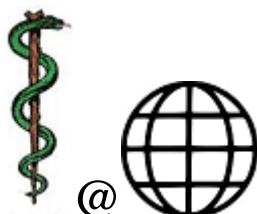


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ABSTRACT OF PH.D THESIS

ADMINISTRATION OF HEALTH INFORMATION
AVAILABLE IN VIRTUAL SPACE



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From a sociological perspective, the Internet is not synonym with a global informational machinery as it is in some popular records” (Slevin in Ritzer, 2007: 2384). The sociological perspective is interested in the means in which this global network influences different aspects of the society structure, from the individual behaviours to public sphere or the aspects of communication and interrelation between individuals. On the whole, the sociological perspective is inclined to identify and describe the way in which the Internet rebuilds the structure of society (Slevin in Ritzer, 2007: 2384-88). The Internet is a very important source of information in health sphere, offering more or less accessible resources for different subjects of interest, starting from information related to the state of health and the existing diseases, treatments at the choice of health provision methods and health insurance plans, until the selection of lifestyles, exercises etc. (Zulman, Kirch, Zheng & AN, 2011).

This research had an important role in the organization of contents for the consumers of health information in virtual space, for the degree of usefulness of information available for persons in general, but also for the opportunity which is offered by the virtual space in the education and health behaviour of each person. Moreover, the Internet has become the first source of information for many persons regarding certain informational aspects focused on health (Hesse, Moser, Rutten, 2010). Through this space, I have the possibility to promote a positive behaviour towards health, by the application of behavioural theoretical principles in this space as well (Cassell, Jackson, Chevront, 1998).

The importance of this work is given by the emergence of internet-based technologies which are not regulated yet, are full of information and beneficial advice, but also contain false and risky information for health, being a modification of the traditional relationship between the doctor and (Deau, 2007; Marcinkiewicz & Mahboobi, 2009). Yet, emergent technologies have deep implications regarding the global connectivity including by the existence and use of health information (Hilgart et al, 2012). Also, it is important to know this space as it is a source of communication and information in health area for many categories of persons such as: teenagers (Kocic & Petrovici, 2011) and elders (Flynn, Smith & Freese, 2006), persons who suffer from cancer (Helft, 2008) (Ibrahim & Kamel Boulos, 2006), sexual health (Spink et al, 2004), with urological diseases (Hellawell et al, 2000) and the homeless (Barman-Adhikari & Rice, 2012), or many other categories of persons who suffer from a disease or are on the lookout for supplementary information.

The contribution of this study is to develop a comprehensive model of the process of searching for information in virtual space, certain factors which determine this search and the

influence this information has and communication among the persons from Romania, which still does not exist at the moment of doing the research in this geographical space. I have taken into consideration the contextual factors, the state of health, but also demographic variables such as: age, gender, income, profession, geographical location and marital status.

Specialized literature

In the thesis I have presented some of the research and aspects taken from specialized literature which I considered important in the building of the theoretical framework. I have included aspects regarding the use of Internet and technological means in the access of health information and their influence on the health care behaviour. I have also described some of the characteristics of searching for health information on the Internet at the level of countries which benefited from such research, but also depending on certain demographic and behavioural factors which were considered useful in the shading of these aspects. I have also detailed the motivations on which these behaviours are based, which are the subjects searched by different categories of persons and the search methods. Of course, the inclusion of these elements is carried out by relating to the beneficial or negative consequences on health, but also depending on the decisive factors which lead to the activity of search health information online. The training in the field of health and use of technology as well as in the relationships with the medical staff and the health system being considered by specialized literature as important in the determination of health care behaviour and search for information in this field, were included as distinctive chapters in the theoretical construction of the thesis. Last but not least, I considered the description of the opportunity of offering psychosocial support through the online space. Thus, among the motivations of searching health information on the internet identified by the research of Powell et al (2011) there are: the desire of being reassured, of obtaining a second opinion on the health problems and the desire of acquiring supplementary knowledge compared to the knowledge accumulated up to that time and the potential external barriers to the access to traditional information, including the “desire of avoiding to be persistent in the communication with their physician”. Also, among the factors which could influence the search for health information, there is the desire of some persons of remaining anonymous and of course, the easiness and rapidity of accessing this information (Powell et al, 2011). The easiness and rapidity in accessing health information online are mentioned by Yasin & Hilal (2011), as well as the very large availability of information on the Internet. The potential of obtaining a wider range of information and the ease with which it is obtained are also mentioned by the respondents of the research of Gagliardi & Jadad (2002). Neelapala et al (2008), identified as the main motivations of searching for health information: the desire of acquiring supplementary

knowledge (73,3%). Among other reasons, not using the Internet as source of health information (Gallagher & Doherty, 2009).

The Internet is used as source of health information for different reasons. They can be in case the patients need clarifications or answers to questions which were not addressed or to which it was not answered completely in a consultation with a doctor (Delic, Polašek & Kern, 2006), or they are searching for information about diseases, treatments, hospitals or clinics and experimental treatments or medicines (Sadasivam et al, 2012).

The level of training in the use of informational technology is important in the general context of administration of health information online. Thus, a higher level of training in the field of informational technologies can be found mainly in persons from urban areas (Liang & Chao, 2002), in young persons (Ghaddar et al, 2012), with a higher education level. Also, a higher level of training in the use of informational technology can be found mainly in the male gender (Liang & Chao, 2002; Mohammed et al, 2013).

In the analysis of specialized literature there are included aspects such as the relationship between doctor and patients, aspects which can determine the way of comprehension of health information, but also the way in which the patients relate to the health information available on the internet. Information is also offered regarding the means and forms of help which can be provided on the Internet for the persons who suffer from a chronic disease.

Theoretical frameworks

This thesis involved a multiple theoretical perspective, in order to highlight the role of Internet in the health behaviour through certain theories from the social, medical and technology fields to obtain a more complete understanding of health behaviours. This study corroborates three of the main dimensions: (1) the behaviour of persons in relation to the virtual space and available information, (2) the influence that the health information available on the Internet has on health and (3) the perception that individuals have on this information which is made available on the Internet.

1. The theory of planned behaviour (TCP) (Ajzen, 1991), claims that the intention to accomplish a health behaviour is influenced by the subjective norms which are associated with that health behaviour, the attitudes towards the planning of these behaviours and the control action over the intention to accomplish that behaviour. The more favourable these attitudes social pressures are, and the perceived ability to accomplish that behaviour is to the behaviour of searching for health information online, the more likely it is that an individual accomplishes that activity.

2. The technology acceptance model has as premise the fact that the intention to use a system by a person is determined by two types of beliefs: the perceived usefulness (by which a person will improve his/her own performances if he/she uses the technology) and the perception of easiness of use (by which a person would consider that the use of that technology will be with minimum effort). Also, the perception of usefulness of a piece of technology is influenced by the degree in which is perceived the easiness of use. This theoretical model considers the external factors as mediated by these two factors (Davis, 1989).
3. (Health Belief Model) (HBM) is a model which tries to explain and predict the behaviours towards health and which is focused on the attitudes and beliefs of persons. This model was elaborated as response to the failure of a screening program for tuberculosis by Hochbaum, Rosenstoc and Kegels in the 1950s. The basic assumptions of this model are based on the idea that a person will carry out a specific action in the field of health (searching for health information on the Internet in this thesis case) depending on several variables.

Following the construction of the theoretical framework, the following research questions were formulated: How are behaviours influenced in relation to health and the process of searching for information in the medical field depending on the attitude towards medical staff and the health system? What is the attitude of persons towards the probability that some medical services are provided through Internet? What is the level of training in the field of online health of persons, depending on their perception? How is the health information perceived by the participants in the study? What are the main strategies of searching for health information in the virtual space? How is one's own health care behaviour influenced by the medical information available on the internet?

Methodology used

The purpose of this research was the identification and outlining of some aspects regarding the role of the virtual space on the behaviour towards health, but also the way in which the information about health acquired by Internet is perceived. Also, thanks to the specialized literature consulted and the lack of specialized research in this sphere on the population of Romania, I seek to identify the role played by certain factors in the determination of the behaviour of searching for health information online, as well as the perception of Internet users on different information and services provided on the Internet.

Hypotheses of research:

- A. Men, the elderly, the persons with a higher level of education and the persons with residence in big cities perceive their own computer skills as good or excellent.

- B. The way in which the quality of a website is perceived significantly correlates with variables gender, age, level of education, residence environment, the computer skills, the frequency and time of search for health information on the internet.
- C. There is an association between the informational source in the field of health of participants in the study and the gender, age, educational level and area of residence of the participants.
- D. There is a significant connection between the level of confidence in the medical system (dependent variable) and the gender, age, education and area of residence (independent variables) of the participants in the study.
- E. The perception of participants in the study on the health information provided on the Internet significantly correlates with the gender, age, level of education, area of residence and the confidence of participants in the medical system.
- F. The use of health information available on the Internet significantly correlates with the variables gender, age, level of education, area of residence and confidence in the medical system.
- G. There is a significant connection between the strategies of searching for health information on the internet and the gender, age, level of education, environment of residence, computer skills and frequency and time spent on searching for such information by the participants in the study.
- H. The strategies of searching for health information on the internet and the level of training in the field of online health information significantly correlate with the way in which the quality of a website is perceived.
- I. There is a significant correlation between the degree in which persons are influenced by the information accessed on the Internet and the variables: gender, age, education, environment of residence and level of confidence in the medical system.
- J. There is a significant correlation between the degree in which persons are influenced by the medical information available on the internet and the training level in the field of their online health as well as the way in which they perceive such information and the number of health fields accessed.
- K. Between the level of importance attributed to online medical services and demographic variables: gender, age, education and perception of health condition, there is a significant correlation.
- L. The importance of online medical services significantly correlates with the level of confidence in the medical services and the level of training in the online medical field.
- M. The time allotted to direct medical services negatively correlates with the importance given to health services on the internet.

In the research I used a convenience sample which included persons who have access to the Internet from Romania. I chose the questionnaire applied online as research tool. This questionnaire is completely structured, contains only close questions, on a nominal or ordinal scale. The research tool, the online questionnaire is composed of 100 items under the form of questions or under the form of statements. The answers are on different levels, from the close ones where there are questions on nominal and ordinal scale. The questionnaire, under its applied form, is divided into two sections. In the first section several questions are addressed, which represent the demographic data in the analysis of results and questions with a more general character which also constituted a part of the dependent variables in statistical analysis.

Analysis of results

From the items of the questionnaire indices and factors were built to be used in the checking of hypotheses. They are in number of ten, being made up in accordance with the theoretical model proposed.

- Index of level of confidence in the medical system (IISM)
- Index and factors of importance of some medical services on the Internet (IISMII, FISMII, FICMO, FIIMO)
- Factors of evaluation of the quality of a website (FECAI, FECPG, FECC)
- Index (IUISI) and factors of use of health information from the internet (FUISI, FUICCM, FUISP)
- Indicators of strategies of searching for health information on the internet
- Number of health fields accessed on the internet
- Level in which the participants in the study are influenced by the health information available on the internet
- Level of training in the field of health information online

Checking of hypotheses

In general, the study hypotheses are not supported by the results obtained from this research sample, excluding a few exceptions.

From the analysis of results were identified different important aspects for this research. On the whole, women are those who look for more health information, use this information for different purposes, are influenced by this information in carrying out different concrete actions for their own health. Unlike them, men are those who considered that they have better computer skills and information technology skills. As for age, the elderly face problems of access to technology,

but at the same time they are those who consider that it is important for them, probably because of a greater easiness in the accessing of different services. I could notice that information technology represents an important point of support for the elderly category of age. Differences were identified regarding the level of education, in certain situations being insignificant because of the disproportional sample in certain categories of variables. For this reason, a part of the results obtained must be regarded as a point of departure, a guiding point for the aspects contained in this research. At the same time, having in view the theoretical model proposed in which one of the dimensions was the demographic factors, I considered that it is somehow inappropriate to make a clear connection between this dimension and the other components of the theoretical model. There were several situations in the results obtained where the relationship between the demographic variables and other dependent variables proved to be insufficiently strong to draw conclusive results. These results were for guidance because of the convenience sample.

There were several research directions on which this research focused: (1) the perceived skills in the use of computer and online information, (2) sources of health information, (3) the use of this information, (4) perception on this information, (5) influence of online health information on the behaviour towards own health care, (6) importance given to health services on the Internet, (8) perceived level of training in the field of online health, (9) strategies of searching for health information online and (10) how important certain attributes of internet are depending on the perception of respondents. On one hand, in the following of these directions of research I had in view the application of the theoretical model, and on the other hand, the analysis separate from the theoretical model of some aspects I considered important.

By one of the research hypotheses proposed I wanted to check whether the male gender, the higher education level, the older age and the urban environment of residence were associated with a higher perceived level in the use of computers. Even if the female gender was identified as the one which searches more often health information in the virtual space (Cotten & Gupta, 2004; Beckjord et al, 2007), as far as it concerns the computer skills, men are those who considered that they have a higher level of computer skills compared to women. Similar results were identified in other studies such as the studies of Liang & Chao (2002) or Mohammed et al, (2013) in countries outside the European territory. In Europe, in a developed country such as Austria, the results of research indicate the same, the predominance of men as having a higher level in computer skills (Link & Marz, 2006). A thing which is not surprising was the identification of the urban area as the area in which persons consider that they have a higher level in computer skills, which is confirmed by the research conducted by Liao & Chang (2002; 2010). In a similar way, those who have a higher educational level will say that they have better knowledge of computers. As I initially assumed in the construction of hypothesis, the older persons are those who considered that they have better

computer skills. I started from the premise that in this category of age the persons will associate “experience” with the knowledge in using information technology and will indicate a higher level. Of course, I evaluated only this level and not the association previously mentioned, aspect which can be studied in the future research in this field.

Continuing with the sphere of skills, those who said that they had better skills were those who appreciated more the quality, accessibility and the graphical presentation of a website as being important. Hence, we can conclude that those who have a higher level of computer skills know the importance of these aspects in relation to a website. They are those who will know how to make the difference between the quality health information and the health information which is more or less accurate. Moreover, among the categories of persons who will be able to make this differentiation, there are men, elderly, those with a high educational level and whose environment of residence is in urban areas. Thus, it is important to carry out specific interventions through social policies which help to improve the computer skills in all the categories of persons, mainly those from rural areas. Considering these results, the connection is confirmed between demographic variables and the dimension “level of training in the field of online health” from the theoretical model proposed.

The next step in the analysis of results was the desire to identify the main sources of health information. As far as age is concerned, the young and those with a poor education obtain this kind of information from the family. However, the young marked more sources of information, among which the Internet. In the situation in which I considered only the persons who marked a single source, those with a higher education prefer to go to the doctor for health advice, unlike those who did not benefit from a similar education, who prefer to obtain this information through the family. Of course, the female gender is the one which prefers to a larger extent to obtain information through the Internet, unlike men. At the same time, women are those who perceive in a positive way the health information provided on the Internet, considering it useful, serious, accessible and clearer unlike men. This can suggest us that they will resort more often to such sources of information, being at the same time more vulnerable in front of wrong information (in case of women from rural areas or with a poor level of education), but also those who have the possibility to benefit from a better health care in case of those who have better computer skills or those with a higher level of education. The easiness of obtaining health information on the internet is appreciated by the older persons, which is understandable if we take into consideration the lower level of mobility in this category of persons. The inaccessibility of medical services from rural areas determined the respondents who have residence in this environment to consider the health information as clearer and more complex. At the same time, those who have a negative perception on medical services appreciated more the information which can be acquired on the internet. This last result indicates its congruence with the theoretical model in which the dimension “attitude towards the medical

system” indicates a direct connection with the dimension “behaviour of searching for health information online”.

Considering the way of using the health information obtained through information technology, we can conclude that women “as protectors of family” are those who share more this information with the close persons or certain medical staff, unlike men who use it mainly for personal benefit. A similar result can be found in the research of Sadasivam et al (2012) who identified a percentage of 56% persons who search for health information on the internet not only for their own person. One of the most important results of this research is the use of online health information for personal benefit, mainly in the persons who disregard the medical system. A negative consequence of this can be self-treatment only on the basis of this information.

An extra argument to the statements above on the fact that women are those who share this information with the family or the medical staff is that they resort more often than men to sources of information offered by doctors as strategy of searching for information. With the female gender, this strategy is also applied by those who have a higher level of education. Also, those who resort as search strategy to the information offered by certain medical staff consider more important the quality of content of this information. Among the persons who resort as search strategy to the introduction of key words are those who have a greater confidence in their own skills and state that they know where to find the information they want.

Another aspect included in this thesis is the way in which persons are influenced by the health information provided on the internet. Taking into consideration the demographic variables, there were a few differences. Women are those who are more influenced by this information in resorting to face-to-face medical services. Yet, because of an overrepresentation of this gender in the sample, these aspects must be investigated in further research. It is important to know that those who disregard face-to-face medical services, as they had negative experiences in this respect, are those who will resort more often to electronic sources of information and will be influenced to a greater extent by them. Another category of persons identified, which has a high potential of being influenced by this online health information, is the elderly. Those who access information from several fields of health will be those who will have more knowledge in the field, will know how to take care of their own health and the health of the close people. Also, a higher level of training in the field of online health will contribute to a positive influence of information accessed on the internet. The results regarding the influence of online health information on persons indicate that there is a wider range of factors by which a person is influenced by online health information.

In the last section of research I wanted to identify the importance that the participants in the study could give to online medical services. Among the aspects evaluated, there was the possibility of making an online medical consultation, the reception of results of analyses by electronic post etc.

Among the main results, I could notice that the female gender is the one which pays more importance to these services. Of course, as I mentioned, this result can be considered as a starting point considering that the proportion of women in the sample was much higher than the male gender. The moving difficulty or the easiness of accessing these online medical services made the elderly pay a greater importance to this category of services. Also, those who have a higher level of education pay a greater importance to these online medical services. At the same time, those who consider that they do not have enough time for a visit to the doctor or those who declared that they waited too long in the waiting queues in front of medical consulting rooms, paid a greater importance to these online medical services.

Conclusions and discussions

This work contributes to a deeper understanding of the means of administration of online health information, mainly in the area of Romania where there is a gap concerning these studies. From the results of this study we can notice the importance information technologies have specifically in the field of health of each person. We can also notice that the content of information available in virtual space is important, the way in which it is transmitted, the access of this information to a wider public who understands its content and the clarity and accuracy of this health information. We should not stop this phenomenon of information dissemination, but we should rather support it and improve it. During this period it is important to study the aspects correlated with information technology because more and more persons have access to these resources, which became an essential means in day-to-day life.

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