



ORIGINAL PAPER

Digital Health and the Generation Gap in Romanian Context

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Abstract

The present paper examines a demanding topic and provides a framework for developing research on eHealth. The paper investigates the use of web-based technologies for health information seeking and personal health information management in the Romanian context. It starts from the premise that the debate about the health system offers a privileged perspective to address themes that are at the intersection of media discourse, public health policies, institutions and organizations in the field of medical and social issues. By analysing the answers obtained on two samples (one made of students – 169 respondents – and another made of their parents – 114 respondents) used in a 2015 survey the article tries to provide an answer to questions like: What sources do people consult first in search for health information? How do people select the websites from which they retrieve health information? How often do people use emails, online test results, or medical appointments? What are the differences between young generation and mature persons as regards the trust and use of the internet in health-related behaviour? The findings suggest that the Internet plays an important role in modelling healthy behaviours for both Romanian students and their parents. According to the survey results, despite the interest in the advancement of eHealth tools and the increasing access to online health information, there is a “generation gap” on the trust on eHealth – e.g. mature people still do not consider online health information to be as reliable and they do not use eHealth tools as the young generation.

Keywords: Internet; health literacy; health-related behaviour; generation gap.

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Introduction

In 2017, only 68.6% of Romanians had access to the Internet at home, 64.3% in urban areas (National Institute of Statistics, 2017a). According to the same data report, various factors (not only in Romania, but also worldwide) have influenced the likelihood of having digital devices and Internet access, notably occupation and household income (90.9% of employed citizens had access to the Internet, compared to 42.2% of retirees) (National Institute of Statistics, 2017b). Furthermore, seniors living with younger relatives were more likely to use the Internet than those living alone. Finally, Romanians' use of new information and communication technologies decreases as they age (National Institute of Statistics 2017c).

Analyses conducted so far reveal that mature people respond differently to mediated communication compared to young people (McMillan and Macias, 2008). Firstly, mature people engage in fewer online activities and have lower levels of digital literacy, including online health literacy (Campbell, 2009; McMillan and Macias, 2008). In addition, current studies indicate that there are major differences between the ways in which older and younger people use the Internet in particular and the benefits they associate with this new type of communication, namely computer-mediated communication (McMellon and Schiffman, 2002; Shapira, Barak & Gal, 2007; Gatto and Tak, 2008; Mellor, Firth & Moore, 2008; Karavidas, Lim & Katsikas, 2005).

A straightforward way to gain new perspectives on health literacy is assess the limits of the existing scientific literacy definitions on health literacy. Feinstein's (2011) definition of science literacy was based on research that: "tells us that people selectively integrate scientific ideas with other sources of meaning, connecting those ideas with their lived experience to draw conclusions and make decisions that are personally and socially meaningful" (Feinstein, 2011: 180). If we simply replace "scientific ideas" with "health information" in the above quote, Feinstein's idea can be easily applied to health literacy. Similarly, Feinstein's definition of scientifically literate people can be adapted to health literacy by simply replacing science and scientific with health: "people who have learned to recognise the moments when science has some bearing on their needs and interests and to interact with sources of scientific expertise in ways that help them achieve their own goals" (Feinstein, 2011: 180). So, health literate people are defined as those who have learned to recognise the moments when health has some bearing on their needs and interests and to interact with sources of health expertise in ways that help them achieve their own goals.

One problem with this definition is that a person's own goals may not necessarily fit with good health. They may seek expertise from a health professional and not take the advice given. For example, a person with a sore back may be advised to take painkillers and exercise, but choose only to take the painkillers. This is related to the ideas of motivation and empowerment, which are included more often in concepts of health literacy than scientific literacy. Thus, it is not simply having skills and/or knowledge but using them, as well as wanting to gain further skills and/or knowledge.

Nutbeam included motivation in his 1998 definition of health literacy: "Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people's access to information, and their capacity to use it effectively, health literacy is critical to empowerment." (Nutbeam, 1998: 357).

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Further to this, Peerson and Saunders (2009: 289) gave an example of how a person may not use health literacy in health promoting ways. They questioned how the health literacy of someone who knows and understand the health risks of binge drinking but decides to ignore them could be described.

There could be two types of health literate individuals. There are some who are always seeking out health information and activities. There are others who are perhaps classed as health literate but take notice of health information and activities only, or mostly, as they come into contact with them. These two types of individual can be called “actively health literate” or “passively health literate.” The passively health literate could be lacking motivation and empowerment. It would be important to provide opportunities and resources for those who are actively health literate, but, also, those who are passively health literate need to be empowered or motivated to actively seek out information, possibly by making the information personally relevant. The goal would be to have more actively health literate individuals.

Bernhardt, Brownfield and Parker (2005: 8) suggested that the motivation to receive and act on health information is related to a “perceived personal relevance of the information being presented.” This was excellently described in terms of health literacy by Schulz and Nakamoto (2005): “being health literate therefore is not equal with propositional knowledge; it’s not just declarative and it is even more than procedural; it is procedural as it relates to the person. It almost is the person in an existential sense. It’s not only “what to do” but what doing something specific means for me “in my world” (Schulz & Nakamoto, 2005, p.6).

On the basis of the existing literature this paper investigates the use of web-based technologies for health information seeking and personal health information management in the Romanian context. As the main research premise we have considered the common-sense assumption that the debate about the health system offers a privileged perspective to address themes that are at the intersection of media discourse, public health policies, institutions and organizations in the field of medical and social issues.

From here, the main questions of the present study are:

1. What sources do people consult first in search for health information?
2. How do people select the websites from which they retrieve health information?
3. How often do people use emails, online test results, or medical appointments?
4. What are the differences between young generation and mature persons as regards the trust and use of the internet in health-related behaviour?

The methodology

The present study was based on a quantitative methodology- namely a survey made on two separate samples: a sample of 169 students from the University of Bucharest and a sample of 114 respondents who were their (e.g. students’) parents.

The collection of data took place in March-June 2016 and the questionnaires were self-administered (e.g. the respondents filled themselves the answers at the questions from the questionnaires).

The hypotheses of the study were:

Hypothesis 1: It should be a small frequency (less than 50% both for the sample of students and for the parents’ sample) of the respondents who get health-related information from other sources than mass media (namely from the Internet).

Hypothesis 2: It should be measured a small frequency (less than 40% both for the sample of students and for the parents' sample) of the influence exercised by interpersonal communication on the disease prevention behaviours of the respondents.

Hypothesis 3: It should be a small frequency (less than 40% both for the sample of students and for the parents' sample) of the influence exercised by interpersonal communication on the respondents' own assessments of risk factors for health's management.

Hypothesis 4: It should be a small frequency (less than 40% both for the sample of students and for the parents' sample) of the influence exercised by interpersonal communication on the respondents' own management of their resources for health.

The data gathered were interpreted with the help of SPSS package. The present paper presents mainly the descriptive statistics.

The analysis of the results

The general set of data showed that 38.6% of students' parents had declared that they were not content with their daily lives, and only 31.5% of them assessed a certain degree of content in general. At the same time, around half of the total sample of students declared that they are content with their daily lives.

Table 1. Assessment of personal life

	Parents (%)	Students (%)
I am content with my daily life	31.5	52.7
I cannot say that I am content or I am not content with my daily life	29	34.3
I am not content with my life	18.8	3
I am very discontent with my life	19.8	3
I am very content with my daily life	0.9	7.1

The difference between students and their parents could also be noticed in the case of question regarding the self-assessment of one's place within the society as a whole. That is, in the case of students' parents, more than a half of the sample (68.7%) placed themselves on the levels 3 ("low") - 6 ("middle") of a hypothetic social ladder. At the same time, the students tend to assess their place at the ends ("lower" and "highest") - 42.6% of them placed themselves on levels 1-3 of the possible social ladder and only 24.9% assessed that their place was on the other end (levels 8-10 of this above-mentioned ladder).

Table 2. Self-assessment of social position on a social ladder (Ladder ranging from "1" - the lowest level - to "10" - the highest level)

	Parents (%)	Students (%)
Level 10	0.3	0.6
Level 9	0.2	3.6
Level 8	5.4	10.7
Level 7	8.5	14.2
Level 6	14	5.9

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Level 5	12.3	10.7
Level 4	19.6	7.1
Level 3	17.5	13.0
Level 2	11.4	20.1
Level 1	3.5	9.5

When we analyse the uses and consumption of media, our data showed that the parents of students relied on television as their main source of information – 62.3% - and 41.3% of them searched for the information on the Internet each day. Quite the contrary, the students' main source of daily information was the internet – 83% of them searching for information on the Internet each day – followed by television (66% of the respondents watching TV programs each day). Only 29% of them listen to the radio programs and 23.9% of students daily read newspapers.

Table 3. Type of media used on a daily basis

	Parents (%)	Students (%)
I am watching TV shows each day	62.3	35.5
I am searching the information on the Internet each day	41.3	92.3
I am reading newspapers on a daily basis	22.8	12.9
I listen to the radio programs on a daily basis	33.3	15.4

As regards the self-assessment of their health our data showed that more than half of the sample of students' parents (54.8%) had declared that their health is “very bad” and “bad”, and only 10.7% of them assessed their health as “very good” and “good”. As in the case of the above-mentioned questions (Tables 1 – 3) the students's self-assessments were the opposites to their parents: 28.2% of them declared that their health is “good”, one third of them (30.8%) considered that their health is “fair” – neither “good” nor “bad” and only 15.3% assessed it as “bad”.

Table 4. Self-assessment of personal health

	Parents (%)	Students (%)
Very bad	18.8	3.0
Bad	36.0	20.8
Fair	28.9	24.3
Good	6.7	30.1
Very good	3.5	20.7

What are the main sources of information regarding health? In the case of our study, 21.4% from the total sample of students get their health-related information from television, while 15.4% of them had declared that doctors or clinics are the main sources of health-related information. The same health-related sources of information were recorded also in the parents' case: 21.9% of them declared that their main source of information for health is television and 21.9% said that the doctor and medical staff are

the main sources for health-related information. The most important difference between the two samples was recorded in the case of the Internet: more than a third (37.8%) of the students' sample has declared that the main source for health-related information is the Internet while only 11.9% of their parents referred at it when asked the same question.

Table 5. The main source of health-related information

	Parents (%)	Students (%)
Television	21.9	7.9
Doctor or medical staff	21.9	5.4
Family	17.5	16.6
Internet	11.9	37.8
Friends	11.4	18.3
Radio	10.5	3.3
Books about health	10	3

Almost half of the parents 41.2% of them made one or two visits to the GP the last twelve months and 42.2% of them had visited their GPs more than three times in the same period of time. Once again one could notice a great difference in health-related behaviours of their children, since half of the students (50.3%) had declared that they did not visit it in the last year.

Table 6. Frequency of visit to the personal GP in the last twelve months

	Parents (%)	Students (%)
Over 6 times	15.5	6.5
3-5 times	26.7	10.7
1-2 times	41.2	31.4
I did not visit her/him not even once this year	21.6	50.3

As expected the majority (87.5%) of the respondents from parents' sample declared that they owned a health insurance, while only 57.3% of the total sample of students declared that they owned one. At the same time, 80.6% of students' parents had declared that they have a state/ public health insurance, and only 2.6% of them have a private one. The emerging market of the private insurance companies has as the main customers mainly younger generation - 31.8% of the students declaring that they have a private health insurance.

Table 7. The type of health insurance owned

	Parents (%)	Students (%)
Both public and private health insurance	2.8	3
Private health insurance	2.6	31.8
State / Public health insurance	80.6	42.7

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When asked how easy is to find health-related information on the Internet only 34.1% in the case of students' parents had declared that this was "easy" and "very easy", while 63.7% of the students had declared the same. Understanding the information on food packaging was an easy and very easy task for less than a half (45.4%) of the students's parents and the percentage had risen to 71.6% for their children. The biggest difference recording the understanding of health-related information found on the Internet was recorded on the topic of judging how their housing conditions help them to stay healthy: around one third (29.6%) of the parents' sample assessed that this is an "easy" and "very easy" task and the percentage was double (70.4%) for the students.

Table 8. Self-assessment of the understanding of health-related information

For me it is	Parents (%)		Students (%)	
	Very easy	Easy	Very easy	Easy
Understand advice on health from family members or friends?	19.8	27.7	17.8	39.6
Find out about activities that are good for your mental well-being (meditation, exercise, walking, pilates etc.)?	18.9	26.8	24.3	45
Understand information on food packaging?	18.6	26.8	26.6	45
Understand information in the media (Internet, newspapers, magazines) on how to get healthier?	17.2	25.6	23.7	46.2
Understand information on how to keep your mind healthy?	17.2	21.6	27.2	44.4
Find information on how your neighbourhood could be more health-friendly (reducing noise and pollution, creating green spaces, leisure facilities)?	14.6	29.5	24.3	43.8
Make decisions to improve your health?	14.6	26	22.5	44.4
Judge which everyday behaviour (drinking and eating habits, exercise etc.) is related to your health?	13.7	19.5	24.9	46.7
Find information on healthy activities such as exercise, healthy food and nutrition?	11.6	22.5	23.7	45
Judge how where you live affects your health and well-being (your community, your neighbourhood)?	10.2	25.1	23.1	45.6
Find out about political changes that may affect health (legislation, new health screening programmes, changing of government,	9.3	24.2	18.3	32.5

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restructuring of health service)?				
Join a sports club or exercise class if you want to?	8.4	11.1	20.7	33.1
Find out about efforts to promote your health at work?	7.5	17.2	11.8	33.1
Judge how your housing conditions help you to stay healthy?	7.5	22.1	22.5	47.9
Take part in activities that improve health and well-being in your community?	4.8	11.5	16	29.6

When we were interested to identify the the impact Internet has on the healthy behaviour of Romanian students as compared with its impact on their parents only 20.7% of the students' parents find very easy the information on the symptoms of illnesses that concerned them (as compared with 39.6% of the students). In the case of personal judgement about the reliability of the illness' information in the media our data showed that only 6.7% of the students' parents have assessed that it was very easy to assess the reliability of information about illness in the media while the percentage have risen to 15.4% of the students for the same assessment. The importance of a second opinion from another doctor was assessed in different degrees by students and their parents: 53.3% of the students had declared that it is very easy and easy for them to judge when they might need to get it in comparison to 24.7% for their parents who declared the same thing (See table 8 from below).

Table 9. Self-assessments of the prevention behavior

For me it is	Parents (%)		Students (%)	
	Very easy	Easy	Very easy	Easy
Find information on the symptoms of illnesses that concern you?	20.7	22.1	39.6	43.2
Follow the instructions on medication?	17.7	24.7	25.4	46.7
Judge how information from your doctor applies to you?	17.3	27.4	22.5	47.3
Follow instructions from your doctor or pharmacist?	17.2	20.2	29	47.3
Understand what to do in a medical emergency?	16.7	24.4	20.1	46.7
Understand what your doctor says to you?	16.3	28.2	28.4	40.8
Understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?	15.4	24.4	25.4	46.2
Judge the advantages and disadvantages of different treatment options?	14.3	22.5	15.4	40.8
Find out what to do in case of a medical emergency?	14.3	20.0	22.5	37.3
Find information on the treatments of illnesses that concern you?	13.7	27.7	21.9	44.4
Find out where to get professional help	13.3	23.3	21.3	41.4

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(doctor, pharmacist, psychologist) when you are ill?				
Understand the leaflets that come with your medicine?	13.3	28.6	22.5	46.2
Use information the doctor gives you to make decisions about your illness?	12.8	21.2	20.7	39.1
Judge when you may need to get a second opinion from another doctor?	5.8	18.9	8.3	45
Judge if the information about illness in the media (TV, Internet or other media) is reliable?	6.7	28.2	15.4	33.7

The analysis of empirical data showed an small ammpunt of the self-assessments related to the management of risk factors for health for the students' parents: 37.7%. The percentage almost doubled (71%) for their children who declared that they can understand very easy and easy the health warnings about behaviour such as smoking, low physical activity and drinking too much. Also, an important difference was recorded in the case of assessing the reliability of information on health risk from the media: only 30.6% of the parents has declared that it is easy and very easy for them to judge if the information on health risks in the media is reliable as compared with 58% of the students who assessed this fact. Another important difference between the two samples was related to the use of information from media in health protections: only 18.1% of the parents' sample gave assessed that it is easy and very easy to decide how they can protect themselves from illness based on information found in the media while more than half of the students' sample (53.2%) has assessed those riske factors in the same manner.

Table 10. Self-assessments of the management of risk factors

For me it is	Parents (%)		Students (%)	
	Very easy	Easy	Very easy	Easy
Understand why you need health screenings (breast exam, blood sugar test, blood pressure)?	19.8	22.7	20.1	36.7
Judge how reliable health warnings are, such as smoking, low physical activity and drinking too much?	18.9	23.5	26.6	38.5
Find information on how to manage mental health problems like stress or depression?	18.1	24.2	26.6	45.6
Understand why you need vaccinations?	16.3	27.5	25.4	42
Understand health warnings about behaviour such as smoking, low physical activity and drinking too much?	16	21.7	25.4	45.6
Find information on how to	15.4	26.5	17.8	42

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prevent or manage conditions like being overweight, high blood pressure or high cholesterol?				
Find information about how to manage unhealthy behaviour such as smoking, low physical activity and drinking too much?	13.3	26.6	34.3	44.4
Find information about vaccinations and health screenings (breast exam, blood sugar test, blood pressure) that you should have?	11.1	24.6	16.6	36.1
Judge when you need to go to a doctor for a check-up?	10.2	25.3	21.9	40.8
Judge if the information on health risks in the media (TV, Internet or other media) is reliable?	10.2	20.4	19.5	38.5
Judge which health screenings (breast exam, blood sugar test, blood pressure) you should have?	9.3	19.5	17.8	36.1
Decide how you can protect yourself from illness based on advice from family and friends?	8.4	22.4	17.2	40.8
Judge which vaccinations you may need?	6.7	22.5	13	41.4
Decide how you can protect yourself from illness based on information in the media (newspapers, leaflets, Internet or other media)?	4.8	13.3	13.6	39.6

Conclusions

Since the time of Hippocrates, doctors had a monopoly on health-related information, thereby ensuring their professional position and status. Currently, “the internet is now considered as one of the major sources of health-related information” (Alghamdi and Moussa, 2012). Most surfers report using the internet to look for information, with the most common tools used by the public for finding information being search engines, particularly Google (Reches, 2011).

In today's interconnected, multimedial, and Internet-reliant world, all data points to a steady consolidation and increase in the use of mobile and Internet technologies: at the start of 2019, 56% of the world's population was connected, with 67% mobile phone users, 57% Internet users and 45% social media users (Pew Internet, 2018). Most of these individuals are teenagers and young adults; in fact, it is estimated that in the U.S., 95% of the youth have a mobile phone and 45% of them are almost constantly online

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(idem). In Europe the state of affairs is similar, Eurostat data from 2016 showing that most mobile phone users with Internet access (91%) are young people aged between 16 and 24, and this trend has been increasing in recent years (Eurostat, 2019). In Romania, official data from 2018 showed that there were no students over 16 who had never accessed the Internet, and 99% had accessed it in the last three months (National Institute of Statistics, 2018). At the same time, only 13% of older adults knew how to use the Internet, while in the European Union, the percentage was 45% (Eurostat, 2019).

The choice of modern media, particularly the internet, to meet needs emanates from various internet characteristics. The internet's most obvious property is the quantity and variety of information it offers, which bridges the difficulty of acquiring information from traditional sources (Westerman, Spence, & Van Der Heide, 2014). Likewise, technology enables information to be frequently updated. Information is produced and transferred to the public by various groups of people, including professionals, suppliers, pharmaceutical companies, medical service providers, interest groups, and consumers themselves. Additionally, information is available on the internet in various formats, such as text, video, and audio files, allowing different people to use them in the way that suits users best (Jadad and Gagliardi, 1998).

Romania ranks last in the European Health Consumer Index, with a weaker medical system not only compared to Bulgaria, but also compared to Albania and former Yugoslav republics such as Macedonia or Montenegro. In fact, Romania ranks thirty-fourth out of as many European countries whose medical system was analyzed for the calculation of the aforementioned index for 2018 (Health Consumer Powerhouse, 2019). In addition, since 2007, when it joined the EU, Romania has lost over 45,000 doctors who have chosen to practice in Western Europe (Nistoroiu, 2019). Another shortcoming of the Romanian healthcare system is revealed by the fact that in 2018, 13.2% of Romanians (the highest proportion in the entire European Union) stated in 2018 that they could not afford long-term hospitalization (Health Consumer Powerhouse, 2019).

Under these conditions, making more alternative medical consultation systems, especially e-Health, available to various social groups could be desirable. It is obvious that Romanian society is attracted by these options, the 2018 European Consumer Health Index report indicating a significant increase in the accessibility of online appointments for Romanian patients (from a score of 2,750 in 2017 to a score of 1,857 a year later, 1 meaning widely available online appointments and 3 meaning none or almost none) (Health Consumer Powerhouse, 2019).

As our results have showed, the first hypothesis of this study (It should be a small frequency – less than 50% of the total sample – of the respondents who get health-related information from the Internet) was validated by empirical data both for the sample of students and their parents.

Also, from the analysis of the set of data we can conclude that the second hypothesis of this study (It should be a smaller frequency (less than 40% of the analyzed sample) of the influence exercised by the interpersonal communication on the disease prevention behaviours of the Romanians) was validated only for students's parents and not for the students (which, on the contrary, have based their decision mainly on the Internet information).

The third research hypothesis (It should be a small frequency – less than 40% of the total analyzed sample – of the influence exercised by the interpersonal communication on the respondents' own assessments of risk factors for health's

management) was confirmed by our data in the case of parent's sample. As in the case of the second hypothesis it was not confirmed for the students.

According to our data, the fourth research hypothesis (It should be a small frequency – less than 40% of the total analyzed sample – of the influence exercised by the interpersonal communication on the respondents' own management their resources for health) was also confirmed in the case of the sample made from students' parents. Once again, our data proved that this hypothesis was not confirmed in the case of students sample.

As the empirical data showed, one can identify the existence of a “generation gap” related to health-related information and the Internet and it is manifest in three main domains: the management of resources for health and well-being, the disease prevention and the management of risk factors for health. At the same time, as our results showed, the Internet is an important factor which influences the health-related behaviour mainly for younger generation, while for the older adults this influence was diminished.

Despite all the inherent limitations, the present study may inspire some promising lines of inquiry regarding the relationship between the Internet and health in the case of Romania. Given that 424 localities in Romania have no family doctor and 1,098 localities have an insufficient number (Neagu, 2019), further research could strive to identify the sources of the introduction and the development of telemedicine and mobile health (mHealth) in areas with a disadvantaged population, e.g. adult people or economically struggling individuals.

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