

The Usage Of E-Health In The Sustainability Of Attitude And Behavioral Changes: An Example On The Health Management Students

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Abstract

The aim of this study is to find out the effects of e-health on the undergraduate students. This study also tries to examine the results of attitude and behavioral changes of the participants. A questionnaire was done on the first and second grade students as well as some MBA students of Health Management Department of Suleyman Demirel University, Faculty of Economics and Administrative Sciences. The answers given to the questionnaire was tested by using the appropriate statistical tests in SPSS 16.0 program. According to the results the participants perception of the concept 'health communication' is not definite. The results also show that the participants use Internet but not very efficiently.

Keywords: e-health, sustainability in health, health behavior, behavior change, health system.

1. Sustainability in Health

One can't ignore the importance of health in sustainable development. For the nations to reach their goals of sustainable development; they must have a strategy to create a healthy society. Thus the mass media especially the Internet must be used very actively and efficiently.

The Internet has proven to be a powerful and very popular vehicle for distributing health information to millions of individuals; it is interactive, user controlled and provides an effective means for communicating detailed information (Erdem & Harrison-Walker, 2006: 387). In fact, the word 'patient' is being slowly replaced, at least implicitly, by the word 'consumer' (Ball & Lillis, 2001: 2).

In that respect e-health, which can help the knowledge and technology in the health services spread to a wide range of people, is a very important communication channel that should be used for the sustainable development of health.

The Alliance for Natural Health (ANH) first defined sustainable healthcare in 2006 in the UK journal *The Nutrition Practitioner*. The definition is as follows: "A complex system of interacting approaches to the restoration, management and optimization of human health that has an ecological base, that is environmentally, economically and socially viable indefinitely,

that functions harmoniously both with the human body and the non-human environment, and which does not result in unfair or disproportionate impacts on any significant contributory element of the healthcare system." (<http://www.anh-europe.org/campaigns/sustainable-healthcare>).

1.1. E-Health: Sustainable Healthcare

Health is defined as a 'state of complete physical, mental and social well-being not merely the absence of disease or infirmity' by the World Health Organization (WHO) in 1948. But according to King (1990: 4) WHO's celebrated definition should be transformed into "health is a sustainable state of complete.....". As one can see sustainability is highlighted in this new version of definition. For health to be a sustainable state the changes in health attitudes and behaviors must be sustainable as well. But the technology driven demand changes, the demographic driven demand changes, workforce and funding challenges and also the quality and safety challenges all add up to an unsustainable health system. Coordination, integration and sharing of information in context of organizational change are the necessities of a sustainable system. Therefore e-health is an answer to this kind of development.

Many nations have started to use e-health. According to World Health Organization e-health is the combined use of electronic communication and information technology in the health sector (<http://www.ehealthinfo.gov.au/>, 21.3.2012). Similarly Eng (2001) defines it as 'the use of emerging information and communication technology, especially the Internet, to improve or enable health and health care' (Eng, 2002: 267).

E-health systems can improve access to information, thus increasing awareness of what is known in the health sciences, while selective dissemination by electronic means can facilitate targeting of information on those who either request it or are most likely to use it (Kwankam, 2004: 800). Since e-health could tailor information to unique needs and attributes of individuals and communities; it will use improved customization, contextuality and interactivity. Thus it's very important to use this tool for the sustainability of the health attitudes and behaviors.

There are over 100 000 web sites worldwide, proffering health information of varying quality that is used by both professionals and laypersons. In 2001, 86% of all adults in the United States with access to the Internet had consulted it for health-related information and 55% of primary care physicians in Germany and 90% in the United States had made use of it (Risk & Dzenowagis, 2001: 28).

Studies present that communication mediated by computers and other digital technologies can result in positive outcomes across a wide range of behaviors (Neuhauser and Kreps, 2003: 15). For example in an online study of people who frequently visit health and medical websites, 90% of respondents felt they could manage their own health and 82% stated that the Web offers better information on new medications than what physicians or pharmacists have in their offices (Lach, 1999). One reason why so many people are turning to the Internet for health information is the belief that today's doctor—patient relationship lacks the attention to

detail and personal touch that once existed. Patients go online because they want more than what they typically receive from an office consultation (Erdem & Harrison-Walker, 2006: 388).

1.2. The Changing of Health Behavior

Since the 1960's considerable research has appeared on the effect of attitudes on behavior (Liska and friends, 1984: 15). Attitude has been found to be the most significant factor influencing behavioral intention. Compelling reason why attitude is so important is the fact that attitude can be changed through persuasion and other means. An abundance of research regarding attitude change and persuasion exists in the psychology literature. Since attitude is the most significant predictor of intention (which in turn, is the best predictor of the actual behavior), then behavior could possibly be influenced through attitude change and persuasion. Attitude has been shown to significantly affect intention. If attitude can be changed, then intention may be influenced (and subsequently behavior may be influenced). (Al-Rafee and Cronan, 2006: 238).

From this point on one can say that for the health behavior change to occur as well as to achieve sustainable development in the health area; the nations should use e-health systems effectively.

2. The Research

The main aim of this study done is to measure the use of e-health in between the health management students. The study is done in Health Management Department of the Faculty of Economics and Administrative Sciences in Suleyman Demirel University. 1st and 2nd grade along with some MBA students participated in the study. A questionnaire was distributed to the whole population which was 200. Only 182 of them were able to be used in the analysis. Thus 91% of the population is reached. The questionnaire was made up of three sections. The first part consisted of demographic questions whereas the second part had questions towards Internet usage. The last part consisted of e-health questions. The answers were analyzed using SPSS 16.0.

3. The Results

3.1. The Demographic Findings

Every demographic question in the questionnaire has been analyzed in order to see the frequency distribution of the participants. The findings are shown in Table 1.

As seen in Table 1 the % 58,8 of the participants are men and %41,2 are women. Half of the participants are 1st grade students. %78 of the participants are 17-21 years old. The participants who have a PC is around %56 and % 43,4 doesn't have a PC. When this finding is considered the percentage of not having a PC is relatively high. The duration of Internet

usage (1-10 years) has a big percentage of % 88 which is an expected situation. A same result is seen in the usage of Internet. The findings show that %41,2 of the participants use Internet every day and %42,9 of them use Internet a few times in a week.

Table 1: The Demographic Findings of the Participants

Variables	Valid	Frequency	%	Variables	Valid	Frequency	%
Gender	Men	107	58,8	Having a PC	Yes	102	56,0
	Women	75	41,2		No	79	43,4
	<i>Total</i>	<i>182</i>	<i>100,0</i>		<i>Total</i>	<i>181</i>	<i>99,4</i>
Grade	1st Grade	92	50,5	The Duration of Internet Usage	1-5 years	86	47,3
	2nd Grade	78	42,9		6-10 years	74	40,7
	MBA	12	6,6		11-15 years	4	2,2
	<i>Total</i>	<i>182</i>	<i>100,0</i>		16 years and above	1	0,5
					<i>Total</i>	<i>165</i>	<i>90,7</i>
Age	17–21	142	78,0	How often do you use Internet	Every day	75	41,2
	22–26 years	33	18,1		A few times in a week	78	42,9
	27–31 years	3	1,6		A few times in a month	26	14,3
	32 years and above	2	1,1		<i>Total</i>	<i>179</i>	<i>98,4</i>
	<i>Total</i>	<i>180</i>	<i>98,9</i>				

3.2. The Reasons of Internet Usage

The reasons of Internet usage are given in Table 2. As seen in Table 2 the %20,9 of the participants say that they use Internet for fun. However the ones who use it for shopping is only %8,8. %55,5 of the participants have indicated that they use Internet for social network sites. On the other hand only %28,6 of them stated that they use Internet for individual communication. The highest ratio (%64,8) is seen in the usage of Internet as a tool to gain information. It is also seen from Table 2 that %51,1 of the participants use Internet for doing homework, projects, etc.

Table 2: The Reasons of Internet Usage

The Attitudes					
For fun	Frequency	%	For gaining information	Frequency	%
No	144	79,1	No	64	35,2
Yes	38	20,9	Yes	118	64,8
<i>Total</i>	<i>182</i>	<i>100,0</i>	<i>Total</i>	<i>182</i>	<i>100,0</i>

For shopping	Frequency	%	For individual Communication	Frequency	%
No	166	91,2	No	130	71,4
Yes	16	8,8	Yes	52	28,6
<i>Total</i>	<i>182</i>	<i>100,0</i>	<i>Total</i>	<i>182</i>	<i>100,0</i>
For social network sites	Frequency	%	For preparing projects, homework	Frequency	%
No	81	44,5	No	93	51,1
Yes	101	55,5	Yes	89	48,9
<i>Total</i>	<i>182</i>	<i>100,0</i>	<i>Total</i>	<i>182</i>	<i>100,0</i>

3.3. The Perception of the Concept Health Communication

Table 3 gives information on the participants' perception of the concept health communication. The result that stands out in Table 3 is that only 117 of the 182 participants have answered the question on "What do you think is health communication?" When analyzed there is no significant difference between the answers. Thus one might say that most of the participants don't really have an idea of this concept.

Table 3: The Perception on Health Communication

What is "Health Communication"	Frequency	%
The way to get information on health in general	36	19,8
The announcement of developments in health by using mass media	26	14,3
Have no idea	11	6,0
Forum sites	10	5,5
A relation between the one who gives and gets the health service	10	5,5
The communication in between the health personnel	7	3,8
The transferring of knowledge on health truly	6	3,3
Getting information about doctors and also getting an appointment	6	3,3
The cognitive system	5	2,7
<i>Total</i>	<i>117</i>	<i>64,3</i>
Lost data	65	35,7
<i>Total</i>	<i>182</i>	<i>100,0</i>

When the answers given are analyzed in detail one can see that only %5,5 of the participants indicated that health communication is a relation between the one giving and the one getting the health service. Similarly a small amount of %3,8 stated that health communication is the communication which is in between the health personnel. As seen from Table 3; one can easily see that %19,8 of the participants perceive health communication as “getting information on health in general.” This answer is the highest answer given to this question. The second highest answer given to this question is “the announcement of developments in health by mass media” which %14,3 of the participants stated.

3.4. The Forum Sites on Health

When asked the participants whether they are a member of a forum site on health; only %32,4 have said “yes.” On the other hand %67,6 have stated that they weren’t a member of a forum site. When taken into account that the participants were university students, this result is natural.

Table 4: Forum Sites on Health

Are you a member of a forum site on health?	Frequency	%
No	123	67,6
Yes	59	32,4
<i>Total</i>	<i>182</i>	<i>100,0</i>

3.5. Usage of the Health Institution’s Web Page

Table 5 shows the answers given to the question asked to the participants whether they use a health institutions’ web site before going there. As seen from Table 5 almost half of them (%47,3) said “yes.” This actually helps us understand why the participants explain health communication concept as to get information on health.

Table 5: Usage of the Health Institution’s Web Site

Before going to any health institution do you visit its web site?	Frequency	%
No	93	51,1
Yes	86	47,3
<i>Total</i>	<i>179</i>	<i>98,4</i>

3.6. The Most Visited Web Pages on Health

The participants were asked to write down the web sites on health that they visited the most. According to the answers of the 119 participants who answered this question; it seems that

the most visited (%38,5) web site on health is the official web site of Ministry of Health. Table 6 shows the first three web sites visited by the participants.

Table 6: The Usage of Web Sites on Health

Write the names of the web sites on health you frequently visit	Frequency	%
www.saglik.gov.tr (Ministry of Health)	70	38,5
www.ailehekimligi.gov.tr (Family practice)	13	7,1
The web pages of hospitals	11	6,0
<i>Total</i>	<i>119</i>	<i>65,4</i>

3.7. The Ways of Getting Information on Health

The participants were asked to choose from a 5 point Likert scale how they would get information on health. The answers are shown in Table 7. As seen from Table 7 only the %24,2 of the participants say that they generally watch TV programs on health. On the other hand %54,4 state that they rarely watch those kinds of programs. A similar situation is seen when asked whether they listen to the radio programs made on health. %88,1 of the participants have given negative answer to this question. Only %23,1 of the participants state that they frequently read the health columns in the newspaper. The answers given to the statement that "I get advice from a doctor" is interesting. The % 26,9 of the participants state that they rarely get advice from a doctor whereas only %23,6 of them state that they frequently ask a doctor. % 50 of the participants has claimed that they never consult a doctor from the web. The ones who say that they can rarely consult a doctor from the web is %23,1 only. On the other hand %24,2 of the participants say that they always use the net to get information on health.

Table 7: The Ways of Getting Information on Health

To get information on health in general	Never (%)	Rarely (%)	Usually (%)	Frequently (%)	Always (%)	Total (%)
B1: I watch TV programs on health	5,5	54,4	24,2	9,3	6,0	99,5
B2: I listen to the radio programs on health.	44,8	43,3	8,8	2,2	,6	99,5
B3: I read the news on health in the newspapers.	8,2	28,0	31,9	23,1	8,2	99,5
B4: I get advice from a doctor	8,2	26,9	25,8	23,6	13,2	97,8
B5: I consult a doctor from web.	50,0	23,1	13,7	8,2	4,4	99,5
B6: I try to get information from web.	6,0	18,7	28,6	22,5	24,2	100,0

3.8. The Reasons of Visiting the Web Site of a Health Institution

The answers participants chose from a 5-point scale to the statements as to learn the reasons of visiting a health institution's web site are showed in detail in Table 8. As seen in Table 8 % 37,4 of the participants stated that they never use the health institution's web site to get an appointment; whereas % 17 said always. The %36,8 of the participants claimed that they never use the web site to get information on doctors. On the other hand % 13,2 stated that they use it frequently for this reason. The ones who use the health institution's web site to learn about the physical conditions of the hospital are only %3,2. Similarly % 64,3 of the participants stated that they never use the web site to learn the agreed insurance companies. % 29,7 of the participants indicated that they would in general use the web site to get the contact numbers whereas %12,1 of them said that they would use the web site for this reason frequently. Almost half of the participants (%40,1) stated that they would never use the net to learn the results of the samples done in the hospital. Once more almost half of the participants said that they would never use the web site of the health institution to make complaints or suggestions. According to these results one can say that the participants of this study use the web site of the health institution mostly to get information on doctors, to learn the contact numbers and the way to get to the hospital and also to learn the physical conditions of the hospital.

Table 8: The Reasons of Visiting the Web Site of a Health Institution

I visit the health institutions' web site to...	Never (%)	Rarely (%)	Usually (%)	Frequently (%)	Always (%)	Total (%)
B7: get an appointment.	37,4	19,8	14,8	9,9	17,0	98,9
B8: get information about the doctors.	36,8	27,5	15,4	13,2	3,8	96,7
B9: see the physical conditions of the hospital.	40,1	29,7	17,0	8,2	3,2	98,9
B10: learn about the insurance companies the hospital has an agreement with.	64,3	20,3	9,9	3,8	1,1	99,5
B11: get the contact numbers and learn how to get there.	25,3	24,7	29,7	12,1	6,6	98,4
B12: learn the results of the analysis (exp: blood sample) done in the hospital.	40,1	25,3	19,8	9,3	3,8	98,4
B13: to make complaints and give suggestions.	43,4	34,1	10,4	8,2	2,7	98,9

3.9. The Usage of Mass Media

Table 9 shows the answers given to the statements on trusting mass media. %39 of the participants state that they rarely trust the health news on Internet. %35,7 of them on the other hand state that they usually trust those kinds of news. From this result one can say that the

participants are confused about the news in the net. The %36,3 of the participants stated that they rarely trust the doctors' advice who works as a consultant in a forum site. Only the %14,8 of them indicated that they frequently trust such doctors. Similarly %43,4 of the participants indicated that they never trust the health campaign messages that come to their cellular phones. % 19,8 of the participants stated that they usually keep track of a health journal.

Table 9: The Usage of Mass Media

<i>Items</i>	Never (%)	Rarely (%)	Usually (%)	Frequently (%)	Always (%)	Total (%)
B14: I trust the news on health I see in the net.	10,4	39,0	35,7	10,4	3,3	98,9
B15: I trust the doctors' advices who work as a consultant of a forum site.	14,8	36,3	28,0	14,8	4,9	98,9
B16: I take into consideration the messages that come to my cellular phone on health campaigns.	43,4	29,1	14,3	7,7	4,9	99,5
B17: I keep track of health journals.	25,3	37,9	19,8	9,9	6,6	99,5

When Table 7, Table 8 and Table 9 are analyzed deeply; one can say that the participants use Internet but not efficiently.

4.CONCLUSION

60 % of the participants, who are mostly 17-21 years old, are males. Because of the fact that the participants are university students, this actually explains why the Internet usage ratios are high. This fact also affects the reasons of Internet usage. When looked at Table 2, one can see that the first reason of Internet usage is to gain information while the second reason is to visit social network sites. Besides these one can't see the similar attitudes and behaviors towards e-health usage. The thing that takes attention is the fact that e-health is used especially for getting an appointment or gaining information about the health institutions, like contact numbers or access to there. The results also show us that the participants don't trust a physician who gives advice on the web. Similarly the participants still use the traditional ways to learn the analysis (for example: blood sample) done in the hospitals.

In general we can say that the participants of this study use the Internet; but not e-health very efficiently. In other words we can say that the participants haven't gained positive attitude and behavioral changes toward e-health usage yet.

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