarly, predictors of using the Internet to track personal health information include gender, race, education, and having a healthcare provider (Wen et al. 2010).

Earlier research (Murray et al. 2003) showed that the Internet's impact on healthcare is unclear and concerns include whether patients' access to large volumes of information will improve their health; whether the variable quality of the information will have a deleterious effect; and whether the physician-patient relationship will improve as patients become more equal partners, or will be damaged if physicians have difficulties in adjusting to a new role and perhaps replaced by means of eHealth services. The advantages of the internet as a source of health information include convenient access to a massive volume of information, ease of updating information, and the potential for interactive formats that promote understanding and retention of information. Health information on the internet empowers the patients, leading to better health outcomes, more appropriate use of health service resources, and a stronger physician-patient relationship (Kassirer 2000). However, health information on the internet may at times be misleading or misinterpreted, compromising health behaviours and health outcomes, or resulting in inappropriate requests for clinical interventions (McClung et al. 1998; Kiley 2002).

METHODOLOGY

Data analysed in this study was collected from a representative random online survey of the adult population in the UK. We aimed to measure eHealth literacy; online health information search strategies, as well as health information sources and evaluation criteria used by consumers. The survey was conducted from May to July 2015 in the UK. Data is presented here as proportional percentages.

Age differences were coded after Strauss and Howe (1991), Egri and Ralston (2004), Lustria, Smith and Hinnant's (2011) studies to reflect different generational user groups, as follows: Generation Y (less than or equal to 31 years old), Generation X (32-43 years old), Baby Boomers (44-62 years old), and the Silent Generation (63 years and older).

The research questions of the study were:

What sources do people consult first in search for health information?

Do people consider the online health information reliable? What evaluation criteria do people use to assess the information they find online?

How often do people use eHealth tools like emails, online test results, or online medical appointments?

RESULTS AND DISCUSSION

The online survey conducted for the purpose of this study used a sample of 300 people of different nationalities. All of them were internet users. Only 126 responses were considered relevant for the present study, representing 48.15 per cent men and 51.85 per cent women, all British citizens.

Table 9.1 Respondents' gender

<i>Male</i>	<i>Female</i>	<i>Respondents</i>
All Data	48.15%	51.85%
		526

As mentioned before, age differences were coded to reflect different generational user groups, as follows: Generation Y (less than or equal to 31 years old), Generation X (32-43 years old), Baby Boomers (44-62 years old), and the Silent Generation (63 years and older). Accordingly, we had 86.79 per cent Generation Y respondents, 9.43 per cent Generation X respondents, 3.78 per cent Baby Boomers, and 0 per cent Silent Generation. It is important to highlight here that no respondents aged 63 years or older answered the survey which perhaps is an aspect that should be improved in the future.

Table 9.2 Respondents' age groups

<i>Age</i>	<i>18-31</i>	<i>32-43</i>	<i>44-62</i>	<i>63+</i>	<i>Respondents</i>
All Data	86.79%	9.43%	3.78%	0%	526

The majority of the respondents were between 18 and 31 years old, the ones who are digital literate and use the internet on a daily basis. Therefore, respondents with high eHealth literacy tend to be the young. They are also experienced consumers of online information, and as a result they know how to use various search strategies and compare opinions.

Table 9.3 Respondents' level of education

Level of education	High school/College	University	Master	PhD	Post-doc	Responses
All Data	42.59%	40.89%	11.26%	2.85%	2.41%	526

Before testing the eHealth literacy level of the respondents we wanted to find out the level of health literacy that the respondents consider they are at. Results show that young people, the ones scholars often refer to as the 'digital generation', have a good understanding of medical statistics and are able to read and understand their own or other people's medical results.

Table 9.4 How easy can you read and understand medical statistics?

	Very easy	Easy	Hard	Very hard	Responses
All Data	8.41%	58.26%	33.33%	0%	526

Approximately 46.3 per cent of respondents reported using the internet 30 or more hours per week (see Table5) but rarely search for advice or information about health or healthcare. Even if previous research suggests that half (Fox et al. 2000; Horrigan and Rainie 2002; Brodie et al. 2000) and as much as 80 per cent (Taylor 2002) of adults with access to the internet use it for healthcare purposes, our respondents reported that they rarely if never search for health information online.

Table 9.5 Approximately how many hours do you spend online in an average week in total?

Hours per week	0-5	6-10	11-20	21-29	30 or more	Responses
All Data	0%	7.40%	20.37%	25.93%	46.3%	526

Applying Neter and Hefer's theory (2012), we discovered that all the respondents have medium or high eHealth literacy as they all use more than one source of information, and a variety of online search strategies and judge the information they receive online. When asked about the sources, that they first go to when they want to find health or healthcare information, all of the respondents have

chosen more than one source. Even so, 81.48 per cent of the respondents reported that the internet is the first thing they use (see Table 6). This proves to some extent that the internet has or could have, if used properly, a great impact on health and healthcare as being the primary source of health information for people aged 18-31 years old in the UK.

Table 9.6 What source have you consulted first in the most recent search for health-related information?

<i>Books</i>	<i>Family</i>	<i>Friends</i>	<i>Healthcare provider</i>	<i>Newspapers</i>	<i>Radio</i>	<i>Television</i>	<i>Internet</i>
9.26%	27.78%	14.81%	29.63%	3.7%	1.85%	1.85%	81.48%

On the other hand, even if most of the respondents reported that they use the internet as a primary health information source, only 50.94 per cent consider the internet a reliable resource when it comes to health information and healthcare (see Table 7). So, even if they use the internet to search for health information, people do not trust the information they find online. Furthermore, when asked what is the most reliable website for health information the respondents unanimously answered that the only website they completely have trust in for obtaining accurate and valuable information on health and healthcare is the NHS website.

Table 9.7 Is the Internet a reliable resource for health information?

<i>Do you consider the internet a reliable resource for health information?</i>	<i>Yes</i>	<i>No</i>	<i>Responses</i>
All Data	50.94%	49.06%	526

The reasons for considering the internet a reliable source are a valuable evidence for identifying and understanding the respondents' level of eHealth literacy and their search strategies for online health information. The respondents have a high level of eHealth literacy as they use more than one strategy to find health information and know how to distinguish between reliable and not reliable sources. Here are some of their most frequent answers:

‘Because some doctors write articles about health problems and solutions to these problems’

‘Because it is an important source to find what’s going on and to calm down until you go to the doctor, on the internet you can find all information you want without paying for them’

‘I can consult more than one website, ask more people and get more opinions. I don’t take for granted the first website I stumble upon’

‘Because I think those information are correct, almost everything is accurate’

‘Because there are many professional sources of information on the internet’

‘The internet is good because there is so much information out there but how can you know it is true and reliable?’

‘It depends on the source. I would go directly to the NHS website if I needed guidance and information regarding an illness or condition/symptoms as I believe that it would be a reliable source’

‘With the NHS websites in particular, I know I’m getting good, supported advice’

‘Anyone can write anything they want on the internet so it’s hard to trust. If you search properly though, reliable sources can be found’

‘Ignoring the scaremongering forums, there are now many well known and official bodies online, such as the NHS, that provide health information that can obviously be trusted’

‘Certain websites, such as NHS and Boots, can be very helpful in diagnosing potential causes for certain symptoms (through of course not a definite diagnosis) whilst certain news sites or websites dedicated to provide a health-orientating service can be very reliable’.

Almost half of the respondents, 49.06 per cent, do not rely at all on the health information found online when it comes to health and healthcare, because they consider that:

‘A lot of speculation and opinions online, NHS is good but it’s dangerous to self-diagnose. Easier to go to GP’

‘Because you run the risk of reading about certain symptoms that is relatable to your issue, as well as several other issues. I’ve learned my lesson the hard way when using the internet for medical advice’

‘Because it is very likely that symptoms add up and you may find yourself in a situation where the internet tells you that you have cancer despite you catching an insignificant cold’

‘Because a lot of people talk about medical topics without having a medical background, so it is very difficult to tell if the sources are reliable’,

‘Yes and no, the good information is there, you just need to look for it, recognize it, interpret it’.

When asked if the information they find online affected their health or health care decisions, all the respondents reported that has never happened, because they use online health information only for reassurance or for finding other people’s stories but never not for self-diagnosis. Here are some of their answers:

‘I’d always go to my GP for a major issue’

‘No, any health issue on the internet is taken with a grain of salt’

‘Yes, because I write the symptoms and they tell me what it is and I know what to do in the future’

‘I usually research the serious problems and put under questioning answers given to me by doctors, researching other opinions and advanced procedures that are not available in my country’

‘I mainly use it for reassurances and rarely for diagnosis’

‘Sometimes because doctors can often be wrong and reading about people experiences or what worked well for them is very helpful.’

Even so, some of the respondents argue against their own opinion because 42.59 per cent reported that they have administrated treatments found online before asking their doctor or a medical professional before having previously said that they only use online health information for reassurance or to find more about other people with same symptoms (see Table 8). The same percentage (42.59) also reported the use of the internet to obtain prescriptions or purchase pharmaceutical products.

Table 9.8 Internet and self-medication

<i>Have you ever administrated treatments you found online before asking your doctor?</i>	<i>Yes</i>	<i>No</i>	<i>Responses</i>
All Data	42.59%	57.41%	526

When it comes to the use of eHealth technology, 75.47 per cent reported never using email to contact their GP or other healthcare professional (see Table 9) and 60.38 per cent reported never to have used the internet to keep track of personal health information, such as care received, test results, or medical appointments in the past twelve months (see Table 10).

Table 9.9 In the past twelve months how many times have you used email or the internet to communicate with a doctor or a doctor's office?

<i>Never</i>	<i>1-5</i>	<i>6-10</i>	<i>11-15</i>	<i>16 or more</i>	<i>Responses</i>	
All Data	75.47%	20.75%	1.89%	0%	1.89%	526

Table 9.10 In the past twelve months how often have you used the internet to keep track of personal health information, such as care received, test results, or medical appointments?

<i>Never</i>	<i>Rarely/Once or twice</i>	<i>Monthly</i>	<i>Weekly</i>	<i>Daily</i>	<i>Responses</i>	
All Data	60.38%	28.3%	9.43%	1.89%	0%	526

This proves that even if there is a growing body of scholarship on eHealth and the use and impact of eHealth tools on health and healthcare, the use of eHealth tools is still not spread among people and not because of the lack of eHealth literacy (as the respondents have a high level of eHealth literacy) but because they simply choose not to use it.

CONCLUSION

This chapter examined a demanding and rather sensitive topic, specifically the search of health information online. Based on the work of Lustria, Smith and Hinnant (2011) who analyse the search of health information online in the US, this study reports on a survey conducted from May to July 2015 in the UK. Even if the rather small number of respondents might be considered one of the limitations of this study, it is important to highlight that this chapter reports on an ongoing research project and is mapping answers to important questions in the eHealth research. The results reveal interesting patterns

in technology adoption and the need to explore further and find solutions to overcome the differences in the use of eHealth technologies in the UK.

Online health information may result in better informed patients, leading to better health outcomes, more appropriate use of health service resources, and a stronger physician-patient relationship (Kassirer 2000). However, the results of this study confirm that people consider that health information on the Internet may as well be misleading or misinterpreted, compromising health behaviours and health outcomes, or resulting in inappropriate requests for clinical interventions, confirming McClung et al.'s (1998) and Kiley's (2002) theories.

The results also show that in the UK people frequently use the Internet via personal computers for searching health information online, but rarely or never use eHealth services such as email, online access to personal health record etc. Following Neter and Hefer's theory (2012) (explained above), we can state that results show that the participants to this study have high eHealth literacy.

The key finding of our study is that respondents with high eHealth literacy do not use eHealth tools. Even if there is a growing body of scholarship on eHealth and on the use and impact of eHealth tools on health and healthcare, the use of eHealth tools is still not spread among people and not because of the lack of eHealth literacy (as all the respondents have a high level of eHealth literacy) but because they simply choose not to use it. Also, older people, people with lower education levels, and people with lower household incomes are less likely to access online health information or eHealth services and tools. Furthermore, the study reveals that the Internet moderately improves consumers' health-related knowledge and attitudes but seldom changes their health-related abilities and activities and at times results in leading people into thinking that they are informed enough to prescribe their own medicines. To encourage online communication between health providers and consumers, it is important to improve eHealth literacy, especially in middle-aged people.

A final conclusion is that by conducting this study we identified a need to educate people on searching health information online and self-medication and a need to enhance communication between health providers and consumers. As the results report that people with high eHealth literacy tend to be the young, we consider that it is important to improve the eHealth literacy of other age group categories, especially middle-aged and older people who could benefit from the use eHealth

tools on a daily basis. Equally, as Neter and Hefer (2012) argue, we also identified a need to educate at-risk and needy groups and to design technology that will benefit more consumers. Further studies should address these problems.

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