ONLINE HEALTH INFORMATION SEEKING HABITS OF MIDDLE AGED AND OLDER PEOPLE: A CASE STUDY

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF INFORMATICS
OF
THE MIDDLE EAST TECHNICAL UNIVERSITY

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN
THE DEPARTMENT OF MEDICAL INFORMATICS

SEPTEMBER 2010

Approval of the Graduate School of Informatics

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ABSTRACT

ONLINE HEALTH INFORMATION SEEKING BEHAVIOR OF MIDDLE AGED AND OLDER PEOPLE: A CASE STUDY

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September 2010, 104 pages

In the recent past, people were used to consult health care professionals or textbooks in order to find answer to health related questions. Now, the availability of medical information through electronic resources has changed people's information-seeking behaviors and, as a result, electronic information resources have become very popular and frequently used for health related searches. This study examines the online health information-seeking behaviors of middle aged and older people from

Middle East Technical University and 100. Yıl neighbourhood, specially demographic and other factors effecting online health information seeking, the types of sought online health information, assessment of the online health information, and reliability criteria of middle aged and older online health information seekers. A cross-sectional design was used to collect data. Self-administered questionnaires were distributed to participants. The final sample was 248 middle aged and older people. Findings show that middle aged and older employees from Middle East Technical University and 100. Yıl neighbourhood are searching for health information especially for specific illnesses. They are using this information to self-treat or self-diagnose. Worse health conditions, expertise level in internet usage associates with searching behavior. Majority of the participants trust in information they found online but they do not share it with any health care professional.

Keywords: Online Health Information, Information Seeking, Middle Aged People, Elderly People

ÖZ

ORTA YAŞ VE ÜZERİ İNSANLARIN İNTERNETTE SAĞLIK BİLGİSİ ARAMA DAVRANIŞLARI: ÖRNEK OLAY İNCELEMESİ

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Eylül 2010, 104 sayfa

Yakın geçmişte, insanlar sağlıkla ilgili sorularına cevap bulabilmek için sağlıkla ilgili uzmanlara ya da yazılı materyallere başvurmaktaydılar. Şimdiyse, sağlıkla ilgili bilgilere elektronik kaynaklarla ulaşılabilmesi, insanların bilgi arama davranışlarını değiştirdi. Elektronik bilgi kaynakları çok popüler hale gelmiştir ve sağlıkla ilgili aramalar için sıklıkla kullanılmaktadır. Bu çalışma ile Orta Doğu Teknik Üniversitesi'nde çalışanlar ile 100. Yıl semtinde yaşayan orta yaş ve üstü insanların internetten sağlıkla ilgili araştırma yapma davranışları incelenmektedir. Özellikle, demografik ve diğer faktörlerin sağlık bilgisi arama üzerine etkisi, aranan sağlık bilgisi çeşitleri, bulunan bilgilerin değerlendirilişi ve hedef kitlenin bilgi güvenilirliği için ölçütlerinin neler olduğu aştırılmaktadır. Veri toplamak için kesitsel çalışma

yapılmıştır. Kişisel doldurulacak olan anketler kullanıcılara doğal ortamlarında doldurmak üzere dağıtılmıştır. Toplamda 248 adet anket toplanmıştır. Bulgular göstermektedir ki orta yaş ve üstü insanların internet sağlıkla ilgili arama yapmakta, özellikle belirli hastalıklar hakkında bilgi edinmeye çalışmaktadırlar. Bu bilgileri herhangi bir uzmana gitmeden kendilerini tedavi etmek için kullanmaktadırlar. Sağlık durumunun kötü olması ve internet becerileri arama davranışı ile bağlantılıdırlar. Katılımcılar çoğu internet buldukları sağlıkla ilgili bilgilere güvenmektedirler ancak herhangi bir uzmanla bu bilgileri paylaşmamaktadırlar.

Anahtar Kelimeler: Online Sağlık Bilgileri, Bilgi Arama, Orta Yaş İnsanlar, Yaşlı İnsanlar

To my nephew YiĞit KAŞIKÇI and my own ...

ACKNOWLEDGMENTS

I am greatly appreciative to my advisor Prof. Dr. Nazife Baykal for her guidance and support throughout my study.

I would like to express my deepest gratitude to my father Yaşar ÇAKIR, mother Gülümser ÇAKIR, sisters Neslihan KAŞIKÇI and Belma ÇAKIR who always encouraged me with their love, understanding, patience, and emotional support. They always gave me the courage and strength I needed to achieve my goals.

I would like to also thank the TUBITAK-BIDEB for financial support during my master education.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

AHA	: American Heart Association
HON	: Health On The Net Foundation
METU	: Middle East Technical University
NIH	: National Institute of Health
OHI	: Online Health Information
WHO	: World Health Organization

CHAPTER 1

INTRODUCTION

For years, internet has been influencing and indwelling into the people's daily life. As the time passes, internet has allowed societies to move from "interactive communication" to "mass communication" (Chamberlain, 1996). Moreover it has provided information available continuously and immediately. It is now possible to access huge amount of and many different information sources. Another major contribution of internet is that seeking information is not done by only librarians anymore because anyone who has required surfing skills can surf on the web. Consequently, its effects on public were inevitable.

In Turkey, people have adopted to internet very quickly. According to the Annual Business Economic and Political Review of Turkey, "Turkey has the 11th-largest population of internet users" (Group, 2009) and 54.4% of these users go online for searching specific information (Haber, 2010).

As it is stated, internet has been used as an information source in daily life on many aspects as well as health care. Consumers actively benefit from internet for health related purposes. According to the results of the recently conducted nationally representative surveys, 80% of internet users in USA go online for and search actively for health-related information and reports from United Kingdom show that by 2020, 37% of the United Kingdom population will use the internet in order to

access online health information (Kinnane & Milne, 2010). Just like populations of these and more other countries, Turkish people have turned to internet for their health care which is the motivation behind this study. This study was shaped around this phenomenon and designed to understand the health information searching habits of people who live in Turkey. “Health information search” term covers searches for finding information about an illness, treatment, medicine (prescription or alternative), alternative treatment, a clinicians or hospital, current health issues, nutrition, exercise, patient support groups and forum. In order to meet the objective of the study, employees in Middle East Technical University and residents from 100. Yıl over 44 years old were applied a questionnaire and results were analyzed.

In this chapter, brief information is given about the technology that was evaluated through this study. Following, purpose and significance of the study is presented with findings of the study.

1.1 Health related internet applications

Health related internet applications can be collected under three topics **(Eysenbach G. , 2003; Eysenbach, 2005)**: Content, Community and Communication. The mediums included in community and communication application will not be discussed in this study.

- **Content:** This application stands for searching for any health-related information on the internet. Most common health topics that consumers search on the internet include prescription drugs, alternative medicines or experimental treatment, nutrition, exercise, health or medical products, health insurance policies, illness or medical condition, information about a doctor, a hospital, a nursing home, a home health agency, or other health care provider, news about health policy issues, current health topics, mental health issues and illegal drugs (Baker, Wagner, Singer, & et al., 2003; Escoffery et al., 2005; Fox, 2006; Taha, Sharit, & Czaja, 2009)

- **Community:** In addition to health information, for individuals, internet provides chat rooms, conferences (**Hanifa, Readb, & Goodacrec, 2009),** newsgroups, support groups, list serves **(Yan, 2010)** online in patient communities and makes "long-term ongoing support" possible among patients who suffer from same diseases or medical problems.
- **Communication:** Health care givers can also follow their patients' status, give online feedback and counseling if necessary **(Glasgow, Boles, & Vogt, 1999; Jerome, James, Folen, Earles, & Gedney, 2000)**. Beside, e-patients can contact with health care professionals by email or instant messaging technologies. By this way, consumers become more knowledgeable about their situation and are able to participate actively to treatment process **(Greene, Appel, Reinert, & Palumbo, 2005)**.

1.2 Health-related Websites and Interactive Health Communication

Health related websites has been advanced and accepted as one of the most popular "interactive health communication" media which allows public to access health-related information such as chat rooms, list serves, kiosk machines, emails, online services and world wide web. Consequently, online health information has been giving opportunity to consumers and health care professionals for "interactive health communication" approach (Robinson, Kevin, Eng, & Gustafson, 1998). In the literature, interactive health communication was defined as interaction between an individual (consumer, patients, health care professional) and electronic tool which allows:

- access to and transmission of health-related information
- obtaining guidance and support on a health-related problem (Robinson, Kevin, Eng, & Gustafson, 1998; Eng, Maxfield, Patrick, Deering, Ratzan, & Gustafson, 1998)

Interactive health communication media combine mass communication and interpersonal elements due to its own characteristics such as: interactivity, multimodality, networkability, availability, cost and ease of use temporal (Street & Rimal, 1997). These characteristics increase the effectiveness of interactive media for health promotion and enable achieving general goals of health communication (Street & Rimal, 1997) which are given as:

- provide individualized health information on demand
- enable informed decision-making
- promote healthy behaviors
- promote peer information exchange and emotional support
- promote self care
- manage demand for health services (Eng & Gustafson, 1999)

As the interest in self-care grows, interactive health communication applications will be used widely because consumers can search for information in order to solve their health problems with a health care professional's assistance or during the medical decision making process about a treatment. This study is interested in general health-related websites rather than specific interactive health communication systems or applications.

1.3 Purpose of the Study

The purpose of this study was to improve understanding of how middle aged and older people who are older than 44 years old search for health information on the internet. A cross-sectional survey questionnaire was applied to middle aged and older people among Middle East Technical University employees and 100. Yıl residents to obtain information about their health-related searching behavior and five research questions were developed through this purpose. Answers of these questions will clarify health-related searching behavior of participants. The research questions are as followed:

1. What are the social and demographic differences among middle aged and older people's use of online health information-seeking behavior, including gender, age, education level, employment status and monthly salary?
2. What types of health information are do middle aged and older people seeking online?
3. How do middle aged and older people search the Internet to obtain health information?
4. How do middle aged and older people utilize and assess the health information found online?
5. What factors affect middle aged and older people in terms of reliability?

1.4 Significance of the Study

Health-related websites have gained popularity increasingly and accepted as an effective interactive communication medium in Turkey, there are not enough studies to identify health–related information seeking behavior of middle aged and older people in Turkey. This study can contribute to the existing literature in this manner.

There are many studies that investigated the prevalence of internet use for health-related purposes among European Union and North America populations (Gauld & Williams, 2009). Australia-New Zealand (59% of 255 participants) (Gauld & Williams, 2009), Greece (Delic, Polasek, & Kern, 2006), Singapore (37, 7% of 1852 participants) (Siow, et al., 2003), Hong Kong (44% of 443 participants) (Yan, 2010) and Croatia (Bamidis, Kerassidis, & Pappas, 2005) are other countries that studies with same purpose were conducted. However, there is not many theoretical research to understand and examine the use of internet and health-information seeking behaviors of Turkish citizens.

Moreover, today's middle aged and older people who use internet for health-related purposes will use it for the same purpose in later years. In different meaning, a population of elderly internet users that cannot be underestimated is proliferating. Addressing the needs of this population in term of health related internet searches is

vital because in later ages they probably will need more support and source for health problems. For that reason, the authorities, health administrates and even web site developers shall learn about the behaviors of middle aged and older people's during online health information search.

1.5 Findings

Majority of the participants went online for health related searches especially the females. People who have higher education, higher income and higher computer skills are more likely to search for online health information just like the ones who spend more than on the internet and have personal or family health problems. They mostly search for specific disease and treatment not only for themselves but also for the ones they love and care. Search engines are used most while starting search. Even though online health information searchers share their findings with their family or friends, very little discuss their findings with a health care provider. Online health information improves consumers' understanding of health situation and helps them to discuss about their health with health care providers. Although internet is the first source that they turn to for health related information, results showed that health care providers have more influence on health related decisions.

CHAPTER 2

LITERATURE REVIEW

This chapter provides a review of the pertinent literature regarding to the research questions and is divided into five sections: literature review concerning 1) health information seeking on the internet 2) general characteristics of online health information seekers 3) quality of online health information 4) effects of online health information on seekers and 5) related studies conducted in Turkey.

2.1 Health Information Seeking and the Internet

Health information-seeking behavior which is a kind of interactive health communication involving consumers and health care providers (Robinson et al., 1998) is defined as "*as verbal and nonverbal messages ascertained via everyday interaction, either purposeful or serendipitous, by members in a self-defined network, that serve not only to reduce uncertainty regarding health status, but also to construct a social and personal (cognitive) sense of health "* (Tarda & Hale, 1998) in the literature.

The Internet has almost become a common and attractive tool for health information-seeking purposes (Cotten & Gupta, 2004). In addition to the immediate satisfaction related with finding quick answers to health related concerns, easy and secure accessibility, low cost, availability anytime and the immediate satisfaction related with finding quick answers to health related concerns makes online health information so popular and attractive for consumers (Wagner, Baker, Singer, & Bundorf, 2004)**.** Moreover, internet provides consumers (Robinson, Patrick, Eng, & Gustafson, 1998)**.**

- Anonymity
- Information in different formats like graphic, audio, text
- Updated and current health information for each individual's needs
- Professional support for health related problems
- Access to decision support tools or pharmacies

Consumers are turning to the internet in order to access more health information to increase their knowledge about their illness, treatment options and arm themselves about health improvement strategies (Cotten, 2001; Kalichman, 2002; Baker, Wagner, Singer, & Bundorf, 2003; Kivits, 2009) For health care providers, accessing to medical information is the primary aim (Greene, Appel, Reinert, & Palumbo, 2005). On the other hand, Bennett et al. (2004) reported information mass in the internet "overwhelmed" health care providers. In spite of this situation, approximately half of the health care providers went online to learn about latest researches and obtaining information about a disease and specific patient problem (Bennett, Casebeer, Kristofco, & Strasser, 2004).

Many studies have investigated the use of the Internet for health related information surfing (Butdz & Witt, 2002; Baker, Wagner, Singer, & Bundorf, 2003; Flynn, Smith, & Freese, 2006). According to the results of Pew Internet & American Life Project, approximately 113 million Internet users used internet as a source for health information (Fox, Online health search 2006, 2006). In 2005, there were more than 1 billion internet users worldwide and in 2011 this number is expected to be more than

2 billion (Taha, Sharit, & Czaja, 2009) which will result in increased number of online health information searchers. Studies already showed that number of people who gather health information via the internet grows continuously. Approximately 40% of the North America and European Union countries residents accessed health information through internet (Baker, Wagner, Singer, & Bundorf, 2003; Beckjord E, Squires, Arora, Volckmann, Moser, & Hesse, 2007; Valimaki, Nenonen, Koivunen, & Suhonen, 2007)

Fox and Jones (2009) reported that, 61% of 2,253 internet users searched for online health information and these users are called as "*e-patients*". Majority of this population accesses to blogs or personal websites of other people who suffer from any kind of health problem and reads experience or comment of these people (Fox & Jones, 2009).

Search engines are the first source for obtaining online health information (Eysenbach & Kohler, 2002; Escoffery, Miner, Adame, Butler, McCormick, & Mendell, 2005; Fox, Online health search 2006, 2006; Ybarra & Suman, 2006) One of the most popular search engines produces billions of results for ''health'' keyword (Ybarra & Suman, 2006; Hanifa, Readb, & Goodacrec, 2009) However, a study showed that, minority of the links (less than one quarter) that are generated on the first page of a search engine directs the searcher to the relevant content (Berland GK, Puyol, Lara, Watkins, Yang, & McGlynn, 2001) and, unfortunately, searchers examine only first few website links after using a search engine (Eysenbach & Kohler, 2002). Beside, Eysenbach and Kohler (2002) reported that participants who used search engines to get answers their health related questions rarely remember the URL address or title of the websites they used as online health information source**.** This situation has a potential risk because online health information is open to anyone who has computer literacy and access to internet and it is possible that this information is provided or published by anyone who has the required skills to build a website whether they were expert in medical area or not . (Gauld & Williams, 2009)

2.2 Characteristics of Online Health Information Seekers

Literature gives a lot about characteristics of online health information searchers. van Uden-Kraan and colleagues (2009) reviewed related studies and reported that *"patients who use the Internet for health-related reasons were younger, were higher educated, had a higher income, and were more often employed"*. Other than these, many characteristics are discussed in the literature.

2.2.1 Age

Studies showed that there is a linearly proportion with young age and online health information seeking behavior (Satterlund, McCaul, & Sandgren, 2003; Sabel, et al., 2005; Bass, Ruzek, Gordon, Fleisher, McKeown-Conn, & Moore, 2006; van de Poll-Franse & van Eenbergen, 2008; Fox & Jones, The social life of health information, 2009; Yan, 2010)**.** According to the results of a survey, only %21 of 65 years old and above Americans use internet to access health information (Voelker, 2005) which is a very small number compared to young searchers. Young people are more willing to use internet for health related purposes. They do not only search information on the net but also join support groups and communicate with health care provider actively. Mostly sought health topic by young people is "diet/nutrition" (Hanauer, Fortin, Dibble, & Col, 2003) whereas elders mostly search on specific illness or medical conditions (Taha, Sharit, & Czaja, 2009)

Since elderly people do not have internet access as much as young people, (Fox, Digital divisions, 2005) they can not benefit from technology and its services although they are the ones who need health-related services and information most because of increasing health problems (Taha, Sharit, & Czaja, 2009). For the ones who had access to internet but never used it the reasons were *"never having learned how to do"* or *"it's too complicated"* **(**Rideout, Neuman, Kitchman, & Brodie, 2005)**.** As a result, using internet and finding health-related information is another problem for older people (Morrell, Mayhorn, & Echt, 2004).

Although the gap between younger and older health information searchers was expanded by the time (Lorence & Park, 2006), it is indicated that older people were tend to use internet as source of health information (Campbell & Nolfi, 2005) if the necessary support and training were given (Chang, 2004) (Ernest & Shanthi, 2004).

2.2.2 Gender

Based on the results of related studies, it can be concluded that females use internet more than males in order to access to health related information (Baker, Wagner, Singer, & Bundorf, 2003; Cotten & Gupta, 2004; Escoffery, Miner, Adame, Butler,

McCormick, & Mendell, 2005; Fox, Online health search 2006, 2006; Ybarra & Suman, 2006; Fox & Jones, The social life of health information, 2009; Gauld & Williams, 2009; Yan, 2010)

2.2.3 Education Level

According to the findings, people with higher education are more likely to search online health information (Baker, Wagner, Singer, & Bundorf, 2003; Satterlund, McCaul, & Sandgren, 2003; Cotten & Gupta, 2004; Dickerson, et al., 2004; Escoffery, Miner, Adame, Butler, McCormick, & Mendell, 2005; Kalichman, Cain, Cherry, Pope, Eaton, & Kalichman, 2005; Bass, Ruzek, Gordon, Fleisher, McKeown-Conn, & Moore, 2006; Flynn, Smith, & Freese, 2006; van de Poll-Franse & van Eenbergen, 2008; Fox & Jones, The social life of health information, 2009; Yan, 2010).

2.2.4 Income Level

Income level is another characteristic that has effect on surfing online health information. Especially, people with higher family income access to health-related information more than others with low family income (Baker, Wagner, Singer, & Bundorf, 2003; Cotten & Gupta, 2004; Kalichman, Cain, Cherry, Pope, Eaton, &

Kalichman, 2005; Bass, Ruzek, Gordon, Fleisher, McKeown-Conn, & Moore, 2006; Flynn, Smith, & Freese, 2006; Ybarra & Suman, 2006; van de Poll-Franse & van Eenbergen, 2008; Fox & Jones, The social life of health information, 2009; Yan, 2010).

2.2.5 Employment

People working use internet more than ones who do not work as a source for health information (Baker, Wagner, Singer, & Bundorf, 2003; Cotten & Gupta, 2004; Escoffery, Miner, Adame, Butler, McCormick, & Mendell, 2005; Bass, Ruzek, Gordon, Fleisher, McKeown-Conn, & Moore, 2006; Flynn, Smith, & Freese, 2006; Fox, Online health search 2006, 2006; Fox & Jones, The social life of health information, 2009).

2.2.6 Internet Expertise

Just like education level, income level and employment, the more people expert on internet use, the more they search online health information (Ybarra & Suman, 2006).

2.2.7 Health Status

Influence of "health status" on online health information seeking behavior differs according to the researches. Although some indicates that people with fair or poor health status use internet more than others with better health status (Houston & Allison, 2002; Baker, Wagner, Singer, & Bundorf, 2003; Wagner, Baker, Singer, & Bundorf, 2004) some studies sate that there is no correlation between health status and internet use for health (Fogel, Albert, Schnabel, Ditkoff, & Neugut, 2002; Satterlund, McCaul, & Sandgren, 2003; Sabel, et al., 2005).

Other findings related to the characteristics and attitudes of e-patients are as follows: Elderly e-patients are more likely to rate reliability of online health information higher compared to middle aged or younger people (Gauld & Williams, 2009).

Some of the health information seekers are mostly looking for interpretation of the disease information in order to discuss their situation more consciously with their health care providers (Cline & Haynes, 2001). Majority of the e-patients spend about half an hour while surfing on the net for health-related issues (Berland GK, Puyol, Lara, Watkins, Yang, & McGlynn, 2001).

Meanwhile, online health information seekers search not only for their own health related problems but also for the ones that they love or care (Cotten, 2001; Ybarra & Suman, 2006; Kivits, 2009)**.** In a study focus groups were used and it was observed that mothers of children at the development age sought health related information on the net and they mostly used "edu" or "org" extension websites compared to "com" (Bernhardt & Felter, 2004). Moreover, these mothers checked different sources for the same piece of information in order to identify the reliability of the information (Bernhardt & Felter, 2004).

Online health information seekers fail to check the credibility of the online source they used and this is a potential problem of online health information seeking (Eysenbach & Kohler, 2002; Purcell, Wilson, & Delamothe, 2002; Fox, 2006). On the other hand, the likelihood of checking website credentials increased with education level, in other words, higher educated people check source of the website more than lower educated ones. Other than that, most of the consumers use information from health related websites to treat themselves without discussing their findings with a health care provider (Fox, 2006; Ogan, Ozakca, & Groshek, 2008). Less than half of the online health information users share their findings with health care providers. The ones who share their findings with health care provider finds health related information on the net more qualified compared to the ones who do not share (Diaz, Griffith, Ng, Reinert, Friedmann, & Moulton, 2002).

Participants of a study stated that internet allowed them not only to evaluate quality of the information easily by checking and comparing the information on several websites but also to verify what health care providers said which on the other hand cause anxiety (Eysenbach & Kohler, 2002). Same participants noted that they used health-related websites which they had not visited before and none of them looked for information about the owner or supporter of the websites and only small portion could tell the name or supporter of the websites (Eysenbach & Kohler, 2002)

Although Baker and colleagues found that, for the majority of participants seeking health information on the internet does not affect the number of visits or contacts to a health care provider (Baker, Wagner, Singer, & Bundorf, 2003), it is discussed that e-patients assume internet as an alternative to the health care providers and use it to get second opinions for their health problems and this might result in decrease in the number of visits to a health care provider (Leung, 2008).

Briefly, majority of consumers who use internet begins their search using a search engine but minority of them checks the source of the information and date it modified. Although consumers claim that they check the accuracy of health-related online information, it was observed that they do not look for any information about the owner or authors of the website. Such behaviors might be considered risky because several websites contain "inaccurate" and "unreliable" health-related information. Worse than that, consumers do not share their online health-related findings with any health care professional. For that reason, health care professionals shall know what type of health-related information consumers search on the internet and strength their patient-physician relationship.

2.3 Quality of Online Health Information

There is a potential need for health information by consumers and this resulted in increased number of health related websites (Hanif, Readb, & Goodacrec, 2009). Consumers actively use these websites for gathering or sharing information. This situation brings the quality problem about. The quality and reliability of the health

information on the net is online health information still open to discussion (Eysenbach & Diepgen, 1998; Cline & Haynes, 2001; Cotten, 2001; Bernstam, 2004). Escoffery and colleagues (2005) found that the accuracy and credibility of a health related website is fundamental to consumers. Nevertheless, studies showed that consumers continue to trust the Internet as a source for health information. Young individuals were found to trust sources of online health information more than older individuals. Likely, higher educated people trust sources of online health information more than lower educated people (Hesse, Nelson, Kreps, Croyle, Arora, & Rimer, 2005)

Based on the expert literature, many criteria should be come together in other to satisfy the term "quality": Some of those criteria are accuracy, disclosures, completeness, comprehensiveness, coverage, scope, balance, currency, **r**eadability, authorship/expertise, references/attribution and web site design (Pfister, Dutta, & Kosmoski, 2008). Among these criteria, completeness and accuracy of the online helath information seems to vary according to the topic. For instance, in a recent survey, Meadows-Oliver and Banasiak (2010) found that only 6 of 68 websites which were give information about asthma and evaluated through the study contained complete and accurate information. Another low number was given in the study of Minzer-Conzetti and colleagues (2007) such that only 4 of 50 websites contained accurate information regarding infantile hemangiomas. On the other hand, 75.7% of 141 rewieved websites had accurate information about pediatric surgery

(Chen, Minkes, & Langer, 2000) and 72.5% of 40 websites were provided useful information related to pain management of children (Oermann, Gerich, Ostosh, & Zaleski, 2003).

Although online health information does not change number of visits to health care providers, it has effect on consumers' health decision making, especially on treatment of an illness or situation they are in or others they care (Fox & Jones, The social life of health information, 2009). Since there are no certain laws or politics on publishing online health information neither in Turkey nor in other countries, it is

necessary that health care providers should be able to recommend patients and their families the websites that contain accurate information or educate them to realize inaccurate or misleading information. However there are more than 25,000 health-related websites and it is not possible for health care providers to evaluate those websites. Instead, they can check "*web review services*" (Hanif, Readb, & Goodacrec, 2009) which use some sort of guidelines and regularly evaluate quality of websites. There are three commonly used guidelines for evaluation of health-related websites in term of quality and ethics: The American Medical Association (AMA), the Health on the Net Foundation (HON) and Health Internet Ethics (Hi-Ethics) (Edward, 2002). These guidelines give definition of a useful health-related website as (Edward, 2002):

- Gives detailed information about a specific health issue
- Financially unbiased
- Offer secure and accurate health information
- Provide personal anonymity
- Identify sponsorships and advertising clearly

Through this study, the Health on the Net Foundation (HON) guidelines was used because In 102 countries more than 7300 certified websites and 10 million pages use HONcode principles as guidelines and it's the mostly used reference for publishing online health/medical information. HON gives certificate to the websites that satisfy all 8 guidelines of HONcode. According to the guidelines there are three website in Turkey that holds HONcode certificate. Two of these websites are journal websites

and other one is health-related website that gives information about specific health issues and is open to public. Titles of the websites are International Journal of Anatomical Variations, Neuroanatomy and Sağlık-İnfo (HON, 2010). 8 guidelines of HONcode (HON, HONcode: principles , 2010) are listed below:

2.3.1 Authoritative

This is about credentials of the authors. Any health-related information should be only provided by people who got an extended training in the medical field and professional on health area. If the information is given by someone without a medical degree or non-medical organization, this should be clearly explained.

2.3.2 Complementarity

Provided information should not influence patient-doctor relationship adversely. It should support the relationship.

2.3.3 Privacy

Privacy and security of visitors' personal and medical information should be kept. Visitors' personal and medical data should not be used or publish anywhere.

2.3.4 Attribution

If the information on the websites is taken from other sources, references to those sources should be given and, if possible, direct html links should be placed. The information should be updated regularly and last modification date should be displayed clearly.

2.3.5 Justifiability

If benefit or performance of a specific medicine, treatment, commercial service or product is published, website should support those claims by reasonable and objective evidences.

2.3.6 Transparency

Website should be designed in a manner that seekers should find necessary information easily and contact address like, email, telephone or mail address should be provided in case visitors need more information.

2.3.7 Financial disclosure

If any commercial/non-commercial organization supported the website in terms of finance, service or material, this support and identities of the organization should be clearly stated on the website.

2.3.8 Advertising policy

If website owners use online advertising as financial support, this support and a brief description of advertising policy should be clearly explained and displayed. Advertising context should be presented in a different format than health-related context.

The Health on the Net Foundation (HON) conducted a study in 2002 with 2621 volunteer participants who were mainly from Europe and North America. According to the participants including both patients and health care providers, *'accuracy of information'* was fundamental for online health information (Hanif, Readb, & Goodacrec, 2009).

2.4 Effects of Online Health Information

Online health related information diverges in terms of quality/accuracy and health care providers are not familiar with the internet as a potential source (Hanif, Readb, & Goodacrec, 2009)**.** As a result, most of the health care providers avoid directing patients to search health information on the internet (Silberg, Lunberg, & Mussachio, 1997; Aeree & Mee-Kyung, 2001; Meric, et al., 2002; Culver & Chadwick, 2005;

Liu & Liu, 2006; Air, et al., 2007; Caron, Berton, & Beydon, 2007; Gremeaux, et al., 2007; Touchet, J., Yates, & Wilkins, 2007; Yeo, et al., 2007)

Accessing to online health information makes e-patients feel themselves sufficient and robust in managing their own health, feel competent in decision making about specific treatment and discuss about their health easier with their doctors (Bass, Ruzek, Gordon, Fleisher, McKeown-Conn, & Moore, 2006; van Uden-Kraan C. F., Drossaert, Taal, Shaw, Seydel, & van de Laar, 2008; van Uden-Kraan C. F., Drossaert, Taal, Seydel, & van de Laar, 2009)

Taha and colleagues (2009) reported that sharing the information they found on the net with the health care provider not only made participants of their study feel empowered but also improved the quality of conversation between patient and health care provider (Taha, Sharit, & Czaja, 2009). Patients feel empowered because they are able to ask knowledgeable questions to health care providers and have efficient conversations about their health situation. Moreover, they search the information on the net that their doctor provided in order to have a *"second opinion"* (Sciamanna, Clark, Diaz, & Newton, 2003).

Studies showed that, e-patients understand health issues better (Baker, Wagner, Singer, & Bundorf, 2003), take better care of themselves (Fox, et al., 2000), are less anxious (Gustafson, et al., 2002), are more self-efficient after using related online health information.

However, it is a fact that there is a case of e-patients may misunderstand the health-related information they found on the net (van Lankveld, Derks, & Van Den Hoogen, 2006) or may access to incorrect or irrelevant information which may cause to wrong decision or self-treatment (Suarez-Almazor, Kendall, & Dorgan, 2001). For instance, a research by Gordon et al. (2001) reviewed the Internet for *"breast augmentation"* (Gordon, Barot, & Fahey, 2001). According to the results, 83% of the websites were against to a particular surgical technique and among these websites only 15% were selected as suitable for suggesting to patients. There is still a chance that other web sites may mislead patients for that surgical technique.

When the searcher does not have enough knowledge, wrong internet search may cause dangerous and unexpected result both physically and emotionally. In literature there are examples to prove that. For example, a pregnant woman and her spouse made search and found irrelevant information.

Based on this information, they thought that woman will have a pediatric neurosurgeon. In order to deal with the anxiety caused by wrong internet search, they needed to take many counseling sessions (Crocco, Villasis-Keever, & Jadad, 2002). For illustration physical harm, a 55 years old man who suffers from cancer uses a medicine for 4 months which he bought online form a website that uses a medicine. After a while hepatorenal failure occurs and he dies one week later (Crocco, Villasis-Keever, & Jadad, 2002). In addition to these, health care providers have concerns about actively use of health information on the net because this may induce to a delay or hedge of medical intervention or medical care that people need (Cline & Haynes, 2001) (Robinson, Patrick, Eng, & Gustafson, 1998). Beside, even though most of the online health information seekers felt confident of their findings, 18% of them said they felt confused by their health-related findings, 22% felt frustrated when they could not find specific information and 25% felt overwhelmed because of the information mass on the internet (Fox, 2006).

2.5 Related Studies in Turkey

A search was performed by using words "internet, use, health, Turkey" through Medline and National Thesis Center of the Turkish Council of Higher Education. Among the results, there was only was study investigating use of internet and access to online health information through internet. Researchers conducted the study at Faculty of Dentistry, Süleyman Demirel University (Aydın, Öztürk, & Kırbıyık, 2004). 400 outpatients were participated to the study and data were collected via questionnaire. According to the findings of this study, 132 of the participants used internet and 22 % them used internet to seek online health information. Moreover, Aydın and colleagues (2004) reported that male and unmarried students between

ages 15 and 24 were more likely to surf on the net to find health related information compared to their peers. Likewise, married and employed university graduates were more likely to use internet for health information searching between ages 25 and 34 compared to their peers (Aydın, Öztürk, & Kırbıyık, 2004).

CHAPTER 3

METHODOLOGY

Throughout this chapter, the detailed design of the study was covered. Namely, the research methodologies utilized in this study will be summarized. First, the research design and procedure will be explained, then, the proposed data collection instrument was introduced. After instrument, descriptions of participants are provided; data collection procedures and the data analysis are explained in a detailed manner respectively.

3.1 Study Design

This study is a descriptive (cross-sectional) study that assesses the use of the Internet for health information-seeking among 45 years old and older Turkish people. Figure 1 presents the study design in a detailed way. More information about the study design is given below.

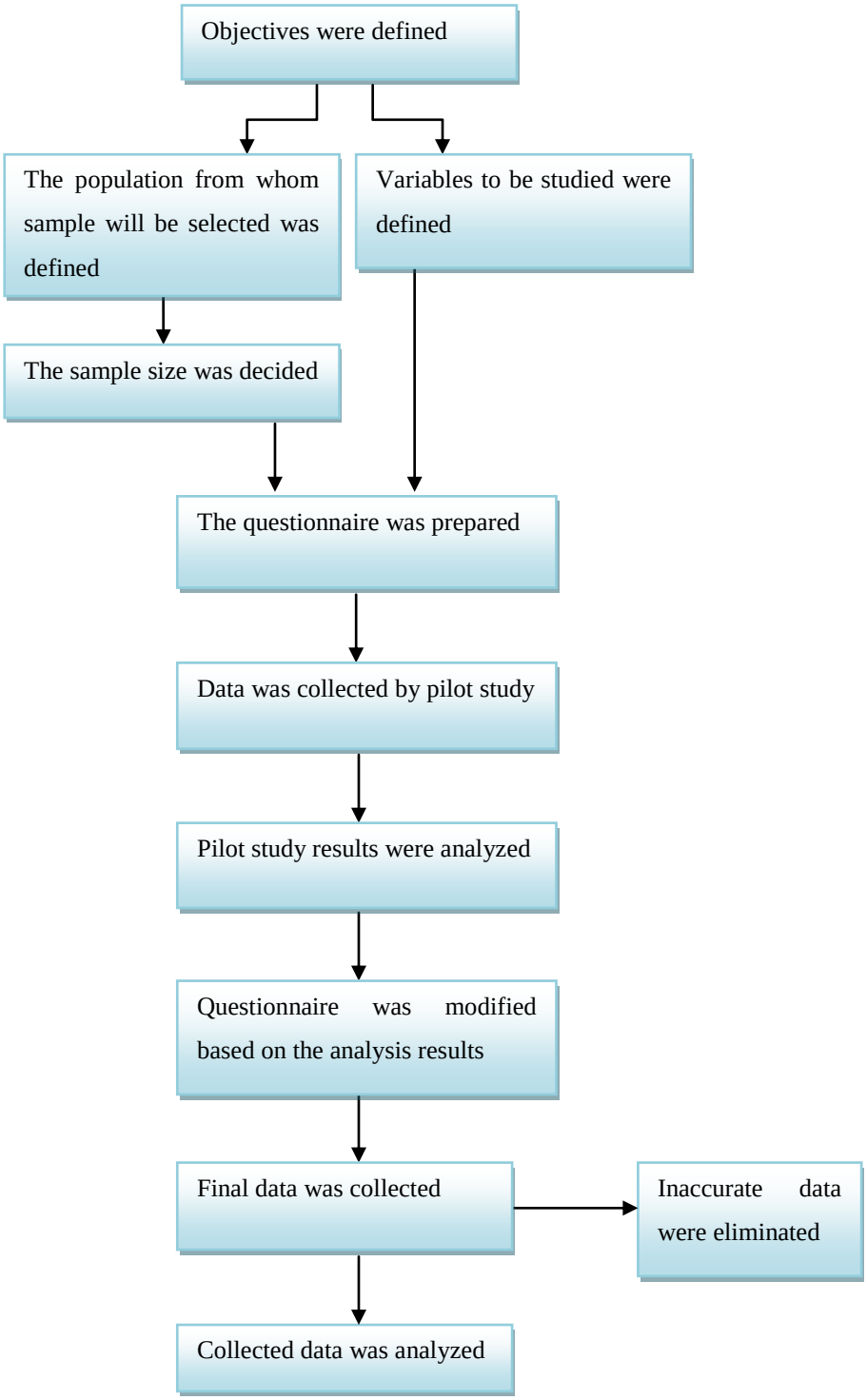


Figure 1. The Study Design

3.1.1 Descriptive Study Approach

Friedman and Wyatt (1997) defined descriptive design as "… seeks only to estimate the value of a dependent variable or set of variables in a selected sample of subjects." (p.78). descriptive studies find acceptance as the first scientific "toe in the water" (Grimes & Schulz, 2002) because most of the times, firstly descriptive study approach is used when the issue is a new event, condition, disease or area of inquiry (Grimes & Schulz, 2002).

Descriptive studies usually focus on features of a new treatment, medicine, disease or assessment of populations' health status (Muntner, Mann, Winston, Bansilal, & Farkouh, 2008; Schaefer, et al., 2008; Beiskea, Logebc, Rønningena, & Svenssond, 2009). Figure 2 illustrates the design of a descriptive study. They are also used for planning resources and following new trends in health care technologies by health care managers or administrators (Lasry, Carter, & Zaric, 2010). Clinicians and epidemiology experts, on the other hand, prefer descriptive reports while searching the clues behind the origin of a disease (Panicker, Nagaraja, Kovoor, & Subbakrishna, 2010).

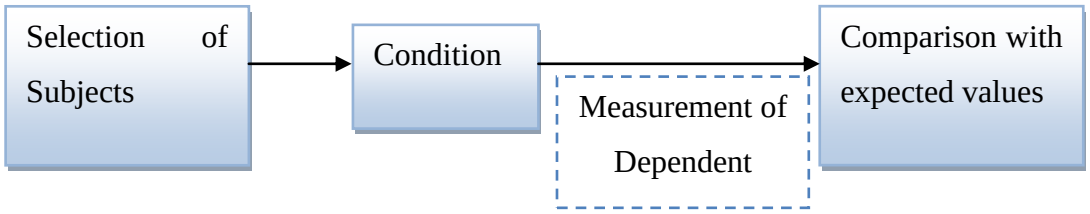


Figure 2. Descriptive study design

Unfortunately, according to the Grimes and Schulz (2002) descriptive reports are often lack of "clear, specific and reproducible case definition" (p.149). Beside, comments made in the reports overwhelm the data sometimes. For that reason, descriptive studies are not used for more niggling studies (i.e. studies with comparison groups). Instead, descriptive studies are often used as a springboard into studies requires more details (Grimes & Schulz, 2002).

Descriptive studies might seem simple however they can be greatly instructive and helpful (Friedman & Wyatt, 1997). To illustrate, a study that conducted by Teach and Shortliffe (1981) demonstrated health care professionals' attitudes toward medical decision support has significant impact on the related research area and cited in a large amount of articles.

3.1.2 Types of descriptive studies

Descriptive studies are divided into two groups according to the subject type: individuals and population. The studies that target are individuals are case report, the case-series report, cross-sectional studies, and surveillance (Mullner, 2009). Studies that examine populations are ecological correlational studies (Hennekens & Buring, 1987). Detailed information about case report, the case-series report and surveillance and ecological correlational studies is given below:

- **Case report:** In the literature, case reports have been published rarely. In general, a clinician explains abnormal infection or disease and relationship that he observed. Finally, this explanation forms a basis for more rigorous studies (Grimes & Schulz, 2002).
- **Case-series report:** In a case-series report, more than one cases are combined just in one report. Occasionally, some cases can be similar and this situation usually accepted as an epidemic portent (Grimes & Schulz, 2002).
- **Surveillance:** Surveillance is one of the essential descriptive study types. In a manner, surveillance is explained as the observing and keeping a watchful eye upon society or population. Feedback is the fundamental feature for surveillance, especially preventing of the problem and control of the problem are essential in the feedback loop (Grimes & Schulz, 2002).
- **Ecological correlational studies:** Ecological correlational studies deal with population and search the relationship between the outcomes and exposures in communities (Hennekens & Buring, 1987).

3.1.3 Cross-sectional (prevalence) studies

In this study cross sectional approach was followed due to its own features and advantages.

Cross sectional or prevalence studies are used to explain communities' health situation by addressing 5W questions: who, when, where, what, why (Grimes & Schulz, 2002). In a cross sectional study, researcher begins with a question and then decide on the population and variables to study (Mullner, 2009).

Mullner (2009) indicates that in cross sectional studies exposures and outcomes are found out at the same time, "at a single point in time" either from the whole community or from a sample (p.266). Due to this, cross sectional studies are cost saving, fast and designed to figure out prevalence of disease or proportion of a population at risk, etc (Rothman, 1986). In addition to identifying prevalence, cross sectional studies are used to present the associations and compose inference (Mullner, 2009).

Since cross sectional studies can be conducted in small populations, they present a general picture of the whole population (Rothman, 1986).

3.2 Instrument Development

The instrument was designed based on the existing surveys such as PEW Internet and Life Projects: The Online Health Care Revolution (Fox, et al., 2000) and Online health search (Fox, 2006) and studies of Yan (2010), Taha and colleagues (2009). Not only questions from these surveys were modified, but also new questions were designed for the instrument. Table 1 gives the list of modified questions and sources:

Table 1. List of modified items and sources

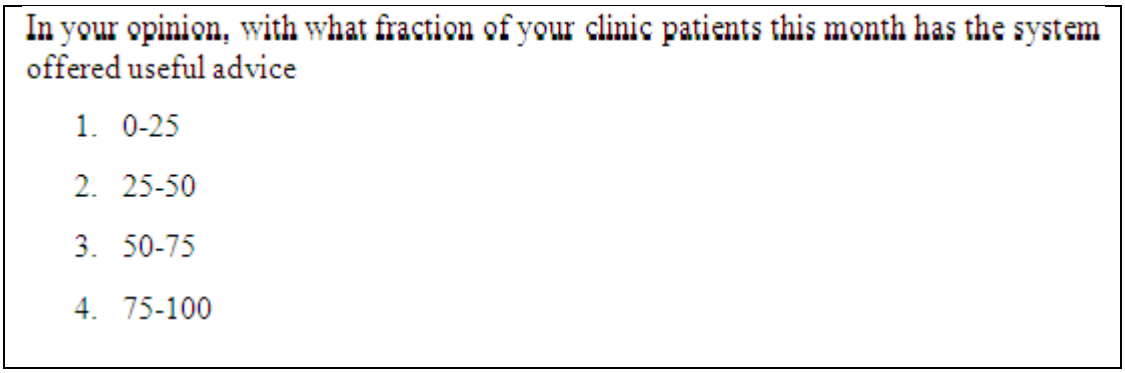
Item Number	**Source (Modified from)**
Item 6	(Fox, 2006)
Item 7	(Fox, 2006)
Item 8	(Yan, 2010)
Item 10	(Fox, 2006)
Item 19	(Fox, et al., 2000)
Item 20	(Fox, et al., 2000)
Item 21	(Taha, Sharit, & Czaja, 2009)
Item 22	(Fox, 2006)
Item 23	(Fox, 2006)
Item 26	(Fox, et al., 2000)
Item 30	(Fox, 2006)
Item 32	(Fox, et al., 2000)
Item 33	(Fox, et al., 2000)

During the development process of the study instrument, some sorts of methods were followed in order to minimize measurement errors. A copy of the study instrument for METU employees can be found in Appendix A and for 100. Yıl residents in Appendix B.

To begin with, each item in the instruments was made as specific as possible. If the participant get the correct information from instrument, understand what the question asks for and what the options mean accurately, than consistency of the results increases (Friedman & Wyatt, 1997). For this reason, each item was read by a target participant and after pilot study items and options were modified that were ambiguous or confused.

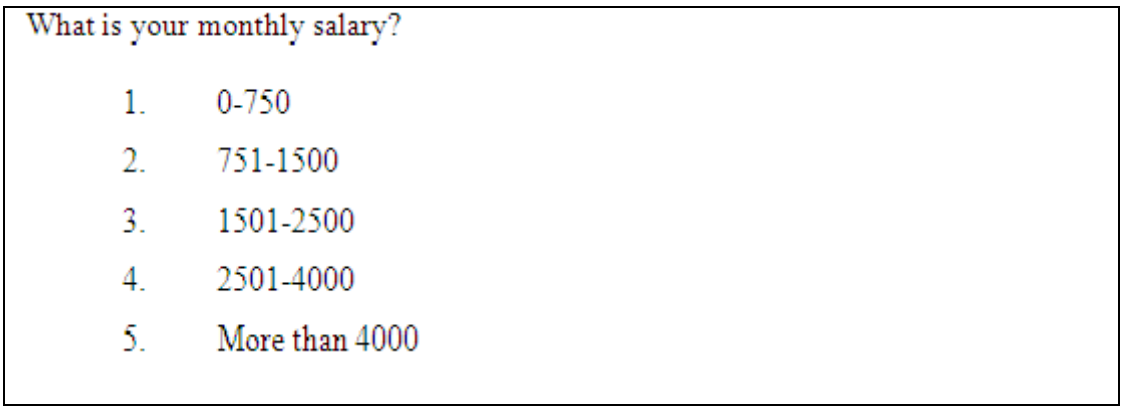
For the options that require an estimation or rating, reasonable quantities were offered in the answer options. For the options that ask for the strength of a belief, suitable format was used to offer participants appropriate stems like “strongly disagree” to “strongly agree”.

For the options which are consist of numerical ranges, edges of the response ranges did not overlap such as in the example in the Figure 3 (Friedman & Wyatt, 1997):


In your opinion, with what fraction of your clinic patients this month has the system offered useful advice

1. 0-25
2. 25-50
3. 50-75
4. 75-100

(A)


What is your monthly salary?

1. 0-750
2. 751-1500
3. 1501-2500
4. 2501-4000
5. More than 4000

(B)

Figure 3. (A) Numerical range with overlap. (B) Numerical range without overlap.

In this figure (A), for the participants whose answer is 50 there are two options possible because of the overlap: 2 and 3. However, a good instrument shall offer just one correct option for participants (B) unless more than one answer is asked.

In order to guide user and prevent confusion, related explanations were written if necessary. For example, if the items requests only one answer, an explanation like "Please only check one" and for the ones that more than one option can be selected "Please check all that apply" expiation was written at the end of the question: Examples are given in the Table 2.

Table 2. Questions with necessary explanations

From where do you mostly connect to internet in the last 12 months? (Please only check one) 1. Home 2. Work 3. Public places (library, internet cafe, etc.) 4. Other (Please indicate): ……..
For whom do you seek online health information? (Please check all that apply) 1. Myself 2. My child/children 3. My parents 4. My friends 5. My husband/wife 6. My relatives 7. Other (Please indicate): …….

Number of response options was mostly limited between 2 and 7. In the study instrument, among 36 items, only 5 were out of this limitation. 1 question has 9 response options, 2 questions' answers were free from text (like age) and two questions ask participants to select most important 3 options among given ones.

Number of response options is important because inappropriate number may cause misleading results (Friedman & Wyatt, 1997). Generally, upper limit is 7 for number of responses (Spector, 1992). 5 options response is the widely used one because it allows respondent to reflect his true belief to the answer.

Halo effects were tried to keep minimum. "Halo effect" deals with human tendency and its effects to overall (Dörnyei, 2008). If somebody had a positive attitude or impression toward something or somebody, he probably would be reluctant to think anything negative about that thing or person. In a questionnaire this situation can affect the result because the respondent will rate all related questions both positively or negatively according to his attitude without reading questions or thinking on them. In the instrument, one question was prepared with a negative meaning and placed among other questions in order to make respondent to evaluate each question separately.

Language of the instrument is Turkish which the native language of the participants is. Since the education level of the participants differs, there was a possibility that everyone do not know English. That is the reason behind developing the instrument in Turkish.

3.3 Sample Selection and Participants

A total of 500 questionnaires were distributed in Middle East Technical University and 100. Yıl neighbourhood. 461 of them were filled (response rate 92.2%). In order to define sample size in a certain confidence level, total number of the employees in METU who are older than 45 years old was needed. However this information was private and confidential and obtaining requires huge amount of formality. Consequently, in this study, sample size was kept as large as possible and samples were kept as different as possible. Participants from Middle East Technical University were all employed in the university campus. Their job description was asked in the questionnaire and the options were "Academic staff", "Administrative staff", "employee from subcontractor" and "Other". Academic staff stands for the

ones who have one of research assistant, doctor, associate professor, assistant professor or professor degrees and teach in Middle East Technical University. Administrative staff stands for the ones who are responsible from the management of nonacademic business and work at related units such as graphic design unit, student affairs, public relations, academic accrual, administrative accrual, computer center, medical center, accountancy and dormitories. Employee from subcontractor stands for the employees who are hired by a company and work at Middle East Technical University. These employees are not under responsibility of the university and work at library and cleaning unit. For 100. Yıl residents, their employment status were asked. The common inclusion criteria were age (over 45).

Purposive sampling (Babbie, 2007) was used to select study sample. Samples were selected on the basis of criteria being over 44 years old. There are many cross sectional studies in the literature with purposive sampling (Kington & Short, 2010; Liu, Fu, Wang, & Xu, 2010; Somanchi, Juon, & Rimal, 2010) and this study was appropriate for applying this sampling technique.

3.4 Data Collection

Before collecting main data, a pilot study was conducted. Pilot study has many advantages for the main study. First of all, it helps to understand and check whether the proposed methodology is appropriate for the main purpose or not (Gordon, McMahon, Finlayson, Gippel, & Nathan, 2004). Secondly, if any revise is needed for the instruments, pilot study exposes the needs or necessary changes. Thirdly, pilot study trains the researcher in data collecting and sample selecting. It is feasible to cover the problems in the pilot study phase (Gordon, McMahon, Finlayson, Gippel, & Nathan, 2004). On the other hand, if a pilot study had not been conducted, it will be more difficult, even expensive to solve raised problems.

For the pilot study, 18 middle aged people who are Middle East Technical University employees were used to collect data during May 2010. The inclusion criterion was being older than 45 years old for the pilot study. In the pilot study, used instrument

consisted of 40 questions. Questionnaires were distributed to participants in their workplace and collected right after they completed. It took minimum one minute, max 6 minute to complete the questionnaire (average 3.5 minutes). All of the participants were volunteers. Demographic profile of pilot study participants are given in the Table 3.

Table 3. Demographic profile of pilot study participants

Item	**(N=18)**	
Age	48 ± 2,8	
Gender		
Male	8	(44.4%)
Female	10	(56.6%)
Job Description		
Academic staff	16	(88.9%)
Administrative staff	2	(11.1%)
Employee from subcontractor	-	-
Other	-	-
Education level		
Primary school	-	-
Elementary school	-	-
High school	1	(5.55%)
University	1	(5.55%)
Master/ Ph. D.	16	(88.9%)
Other	-	-
Monthly Salary(TL)		
0-750	-	-
751-1500	1	(5.55%)
1501-2500	1	(5.55%)
2501-4000	14	(77.8%)
<4000	2	(11.1%)
Total	**18**	**(100%)**

Based on the results and comments of participants, some questions were modified, some of them were eliminated and some new questions were added. The final instrument was consisting 36 questions. 500 participants participated to the study voluntarily between June 2010 and August 2010. Data was collected from individuals who were greater than and equal to 45 years old. Just like in the pilot study, questionnaires were collected as soon as the participants completed. The main advantage of this strategy is immediate intervention to any obstacle and decrease in missing data. However, some of the questionnaires were filled inaccurately such as participant selected more than one response option although question requests only one option. Figure 4 explains the number of excluded questionnaires and reasons behind the exclusion.

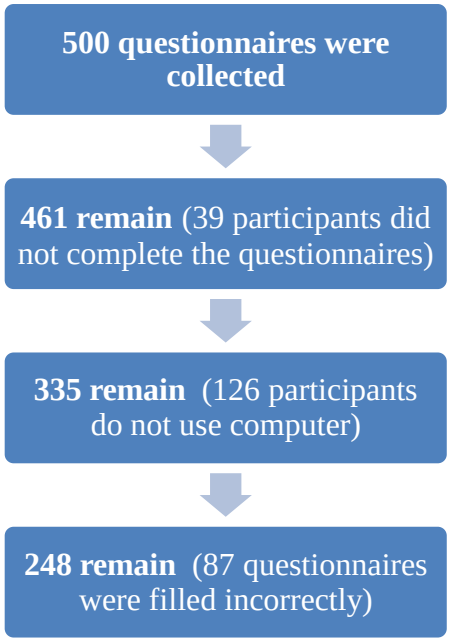


Figure 4. Questionnaire exclusion process

At the end, there were 248 questionnaires appropriate for the analysis. It took at least one minute, at most 30 minutes to complete the final questionnaire (average 5.6 minutes). The ones who participated in the pilot study did not take place in the main study and collected data in the pilot study was not used in the final analysis.

3.5 Ethics Clearance

The study requires human participants in the data collection phase. For this reason, an application for an ethics approval for research involving human was needed. The ethics clearance of the data collection was approved by Practical Ethics Research Board at the Middle East Technical University (Appendix C)

3.6 Data Analysis

Before starting data analysis, a reliability analysis was performed for the data collection instrument. Reliability refers to the consistency and stability of the results (Xu, Tjoa, & Chaudhry, 2007). Reliability analysis turns an alpha Cronbach's alpha value. If this value is between 0.7 and 0.9, it means that the instrument is highly reliable. After performing reliability analysis, the Cronbach's alpha was calculated as 0,682 for this study. There are two reasons behind this result; first, the study aim to collect general information about participants' searching habits, the aim is not to measure attitude toward online health information and developing a scale. Second, every question in the study instrument collects different data and they are all different construct on their own. High reliable questionnaires guarantee getting same result when using same research technology to measure the same object. As it is stated before, this study does not aim to "measure" anything, only aims to have an opinion about searching behaviors. Moreover, since the topic is health, opinion of subjects can change anytime. To illustrate, one of the participants said that he had never search for health related information until six months that he had a medical surgery. Because of this reasons it was thought that questionnaire was appropriate for study although the Cronbach's alpha was under value of 0.7.

SPSS for Windows 15.0 was used for data analysis process. Descriptive statistics were presented as mean and ± standard deviation for continuous variables such as age. For categorical variables such as gender, frequency (n) and percentiles (%) were presented as descriptive statistics. Significance of the mean difference between

groups was evaluated by Student’s t test when number of independent group was two. Significance of difference between more than two groups was evaluated by One-Way ANOVA. Pearson Chi-square or Fisher's exact test were used in order to investigate categorical variables. Significance of the mean difference between groups for ordinal variables was evaluated by Mann Whitney U test when number of independent group was two. Significance of difference between more than two groups was investigated by Kruskal Wallis test. For the cases that Kruskal Wallis test statistic result is found significant, conditions that cause the difference were determined by non-parametric multiple comparison tests. Results were accepted as statistically significant for results $p<0.05$.

CHAPTER 4

RESULTS

General demographic characteristics of the sample were given in the methodology part. The average age of respondents is 52.88 years (SD= 5.5; range 45-68). A majority of the sample consists of women (52.0% versus 48.0%). Education level of participants varies between elementary school and master/Ph.D. Majority of the participants has a high schoolor collage degree (38.7% and 26.2% respectively). 161 of participants or their family members (children, spouse, and parents) suffer from a chronic illness (64.9%).

Health status of participants can be evaluated as well because most of them rated their health good (39.9%). Frequency of visits to clinicians is mostly in range 1-5. 93 participants visited their clinicians 1-2 times and (37.5%) 68 of them visited 3-5 times (27.4%) in the past 12 months. Mostly rated monthly income was 1501-2500 TL with 86 participants (34.7%). 9.7% of participants have monthly income between 0-750 TL, 19.4% of them have between 751-1500 TL, 25.8% have 2501-4000 and 10.5% have more than 4000 TL monthly income. Monthly income states for the earning of only the participant's, not the whole family's.

Participants use computer and internet very actively. Approximately all of the participants have computer at home (95.6%). 128 of them share the computer with other family members (51.6%). 109 of them, on the other hand, have their own computer and do not share it with anyone else (44.0%). 25.4 % of participants stated that they use internet between 10-20 hours and 21.8% of them stated this frequency as more than 20 hours in a week.131 participants connect to internet from work (52.8%) where as 115 of them connect from house (46.4%). Minority of participants rated their internet use skills as very poor (1.6%) and very good (9.3%). Finally 151 of 248 participants (60.9%) stated that they browsed the internet to make health-related search in the past 12 months. Table 4 and Table 5 illustrate the given information.

Table 4. Demographic profile of main study participants

Item	N=181
Age	52.9±5.5
Gender	
Female	129 (52.0%)
Male	119 (48.0%)
Education level	
Elementary school	14 (5.6%)
High school	96 (38.7%)
University	65 (26.2%)
Master/ Ph. D.	58 (23.4%)
Other	15 (6.0%)
Chronic illness existence	161 (64.9%)
Health status	
Very poor	17 (6.9%)
Poor	31 (12.5%)
Fair	67 (27.0%)
Good	99 (39.9%)
Very good	34 (13.7%)
Frequency of clinician visit during last year	
Never visited	42 (16.9%)
1-2 times	93 (37.5%)
3-5 times	68 (27.4%)
More than 5	45 (18.2%)
Monthly Income (TL)	
0-750 TL	24 (9.7%)
751-1500 TL	48 (19.4%)
1501-2500 TL	86 (34.7%)
2501-4000 TL	64 (25.8%)
>4000 TL	26 (10.5%)

Table 5. Computer and internet use profile of participants

Item	N=181
Computer ownership status at home	
No computer at home	11 (4.4%)
Have shared computer at home	128 (51.6%)
Have own computer at home	109 (44.0%)
Internet use frequency (per week)	
Less than 1 hour	24 (9.7%)
1-5 hours	57 (23.0%)
6-10 hours	50 (20.2%)
10-20 hours	63 (25.4%)
More than 20 hours	54 (21.8%)
Place mostly connected to internet from	
House	115 (46.4%)
Work	131 (52.8%)
Internet use skills	
Very poor	4 (1.6%)
Poor	37 (14.9%)
Fair	100 (40.3%)
Good	84 (33.9%)
Very good	23 (9.3%)
Browsing the internet to make health-related search	
No	97 (39.1%)
Yes	151 (60.9%)

The average age of online health information seekers is 53.1 (SD: 5.8). Significantly, majority of the online health information seekers are female (70.5% versus 50.2% respectively; $P<0.001$). For education level, it is significant that online health information seekers have mostly university or higher education level (73.8% and 82.8% respectively; $P<0.001$). The ones that suffer from a chronic illness or have

relatives in the first remove that suffer from chronic diseases seek online health information more than the ones that are not chronically ill (66.7% versus 58.8%). Health status has significant effect on seeking behavior. Majority of the seekers have a fair, poor and very poor health status significantly (85.1%, 67.7% and 64.7% respectively; $P<0.001$). Just like health status, frequency of visits to clinician significantly associates with information search. 113 participants reported that they visited their physician three or more times in the last 12 months and 82 of them are online health information searchers ($P<0.001$). Among 151 online health information searchers, 55 of them have more than 2500 TL income monthly ($P<0.001$) which is also statistically significant. Table 6 gives the related percentages and numbers.

58.9% of online health information searchers have personal computer ($P<0.001$). 60.9% of searchers spend more than ten hours on internet per week ($P<0.001$). 98 of 151 searchers connect to internet from work mostly ($P<0.001$). Among participants who stated that they are good at internet use, 80.9% of them are online health information searchers ($P<0.001$). Effects of computer and internet use to searching were given by Table 7.

Table 6. Association with demographic profile and online health information searching

Item	Non Searchers (n=58)	Searchers (n=123)	p
Age	52.5±5.1	53.1±5.8	0.427[a]
Gender			<0.001[b]
Female	38 (29.5%)	91(70.5%)	
Male	59 (49.8%)	60 (50.2%)	
Education level			<0.001[b]
Elementary school	8 (57.1%)	6 (42.9%)	
High school	51 (53.1%)	45 (46.9%)	
University	17 (26.2%)	48 (73.8%)	
Master/ Ph. D.	10 (17.2%)	48 (82.8%)	
Other	11 (73.3%)	4 (26.7%)	
Suffering from chronic illness			0.170[b]
No	68 (41.2%)	93 (58.8%)	
Yes	29 (33.3%)	58 (66.7%)	
Health status			<0.001[b]
Very poor	6 (35.3%)	11 (64.7%)	
Poor	10 (32.7%)	21 (67.7%)	
Fair	10 (14.9%)	57 (85.1%)	
Good	49 (49.5%)	50 (50.5%)	
Very good	22 (64.7%)	12 (35.3%)	
Frequency of clinician visit during last year			<0.001[b]
Never visited	30 (71.4%)	12 (28.6%)	
1-2 times	36 (38.7%)	57(61.3%)	
3-5 times	17 (25.0%)	51 (75.0%)	
More than 5	14 (31.1%)	31 (68.9%)	
Monthly Income(TL)			<0.001[b]
0-750 TL	19 (79.2%)	5 (20.8%)	
751-1500 TL	24(50.0%)	24 (50.0%)	
1501-2500 TL	40 (53.5%)	46 (53.5%)	
2501-4000 TL	9 (14.1%)	55 (85.9%)	
>4000 TL	5 (19.2%)	21 (80.8%)	

a Student's t test, b Pearson Chi-Square test

Table 7. Association with computer and internet use and online health information searching

Item	Non Searchers (n=58)	Searchers (n=123)	p[a]
Computer ownership status at home			<0.001
No computer at home	5 (45.5%)	6 (54.5%)	
Have share computer at home	72 (56.3%)	56 (43.7%)	
Have own computer at home	20 (18.3%)	89 (81.7%)	
Internet use frequency (per week)			<0.001
Less than 1 hour	18 (75.0%)	6 (25.0%)	
1-5 hours	35 (61.4%)	22 (38.6%)	
6-10 hours	19 (38.0%)	31 (62.0%)	
10-20 hours	18 (28.6%)	45 (71.4%)	
More than 20 hours	7 (13.0%)	47 (87.0%)	
Place mostly connected to internet from			<0.001
House	62 (53.9%)	53 (46.1%)	
Work	33 (25.2%)	98 (74.8%)	
Internet use skills			<0.001
Very poor	4 (100%)	0 (0%)	
Poor	27 (73.0%)	10 (27.0%)	
Fair	45 (45.0%)	55 (55.0%)	
Good	16 (19.1%)	68 (80.9%)	
Very good	5 (21.7%)	18 (78.3%)	

a Pearson Chi-Square test

Among given 9 options, participants mostly search for “specific illness or treatment”. The mostly searched topic after “specific illness or treatment” is “information about a doctor/hospital”. “Current issues/news about health” is the third mostly searched topic for.

Table 8 gives the search frequency of topics. Explanations of the letters are given below:

- a: Prescribed medicine
- b: Alternative medicine or treatment
- c: Nutrition
- d: Exercise or fitness
- e: Specific illness or treatment
- f: Information about a doctor/hospital
- g: Current issues/news about health
- h: disease support groups/health related forums
- i: Other

Table 8. Rank of the topics searched maximum within the last 12 months according to the severity

Topic	**1st Rank**		**2nd Rank**		**3rd Rank**	
	n	**%**	**n**	**%**	**n**	**%**
a	12	7.9	28	18.5	17	11.3
b	18	11.9	20	13.2	20	13.2
c	8	5.3	8	5.3	26	17.2
d	4	2.6	3	2.0	8	5.3
e	82	54.3	23	15.2	10	6.6
f	15	9.9	38	25.2	28	18.5
g	8	5.3	13	8.6	33	21.9
h	4	2.6	18	11.9	8	5.3
i	-	-	-	-	1	0.7
Total	123	100.0	123	100.0	123	100.0

Most of the participants search health related information on the net a few times in a month (48.3%). During search process, huge amount of participants begin their

search by using search engines (87.4%). Rest of searchers (12.6%) use previously known specific websites. A small amount of participants visit more than 10 websites (7.3%). Nevertheless, 38.4% of them visit 4-5 websites and 53.7% of them visit 6-10 websites for each search. More than half of the searchers (58.9%) scan websites prepared in Turkish only. Online health information searchers spend average of 37 minutes while conducting the search. The ones who begin their search from search engines spend 35.8 minutes averagely and other begin their search from previously known specific websites spend 45.7 minutes. Following table gives related results.

Table 9. Searching process of information for online health information searchers

Item	**N=123**
OHI searching frequency	
At least once per day	3 (2.0%)
Once per day	6 (4.0%)
3-5 times per week	19 (12.6%)
1-2 times per week	31 (20.5%)
A few times in a month	73 (48.3%)
Less than once a month	19 (12.6%)
Begin search	
Search engine	132 (87.4%)
Previously known website	19(12.6%)
Visited website number	
2-3	16 (10.6%)
4-5	58 (38.4%)
6-10	66 (53.7%)
More than 10	11 (7.3%)
Use of foreign origin website	
No	89 (58.9%)
Yes	62 (41.1%)

The study instrument has been contained questions that assessed participants' utilization of findings (Table 10). Participants mostly report the frequency of sharing the online health information findings with a friend or family member as often in the past year (47.7%). Again, they report that they share the findings with a health care professional rarely (31.8%). A majority (90.1%) of searchers agrees or strongly agrees that the information they found online improved their understanding of symptoms, conditions, or treatments. However, only 41.8% of online health information-seekers agree or strongly agree that the online health information improved their ability to manage their health care needs without visiting a health care professional. Less than half of the participants (43.0%) agree and very little (6.0%) strongly agree that online information they found led them to visit other health care professionals or hospitals different than the ones they have been visiting. Although 39.1% of participants disagree that online information they found increased their anxiety/fear, 35.1% of them agree on this. Lastly, 56.3% of participants agree or strongly agree that online health information helped them to discuss about their health situation with their health care professionals.

Table 10. Utilization of search findings among online health information searchers

Item	N=123
Speak with friend/family member about findings	
Rarely	7 (4.6%)
Sometimes	40 (26.5%)
Often	72 (47.7%)
Always	32 (21.2%)
Speak with health professional about findings	
Never	35 (23.2%)
Rarely	48 (31.8%)
Sometimes	37 (24.5%)
Often-Always	31 (20.5%)
Improved understanding of symptoms, conditions, or treatments	
Disagree	6 (4.0%)
Neither agree nor disagree	9 (6.0%)
Agree	93 (61.6%)
Strongly Agree	43 (28.5%)
Ability to self-manage symptoms without visiting a doctor or health care professional	
Strongly disagree	21 (13.8%)
Disagree	67 (44.4%)
Neither agree nor disagree	19 (12.6%)
Agree-Strongly Agree	44 (29.2%)
Visit to other health professionals/hospitals	
Strongly disagree	15 (9.9%)
Disagree	48 (31.8%)
Neither agree nor disagree	14 (9.3%)
Agree	65 (43.0%)
Strongly Agree	9 (6.0%)
Increase in anxiety/fear	
Strongly disagree	16 (10.6%)
Disagree	59 (39.1%)
Neither agree nor disagree	12 (7.9%)
Agree	53 (35.1%)
Strongly Agree	11 (7.3%)
Helped to discuss with health professional about health condition	
Strongly disagree	13 (8.6%)
Disagree	41 (27.2%)
Neither agree nor disagree	12 (7.9%)
Agree	75 (49.7%)
Strongly Agree	10 (6.6%)

Table 11, 12 and 13 contains the relationship between participants' search process for finding online health information and utilization of their search findings such as improved understanding of symptoms, conditions, and treatments (Item 31), ability to manage healthcare needs without visiting a healthcare provider (Item 32), visit to other health professionals/hospitals (Item 33) and increase in anxiety/fear (Item 34). Table 11 shows that ,the method of beginning the search is significantly associated with only ability to manage healthcare needs without visiting a healthcare provider (P=0,001). The ones who start search from previously known websites are more likely to manage healthcare needs without visiting a healthcare provider compared to the others who start from search engines (68.4% versus 23.5%).

Table 11. Association with Item 22 and Items 31, 32, 33 and 34

Item	**Search Engine (n=108)**	**Previously known websites (n=15)**	**p[a]**
Item 31			0.651
Strongly Disagree	5 (3.7%)	1 (5.3%)	
Disagree	6 (4.5%)	3 (15.8%)	
Neither agree nor disagree	84 (63.6%)	9 (47.4%)	
Agree	37 (28.2%)	6 (31.2%)	
Item 32			0.001
Strongly Disagree	18 (13.6%)	3 (15.8%)	
Disagree	67 (50.8%)	-	
Neither agree nor disagree	16 (12.1%)	3 (15.8%)	
Agree	29 (22.0%)	12 (63.1%)	
Strongly Agree	2 (1.5%)	1 (5.3%)	
Item 33			0.770
Strongly Disagree	11 (8.3%)	4 (21.1%)	
Disagree	47 (35.7%)	1 (5.3%)	
Neither agree nor disagree	11 (8.3%)	3 (15.8%)	
Agree	54 (40.9%)	11 (47.8%)	
Strongly Agree	9 (6.8%)	-	
Item 34			0.218
Strongly Disagree	13 (9.8%)	3 (15.8%)	
Disagree	50 (37.9%)	9 (47.4%)	
Neither agree nor disagree	10 (7.6%)	2 (10.5%)	
Agree	50 (37.9%)	3 (15.8%)	
Strongly Agree	9 (6.8%)	2 (10.5%)	

a Mann Whitney U test

Number of scanned websites during search process significantly associated with the increase in anxiety/fear (P=0.002). Participants who scan more than ten websites more likely to be anxious (69.7%) compared to others. Association between other items also showed in Table 12.

Table 12. Association with Item 23 and Items 31, 32, 33 and 34

Item	**2-3 (n=15)**	**4-5 (n=50)**	**6-10 (n=48)**	**>10 (n=10)**	**p[a]**
Item 31					0.051
Strongly Disagree	1 (6.3%)	2 (3.4%)	2 (3.1%)	1 (9.1%)	
Disagree	3 (18.7%)	5 (8.6%)	-	1 (9.1%)	
Neither agree nor disagree	9 (56.3%)	36 (62.1%)	41 (62.1%)	7 (63.6%)	
Agree	3 (18.7%)	15 (25.9%)	23 (34.8%)	2 (18.2%)	
Item 32					0.203
Strongly Disagree	2 (12.5%)	7 (12.1%)	11 (16.7%)	1 (9.1%)	
Disagree	7 (43.7%)	22 (37.9%)	32 (48.5%)	6 (54.5%)	
Neither agree nor disagree	1 (6.3%)	9 (15.5%)	8 (12.1%)	1 (9.1%)	
Agree	6 (37.5%)	17 (29.3%)	15 (22.7%)	3 (27.3%)	
Strongly Agree	-	3 (5.2%)	-	-	
Item 33					0.398
Strongly Disagree	2 (12.5%)	5 (8.6%)	7 (10.6%)	1 (9.1%)	
Disagree	4 (25.0%)	20 (34.5%)	21 (31.8%)	3 (27.3%)	
Neither agree nor disagree	2 (12.5%)	8 (13.8%)	3 (4.5%)	1 (9.1%)	
Agree	8 (50.0%)	25 (43.1%)	28 (42.5%)	4 (36.3%)	
Strongly Agree	-	-	7 (10.6%)	2 (18.2%)	
Item 34					0.002
Strongly Disagree	3 (18.7%)	7 (12.1%)	5 (7.7%)	1 (9.1%)	
Disagree	8 (50.0%)	29 (50.0%)	21 (31.8%)	1 (9.1%)	
Neither agree nor disagree	2 (12.5%)	6 (10.3%)	3 (4.5%)	1 (9.1%)	
Agree	3 (18.7%)	14 (24.2%)	29 (43.9%)	7 (63.6%)	
Strongly Agree	-	2 (3.4%)	8 (12.1%)	1 (9.1%)	

a Kruskal Wallis test

As it is stated in the following table, in contrast to participants who scan foreign origin websites, participants search only websites in Turkish are significantly more likely to manage healthcare needs without visiting a health care professional (P<0.05)

Table 13. Association with Item 24 and Items 31, 32, 33 and 34

Item	No (n=71)	Yes (n=52)	p[a]
Item 31			0.970
Strongly Disagree	5 (5.6%)	1 (1.6%)	
Disagree	6 (6.7%)	3 (4.8%)	
Neither agree nor disagree	51 (57.3%)	42 (67.7%)	
Agree	27 (30.4%)	16 (25.9%)	
Item 32			0.010
Strongly Disagree	7 (7.9%)	14 (22.6%)	
Disagree	39 (43.8%)	28 (45.2%)	
Neither agree nor disagree	12 (13.5%)	7 (11.3%)	
Agree	29 (32.6%)	12 (19.3%)	
Strongly Agree	2 (3.2%)	1 (1.6%)	
Item 33			0.337
Strongly Disagree	4 (4.5%)	11 (17.7%)	
Disagree	28 (31.6%)	20 (32.3%)	
Neither agree nor disagree	14 (15.6%)	-	
Agree	39 (43.8%)	26 (41.9%)	
Strongly Agree	4 (4.5%)	5 (8.1%)	
Item 34			0.984
Strongly Disagree	5 (5.6%)	11 (17.7%)	
Disagree	42 (47.0%)	17 (27.4%)	
Neither agree nor disagree	7 (7.9%)	5 (8.1%)	
Agree	28 (31.6%)	25 (40.3%)	
Strongly Agree	7 (7.9%)	4 (6.5%)	

a Mann Whitney U test.

Following table shows that 82 of participants (54.3%) report online health information that they found as “somewhat useful”.

Table 14. Distribution of the answers given for the degree of reliability of OHI

Degree of usefulness	**N=123**
Not useful	-
Hardly useful	33 (21.9%)
Undecided	27 (17.8%)
Somewhat useful	82 (54.3%)
Very useful	9 (6.0%)

Table 15 contains the association between usefulness of the online health information and frequency of search, the method of beginning the search, number of scanned websites, language of scanned websites, and sharing the findings with friend/family/health care professional. Compared to the ones who search for online health information less than once a month, others who go online once per day find online information very useful (5.3% versus 50% respectively). Significantly, 60.6% of search engine users and 62.5% of the ones that chech 2-3 websites stated that their findigs are somewhat useful.

The ones who share their findings with a friend/family member always rated the information as somewhat useful (65.6%) and this results is statistically significant. Likewise, according to the 96% of participants who share findings with a health care professional often-always, the information on the net is somewhat useful.

Table 15. Factors that associates with usefulness of information

Item	Hardly useful	Undecided	Somewhat useful	Very useful	p
Item 19					0.092[a]
At least once per day	-	-	2 (66.7%)	1 (33.3%)	
Once per day	-	-	3 (50%)	3 (50%)	
3-5 times per week	-	5 (26.3%)	12 (63.2%)	2 (10.5%)	
1-2 times per week	1 (3.2%)	1 (3.2%)	21 (67.8%)	8 (25.8%)	
A few times in a month	5 (6.8%)	13 (17.8%)	36 (49.3%)	19(26.1%)	
Less than once a month	1 (5.3%)	4 (21.1%)	13 (68.3%)	1 (5.3%)	
Item 22					0.026[b]
Search engines	4 (3.1%)	18 (13.6%)	80 (60.6%)	30(22.7%)	
Previously known websites	3 (15.8%)	5 (26.3%)	7 (36.8%)	4 (21.1%)	
Item 23					0.017[b]
2-3	-	3 (18.7%)	10 (62.5%)	3 (18.7%)	
4-5	2 (3.5%)	11 (18.9%)	33 (56.9%)	12(20.7%)	
6-10	4 (6.1%)	7 (10.6%)	38 (57.6%)	17(25.7%)	
>10	1 (9.1%)	2 (18.2%)	6 (54.5%)	2 (18.2%)	
Item 24					0.907[b]
No	5 (5.6%)	14 (15.7%)	49 (55.1%)	21(23.6%)	
Yes	2 (3.2%)	9 (14.5%)	38 (61.3%)	13(21%)	
Item 29					0.008[b]
Rarely	2 (28.6%)	-	5 (71.4%)	-	
Sometimes	1 (2.5%)	7 (17.5%)	27 (67.5%)	5 (12.5%)	
Often	3 (4.2%)	15 (20.8%)	34 (47.2%)	20(27.8%)	
Always	1 (3.1%)	1 (3.1%)	21 (65.6%)	9 (28.2%)	
Item 30					0.281[b]
Never	1 (2.8%)	7 (20.0%)	19 (54.3%)	8 (22.9%)	
Rarely	2 (4.7%)	7 (14.6%)	25 (52.1%)	14(29.6%)	
Sometimes	3 (8.1%)	9 (24.3%)	19 (51.4%)	6 (16.2%)	
Often-Always	1 (4.0%)	-	24 (96.0%)	-	

a Kruskal Wallis test, b Pearson Chi-Square test, Mann Whitney U test

The study instrument has been contained a question asking the most important three reliability criteria in an order among given eight HONcode principles. The most important principle for participants is “Authoritative”. Second important principle is “Attribution” and “Financial disclosure” is the third important principle that participants pay attention while evaluating a source’s reliability. Table 16 gives the frequency of principles. Explanations of the letters are given below:

- a: Authoritative
- b: Complementarity
- c: Privacy
- d: Attribution
- e: Advertising policy
- f: Transparency
- g: Financial disclosure
- h: Justifiability

Table 16. Rank of principles that indicate reliability of a source

Principle	**1st Rank**		**2nd Rank**		**3rd Rank**	
	n	**%**	**n**	**%**	**n**	**%**
a	88	58.7	14	9.4	12	8.0
b	3	1.3	21	14.0	15	10.0
c	10	6.7	3	1.3	29	19.3
d	40	26.7	59	39.3	17	11.3
e	-	-	8	5.4	7	4.7
f	4	2.6	32	21.3	12	8.0
g	6	4.0	9	6.0	40	26.7
h	-	-	5	3.3	18	12.0
Toplam	151	100.0	151	100.0	151	100.0

Table 17 shows that participants report their findings as very reliable are younger than the ones that report as hardly reliable (Mean= 52.6, SD: 6.4 and Mean=55.9, SD: 5.4 respectively, P=0.003). Females trust online health information more than males. 58.9% of the females report their findings as somewhat reliable and 8.9% of them report as very reliable. However these percentages are 46.7% and 1.6% respectively for males. Participants with a collage and lower education degree trust online health information more than others (P=0.003). Majority of the participants who report health status as good are more likely to trust online health information (66.0%) which creates a significant association between health status and reliability (P=0.004). Another significant association occurs between reliability and frequency of health professional visit (P=0,001). Participants who has never visited a health professional in last 12 months report their findings very reliable (25.0%) and somewhat reliable (75.0%), none one the ones that has visited more than five times report as "very reliable". The last significant association is that, people with low income trust online health information more than high income people (P=0.009). 67.7% of the ones with income between 0 and 1500 TL rated their findings as somewhat reliable.

Table 17. Association between age, education level, health status, frequency of clinician visits and reliability

Item	Hardly reliable	Undecided	Somewhat reliable	Very reliable	p
Age	55.9±5.4	53.2±5.2	52.8±6.3	52.6±6.4	0.003[a]
Gender					0.051[b]
Female	15 (16.7%)	14 (15.5%)	53 (58.9%)	8(8.9%)	
Male	18 (30.0%)	13 (21.7%)	28 (46.7%)	1(1.6%)	
Education Level					0.003[c]
Elementery school	-	1 (16.6%)	4 (66.8)	1(16.6%)	
High school	4 (8.8%)	10 (22.3%)	29 (64.5%)	2 (4.4%)	
University	8 (16.6%)	6 (12.5%)	32 (66.7%)	2 (4.7%)	
Master/ Ph. D.	19 (40.4%)	8 (17.0%)	16 (34.1%)	4 (8.5%)	
Other	2 (50.0%)	2 (50.0%)	-	-	
Health status					0.004[c]
Very poor	2 (20.0%)	2 (20.0%)	6 (60.0%)	-	
Poor	7 (35.0%)	6 (30.0%)	7 (35.0%)	-	
Fair	17 (29.8%)	9 (15.8%)	29 (50.9%)	2 (3.5%)	
Good	5 (10.0%)	6 (12.0%)	33 (66.0%)	6(12.0%)	
Very good	1 (8.3%)	4 (33.3%)	6 (50.0%)	1 (8.3%)	
Frequency of clinician visit during last year					0.001[c]
Never visited	-	-	9 (75.0%)	3(25.0%)	
1-2 times	11 (19.3%)	7 (12.3%)	34 (59.6%)	5 (8.8%)	
3-5 times	14 (28.0%)	9 (18.0%)	26 (52.0%)	1 (2.0%)	
More than 5	8 (25.8%)	11 (35.5%)	12 (38.7%)	-	
Income Level (TL)					0.009[c]
1-1500	1 (3.3%)	6(20.7%)	21 (67.7%)	1(3.3%)	
1501-2500	3(6.5%)	12(26.1%)	27(58.7%)	4(8.7%)	
2501-4000	23(41.8%)	2(3.6%)	26(47.4%)	4(7.2%)	
More than 4000	6(30.0%)	7(35.0%)	7(35.0%)	-	

a One-Way ANOVA), b Pearson Chi-Square test,c Kruskal Wallis test

In addition to health status, frequency of doctor visit and income level, beginning to search method and sharing the findings with a clinician significantly associates with reliability (P=0,002 and P=0.001 respectively) and given in Table 18. More than half of the participants that begin their search thorough search engines (58.8%) report their findings somewhat useful compared to the ones begin their search through previously known website (21.1%). However, percentage of the previously known website users who report their findings as very reliable (21.1%) is higher than the others (3.8%). It is significant that 65.7% of the ones who never share findings with a health care provider report their findings as useful. Other than these, 83.3% of searchers go online once per day report their search findings as "somewhat reliable" however this ratio decreases for the ones who go online less than once a month (47.4%). Beside, total ratio of the "somewhat useful" and "very useful" options is maximum (75.0%) for the participants who scan less than four websites in each search. According to the more than 59.6% of participants who scan websites only in Turkish, the information is "somewhat useful". Lastly, participants who always share their findings with friends or family report them as useful (61.3% somewhat useful, 6.5% very useful).

Table 18. Factors that associates with reliability of information

Item	Hardly reliable	Undecided	Somewhat reliable	Very reliable	p
Item 19					0.139[a]
At least once per day	-	-	2 (100%)	-	
Once per day	-	-	5 (83.3%)	1(16.7%)	
3-5 times per week	-	10 (52.6%)	8 (42.1%)	1 (5.3%)	
1-2 times per week	7 (22.7%)	2 (19.4%)	20 (64.5%)	2(19.4%)	
A few times in a month	19 (26.1%)	12 (16.4%)	37 (50.7%)	5 (6.8%)	
Less than once a month	7 (36.8%)	3 (15.8%)	9 (47.4%)	-	
Item 22					0.002[b]
Search engines	27 (20.6%)	22 (16.8%)	77 (58.8%)	5 (3.8%)	
Previously known websites	6 (31.5%)	5 (26.3%)	4 (21.1%)	4(21.1%)	
Item 23					0.33[b]
2-3	2 (12.5%)	2 (12.5%)	9 (56.2%)	3(18.8%)	
4-5	11 (19.0%)	14 (24.1%)	30(51.7%)	3 (5.2%)	
6-10	18 (27.7%)	8 (12.3%)	36 (55.4%)	3 (4.6%)	
>10	2 (18.2%)	3 (27.3%)	6 (54.5%)	-	
Item 24					0.272[b]
No	15 (17.8%)	16 (18.0%)	53 (59.6%)	5 (5.6%)	
Yes	18 (29.5%)	11 (18.0%)	28 (45.9%)	4 (6.6%)	
Item 29					0.176[b]
Rarely	2 (28.6%)	3 (42.8%)	2 (28.6%)	-	
Sometimes	7 (17.5%)	9 (22.5%)	21 (52.5%)	3 (7.5%)	
Often	14 (19.4%)	15 (20.8%)	39 (54.2%)	4 (5.6%)	
Always	10 (32.2%)	-	19 (61.3%)	2 (6.5%)	
Item 30					0.001[b]
Never	4 (11.4%)	7 (20.0%)	23 (65.7%)	1 (2.9%)	
Rarely	9 (18.8%)	8 (16.7%)	28 (58.2%)	3 (6.3%)	
Sometimes	7 (19.0%)	9 (24.3%)	16 (43.2%)	5(13.5%)	
Often-Always	13 (43.3%)	3 (10.0%)	14 (46.7%)	-	

a Kruskal Wallis test, b Pearson Chi-Square test, Mann Whitney U test

52.9% of searchers use internet as information source mostly where as 35.1% of them use doctors as source mostly. Nevertheless, significantly (P<0,001) “doctor” is the source for consulting while making the final decision about a health problem. Following table gives the percentages and frequencies.

Table 19. Distribution of answers given to Item 16 and Item 36

Mostly used source (ITEM 16)	**Finally consulted source (ITEM 36)**				
	Internet	**Doctor**	**Family**	**Other**	**Total**
Internet	12 (8.0%)	55 (36.4%)	11 (7.2%)	2 (1.3%)	80 (52.9%)
Doctor	-	51 (33.6%)	2 (1.5%)	-	53 (35.1%)
Nurse/ Pharmacist	-	9 (6.0%)	-	-	9 (6.0%)
Friend	-	7 (4.7%)	-	-	7 (4.7%)
Family	-	2 (1.3%)	-	-	2 (1.3%)
Total	12 (8.0%)	124 (82.0%)	13 (8.7%)	2 (1.3%)	151(100%)

p<0,001 Marginal homogeneity test

CHAPTER 5

DISCUSSION

The study included information about the types of middle aged and older people who search online for health information, how they conduct the search process, how they utilize search findings, how they evaluate sources in terms of reliability. In this section study results are discusses. In the introduction section – Chapter 1- five research questions were proposed: (1) what are the social and demographic differences among middle aged and older people's use of online health information-seeking behavior, including gender, age, education level, employment status and monthly salary?; (2) what types of health information do middle aged and older people seek online?; (3) how do middle aged and older people search the Internet to obtain health information?; (4) how do middle aged and older people utilize and assess the health information found online?; (5) what factors affect middle aged and older people in terms of reliability? At the end of this section, answers of research questions are discussed respectively.

According to the results, a majority of the sample reported seeking health information online in the past year. For the ones who did not seek, the main reason

was they had not been needed to search for online health information. They prefer to

consult their health care professionals mostly or their spouses/parents/friend who are health care professionals also. Beside, lack of confidence and lack of time were other reasons for non seekers.

For online health information seekers, many variables associate with searching prevalence either significantly or not. To begin with, findings showed that there was not a significant difference among ages of information seekers and non seekers but majority of the searchers were in the age range between 45 and 54. Literature tells that young aged individuals are more likely to surf on the net for health information (Fox & Jones, 2009; Yan, 2010). This study's sample was including individuals who are older than 44 years old in other words are middle aged and older. Nevertheless, it can be concluded that youngest section of the sample has the higher searching prevalence.

Statistical results showed that females go online in order to seek health related information more than males. This finding is statistically significant and consistent with previous researches (Fox, Online health search 2006, 2006; Ybarra & Suman, 2006; Fox & Jones, The social life of health information, 2009; Gauld & Williams, 2009; Yan, 2010). The reason behind that might be males mostly use internet for entertainment while females use internet for more serious purposes (Fortson, Scotti, Chen, Malone, & Del Ben, 2007) and females search on behalf of their children or other family members (Fox, et al., 2000). Most of the males who are non seekers gave their reason as they do not need to search because their wives mostly or children search instead of them.

Results identified that online health information searching significantly becomes frequent in proportion to increase in education level. Findings are parallel with literature that people with higher education (university and Ms/Ph.D.) are more likely to search online health information (van de Poll-Franse & van Eenbergen, 2008; Fox & Jones, 2009; Yan, 2010). More educated people are aware of information sources other than health care professionals and do not hesitate to use them especially when they are not satisfied with the information given by health care professional. Others

on the other hand, were found to prefer consulting health care professionals rather than internet according to the study results. Beside more educated people usually know a second language and scan foreign language websites seldom if ever. Because of that reason, they access to a wider information pool. They can interpret what they read on the internet and make a conclusion by using this new information in order to discuss with their health care professionals (Beyan, 2010). Since more educated people have a clear conception, health care professionals may like to discuss on this internet information with these patients.

Just like education level, the more monthly salary, the higher online health information searching prevalence as it is stated in the literature (Ybarra & Suman, 2006; van de Poll-Franse & van Eenbergen, 2008; Fox & Jones, 2009; Yan, 2010). Results showed that the ones with more than 2500 TL monthly income are significantly more likely to be online health information seeker compared to ones with less than 1500 TL income. High income people use internet for gaining more information and more choices in addition to the heath care professional's suggestions. Low income people, on the other hand, are satisfied with health care professionals' explanations and go online if a surgery or unknown medicine is advised. Beside economic welfare gives opportunities to access several sources of information like internet and makes high income people able to get necessary equipments like fast internet connection, personal computers, etc. which is necessary for time and place independent information searches.

Health related variables such as existence of a chronic illness, health status and frequency of visits to health care professional associates with online health information search. Results insignificantly show that chronic illness that either participants or their family member suffers from makes people to search on the internet for information. Health status and frequency of visits to health care professional are statistically significant. For health status, there is no commonly accepted implication. Although some indicates that people with fair or poor health status use internet more than others with better health status (Houston & Allison, 2002; Baker, Wagner, Singer, & Bundorf, 2003; Wagner, Baker, Singer, & Bundorf,

2004) some studies state that there is no association between health status and internet use for health (Fogel, Albert, Schnabel, Ditkoff, & Neugut, 2002; Satterlund, McCaul, & Sandgren, 2003; Sabel, et al., 2005). This study contributes to the literature as showing the significant relation between health status and online health inforamiton searching. According to the analysis results, people who visit his physicians more frequently and rated his health status as less than 3 over 5 are more likely to search online health information. Even though health care professionals' opinions are valuable for patients, having health problems and hearing new and unfamiliar terminologies during controls creates a state of demand for more information and opinions. In every meeting, patients may ask for more clear answers to his concerns. However, due to the nature of health and medicine science, health care providers cannot give certain answers. After that, patients start searching for answers by using other sources. Discussion forums, web blogs or chat rooms provides experiences of people who suffer from same disease and by reading their experiences, comments, etc. the patient may feel comfort about his concerns and health problems.

Study results described that computer owning and internet usage of consumers significantly affect online health information seeking prevalence. This study contributes to the literature by showing significant association between having personal computer and online health information seeking prevalence. Consumers who have personal computer search more than others who use same computer with rest of the family. Consumers who connect to internet from work search online health information frequent than others who connect to internet from home or other places. Another significant result was as the internet usage skills and spent time on using internet increases, the prevalence of health information seeking on the internet raises. Especially ones who spent more than 20 hours in a week on the internet and rated their internet usage skills as "very good" constitute a quorum among seekers. In fact all these three four variables are connected to each other. Having personal computer and not sharing it with anyone else provides the freedom of using computer (and internet) any time any place which contributes to the spend time on internet.

Connecting internet from work place directly increases the spent time on internet because in Middle East Technical University employees work approximately eight hours as a result use internet at least eight hours in a day. Of course this is not valid for all participants but majority of them stated that they connect internet form work place mostly and spend more than 20 hours on the internet in a week. Accessing to internet so long makes it easy for them to look for any personal health related question or problem. Having better internet usage skills enables searchers to find results to the questions. This is important because consumers feel frustrated when they could not find specific information on the internet (Fox, 2006). However, better searching skills bring better searching results and motivation for more internet search.

According to the study results, online health information was sought mostly to get information about a specific disease or treatment by a majority of seekers. Other than this, information about a doctor or hospital, current health topics and new about health is sought mostly. Literature tells that young and old individuals differ from each other in terms of searching topics. Young individuals search mostly diet/nutrition topics whereas old individuals mostly search on specific illness or medical conditions (Taha, Sharit, & Czaja, 2009). Declining years come with more health problems. People on these ages care for themselves because they are more concius about their health and healthy way of living. They also care abou health of their family or parents more. As a result, even though a pupil does not search for himselves, he search on behalf of his parents, friends or spouse who are not young, too and this increases their search on specific illness or treatment.

Analysis identified that a big majority of online health information seekers start their search from search engines. Only 19 people stated that they used the websites that they have already known. Although majority of the seekers use search engines, very little visit more than ten websites. They visit 6-10 websites generally. Although Bennett et al. (2004) stated that information stack on the internet overwhelm the seekers, nevertheless comparing websites and checking the consistency of a piece of information shall increase the seekers chance to obtain accurate information.

The study showed that more than half of the searchers do not visit websites in different languages for the ones who visit English and French was the used foreign language. Among these seekers, only two start their search from websites that they have already known. They are American Heart Association, World Health Organization and National Institutes of Health. Rest of them writes words in other languages to the search engine and scan websites, journals and academic papers. Searchers do not go online frequently. Majority of them said that they search a few times in a month and they mostly search for themselves, on behalf of their children and spouses.

Based on the results it can be concluded that online health information searchers are more likely to share their findings with a friend or family member rather than a health care professional. Moreover, online health information improves consumers understanding of their symptoms, conditions, or treatments in which they were interested in finding, let them to seek care from different health care providers or health care units than they otherwise would have and help them to discuss their health with their health care providers more comfortable. Nevertheless, the study showed that the health information that consumers find do not improve their ability to manage their health care needs without visiting a doctor or other health care provider and increase consumers' anxiety/fear.

Another finding of the study is that searching process has significant effects on assessment and utilization of online health information. Although majority of the consumers cannot manage their health care needs without visiting a doctor or other health care provider, it was statistically significant that the ones who start their search from previously known sources are able to manage their health care needs without visiting a doctor or other health care provider. One of the participants who start searching from previously known has stated that she was cure the problem on her husband shoulder by using a ping pong ball although physicians advised for medical surgery. She has learned about the ping pong ball from an article retrieved from foreign origin website that she accesses frequently. Since she trusts in the sources, she checks every medical condition or health problem and tries to solve

them without visiting a health care provider. Another participant who had a medical operation said that he knew more than his physician about his illness. Since he uses sources that he had satisfied by search results, he continues to get more information and opinions about his situation and he can abate his pain by the strategies he read from internet without taking medicine or consulting his physician. What is thought provoking in these examples is consumers believe that they can treat themselves or manage their health care needs by using online health information and this is a matter of concern which was discussed in the literature (McMullan, 2006).

The study indicated that increase in the number of checked or visited websites/sources significantly increases the anxiety and fear. Even though most of the online health information users felt confident of their findings, they felt confused and overwhelmed because of the information mass on the internet (Fox, 2006). Availability conflicting information or comments on the internet is an obstacle for readers and may prevent them to make important decisions. As a result, health information session which includes multiple sites raises the anxiety and fear.

Language of the source significantly associates with the ability to manage the health care needs without visiting a health care provider. Information on websites published in Turkish improves this ability compare t the ones on foreign language websites. Even though rules are so strict for publishing a scientific medical paper, information in other countries especially in USA, the information provided by them may confuse Turkish people and direct them to consult a health care professional.

Analysis results figured that participants are likely to report their search results as useful regardless of the language of the source that they use. Beside, as they search more frequently for health related information on the net, they are more satisfied with the usefulness of search results. It was stated that people more likely to use search engines to begin their search. It is obvious that the ones who use previously known sources continue to check these sources because they find the information useful. Likewise, majority of the search engine user are satisfied with the usefulness of the visited sources. Results showed that the less websites visited the more information useful. In other words, the ones who visited 2-3 websites during their

search find health related information more useful compared to others. Although checking less websites decreases the reliability of the information, more information can confuse the searcher and result in inconclusive searches which makes search less useful.

As it is stated above, majority of the online health information seekers finds their search results useful and this belief increases as they share their findings with a health care provider. Discussing findings with a health care professional and learning his opinions about online information may change patients' attitude toward internet usage. If health care professional agree on the found information, patient continues to search on the internet when he need more information. Moreover, by sharing findings with health care professional, patients do not only verify the information but also makes health care professional to give more explanatory information about patient's health condition. Because health care giver realizes the interest and curiosity of the patient and courage him to continue searching under condition of sharing them. Encouraged patients, as a result, believe in the usefulness of information as that information allowed him to discuss his situation with professional more effectively and get more information from the professional. Same as health care professional, sharing findings with someone else like a friend or family member increases the usefulness of found information.

In the study, participants were asked to select three of given eight principles and sort them according to the severity. The principles were derived from Health On the Net Foundation's website (HONcode). According to the results, authoritative was the most important criteria for the reliability of an online source, attribution second and financial disclosure was third important criteria for the reliability.

Through the study, it was identified that age, education level, health status, frequency of doctor visit, monthly income, method of beginning the search and sharing the findings with a clinician significantly associates with the reliability of online health information.

As the age decreases reliability of online helath information increases. Since people with older age hav more serious helath problems, they may not rely on the information on the net. They just use it for obtaining mopre information.

People with monthly income less than 2500 TL believe the reliability of the found information more than the high income people (income>2500 TL). The first reason behind that may be the frequency of search. Results stated that high income people search frequently compared to low income people and more information increases their anxiety/fair. As a result, people with higher income as active searchers do not trust online health information much. Secondly, since low income people may understand the given information on the internet more clearly than the information given by their health care provider. Lastly, higher income provides necessary opportunities in case of an unexpected health condition which low income people are lack of mostly. Consequently, people with lower income prefer to arm themselves toward these unexpected situations by benefiting from free and easy to access information source, internet.

Having a health status better than fair and visiting his health care provider less is increasing the change of being online health information confident. People with good health status do not search much for vital health issues or serious treatments which requires consultation of health care experts. They mainly search for less complicated health issues. As long as they do not harm by the information, it can be expected that they do not hesitate to rely on the information on the net. Beside less doctor visit decreases the chance of discussion the findings with him or people visit the doctors less because they can manage with their health related problems by using the online information that they trust much.

Starting the search form search engines increases the trust to online health information. Reading experiences of other people or demystifying a health related problem/issue with the help of this information may make feel confident, as a result make the information reliable.

People who share their findings with a clinician rearely trust the online health information more than others. Since they do not have the chance to negotiate the findings and their accuracy with an expert, information is assumed as reliable for these patients.

According to the study results, there is as significant difference among most widely-used information source of online health information seekers and non seekers. For seekers, internet is used as most widely for getting health information. For non seekers, on the other hand, health care professional is the first source. However, health care professional influence online health information seekers more than other factors during health related decision process. Majority of participants who mostly use internet as health related information consult to health care professional for final decision. Since anyone can access to internet easily, economically, time and place independent, it is the most widely used information source (Eysenbach, Powell, Kuss, & Sa, 2002; Fox, 2006; Ybarra & Suman, 2006; Fox & Jones, 2009). However, internet is not as influential as helath care providers while giving final decision about consumers' health situaton and preventions. As Ybarra and Suman stated (2006) consumers respect and appreciate health care professionals' advice because they feel more comfortable after consulting their health care providers. In our country, especially, users of online health information may not find an addressee if they harmed by the information on the internet. Helath care providers, on the other hand, are always there if any unexpected situation is occured because of a medicine or during the treatment, etc. and give sense of reliability to patients in such situations (Beyan, 2010).

First research question was asking the social and demographic differences among middle aged and older people's use of online health information-seeking behavior, including gender, age, education level, employment status and monthly salary. Based on the results, it was identified that being female, having university or higher degree, having more than 2500 TL monthly income, having poor health status, visiting a health care professional more than five times in a year, having personal computer, spending more than 20 hours in a week on internet, connecting to internet mostly

from work and having advanced internet usage skills increases the probability of being online health information searcher.

Second research question was asking the types of health information that middle aged and older people seeking online. Results showed that specific illness or treatment is the first mostly sought topic, information about a clinician/hospital is the second and current news/issues about health is the third mostly sought topic.

Third research question was asking searching process of middle aged and older people to obtain health information. Online health information searchers mostly use search engine while starting their search. They visit 4-5 websites mostly and search in their mother language. It takes approximately 37 minutes to find necessary information on the internet.

Fourth research question was asking how middle aged and older people utilize and assess the health information found online. The results showed that online health information improves consumers understanding of their symptoms, conditions, or treatments, let them to seek care from different health care providers or health care units than they otherwise would have and help them to discuss their health with their health care providers more comfortable. On the other hand, information they find do not improve their ability to manage their health care needs without visiting a doctor or other health care provider and increase consumers' anxiety/fear. Additionally, the ones who start their search from previously known sources and use sources prepared in Turkish are able to manage their health care needs without visiting a doctor or other health care provider. The study indicated that increase in the number of checked or visited websites/sources significantly increases the anxiety and fear.

Fifth research question was asking for the reliability of the online health information. Approximately more than half of the participants sated that their search results are reliable. The reasons behind their reliance were analyzed. To begin with authority is the first criteria for reliability according to the participants. Beside, people with young age, who have good health status, visit the health care provider rarely, have high monthly income, use search engine for beginning the searching process and

never or rarely share their findings with a clinician trust online health information more than their counterparts.

However, finding health related information and using are not same at all. Finding inappropriate health information may be the result of poor searching skills however using this information may result in several physical or psychological harms (Crocco, Villasis, Keever, & Jadad, 2002). Unfortunately, related literature showed that consumers believe that information on the net is reliable but do not check and are not aware of the unreliable sources or inappropriate health information (Eysenbach & Kohler, 2002; Eysenbach, Powell, Kuss, & Sa, 2002; Purcell, Wilson, & Delamothe, 2002, Ybarra & Suman, 2006). This is very natural because having such a conscious mostly requires medical expertise and instead of uninformed consumers, health care providers or governmental units shall expurgate unrelated information and its source. Guidance of health care providers shall be helpful however there are thousands of online health information source and it is not possible for health care providers to evaluate all of these sources. Beside, health care providers do not use internet as effectively as possible (Chumley, Dobbie, Delzell, &

Jr., 2006). This brings up the need for a better computer education in medical schools because their suggestions make patients feel more comfort in this manner (Ybarra & Suman, 2006).

In very few countries governments, health information stakeholders, industries and researchers collaborate in order to provide more qualified, related, accurate health information to consumers via electronic health resources such as USA, United Kingdom, Australia, Switzerland, France, Germany and Spain (Cullen, 2006). This collaboration resulted in several organizations such as Health on the net foundation (HON) and Action Forum on Health Information Systems (AFGIS) which aim to develop specific evaluation systems, search engines or electronic libraries specific for health related information and to (Cullen, 2006). To illustrate MEDLINE database is a significant information source that includes huge amount of scientific researches and results. Universal Medical Language System is a term mapping system that appreciated in health sector and it maps the sought term to the most

related medical subject heading (Cullen, 2006). All these electronic sources and technologies were developed to increase the reliability of electronic health information.

In our country there is an emergent need for guidelines that control online health and health information resources and permit only to ones which provides free and easy access to reliable and accurate information. Just like rest of the world, in Turkey online health information users will continue to increase. The study showed that poor health status and goods skills increase the chance of online health information seeking. In 20 or 25 years, today's young aged people will become middle aged with poorer health and better computer skills. In other words, the need for online health information will grow and grow as the years pass and the prospective searchers will be more skilled but not more expert on medical area. Moreover, coming age will bring more telehealth and mobile health application as well as online health applications. This will provide more health and health information sources to consumers and more need for conservative guidelines or laws for publishing online health information resources. With the collaboration of Turkish Ministry of Health, Turkish universities and industry the necessary long step toward these guidelines and laws shall be made.

CHAPTER 6

CONCLUSION

As the rapid move toward internet as health related information source continues, in the near future, there will be a stronger need for protective regulations to protect online health information searchers. Today, consumers turn to other information sources such as internet in order to empowering themselves by gaining more information. This information helps them to understand their health status, learn about new medical terminologies/medicines, and improve better relationship with healthcare professionals and even verify them. Patient-physician meeting occurs in a limited time and both sides do their bests to make this meeting as efficient as possible. Benefiting from internet helps patients to prepare themselves ready for that purpose.

The focus of this thesis is investigating searching behaviors of people live in Turkey. It covers the motivation behind the study, related studies that conducted previously and their results. Moreover, study design and methodological issues were discussed.

This study used a questionnaire completed by 248 middle aged and older Turkish from Middle East Technical University and 100. Yıl neighbourhood in order to obtain information about health information seeking behaviors on the Internet. The results of this study found that majority of the middle aged and older people are searching for health information. Specific illnesses and treatment is the mostly sought topic by searchers. Females, more educated and high income people with

worse health and advanced internet usage skills are more likely to search on the internet compared to others. Internet is the most-widely used information source for online searchers whereas clinician is the mostly used one for non searchers. Nevertheless, both groups are mostly influenced by clinicians while giving the final decision. Authority is the most important criteria for reliability of a source. Majority of the participants use search engine while starting their search and they trust in search results more than others. Although online information increases anxiety of the searchers, it makes them able to self-treat themselves.

Since people are turning internet and use it as health related information source commonly, effective policies or guidelines shall be implemented for online health information by related authorities. Health care professionals shall ask their patients whether they are using internet as health information source and even guide them how to make effective searches. Discussing the findings of health related online search can help to prevent potential mistreatments or adverse effects.

6.1 Contribution of the Study

The study will contribute to understanding how middle and older people search on the internet for health related information. Beside, the study enlightens about searching behavior of Turkish citizens which was missing in the literature except a study which was conducted on larger sample but measures only prevalence of online health information searching and mostly sought topics. This study gives more information about Turkish online health information searchers. Many results were same with the ones in the literature. However different results were found too. People who have personal computer at home more likely to turn internet for health related searches compared to others who share their computers at home. Health status effects online health information searching prevalence. High income people trust online health information more than low income people. Online information keeps its reliability unless it is shared with a health care professional. Nevertheless, these results were collected with the developed instrument which is still open for further improvement.

6.2 Limitations and Future Research

The study was limited to a small sample size. As a result, all of the significant relationships among variables may not be measured. Beside, demographic profile of the Middle East Technical University employees and 100. Yıl residents may not reflect the whole country's profile; consequently a generalization cannot be made for the public.

Online health information search behavior of participants does not been measured over time because of the nature of the study design. However, there is still need for new researches in order to understand how middle aged and older people in Turkey perform the online health information search.

Future research should focus on how middle aged and older people in Turkey conduct the search, how they compare health related websites, check the source of them and speak with health care professionals about their search findings. Moreover, future research should identify what type of searches middle aged and older people in Turkey perform using search engines. Focus groups interviews may be the most appropriate method to collect such data. Findings of this study can be used for the future research using focus group interviews and aims to identify the parameters stated above

Lastly, views of health care professionals of how patients' conduct health information searching should be focused on by future research.

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APPENDICES

APPENDIX A: Questionnaire for METU Employees

Bu anket ODTU Enformatik Enstitüsü, Tıp Bilişimi Ana Bilim Dalı öğrencisi Elif ÇAKIR'ın tez çalışması kapsamında hazırlanmıştır. Bu anketin amacı katılımcıların kişisel sağlık anlayışı ve internette sağlıkla ilgili bilgi arama deneyimleri hakkında bilgi toplamaktır.

"İnternette sağlıkla ilgili bilgi arama" herhangi bir hastalık ya da sağlık problemi, alternatif ya da tıbbi tedaviler, alternatif ya da reçeteli ilaçlar, beslenme, egzersiz, doktor/diş hekimi/hastane/klinik araması yapma, sağlıkla ilgili güncel konular ve haberler, sağlıkla ilgili tartışma forumları/haber grupları/mail grupları hakkında bilgi edinme amaçlı yapılan aramalar anlamına gelmektedir. Aşağıdaki soruları bu bilgi kapsamında cevaplandırınız lütfen. Anketi dilediğiniz zaman yarıda kesebilirsiniz. Bu çalışmaya gönüllü olarak katıldığınız için teşekkürler.

A. DEMOGRAFİK BİLGİLER

1) **Yaşınız: ……..**

2) **Cinsiyetiniz**
   1. Kadın
   2. Erkek

3) **En son mezun olduğunuz eğitim kurumu**
   1. İlkokul
   2. Ortaokul
   3. Lise
   4. Üniversite

5. Yüksek lisans/doktora
6. Hiçbiri

4) ODTÜ'de …..

1. Akademik personelim
2. İdari personelim
3. Şirket personeliyim
4. Diğer: (Lütfen belirtiniz) ……

5) Sizde ya da 1. derecen akrabalarınızdan birinde herhangi bir kronik hastalık var mı?

1. Yok
2. Var: (Lütfen Belirtiniz) ……

6) Genel olarak sağlık durumunuzu nasıl değerlendirirsiniz?

1. Çok kötü
2. Kötü
3. Fena değil
4. İyi
5. Çok iyi

7) Geçtiğimiz 12 ay içerisinde kontrol ya da tedavi amaçlı olarak kaç kere doktor ziyaretinde bulundunuz?

1. Hiç ziyarette bulunmadım
2. 1-2 kez
3. 3-5 kez
4. 5'ten fazla

8) Aylık geliriniz

1. 0-750 TL arası
2. 751-1500 TL arası
3. 1501-2500 TL arası
4. 2501-4000 TL arası
5. 4000 TL'den fazla

B. BİLGİSAYAR KULLANIMI İLE İLGİLİ SORULAR

9) Bilgisayar kullanıyor musunuz?

1. Hayır
2. Evet

10) Bilgisayarı en sık nerede kullanıyorsunuz?

1. Evde
2. İşte
3. Halka açık yerlerde (kütüphane, internet kafe, alışveriş merkezi, vb.)
4. Diğer (Lütfen belirtiniz): ……..

11) Evinizde kendinize ait bilgisayar var mı?

1. Evimde bilgisayar yok
2. Evimde ortak kullanılan bir adet bilgisayar var
3. Evimde kendime ait bilgisayar var

C. İNTERNET KULLANIMI İLE İLGİLİ SORULAR

12) İnternet kullanıyor musunuz?

1. Hayır
2. Evet

13) Geçtiğimiz 12 ay içerisinde interneti ne sıklıkla kullanıyorsunuz?

1. Haftada 1 saatten az
2. Haftada 1-5 saat
3. Haftada 6-10 saat
4. Haftada 10-20 saat
5. Haftada 20 saatten fazla

14) Geçtiğimiz 12 ay içinde internete en sık nereden bağlanıyorsunuz? (Sadece bir seçenek işaretleyiniz)

5. Evden
6. İşten
7. Halka açık yerlerden (kütüphane, internet kafe, alışveriş merkezi, vb.)
8. Diğer (Lütfen belirtiniz): ……..

15) Genel olarak internet kullanım becerilerinizi nasıl değerlendirirsiniz?

1. Çok kötü
2. Kötü
3. Fena değil
4. İyi
5. Çok iyi

D. ONLINE SAĞLIK BİLGİLERİ İLE İLGİLİ SORULAR

16) Sağlıkla ilgili bilgi edinmek için en sık hangi kaynağı kullanırsınız? (Sadece bir seçenek işaretleyiniz)

1. İnternet
2. Dergi/gazete/broşür/kitap
3. Doktor
4. Hemşire/eczacı
5. Arkadaşlarım
6. Ailem
7. Diğer (Lütfen belirtiniz): ……

17) Geçtiğimiz 12 ay içinde internette sağlık ile ilgili aramalar yapıyor musunuz?

1. Hayır *(Eğer arama yapmıyorsanız 18. Soruya geçiniz)*
2. Evet *(Eğer arama yapıyorsanız 19. Soruya geçiniz)*

18) *(Eğer 17. Soruda "Hayır" cevabı verdiyseniz)* İnternette sağlık ile ilgili aramalar yapmamanızın sebebi nedir? (Birden fazla seçenek işaretleyebilirsiniz)

1. İnterneti sağlıkla ilgili arama yapmak için nasıl kullanacağımı bilmiyorum
2. İnternette sağlık ile ilgili arama yapmak çok karışık
3. İnternette sağlık ile ilgili arama yapmak çok pahalı
4. Dolandırılacağımdan ya da başkalarının benim bilgilerimi kullanacağından endişe ediyorum
5. Arkadaşlarım/ailem benim yerime araştırıyorlar
6. İnternetteki bilgileri doğru olduğuna inanmıyorum
7. İnternette sağlık ile ilgili arama yapacak vaktim yok
8. İnternette sağlıkla ilgili arama yapmaya ihtiyaç duymuyorum

EĞER 18. SORUYU CEVAPLADIYSANIZ
ANKET BURADA BİTMİŞTİR.
KATILIMINIZ İÇİN TEŞEKKÜRLER

19) ***(Eğer 17. Soruda "Evet" cevabı verdiyseniz)*** **Geçtiğimiz 12 ay içinde, ne sıklıkla internette sağlık ile ilgili aramalar yaptınız? (Sadece bir seçenek işaretleyiniz)**

1. Günde en az bir kez
2. Günde bir kez
3. Haftada 3-5 kez
4. Haftada 1-2 kez
5. Ayda birkaç kez
6. Ayda bir kereden az

20) İnternette sağlık ile ilgili aramaları kim ya da kimler için yapıyorsunuz? (Birden fazla seçenek işaretleyebilirsiniz)

8. Kendim için
9. Çocuğum/çocuklarım için
10. Annem/babam için
11. Arkadaşlarım için
12. Eşim için
13. Akrabalarım için
14. Diğer (Lütfen belirtiniz): …….

21) Geçtiğimi 12 ay içinde internette en fazla arama yaptığınız 3 alanı önem sırasına göre belirtiniz.

a. Reçeteli ilaçlar

b. Alternatif tıp/ilaçlar ya da tedavi

c. Beslenme

d. Egzersiz

e. Belirli bir hastalık veya tedavi

f. Herhangi bir doktor/hastane hakkında bilgi edinme

g. Sağlıkla ilgili güncel haberler/konular

h. Hastalık destek grupları/sağlıkla ilgili forumlar

i. Diğer (Lütfen belirtiniz): ……

1- .....
2- .....
3- .....

22) İnternette sağlıkla ilgili bilgi aramaya nereden başlıyorsunuz? (Sadece bir seçenek işaretleyiniz)

1. Arama motorlarını kullanarak
2. Daha önce kullandığım/bildiğim web sitelerini kullanarak
3. Diğer: Lütfen Belirtiniz

……

23) İnternette sağlıkla ilgili arama yaparken ortalama kaç web sitesine bakıyorsunuz? (Sadece bir seçenek işaretleyiniz)

1. 1
2. 2-3
3. 4-5
4. 6-10
5. 11-20
6. 20'den fazla

24) Yabancı dille hazırlanmış kaynaklara bakıyor musunuz?

1. Hayır
2. Evet

25) İnternette aradığınız bilgiyi buluncaya kadar ne kadar süre harcıyorsunuz? (Lütfen saat, dakika olarak belirtiniz)

……

26) Geçtiğimiz 12 ay içinde yaptığınız arama sonuçlarından edindiğiniz bilgileri ne kadar faydalı buluyorsunuz?

1. Hiç faydalı bulmuyorum
2. Pek faydalı bulmuyorum
3. Kararsızım
4. Biraz faydalı buluyorum
5. Çok faydalı buluyorum

27) İnternette bulunan sağlıkla ilgili bilgileri ne kadar güvenilir buluyorsunuz?

1. Hiç güvenilir bulmuyorum
2. Pek güvenilir bulmuyorum
3. Kararsızım
4. Biraz güvenilir buluyorum
5. Çok güvenilir buluyorum

28) Size göre, bir kaynağın güvenilir olduğunu gösteren en önemli 3 özelliği önem sırasına göre belirtiniz.

a) Tavsiye ve bilgiler nitelikli ve eğitimli kişilerce verilmiş olmalı
b) Hekim ile olan ilişkimi olumsuz yönde etkileyecek bilgiler içermemelidir
c) Kişisel ve sağlık bilgilerim hiçbir şeklide başkalarıyla paylaşılmamalıdır
d) Bilgiler güncel olmalıdır ve bilginin kaynağı belirtilmelidir.
e) Sağlık bilgisi dışındaki veriler farklı bir içerik ve şeklide sunulmalıdır
f) İletişim için gerekli adreslerin bulunması
g) Kaynağa destek veren kuruluşların bilgileri belirtilmelidir
h) Eğer reklam kaynak için bir finans kaynağı ise, bu durum açıkça beyan edilmelidir.

1- .....
2- .....
3- .....

29) İnternette bulduğunuz sağlıkla ilgili bilgileri ailenizle/arkadaşlarınızla ne sıklıkla paylaşırsınız?

1. Hiçbir zaman
2. Nadiren
3. Ara sıra
4. Sıklıkla
5. Her zaman

30) İnternette bulduğunuz sağlıkla ilgili bilgileri herhangi bir doktor/sağlık görevlisi ile ne sıklıkla paylaşırsınız?

1. Hiçbir zaman
2. Nadiren
3. Ara sıra
4. Sıklıkla
5. Her zaman

AŞAĞIDAKI GÖRÜŞLERE KATILIP KATILMAMA ORANINIZI LÜTFEN BELIRTINIZ.

31) İnternette bulduğum sağlıkla ilgili bilgiler sayesinde, araştırdığım hastalıklar, semptomlar ya da tedavileri daha iyi anlayabiliyorum.

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

32) İnternette bulduğum sağlıkla ilgili bilgiler sayesinde, herhangi bir doktora ya da sağlık kuruluşuna gitmeden sağlıkla ilgili ihtiyaçlarımı daha iyi karşılayabiliyorum

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

33) İnternette bulduğum sağlıkla ilgili bilgiler, beni farklı doktorları ya da sağlık kuruluşlarını ziyaret etmeye yöneltmiştir.

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

34) İnternette bulduğum sağlıkla ilgili bilgiler, endişelerimi/korkularımı arttırmaktadır.

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

35) İnternette bulduğum sağlıkla ilgili bilgiler, doktorumla sağlık durumum hakkında konuşmama yardımcı olmaktadır

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

36) Aşağıdakilerden hangisi sağlık durumunuz hakkında verdiğiniz kararlarda en çok etkilidir?

1. İnternet
2. Dergi/gazete/broşür/kitap
3. Doktor
4. Hemşire/eczacı
5. Arkadaşlarım
6. Ailem
7. Diğer (Lütfen belirtiniz): ……

ANKET BURADA BİTMİŞTİR.
KATILIMINIZ İÇİN TEŞEKKÜRLER

APPENDIX B: Questionnaire for 100. Yıl Residents

Bu anket ODTU Enformatik Enstitüsü, Tıp Bilişimi Ana Bilim Dalı öğrencisi Elif ÇAKIR'ın tez çalışması kapsamında hazırlanmıştır. Bu anketin amacı katılımcıların kişisel sağlık anlayışı ve internette sağlıkla ilgili bilgi arama deneyimleri hakkında bilgi toplamaktır.

"İnternette sağlıkla ilgili bilgi arama" herhangi bir hastalık ya da sağlık problemi, alternatif ya da tıbbi tedaviler, alternatif ya da reçeteli ilaçlar, beslenme, egzersiz, doktor/diş hekimi/hastane/klinik araması yapma, sağlıkla ilgili güncel konular ve haberler, sağlıkla ilgili tartışma forumları/haber grupları/mail grupları hakkında bilgi edinme amaçlı yapılan aramalar anlamına gelmektedir. Aşağıdaki soruları bu bilgi kapsamında cevaplandırınız lütfen. Anketi dilediğiniz zaman yarıda kesebilirsiniz. Bu çalışmaya gönüllü olarak katıldığınız için teşekkürler.

A. DEMOGRAFİK BİLGİLER

1) **Yaşınız: ……..**

2) **Cinsiyetiniz**
   1. Kadın
   2. Erkek

3) **En son mezun olduğunuz eğitim kurumu**
   1. İlkokul
   2. Ortaokul
   3. Lise
   4. Üniversite
   5. Yüksek lisans/doktora
   6. Hiçbiri

4) **İş durumunuz…**
   1. Çalışıyorum
   2. Çalışmıyorum
   3. Emekliyim
   4. Diğer: (Lütfen belirtiniz) ……

5) **Sizde ya da 1. derecen akrabalarınızdan birinde herhangi bir kronik hastalık var mı?**
   1. Yok
   2. Var: (Lütfen Belirtiniz) ……

6) **Genel olarak sağlık durumunuzu nasıl değerlendirirsiniz?**
   1. Çok kötü
   2. Kötü
   3. Fena değil
   4. İyi
   5. Çok iyi

7) **Geçtiğimiz 12 ay içerisinde kontrol ya da tedavi amaçlı olarak kaç kere doktor ziyaretinde bulundunuz?**
   1. Hiç ziyarette bulunmadım
   2. 1-2 kez
   3. 3-5 kez
   4. 5'ten fazla

8) **Aylık geliriniz**
   1. 0-750 TL arası
   2. 751-1500 TL arası
   3. 1501-2500 TL arası
   4. 2501-4000 TL arası
   5. 4000 TL'den fazla

B. BİLGİSAYAR KULLANIMI İLE İLGİLİ SORULAR

9) **Bilgisayar kullanıyor musunuz?**
   1. Hayır
   2. Evet

10) **Bilgisayarı en sık nerede kullanıyorsunuz?**
   1. Evde
   2. İşte
   3. Halka açık yerlerde (kütüphane, internet kafe, alışveriş merkezi, vb.)
   4. Diğer (Lütfen belirtiniz): ……..

11) **Evinizde kendinize ait bilgisayar var mı?**
   1. Evimde bilgisayar yok
   2. Evimde ortak kullanılan bir adet bilgisayar var
   3. Evimde kendime ait bilgisayar var

C. İNTERNET KULLANIMI İLE İLGİLİ SORULAR

12) İnternet kullanıyor musunuz?

1. Hayır
2. Evet

13) Geçtiğimiz 12 ay içerisinde interneti ne sıklıkla kullanıyorsunuz?

1. Haftada 1 saatten az
2. Haftada 1-5 saat
3. Haftada 6-10 saat
4. Haftada 10-20 saat
5. Haftada 20 saatten fazla

14) Geçtiğimiz 12 ay içinde internete en sık nereden bağlanıyorsunuz? (Sadece bir seçenek işaretleyiniz)

1. Evden
2. İşten
3. Halka açık yerlerden (kütüphane, internet kafe, alışveriş merkezi, vb.)
4. Diğer (Lütfen belirtiniz): ……..

15) Genel olarak internet kullanım becerilerinizi nasıl değerlendirirsiniz?

1. Çok kötü
2. Kötü
3. Fena değil
4. İyi
5. Çok iyi

D. ONLINE SAĞLIK BİLGİLERİ İLE İLGİLİ SORULAR

16) Sağlıkla ilgili bilgi edinmek için en sık hangi kaynağı kullanırsınız? (Sadece bir seçenek işaretleyiniz)

1. İnternet
2. Dergi/gazete/broşür/kitap
3. Doktor
4. Hemşire/eczacı
5. Arkadaşlarım
6. Ailem
7. Diğer (Lütfen belirtiniz): ……

17) Geçtiğimiz 12 ay içinde internette sağlık ile ilgili aramalar yapıyor musunuz?

1. Hayır *(Eğer arama yapmıyorsanız 18. Soruya geçiniz)*
2. Evet *(Eğer arama yapıyorsanız 19. Soruya geçiniz)*

18) ***(Eğer 17. Soruda "Hayır" cevabı verdiyseniz)*** **İnternette sağlık ile ilgili aramalar yapmamanızın sebebi nedir? (Birden fazla seçenek işaretleyebilirsiniz)**

1. İnterneti sağlıkla ilgili arama yapmak için nasıl kullanacağımı bilmiyorum
2. İnternette sağlık ile ilgili arama yapmak çok karışık
3. İnternette sağlık ile ilgili arama yapmak çok pahalı
4. Dolandırılacağımdan ya da başkalarının benim bilgilerimi kullanacağından endişe ediyorum
5. Arkadaşlarım/ailem benim yerime araştırıyorlar
6. İnternetteki bilgileri doğru olduğuna inanmıyorum
7. İnternette sağlık ile ilgili arama yapacak vaktim yok
8. İnternette sağlıkla ilgili arama yapmaya ihtiyaç duymuyorum

EĞER 18. SORUYU CEVAPLADIYSANIZ
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KATILIMINIZ İÇİN TEŞEKKÜRLER

19) ***(Eğer 17. Soruda "Evet" cevabı verdiyseniz)*** **Geçtiğimiz 12 ay içinde, ne sıklıkla internette sağlık ile ilgili aramalar yaptınız? (Sadece bir seçenek işaretleyiniz)**

1. Günde en az bir kez
2. Günde bir kez
3. Haftada 3-5 kez
4. Haftada 1-2 kez
5. Ayda birkaç kez
6. Ayda bir kereden az

20) İnternette sağlık ile ilgili aramaları kim ya da kimler için yapıyorsunuz? (Birden fazla seçenek işaretleyebilirsiniz)

1. Kendim için
2. Çocuğum/çocuklarım için
3. Annem/babam için
4. Arkadaşlarım için
5. Eşim için
6. Akrabalarım için
7. Diğer (Lütfen belirtiniz): …….

21) Geçtiğimi 12 ay içinde internette en fazla arama yaptığınız 3 alanı önem sırasına göre belirtiniz.

a. Reçeteli ilaçlar

b. Alternatif tıp/ilaçlar ya da tedavi

c. Beslenme

d. Egzersiz

e. Belirli bir hastalık veya tedavi

f. Herhangi bir doktor/hastane hakkında bilgi edinme

g. Sağlıkla ilgili güncel haberler/konular

h. Hastalık destek grupları/sağlıkla ilgili forumlar

i. Diğer (Lütfen belirtiniz): ……

1- .....
2- .....
3- .....

22) İnternette sağlıkla ilgili bilgi aramaya nereden başlıyorsunuz? (Sadece bir seçenek işaretleyiniz)

1. Arama motorlarını kullanarak
2. Daha önce kullandığım/bildiğim web sitelerini kullanarak
3. Diğer: Lütfen Belirtiniz
   …….

23) İnternette sağlıkla ilgili arama yaparken ortalama kaç web sitesine bakıyorsunuz? (Sadece bir seçenek işaretleyiniz)

1. 1
2. 2-3
3. 4-5
4. 6-10
5. 11-20
6. 20'den fazla

24) Yabancı dille hazırlanmış kaynaklara bakıyor musunuz?

1. Hayır
2. Evet

25) İnternette aradığınız bilgiyi buluncaya kadar ne kadar süre harcıyorsunuz? (Lütfen saat, dakika olarak belirtiniz)

……

26) Geçtiğimiz 12 ay içinde yaptığınız arama sonuçlarından edindiğiniz bilgileri ne kadar faydalı buluyorsunuz?

1. Hiç faydalı bulmuyorum
2. Pek faydalı bulmuyorum
3. Kararsızım
4. Biraz faydalı buluyorum
5. Çok faydalı buluyorum

27) İnternette bulunan sağlıkla ilgili bilgileri ne kadar güvenilir buluyorsunuz?

1. Hiç güvenilir bulmuyorum
2. Pek güvenilir bulmuyorum
3. Kararsızım
4. Biraz güvenilir buluyorum
5. Çok güvenilir buluyorum

28) Size göre, bir kaynağın güvenilir olduğunu gösteren en önemli 3 özelliği önem sırasına göre belirtiniz.

a) Tavsiye ve bilgiler nitelikli ve eğitimli kişilerce verilmiş olmalı
b) Hekim ile olan ilişkimi olumsuz yönde etkileyecek bilgiler içermemelidir
c) Kişisel ve sağlık bilgilerim hiçbir şeklide başkalarıyla paylaşılmamalıdır
d) Bilgiler güncel olmalıdır ve bilginin kaynağı belirtilmelidir.
e) Sağlık bilgisi dışındaki veriler farklı bir içerik ve şeklide sunulmalıdır
f) İletişim için gerekli adreslerin bulunması
g) Kaynağa destek veren kuruluşların bilgileri belirtilmelidir
h) Eğer reklam kaynak için bir finans kaynağı ise, bu durum açıkça beyan edilmelidir.

1- .....
2- .....
3- .....

29) İnternette bulduğunuz sağlıkla ilgili bilgileri ailenizle/arkadaşlarınızla ne sıklıkla paylaşırsınız?

1. Hiçbir zaman
2. Nadiren
3. Ara sıra
4. Sıklıkla
5. Her zaman

30) İnternette bulduğunuz sağlıkla ilgili bilgileri herhangi bir doktor/sağlık görevlisi ile ne sıklıkla paylaşırsınız?

1. Hiçbir zaman
2. Nadiren
3. Ara sıra
4. Sıklıkla
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1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

32) İnternette bulduğum sağlıkla ilgili bilgiler sayesinde, herhangi bir doktora ya da sağlık kuruluşuna gitmeden sağlıkla ilgili ihtiyaçlarımı daha iyi karşılayabiliyorum

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

33) İnternette bulduğum sağlıkla ilgili bilgiler, beni farklı doktorları ya da sağlık kuruluşlarını ziyaret etmeye yöneltmiştir.

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

34) İnternette bulduğum sağlıkla ilgili bilgiler, endişelerimi/korkularımı arttırmaktadır.

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

35) İnternette bulduğum sağlıkla ilgili bilgiler, doktorumla sağlık durumum hakkında konuşmama yardımcı olmaktadır

1. Kesinlikle katılmıyorum
2. Katılmıyorum
3. Kararsızım
4. Katılıyorum
5. Kesinlikle Katılıyorum

36) Aşağıdakilerden hangisi sağlık durumunuz hakkında verdiğiniz kararlarda en çok etkilidir?

1. İnternet
2. Dergi/gazete/broşür/kitap
3. Doktor
4. Hemşire/eczacı
5. Arkadaşlarım
6. Ailem
7. Diğer (Lütfen belirtiniz): ……

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KATILIMINIZ İÇİN TEŞEKKÜRLER

APPENDIX C: Approval Letter of Practical Ethics Research Board

1956

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15.07.2010

GÖNDERİLEN: Doç.Dr.Belgin Ayvaşık
Rektör Danışmanı

GÖNDEREN: Prof.Dr.Nazife Baykal
Enformatik Enstitüsü Müdürü

KONU: Elif Çakır

Enstitümüz "Sağlık Bilişimi Anabilim Dalı (MIN) Yüksek Lisans Programı" öğrencisi Elif Çakır'ın, 10.06.2010-10.08.2010 tarihleri arasında tezi ile ilgili "Online Health Information Seeking Habits of Elderly People" başlıklı araştırma çalışmasına ilişkin ODTÜ, Aysel Sabuncu Yaşam Merkezi,Hacettepe Üniversitesi, ODTÜ Mezunlar Derneği'ndeki yaşlılara anket yapmak için görevlendirme başvurusu incelenmiş, ilgili EABD Başkanlığı'nın görüşüne dayanarak adı geçen öğrencinin isteği doğrultusunda görevlendirilmesi Etik Komite onayı koşulu ile uygun görülmüştür.

Saygılarımla,

Ek: YKK
EABD

Etik Komite Onayı

Uygundur

Prof. Dr. Canan ÖZGEN
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkanı
ODTÜ 06531 ANKARA

02/08/2010

603

6/8

5/8

ÖİDB

Gereği için

Doç.Dr. Lale ÖZGENEL
Rektör Danışmanı

05/08