



KADIR HAS UNIVERSITY
SCHOOL OF GRADUATE STUDIES
PROGRAM OF NEW MEDIA

**TRUST FACTOR IN ONLINE HEALTH
COMMUNICATION: APPROACH OF USERS TO NEWS
SITES IN TURKEY**

OKAN ÇAKIR

ADVISOR: ASSOC. PROF. DR. EYLEM YANARDAĞOĞLU

MASTER'S THESIS

ISTANBUL, MAY, 2019

**TRUST FACTOR IN ONLINE HEALTH
COMMUNICATION: APPROACH OF USERS TO NEWS
SITES IN TURKEY**

OKAN AKIR

ADVISOR: ASSOC. PROF. DR. EYLEM YANARDAĐOĐLU

MASTER'S THESIS

Submitted to the School of Graduate Studies in partial fulfilment of the requirements for
the degree of Master of Arts in New Media.

ISTANBUL, MAY, 2019

DECLARATION OF RESEARCH ETHICS / METHODS OF DISSEMINATION

I, OKAN ÇAKIR, hereby declare that;

- This Master's Thesis is my own original work and that due references have been appropriately provided on all supporting literature and resources;
- this Master's Thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
- I have followed "Kadir Has University Academic Ethics Principles" prepared in accordance with the "The Council of Higher Education's Ethical Conduct Principles"

In addition, I understand that any false claim in respect of this work will result in disciplinary action in accordance with University regulations.

Furthermore, both printed and electronic copies of my work will be kept in Kadir Has Information Center under the following condition as indicated below:

The full content of my thesis/project will be accessible from everywhere by all means.

OKAN ÇAKIR



23.05.2019

KADIR HAS UNIVERSITY
SCHOOL OF GRADUATE STUDIES

ACCEPTANCE AND APPROVAL

This work entitled **TRUST FACTOR IN ONLINE HEALTH COMMUNICATION: APPROACH OF USERS TO NEWS SITES IN TURKEY** prepared by **OKAN ÇAKIR** has been judged to be successful at the defense exam held on **23/05/2019** and accepted by our jury as **MASTER'S THESIS**.

APPROVED BY:

Assoc. Prof. Dr. Eylem Yanardağođlu (Advisor)

Kadir Has University

Assoc. Prof. Dr. iđdem Bozdađ

Kadir Has University

Assoc. Prof. Erkan Saka

İstanbul Bilgi University

I certify that the above signatures belong to the faculty members named above.

Prof. Dr. Sinem Akgül AıkmeŖe
Dean of School of Graduate Studies
DATE OF APPROVAL: 23/05/2019

TABLE OF CONTENTS

DECLARATION OF RESEARCH ETHICS / METHODS OF DISSEMINATION	i
ACCEPTANCE AND APPROVAL	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
ABSTRACT	vii
ÖZET	viii
GLOSSARY	ix
ACKNOWLEDGEMENTS	x
1. INTRODUCTION	1
2.1 Understanding Online Health Communication	5
2.1.1 Communication theories	5
2.1.2 Defining health communication.....	9
2.1.3 Online health communication.....	12
2.2 Review Of Online Health Communication In Turkey	16
2.2.1 Effect of new media on health information seeking	16
2.2.2 Effect of online sources on human health and decision making.....	17
2.2.3 User behaviors on online health information seeking in Turkey.....	18
2.2.4 Accuracy of web sources on health-related searches.....	25
2.2.5 Effect of news sites on online health information seeking	29
2.2.6 Effect of Google on online health information seeking.....	29
3. RESEARCH AND ANALYSIS	38
3.1 Research Method	38
3.2 Survey Design	39
3.3 Research Results And Discussions	40
3.3.1 Survey	40
3.3.2 In depth online interview	58
4. CONCLUSION	64
REFERENCES	66
CURRICULUM VITAE	72
APPENDIX A	73

A.1 Online Survey Questions	73
APPENDIX B	74
B.1 The List Of Online Interviewees	74



LIST OF TABLES

Table 1.1 Internet activities of individuals in 2018 (source:TurkStat)	3
Table 2.1 Principles of EU in health communication (source: ECDC)	11
Table 2.2 Search Volumes of the Top 20 Keywords Having the Word "symptoms" in Turkish, 2019	19
Table 2.3 Search Volumes of the Top 20 Keywords Having the Word "disease" in Turkish, 2019	21
Table 2.4 Search Volumes of the Top 20 Keywords Having the Word "treatment" in Turkish, 2019	23
Table 3.1 Results for user behaviors while getting medical information	41
Table 3.2 Results for treatment process	43
Table 3.3 Results for user behaviors on search results	44
Table 3.4 Results for the effect of Google Features on users	45
Table 3.5 Results for frequency of getting medical information on website types	46
Table 3.6 Results for trust while getting medical information on website types	48
Table 3.7 The most and the least trusted website types in Turkey	50
Table 3.8 The most and the least visited website types in Turkey	51
Table 3.9 Evaluation of content related trust factors on news sites while getting medical information	53
Table 3.10 Evaluation of design related trust factors on news sites while getting medical information	54
Table 3.11 Differences between the person trust in news sites and the person distrust in news sites	56

LIST OF FIGURES

Figure 2.1 The Shannon and Weaver Model	5
Figure 2.2 The Schramm Model	6
Figure 2.3 SMCR model of communication	7
Figure 2.4 Logic Model or Frame for Health Communication (source: WHO)	10
Figure 2.5 Health communication flow by 11 Kincaid, et al	12
Figure 2.6 New model for health communication (source: TELLME)	13
Figure 2.7 The online source typology by Neuhauser & Kreps	14
Figure 2.8 Video carousel on “What to do during a heart attack” search (source: Google)	28
Figure 2.9 Search visibility of Memorial.com.tr in 2018 (source: SearchMetrics)	32
Figure 2.10 Search visibility of Acibadem.com.tr in 2018 (source: SearchMetrics)	33
Figure 2.11 Search visibility of Yeditepehastanesi.com.tr in 2018 (source: SearchMetrics)	33
Figure 2.12 Search visibility of Sabah.com.tr in 2018 (source: SearchMetrics)	34
Figure 2.13 Search visibility of Haber7.com in 2018 (source: SearchMetrics)	35
Figure 2.14 Search visibility of cnnturk.com in 2018 (source: SearchMetrics)	35

ABSTRACT

ÇAKIR, OKAN. *TRUST FACTOR IN ONLINE HEALTH COMMUNICATION: APPROACH OF USERS TO NEWS SITES IN TURKEY*, MASTER'S THESIS, İstanbul, 2019.

The aim of this research is to comprehend the internet users' perception of trust towards health news on the web while seeking medical information in Turkey. Thus, the purpose is to emphasize the effect of new media in health communication. For that purpose, the researcher conducted an online survey among 201 internet users in Turkey. To investigate the current situation and challenges in related industries on the web, 5 online interviews were conducted with two persons from hospital sites, two persons from news sites and one person from Google. The findings of the research enabled the researcher to define the approach of internet users in Turkey towards online health information seeking. The data were limited to online survey results and the online interviews that the researcher had designed. The conclusions obtained in this context are exemplary findings to define trust issues online health communication in Turkey.

Keywords: health communication, online health information seeking, online trust, new media

ÖZET

ÇAKIR, OKAN. *İNTERNET TABANLI SAĞLIK İLETİŞİMİNDE GÜVEN UNSURU: TÜRKİYE'DEKİ KULLANICILARIN HABER SİTELERİNE YAKLAŞIMI*, MASTER'S THESIS, İstanbul, 2019.

Bu araştırmanın amacı, Türkiye'deki internet kullanıcılarının internette sağlık araması yaparken haber sitelerine karşı güven algısının anlaşılmasıdır. Bu sayede, yeni medyanın sağlık iletişimindeki önemi vurgulanmak istenmiştir. Bu amaç doğrultusunda araştırmacı Türkiye'deki 201 internet kullanıcısı arasında bir çevrimiçi anket çalışması yapmıştır. İnternette ilgili sektörlerdeki durum ve güçlükler araştırılmak üzere, hastane sitelerinden iki kişiyle, haber sitelerinden iki kişiyle ve Google'dan bir kişi ile, toplamda 5 çevrimiçi görüşme yapılmıştır. Araştırma sonucu elde edilen bulgular araştırmacının Türkiye'deki internet kullanıcılarının çevrimiçi sağlık bilgisi aramaya karşı yaklaşımını tanımlamasına imkan sağlamıştır. Elde edilen veri, araştırmacının hazırlamış olduğu çevrimiçi anket ve çevrimiçi görüşmelerle sınırlandırılmıştır. Bu bağlamda edilen çıkarımlar, Türkiye'deki internet tabanlı sağlık iletişimindeki güven unsurlarını tanımlamak için örnek niteliğinde bulgulardır.

Anahtar Sözcükler: sağlık iletişimi, internette sağlık bilgisi arama, çevrimiçi güven, yeni medya

GLOSSARY

E-A-T criteria: The criteria Expertise – Authoritativeness – Trustworthiness introduced by Google

Medical information pages: The webpages that provide advice or information about health, drugs, specific diseases or conditions, mental health, nutrition, etc., according to Google.

Organic traffic: The clicks comes from search results of search engines.

Ranking: The position of a webpage in search results for the searched term.

Search engine: The online platforms allow users to browse the net by typing some words.

Search results: The list of webpages for a search term presented by a search engine

Search term (Search query): The words entered to search engines while searching an issue.

Search visibility (Organic visibility): The score simulating the rankings and organic visits of websites on search engines

Search volume: The average monthly count of searches for a search term

SEO analyst: The person who consults websites for search engine optimization.

SEO: Abbreviation of Search Engine Optimization, means the developments on a website according to algorithms of search engines in order to be at the top of search results.

Web page visitor: The person who enters a website.

Your money or your life topics: The topics affecting users' financial or health condition.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor Assoc. Prof. Dr. Eylem Yanardağođlu for her useful comments, endless support and engagement through the learning process of this master thesis. Furthermore, I would like to thank my father Oktay, my mother Tulay and my little brother Onur, who have always supported me through all my life. And last but not least, I would like to express my gratefulness to Pelin, who made me believe that I can do this.



1. INTRODUCTION

Associated with technological advancements, investments in fiber cable network, and huge increase in smartphone users; the number of internet users has been continuously increasing in Turkey. Even elder people have begun to use smartphones for following news or communicating via online messaging platforms such as WhatsApp. Generation Y and Generation Z spent most of their time on social media or web surfing. According to the statistics portal Statista, the number of internet users in 2019 is nearly 56 million and this number has increased by 53% since 2013 (Statista, 2019).

On the other hand, Turkey has increasing population, the surveys of Turkish Statistical Institute (TurkStat) indicates that the population of Turkey is around 82 million in 2019 (TUİK, 2019). Although the population so high, when these data are compared between each other, it can be deduced that almost 68% of people in Turkey are internet users in 2019.

Thanks to the opportunity of internet access, people are being able to access information in quicker and easier way; therefore, their information seeking behaviors change day by day into online from old school ways such as looking up encyclopedias and other printed materials. This is the result of re-formation of media in the 21st century, which can be called as new media. The present condition of media consumption is predicted and visualized by Trevor Barr in 2000, who is one of the notable persons in media and communications area. According to his convergence theory of media industries, new media platforms such as internet, are the compound of media (information content generation, e.g. films, TV and radio programs, books, music), computer (information processing, e.g. PC and memory) and telecommunication (information carriage, e.g. delivery networks, transmission). As a result, it offers an exhaustive, online and interactive medium for entertainment and information (Barr, 2000). Thus, both persons' habits while consuming media and organization of media industry is evolving towards this junction point. It can be observed that new media disrupts old media providers and brings forth next generation medium like Netflix, Google or

Facebook. People are getting used to prefer multi-channel networks especially while they are mobile. One can carry thousands of books as electronic document on Kindle, watch movies or TV series anytime on mobile phones, and follow the news without needing television or radio devices.

New media has taken effect also in Turkey and has begun to change persons' behaviors. Before the 21st century, Turkish people used to mostly consume traditional media in public communication. Especially in rural areas such as the villages in Anatolia, newspapers and TV broadcasts had significant impact on people due to lack of access to information. Most of households still do not have fiber cable network in Anatolian villages due to be a rough country; however, these people can connect web via wireless, mobile internet. According to a report in 2018 by OpenSignal, a company measuring wireless internet coverage in global, Turkey has 67.95% of 4G availability country wide (OpenSignal, 2018). This percentage is quite same with previously mentioned internet user rate in Turkey. This might have penetrated printed media industry in recent years. The circulation of printed newspapers shows a steady decline after 2013, the annual readership number of national and regional newspapers recedes from 6.3 million to 4.3 million between 2013 and 2017. One of the negative effectors in this change is that readers prefer online news rather than printed ones (Kayalar, 2019).

Internet is a limitless platform, user intents for going online may differ country to country. In order to better understand for what purpose Turkish people use the internet, Turkish Statistical Institute's (TurkStat) annual survey named "Internet activities of individuals who have accessed the Internet in the last 3 months, by private purposes, 2018" should be examined (TUIK, 2018). The results of this survey are showed in Table 1.1.

According to this table, the primary reason to use internet is participating in social networks for Turkish citizens. This is followed by consuming video content, telephoning over the internet, and seeking health-related information. When this data is reviewed, it can be clearly

seen that information seeking and social media using are significantly higher than online shopping and playing games.

Table 1.1 Internet activities of individuals in 2018 (source: TurkStat)

Son üç ay içinde İnternet kullanan bireylerin İnterneti kişisel kullanma amaçları, 2018
Internet activities of individuals who have accessed the Internet in the last 3 months, by private purposes, 2018

Amaçlar-Purposes	Toplam (%)		
	Total	Erkek Male	Kadın Female
E-Posta gönderme/alma Sending / receiving e-mails	44.8	51.1	37.1
İnternet üzerinden telefonla görüşme/ video görüşmesi (webcam ile) Telephoning over the Internet / video calls (via webcam) over the Internet	69.5	68.0	71.3
Sosyal medya üzerinde profil oluşturma, mesaj gönderme veya fotoğraf vb. içerik paylaşma Participating in social networks (creating user profile, posting messages or other contributions)	84.1	86.9	80.7
Mal ve hizmetler hakkında bilgi arama Finding information about goods or services	67.8	71.5	63.3
Müzik dinlemek (Web radyosu dahil) Listening to music	61.4	62.2	60.5
İnternet üzerinden TV izleme (canlı veya kaçırılan programlar dahil) Watching internet streamed TV (live or catch-up)	40.0	40.8	39.1
Ücretli video izleme Watching video on demand	4.4	5.1	3.6
Paylaşım sitelerinden video izleme (Örn. YouTube) Watching video content from sharing services	78.1	80.0	75.9
Oyun oynama ya da indirme Playing or downloading game	35.3	40.3	29.3
Sağlıkla ilgili bilgi arama (yaralanma, hastalık, beslenme, vb.) Seeking health-related information (e.g. injury, disease, nutrition, improving health, etc.)	68.8	65.0	73.5
Web sitesi üzerinden bir doktordan randevu alma (sağlık kuruluşu veya hastane vb.) Making an appointment with a practitioner via the website	34.7	34.7	34.8
Mal veya hizmet satışı Selling of goods or services, e.g. via auctions (e.g. eBay)	21.3	24.9	17.0
İnternet bankacılığı Internet banking	39.5	49.8	27.0

In the light of statistics presented in this section, it is concluded that internet is widely available in Turkey and new media is becoming the primary source to reach information in daily life. At this point, the motivation types for finding information online should be examined in terms of the effect on lives. Entertainment or buying oriented searches may not have critical impact on the masses but health-related searches.

At this point, I must share a personal anecdote. One day in 2018, my father, who had not had any cardiac disease until that day, felt some abdominal pains while sitting at home. Later on, he started to seek its causes online and then had a suspicion if it could be a heart attack, so, he went to emergency. Actually, he was suffering heart attack and as a result, after immediate treatment he got healthy again thanks to early intervention. Based on this experiment, I can express that online health information seeking may save lives and convince people to get support from medical experts.

Moreover, as SEO experts, we have witnessed remarkable changes in online health industry after an algorithm change by Google in Turkey. Based on the quality and expertness of websites, Google rearranged the rankings of websites, especially on health-related searches. I would expect medical institutions such as hospital websites to increase their search visibility since these websites are reputable due to the comprehensive contents prepared by physicians, in my opinion. Nevertheless, hospital sites have been badly affected by this update and lost a large number of visitors online. On the other hand, the major changes in search visibility of news sites in Turkey after the update have aroused interest among digital marketing community. We have experienced that Turkish news sites have remarkably gained search visibility during that period, even on health-related searches.

These two incidents have made me come up with this research. In my opinion, it is quite remarkable that Google has reputed news sites on medical information as the result of artifactual evaluation by quality raters. Thus, there may be a correlation between Google's approach and user behaviors towards news sites in terms of trust. In the light of this insight, my hypothesis is that Turkish internet users rely on news sites on their online health information seeking. Studying this argument is quite important to figure out online trust issues in public health.

In this research, I will also try to find answers for these questions:

- What are the common user behaviors while seeking online health information?
- Do online medical sources affect users' decision-making on their health?
- Besides the news sites, on which sort of websites do users rely while obtaining medical information?
- How does Google lead the online health communication flow?
- What are the challenges for medical sites and news sites in online health communication in Turkey?

2. LITERATURE REVIEW

2.1 UNDERSTANDING ONLINE HEALTH COMMUNICATION

The main theme of this paper is the effects of online health communication on users in Turkey. Thus, it is better to understand the environment of this subject at first, so I reviewed the literature to find out the theories from wide to narrow scoped. Reviewing these theories, my aim is to explore the situation of online health communication concept in communication models and health communication theories.

2.1.1 Communication Theories

The communication process has been defined and modelled by many theoreticians in communication sciences so far. The foundation of communication theory was grounded in the 1940s, the years when scientists and engineers were trying to find a way out to transmit information via electronic devices, by two scientists named Claude E. Shannon and Warren Weaver. The Shannon and Weaver Model of Communication, referred as “mother of all models”, diagrammatizes communication in linear and one-way flow as in Figure 2.1 (Hollnagel & Woods, 2005).

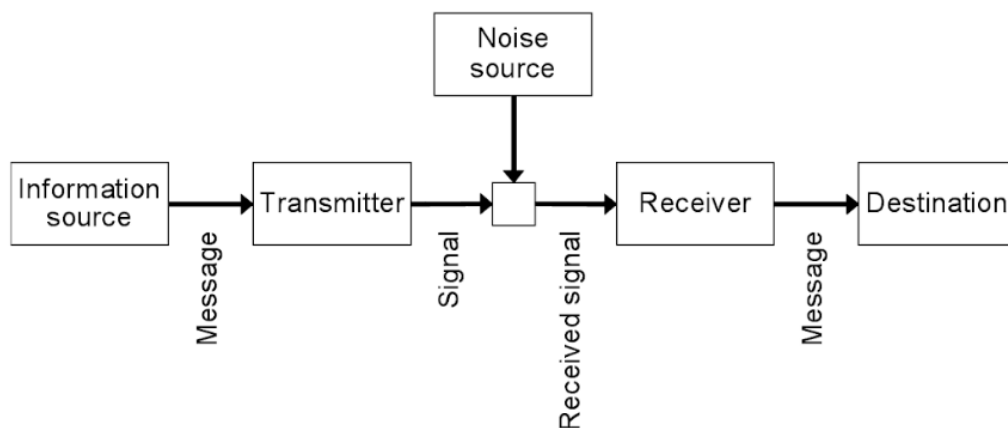


Figure 2.1 The Shannon and Weaver Model

In this schema, it can be seen that communication defined as conveying a message from the source to the destination in a technical perspective. The reason behind this perspective may be the concern for transmitting data without loss while using electronic devices as transmitter and receiver.

Few years later, in 1948, The Shannon and Weaver Model is expanded by Wilbur Schramm, an American scholar known for his studies on mass communication. In his communication process model named as The Schramm Model, he includes some contextual factors and argues that communication is a two-way process due to the feedback loop between the receiver and transmitter as in Figure 2.2 (Blythe, 2009).

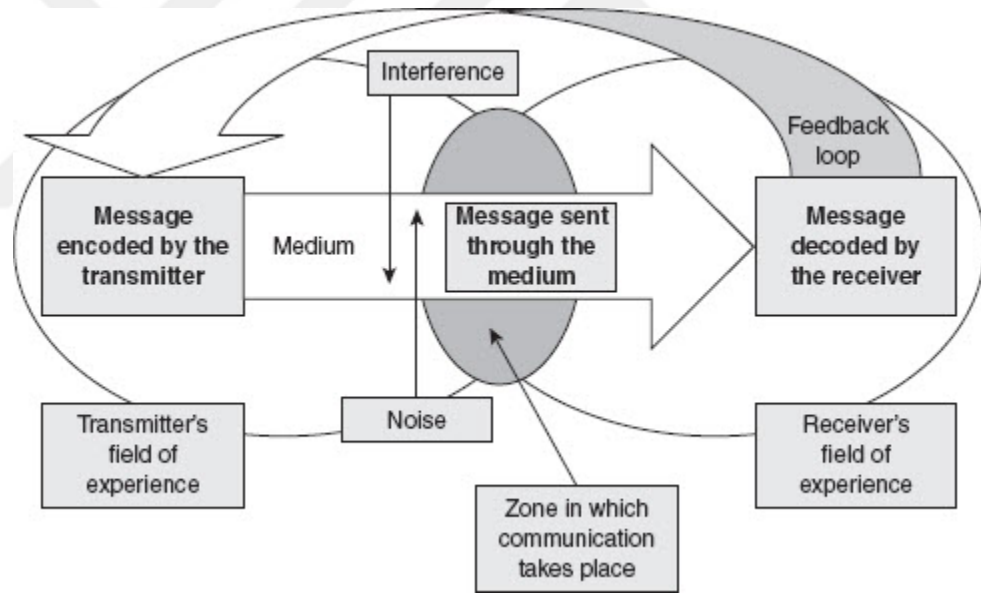


Figure 2.2 The Schramm Model

Based on The Schramm Model, transmitter's and receiver's fields of experience, the interferences and noises in medium and the place may change the flow of the message. This diagram is closer to modern communication flow than the previous theory.

One of the most known communication models has been introduced by David Kenneth Berlo, an American communications theorist lived between 1929 and 1996, in the book named “The Process of Communication: An Introduction to Theory and Practice” in 1960. According to SMCR model of communication, also called as Berlo’s model of communication, the flow of communication consists of four elements: source, message, channel, and receiver. Each element has some variables that may affect the communication flow as visualized in Figure 2.3 (Watson & Hill, 2015).

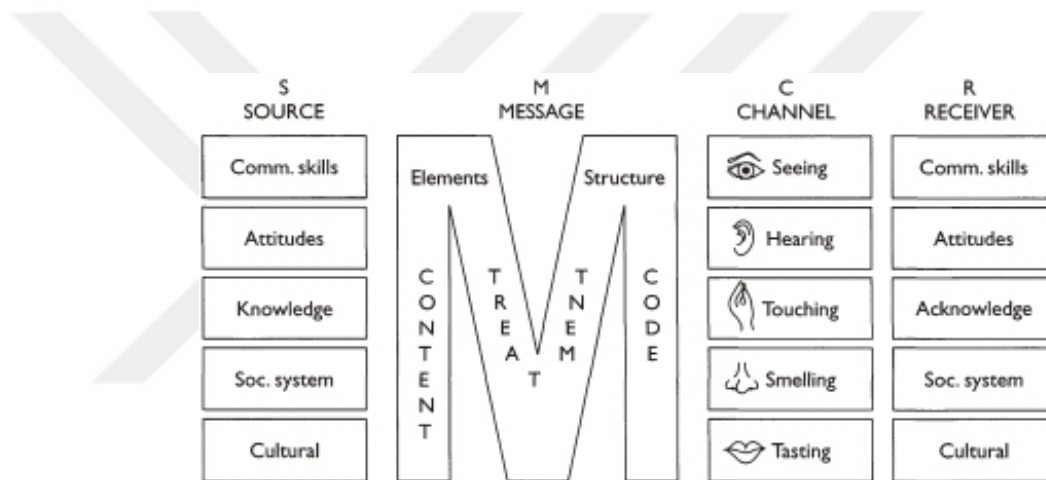


Figure 2.3 SMCR model of communication

With this theory, some major dimensions are involved in communication flow. Berlo approaches communication with anthropological and sociological aspects by asserting that the five senses of human, cultural and sociological factors are the part of communication since they may affect the conduction and perception of message.

All of these fundamental models of communication are based on the content or the transmitter and the receiver in the flow of conveying message. They are still valid; however, it can be stated that the communication model has been re-shaped in recent years due to internet. The communication theories in digital era are argued within the field of “New Media”. Thus, we

can call new media as “The Modern Communication” so the theories in this field lay a foundation to form modern communication modals.

In contradistinction to The Shannon and Weaver Model of Communication, The Schramm Model, and The SMCR model, well-known communication theorist Marshall McLuhan do not focus on the meaning of the message or the characteristics of the transmitter and receiver, he sees the medium as the modificative factor in the communication. With this approach, in his book “Understanding Media: The Extensions of Man”, published in 1964, McLuhan he creates a groundbreaking concept in the literature: “The medium is the message.” (McLuhan, 1994).

The argument of McLuhan underlies to today’s new media studies since the modern communication flow are based on the medium such as e-mail, social media, smartphones, websites etc. Since the medium is more diverse today than the past, we should examine the medium itself and understand how the message is comprehended depending on media. Based on McLuhan’s approach towards communication, Robert K. Logan who is one of the notable academicians in new media studies, updates “the medium is the message” concept within today’s communication methods and defines the new media modal in his book named “Understanding New Media: Extending Marshall McLuhan” in 2010. Logan states that the new technology media such as personal computers are not threatened in McLuhan’s work due to the bounds of technological facilities in 1964. However, when McLuhan’s argument is reviewed according to today’s conditions, it is clear that modern communication modal should be formed based on the medium itself since new media is becoming more and more important in communication (Logan, 2010).

To sum up, the old communication modals which go mainly around the sender and receiver, are getting outdated. New media such as internet add a different dimension to mass communication. Regarding the research subject of this paper, these theories indicate that why the health communication should be discussed in detail in terms of new media environment.

2.1.2 Defining Health Communication

The characteristics of communication should be specifically studied for each field because the factors for the message as mentioned in communication theories may differ from subject to subject. Beyond any doubt, one of the most important fields for the public welfare is healthcare. The uninterrupted and accurate conveyance of a message is quite significant for the public health. Thus, the governments, players of health industry and many researchers try to figure out the optimum structure and requirements for better communication in healthcare, which is conceptualized as health communication.

The concept of health communication is defined by Encyclopedia.com as “a rich, exciting, and relevant area of study that investigates and elucidates the many ways that human and mediated communication dramatically influences the outcomes of health-care and health-promotion efforts” (Encyclopedia of Communication and Information, 2002). In an article, it is mentioned that the interest in health communication has grown over the past two decades because this issue had appeared for the first time since 1979, within the objectives of “Healthy People 2010”, an act by U.S. Department of Health and Human Services (Parrott, 2004).

When the literature is reviewed, the very first significant study about health communication is the book named “Health Communication: Theory and Practice”, written by two scholars Gary L. Kreps and Barbara C. Thornton in 1984, in which the essentials of health communication are theoretically discussed in terms of the delivery of health care and the promotion of health (Kreps & Thornton, 1992).

Although some scholars examine the health communication in the discipline of communication modals on their studies, my literature review makes me conclude that the health communication theories and models are mostly discussed and defined by government agencies or international organizations. The main reason seems that the governmental intuitions are trying to create the most efficient discipline for their health campaigns in order

to regulate health industry, improve the public health, and ensure efficient use of allocated funds. For instance, communication is one of the factors to achieve health goals according to World Health Organization (WHO), and it offers a logic model for multi-dimensional health communication projects (see Figure 2.4).

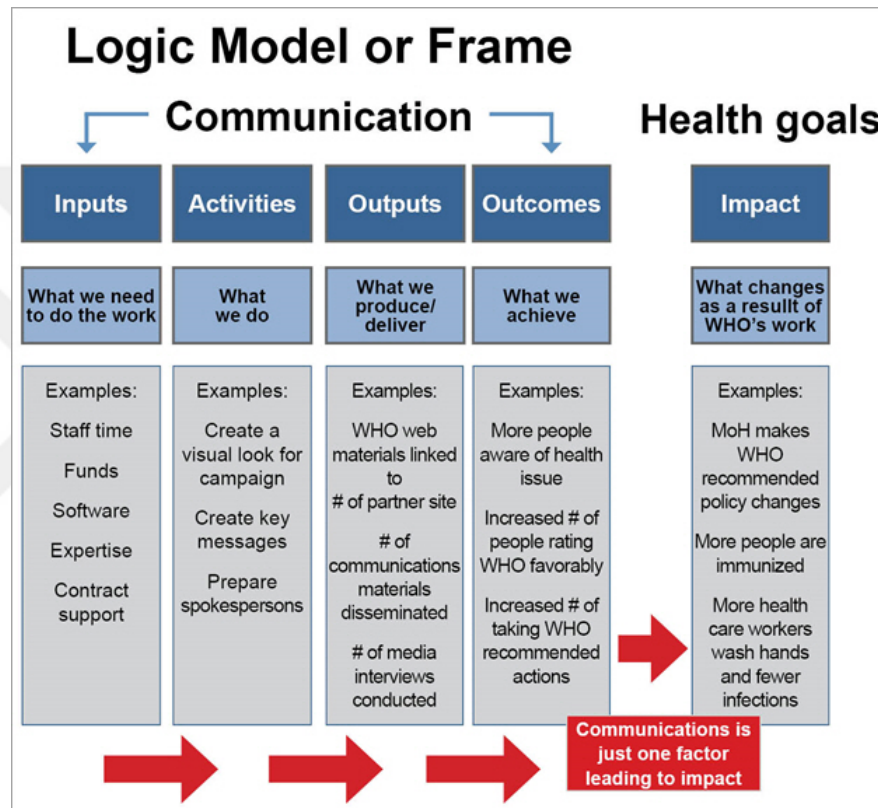


Figure 2.4 Logic Model or Frame for Health Communication (source: WHO)

In this frame, the communication flow is divided into four stages: inputs, activities, outputs, and outcomes (WHO, n.d.). This result-oriented model differently includes financial and technical requirements and desired outcomes in communication process while conveying a health-related messages to the public.

The messages in health communication is not only conveyed instantly but also in very long term. For this reason, European Centre for Disease Prevention and Control agency designs the health communication according to 11 principles that can be seen in Table 2.1 (ECDC, n.d.).

Table 2.1 Principles of EU in health communication (source: ECDC)

Accuracy:	the content is valid and without errors of fact, interpretation, or judgment.
Availability:	the content (whether targeted message or other information) is delivered or placed where the audience can access it.
Balance:	where appropriate, the content presents the benefits and risks of potential actions or recognizes different and valid perspectives on the issue.
Consistency:	the content remains internally consistent over time and also is consistent with information from other sources.
Cultural competence:	the design, implementation, and evaluation process that accounts for special issues for select population groups and also educational levels and disability.
Evidence base:	relevant scientific evidence that has undergone comprehensive review and rigorous analysis to formulate practice guidelines, performance measure, review criteria, and technology assessments.
Reach:	the content gets to or is available to the largest possible number of people in the target population.
Reliability:	the source of the content is credible, and the content itself is kept up to date.
Repetition:	the delivery of/access to the content is continued or repeated over time, both to reinforce the impact with a given audience and to reach new generations.
Timeliness:	the content is provided or available when the audience is most receptive to, or in need of, the specific information.
Understandability:	the reading or language level and format (including multimedia) are appropriate for the specific audience.

This design prioritizes creating long-lasting, consistent, understandable and accurate messages for the global community; therefore, there is no certain frame for medium, sender and receiver. I assume that this discipline requires using time and space independent media, that's why new media comes into prominence in health communication.

Besides the frames composed by the dignified organizations and governmental agencies, a metatheory of health communication is revealed in the literature by some researches as shown in Figure 2.5 (Kincaid, et al., 2013).

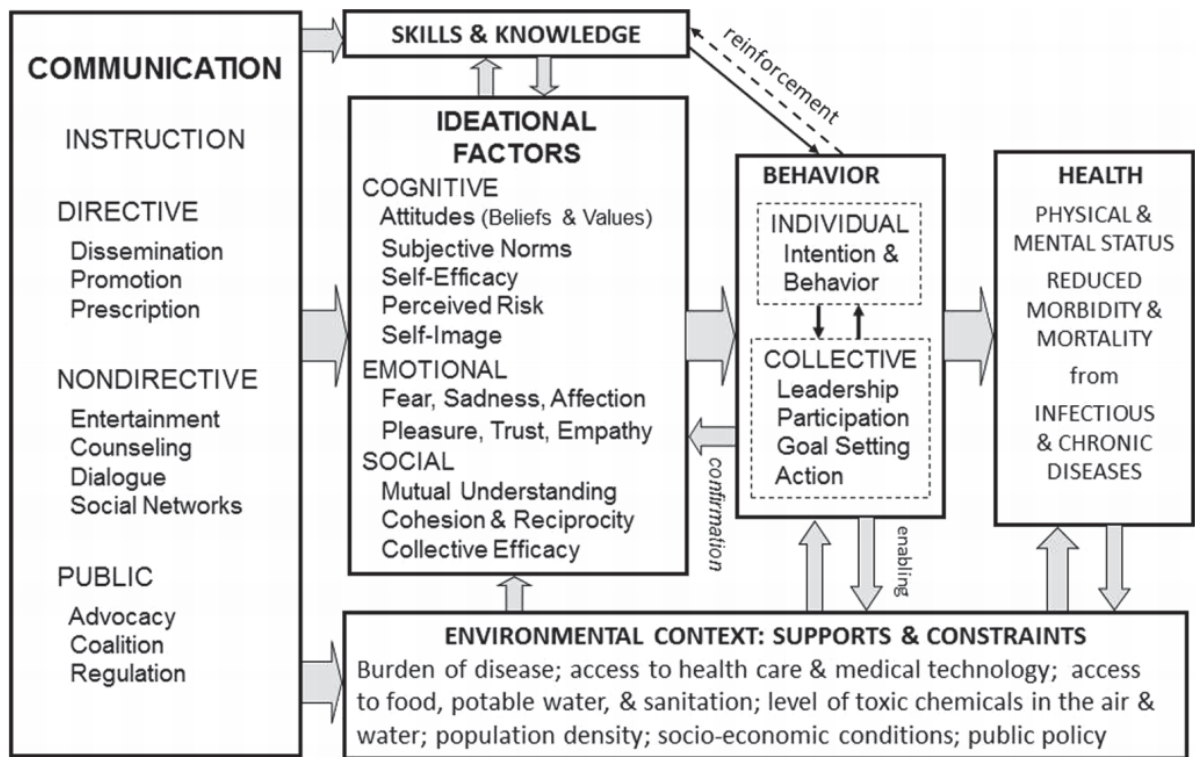


Figure 2.5 Health communication flow by 11 Kincaid, et al.

This theory introduces a multi-directional model for health communication. According to this, communication is in 4 different forms: instructive, directive, nondirective, and public. It can be conducted that the communication is proceeded to improve people’s health. In this flow, the message is exposed to skills and knowledge, ideational factors, environmental context, and people’s behavior. Consequently, in can be said that demographical and environmental factors have a great impact on the journey of message in health communication.

2.1.3 Online Health Communication

The arguments stated in this chapter so far emphasizes the importance of medium in modern communication and the impacts of communication on public health. As mentioned in Logan’s theory, new media drives message, so online health communication theories and reviews should be deeply investigated.

I believe that the online health information seeking activities underlies online health communication flow. In aforementioned disciplines and theories in health communication, it can be seen that the sender is authorities while the receiver is public. However, the traditional communication flow has been interrupted by new media; the producer of a message can be the public itself thanks to internet. Thus, it is not possible to evaluate health communication as one-way flow today. Besides the messages conveyed by governmental organizations, a multi-directional communication flow exists on the web. This situation proves McLuhan's theory, the medium constitutes the message.

The unregulated environment of new media brings along the discussions about challenges and impact on health communication. It seems that modern health communication models are mostly based on eliminating the risks that may interfere in message. TELLME experts from the School of Public Health at the University of Haifa, which is funded by the European Union, reveals a new model for health communication as in Figure 2.6 (TELLME, 2014).

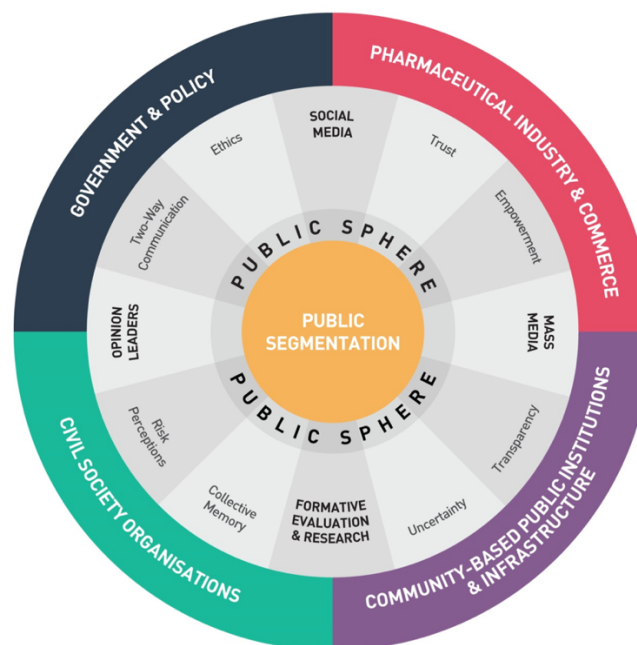


Figure 2.6 New model for health communication (source: TELLME)

It can be claimed that online health information seeking takes part in every share in this graphic while the message is conveyed through the center, namely the public. Especially the factors under the two parts “Pharmaceutical Industry & Commerce” and “Community Based Public Institutions & Infrastructure” such as trust and uncertainty, establish the discussions in this thesis study.

Gary L. Kreps, who is one of the writers of aforementioned book “Health Communication: Theory and Practice”, and his colleague Linda Neuhauser re-evaluate the health communication based on the effects of internet in their study named “Rethinking Communication in the E-Health Era” in 2003. They remark that behaviors in health communication have been deeply changed after internet by pointing out “whereas the traditional view has been that transmitting knowledge to individuals will result in healthier behavior, a current concept is that people ‘create health’ within their own settings” (Neuhauser & Kreps, 2003). Accordingly, user behaviors should be examined in online health communication, so I am going to look closer at users’ preferences and activities on the web while seeking information within the scope of this research.

The impact of the health online sources on decision-making and people’s health communication behaviors is also proven in another research named “Effects of Online Health Sources on Credibility and Behavioral Intentions”. Examining the online health sources in theoretical and methodological aspects, the online source typology is visualized as in Figure 2.7.

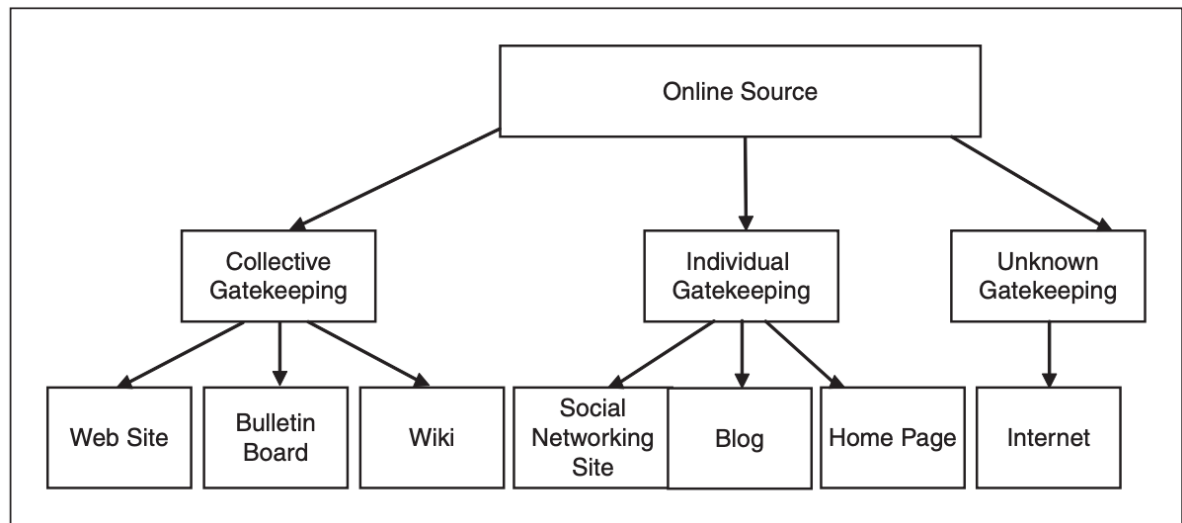


Figure 2.7 The online source typology by Neuhauser & Kreps

The researchers divide the gatekeeping in online sources into three characteristics: collective, individual, and unknown. They also point out that information selected collectively such as news sites, has more chance to be consumed by the mass audience than information selected individually (Hu & Sundar, 2010). By taking into consideration this inference, I believe that examining the user behaviors towards the sources on news websites is quite noteworthy for the literature in this field, so this have led me to carry out a survey a specific to news sites.

Additionally, a study carried out by two scholars, aspiring to define the characteristics of online and offline health information seekers, indicates that sociodemographic characteristics affect health information seeking on the web and they state that this factor may be considered in further researches (Cotten & Gupta, 2004). For this reason, I limit my study's scope into Turkish internet users.

In consequence of reviewing main theories about communication, health communication, and online health information seeking, I have better defined the outline and scope of my research. I would like to express that the arguments mentioned in this chapter mostly cover

the global studies. In the following parts of this paper, I will also be reviewing the literature in Turkey to detail my research and findings.

2.2 REVIEW OF ONLINE HEALTH COMMUNICATION IN TURKEY

In the previous section, where the main discussions underlying the online health communication are handled, shows how to approach the literature and researches in Turkey. Based on the before received findings, I aspire to figure out the online health communication aspects in Turkey by approaching in these ways:

- a. understanding the impact of online health information seeking in Turkey
- b. understanding the accuracy of online health sources in Turkey
- c. understanding the influence of online health sources on decision making in Turkey
- d. understanding the impact of news sites on online health communication in Turkey
- e. understanding the effect of new media on online health information seeking in Turkey
- f. understanding the relation between Google and websites on online health information seeking in Turkey

My literature review is centralized upon these aspects in following sections.

2.2.1 Effect Of New Media On Health Information Seeking

On the basis of the phrase “The medium is the message”, new media should also be analyzed in order to better understand the message on online health information seeking.

When the literature is reviewed in Turkey in the field of online health communication, most of the studies are carried out upon the impact of social media on public health. One of the latest researches is “New Approaches in Health Communication: Using Digital Media” reveals that 55% of Turkish undergraduate students sees the internet, especially sources in social media, as “beneficial” while decision-making about health (Gencer, et al., 2019). Prof.

Dr. Umit Atabek, Vice Dean of the Faculty of Communication at Yaşar University, emphasizes that the health literacy rate in Turkey is quite lower than Europe and their studies reveal that 55 percent of young people prefer internet as a source of information on nutrition and health issues. He also says that social media is the primary source for young people in Turkey for health information (Anon., 2017).

Consequently, social media has great impact on health information seeking in Turkey, so the literature is enriched by the studies covering this side of the new media effect. Nevertheless, other significant channels of new media such as websites and their correlation with online health information seeking behaviors should be examined to expand the findings.

2.2.2 Effect Of Online Sources On Human Health And Decision Making

Internet provides time and space independency, so people quickly access information 7 days 24 hours. Before world wide web, one needed to make an appointment and see a doctor when he or she felt sick. Nevertheless, internet users have health information provider just a click away today. This may save lives in case of urgency; for instance, when one feels sick at midnight and should take some precautions since need to wait the day after for seeing a doctor. On the other hand, any inaccurate information or misinterpreting of user may lead fatal results.

There are some anti-theses against lifesaving attribute of online health sources. In Assoc. Prof. Dr. Haluk Zülfikar's research where he analyzes users' behaviors, online health information seeking leads some cancer patients to make decision and helps them to see a doctor, although some of them are confused by the online information while decision making on their disease (Zülfikar, 2014). In a statement to HaberTurk, internal medicine specialist Dr. İbrahim Bağcıvan defines online health information seekers as "e-patient" and says that these e-patients who prefer to get medical information online rather than physicians, get desperate or misinformed by online sources (Anon., 2010). Moreover, webpages having commercial purposes to sell some medicines or food supplements that claim to cure some

diseases, may lead to death of people due to unconscious treatment. This sort of web sites has increased Turkey in significant number that Turkish Pharmacists' Association publishes a press release to warn the public against medicine selling websites since many citizens have lost their lives after the use of these products (Association, 2019).

Moreover, some people need to take somebody's advice who has same symptoms or pulled through the illness when they feel sick. After Web 2.0, internet allow users to share their thoughts or interact with anonymously with other users on blogs, social media, forums etc. Peer to peer communication on web can shape one's decision about their health for better or for worse. Ellen Brady et al., from Centre for Primary Care, Institute of Population Health, The University of Manchester states that "users are attracted to members who in line with their own beliefs and experiences on forums so that the internet goes beyond an information source; instead, it provides information that individuals interact with, depending on their daily lives and health practices" (Brady, et al., 2016).

2.2.3 User Behaviors On Online Health Information Seeking In Turkey

In advance of analyzing the discussions on online health information seeking, it is better to understand how big the volume of those searches and why people use internet in their treatment process. As the Table 1.1 shows that seeking health-related information (e.g. injury, disease, nutrition, improving health, etc.) is the fourth purpose in internet activities by 68.8% according to 2018 statistics. According to this report, it seems that female users have more tendency to seek health related information online than male users. Taking into consideration that the rate of finding information about health is 36% in 2004, it can be asserted that this purpose has consistently increased in the last 15 years in Turkey. In addition to this, 34.7% of internet activates are in an attempt to make an appointment with a practitioner via a website today. Therefore, internet is not only a communication or entertainment medium in our daily lives, it plays a large part in treatment process while seeking medical advices or a physician.

Unlike the most of studies in the literature in Turkey, I include the top health-related searches and their volumes into this paper. For this analysis, I used the data retrieved on Ahrefs.com (Ahrefs, 2019), a well-known paid online toolset that explores the web and collects websites' performance and keyword volumes in numerous countries. In this tool, one can see all keywords even including a specific word and their monthly average search counts. Using this methodology, I downloaded the data of 3 types of search queries in Turkey:

- Search queries having the word “belirtileri”, which means “symptoms”, since I believe that they are indeterminate user intents before a diagnosis.
- Search queries having the word “hastalığı”, which means “disease”, since I believe that they are semi-certain user intents before or after a diagnosis.
- Search queries having the word “tedavisi”, which means “treatment”, since I believe that they are certain user intents after a diagnosis.

The data shows that there are 32429 different search terms having the word “symptom” and their total average search count is 3024870 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.

Table 2.2 Search Volumes of the Top 20 Keywords Having the Word "symptoms" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
hamilelik belirtileri	pregnancy symptoms	60000
apandisit belirtileri	symptoms of appendicitis	40000
şeker hastalığı belirtileri	diabetes symptoms	27000
akciğer kanseri belirtileri	symptoms of lung cancer	25000
boyun fitiği belirtileri	symptoms of neck hernia	24000

kalp krizinin belirtileri	symptoms of a heart attack	24000
bel fitiđı belirtileri	symptoms of lumbar hernia	23000
kalp krizi belirtileri	symptoms of heart attack	22000
b12 eksikliđi belirtileri	b12 deficiency symptoms	20000
beyin kanaması belirtileri	symptoms of brain hemorrhage	19000
menopoz belirtileri	symptoms of menopause	19000
beyin tümörü belirtileri	symptoms of brain tumor	18000
mide kanseri belirtileri	stomach cancer symptoms	18000
safra kesesi belirtileri	symptoms of gallbladder	17000
depresyon belirtileri	symptoms of depression	16000
lösemi belirtileri	leukemia symptoms	15000
panik atak belirtileri	symptoms of panic attacks	15000
zatürre belirtileri	symptoms of pneumonia	15000
aids belirtileri	aids symptoms	15000
kolesterol belirtileri	cholesterol symptoms	14000
mide kanaması belirtileri	symptoms of gastric bleeding	14000
kanser belirtileri	cancer symptoms	14000
gebelik belirtileri	signs of pregnancy	14000
reflü belirtileri	symptoms of reflux	13000
apandisit belirtileri nedir	what are the symptoms of appendicitis	13000
tansiyon yükselmesi belirtileri	symptoms of elevated blood pressure	13000
böbrek yetmezliđi belirtileri	symptoms of kidney failure	12000
bađırsak kanseri belirtileri	bowel cancer symptoms	12000
idrar yolu enfeksiyonu belirtileri	symptoms of urinary tract infection	12000
sinüzit belirtileri	sinusitis symptoms	12000

This table indicates that most of health information seekers explore the symptoms before they are certain about their health situation and search terms about pregnancy, appendicitis, cancer types and some other types of illnesses. The noteworthy insight is that the keywords related to gynecological diseases such as pregnancy symptoms, symptoms of menopause and signs of pregnancy are frequently searched according to this table and there is no male-specific disease, so it can be deduced that women may be using the internet more often for health information seeking. The accuracy of online sources and personal inferences of users are very critical at this point. The explanations on the web may appear similar to users with their illness so initiate the treatment process or they may find very irrelevant information on the search results and do not take any action even if they have actually a disease.

Secondly, according to the data of Ahrefs.com, there are 28947 different search terms having the word “disease” and their total average search count is 1782320 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.3.

Table 2.3 Search Volumes of the Top 20 Keywords Having the Word "disease" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
el ayak hastalığı	hand-foot-and-mouth disease	36000
gut hastalığı	gout disease	36000
sedef hastalığı	psoriasis disease	34000
sma hastalığı	sma disease	30000
şeker hastalığı belirtileri	diabetes disease's symptoms	27000
ms hastalığı	ms disease	27000

behçet hastalığı	Behcet's disease	27000
çölyak hastalığı nedir	what is celiac disease	22000
zona hastalığı	shingles disease	20000
şeker hastalığı	diabetes disease	18000
koah hastalığı	koah disease	16000
gül hastalığı	rose disease	16000
als hastalığı	als disease	15000
kelebek hastalığı	butterfly disease	15000
zona hastalığı nedir	what is shingles disease	15000
crohn hastalığı	crohn's disease	14000
çölyak hastalığı	celiac disease	12000
fmf hastalığı	fmf disease	11000
emes hastalığı	emes disease	11000
lyme hastalığı	lyme disease	11000

At this table, it can be seen that searches about disease are having specific terms. The most searched diseases are hand-foot-and-mouth disease and gout disease. People may seek information when they are suspicious about a disease or diagnosed by a medical expert. In the first presumption, users may decide to see a physician or treat themselves upon the information found on the web. So, the sources may affect their treatment process. In the first presumption, users are probably conscious about their existing disease and want to get detailed information with further research.

Lastly, in the data of Ahrefs.com, there are 51997 different search terms having the word “disease” and their total average search count is 2092840 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.4.

Table 2.4 Search Volumes of the Top 20 Keywords Having the Word "treatment" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
kanal tedavisi	canal treatment	22000
ozon tedavisi	ozone therapy	12000
varis tedavisi	varicose veins treatment	11000
sülük tedavisi	leech therapy	10000
topuk dikenli tedavisi	heel spur treatment	9400
sinüzit tedavisi	sinusitis treatment	8000
kök hücre tedavisi	stem cell therapy	7800
basur tedavisi	hemorrhoids treatment	6900
prp tedavisi	prp treatment	6800
bel fıtığı tedavisi	lumbar hernia treatment	6700
nasır tedavisi	callus treatment	6400
migren tedavisi	migraine treatment	6400
hemoroid tedavisi	hemorrhoids treatment	6000
panik atak tedavisi	treatment of panic attacks	5400
ayak mantarı tedavisi	treatment of athlete's foot	5300
prp tedavisi nedir	what is prp treatment	5100
tırnak mantarı tedavisi	nail fungus treatment	5000
yanık tedavisi	burn treatment	5000
zona tedavisi	shingles treatment	4900
boyun fıtığı tedavisi	treatment of neck hernia	4700

This table shows that people mostly seek some treatment methods such as canal treatment and ozone therapy and the search terms do not coincide with Table 2.3. Therefore, it can be

deduced that when people are conscious about their diseases, they seek information such as the process, medical intuition or prices about specific treatment methods upon their physician's referral or the obtained information by web sources or relatives etc.

Some arguments by the interpretation of these three tables are listed below:

- Although the volume of searches about symptoms seems significantly high, it is less than the sum of searches for treatment and disease. Thus, it can be concluded that the internet may be more used for further research than preliminary research in the online medical information flow in Turkey.
- The total search volumes of keywords about diseases are less than symptoms and treatment related searches. It can be assumed that those users might already have been informed about the disease by a physician when they were diagnosed.
- Interestingly, the number of unique searches about treatments are much more than symptoms and diseases. This may be result of existing numerous methods for diseases so users may investigate every way to survive their diseases.

As mentioned, people make great numbers of health-related searches every second on search engines. Not only the quantity of those queries but also the purpose behind them should be deeply examined to figure out users' behavior. Several studies demonstrate the purposes of Turkish users while health information seeking on web. Very first study in the literature was done in 2012, a case study named "A Study of Health Web Sites' Usage Level: A Case Application" examines the behaviors of academic staff at a state university and asserts that the primary reason is searching diseases by 85% for one's own or relatives since the internet is much cheaper and quicker to access information (Özer, et al., 2012). The next year, in the the online survey of Social Touch on 8001 users of Doktorsitesi.com in 2013, a website allows one to make an appointment online and contains articles about health-related issues, the participants affirm that they primarily use search engines for getting information about diseases or health issues by 89%. The following purposes are finding information upon medicines (55%), health care services (47%), physicians (44%), and making an appointment

(42%). Most of these participants state that they make those searches for themselves or their relatives so it can be said that they principally carry personal purposes (Anon., 2013). This report so precious in this subject that many articles in the literature refers it; however, the data has been outdated since it was done in 2013. For instance, it points out that searches on computer are higher than mobile but today, in 2019, mobile devices' penetration is almost 67% and ahead of computers (DataReportal, 2019). For this reason, the purposes of health information seeking in Turkey should be analyzed and updated, which is one of the aims of this thesis.

Moreover, when the medium for accessing health related information are compared, the rate of web-based searches is remarkably higher than relatives, printed materials and television among the patients (Görkemli, 2017). Excessive use of the internet brings some advantages and disadvantages. In the review of literature on the relation between web-based searches and public health by two medical researchers, these amenities and disabilities are listed. Firstly, it is mentioned that internet users go online for health information since it is time-saving, low cost, easy access for physically disabled persons etc. On the other hand, it has some deficiency since it the effect of information may vary in different demographics, multiple answers for a same subject, difficulty of access for elder people etc. (Aslan & Yavuz, 2013).

Consequently, an undeniable fact that online health information seeking has a very important place on public health. People mostly go online before consulting a physician since internet is easiest and quickest way to find information.

2.2.4 Accuracy Of Web Sources On Health-Related Searches

Internet is a public and interactive platform that allows everyone either consume or create content. Thus, most of the content on the internet are generated by internet users or non-expert editors working for a website, there is no strict regulation for disseminating information on the net. At this point, due to lack of fact-checking, any misinformation can

spread out and may be widely believed in it. This weak side of new media should be discussed especially for online health information-seeking since any misinformation may vitally affect people's decision and even harm one's health.

The quality and accuracy of information may differ by languages and countries. A recent cross-sectional study comparing the first 30 search results in terms of the quality of online information about total knee arthroplasty available in Turkish and English search results reveals that Turkish articles are as accessible as English ones; however, the former is less accurate than the latter (Küçükdurmaz, et al., 2015). On the other hand, Dutch physicians are “moderately positive about the consequences of health-related Internet use for their patients, the physician-patient relation, and the health care” (Uden-Kraan, et al., 2010). This give clue about the deficiency on online health information-seeking in Turkey.

According to another cross-sectional survey, 41% of 103 healthcare professionals have the opinion that health-related information on the net in Turkey is mostly inaccurate and the better part of these professionals indicate this speciousness mislead the patients before they see medical experts (Tosun, et al., 2015). Additionally, not only inaccuracy but also any lack of information can also mislead or confuse health information seekers and there are three significant research in literature pointing out that the top results on search engines for health-related queries in Turkish have incomplete or incorrect information. Some years earlier, in 2013, three researchers who are expert in orthopedics and traumatology department reveal that the web pages ranked at first results on search engines such as Google, Yahoo and MSN gives missing and inadequate information about hip fractures (Küçükdurmaz, et al., 2013). Three years later, a study named “How Reliable is the Information in the Internet on Atopic Dermatitis?” where the search results and content quality are evaluated in quite similar methodology as previous one, deduces that most of web pages about eczema contain unwarranted user generated content on Google (Çetinkaya, et al., 2016). In another research where the top 14 sites on search engines for hip dislocation search are examined by medical professionals, Turkish users are exposed incorrect practices, irreversible prejudices on web (Ceylan, et al., 2016).

Except for hospital websites and governmental sources, most of the sites on the web include advertisements on the pages and they publish contents in an attempt to get revenue. The commercial concern should also be discussed for health-related search results. Some websites may manipulate contents to get more traffic and this argument has been confirmed in on a research. 10 researcher reports that 65% of web pages contain advertisement when they analyze search results on Google Turkey for 12 different symptoms with varied keywords such as “symptom alone”, symptom and prevention”, “symptom and diagnosis”, and “symptom and treatment”. In consequence of the analysis, they deny recommending these commercial concerned websites to their patients due to non-medical context (Can, et al., 2014).

Search engines sometimes list rich content apart from web pages on search results such as videos and users may click them and get information on during their health seeking. For instance, Google has been featuring video carousels on web searches since 2018 (Oberstein, 2018), as the example at Figure 2.8:

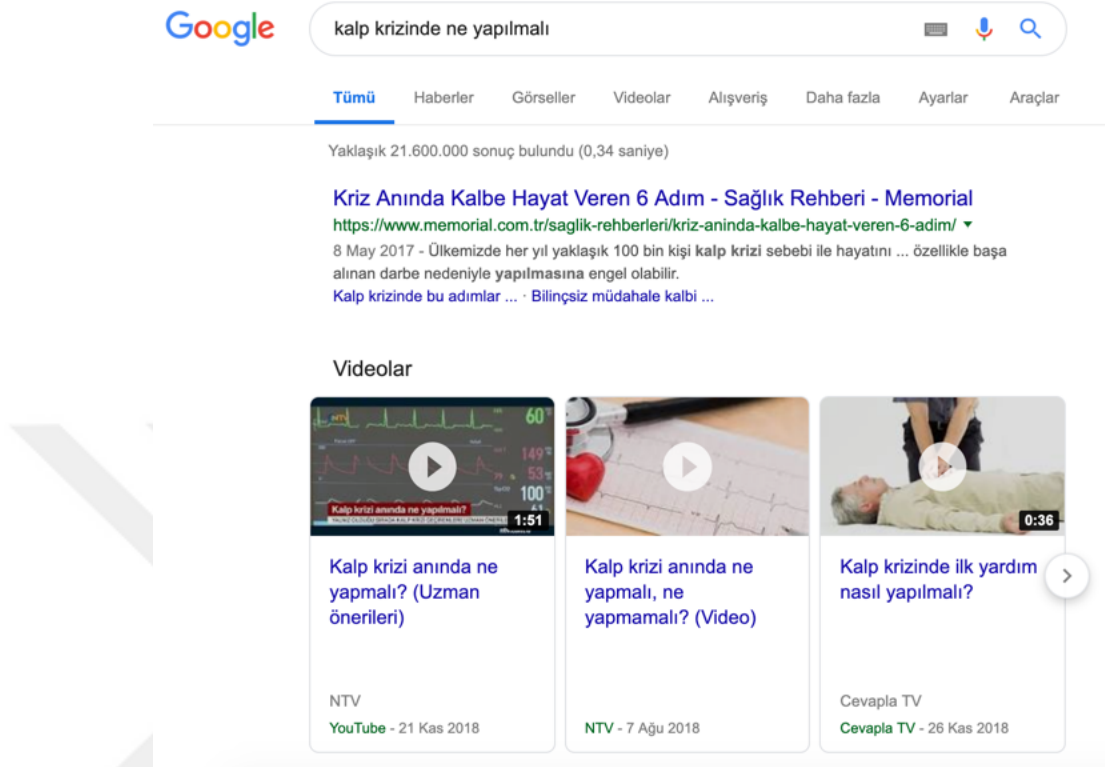


Figure 2.8 Video carousel on “What to do during a heart attack” search. (source: Google)

This update by Google bring along discussions about reliability of videos about health. As it can be seen on the figure above, the videos by newspaper sites (e.g. NTV) or video sites (e.g. Cevapla TV), which are not medical institutions, can be shown on the results. In a research named “The Reliability of Turkish ‘Basic Life Support’ and ‘Cardiac Massage’ Videos Uploaded to Websites”, it has been found out that “one fourth of the videos were observed to not be suitable for 2010 CPR guideline” and the videos uploaded by persons are significantly gets lower score in terms of accuracy rather than the ones uploaded by official institution or medical person (Elicabuk, et al., 2016).

Consequently, above-mentioned research results clearly indicate that Turkish health-related search results on search engines like Google are less accurate than some other languages and most of the web pages or videos are incorrect or deficient. Therefore, it can be claimed that

Turkish web pages have a tendency to contain misinformation and so the trustworthiness of health-related search results in Turkey are questionable.

2.2.5 Effect Of News Sites On Online Health Information Seeking

According to the online source typology explained in previous chapter (see Figure 10), the collective sources on news sites have great impact on online health information seekers. Interestingly, the studies carried out towards on news sites raise doubt on the accuracy of health information on these sources.

A discourse analysis on news sources on the web in Turkey, which examines sources in terms of content, grammar, structure interactivity and presentment; shows that they include inaccurate statements and create false impression about health issues (Hülür, 2016).

In a conference proceeding, sabah.com.tr and sozcu.com.tr which are well-known news sites in mainstream media, are comparatively analyzed and concluded that only in the 25% of the health-related news are composed upon the medical experts' opinions, most of them have questionable discourse that may negatively affect the reader's health (Taylan & Ünal, 2017).

The discussions show that there is a need for validation mechanism online health sources in Turkey. A recent organism named Teyit.org targets to create a validation mechanism by fact-checking the claims made online sources; however, there are still some deficiencies on this platform. The same conference proceeding also cover the false information problem in health communication, and points out that the fact-checking results of health-related claims on Teyit.org are mostly inaccurate or open to discussion (Ünal & Taylan, 2017).

2.2.6 Effect Of Google On Online Health Information Seeking

Most of statistics show that one of the most common media is search engines in World Wide Web in the online health communication flow. Therefore, the search engines and the listed

web pages form the message for online health information seekers. According to StatCounter, the most used search engine is Google in Turkey by 91% (StatCounter, 2019). Due to this huge gap between other search engines, it can be said that “Google is the message” on online health communication in Turkey.

The changeable nature of search engines conveys variable messages for the users. They list the web pages in a search query according to their algorithms and these algorithms are changed and updated frequently. For the message producers, there is no guarantee to reach the receiver all the time. This poses a challenge and barriers for the authorities that desire to regulate public as mentioned in health communication theories. Unknown sources or individual gatekeeping in online health communication may get ahead of authorized sources on search results. This may cause information pollution on the web about health issues and the public health may be badly affected. It can be said that the regulator of online health communication is search engines like Google unlike the public sphere. Governments sometimes interfere in this environment by restricting the access to some websites, but it is not limiting for users, they can still find to reach these sources by create fake virtual locations.

In spite of user-serviceable nature of the web, Google works on regulating the search results to protect users. It frequently updates its algorithm with certain purposes for enhancing the search results for the common good. For instance, in a recent update named “August 2018 Core Update”, it can be understood how Google takes vital issues on the web seriously. Google has not declared the scope of that update; however, the studies by digital marketers indicate that it is clearly aiming “Your Money or Your Life” pages, the web pages about finance and health that may directly affect users’ life. According to the non-official insights after a comprehensive analysis on 300 domains by Barry Schwartz, a notable expert in digital marketing, the websites in health industry are the most affected from this update by 41% (Schwartz, 2018). This algorithm change is called as “Medic Update” and “Expertise – Authoritativeness – Trustworthiness (EAT) Update” by the digital marketing community since Google had updated its “Search Quality Evaluator Guidelines” 10 days before this update for the “Quality Raters” who are the people working for Google to manually evaluate

websites in terms of quality according to the policies defined by Google. When the scope of this 164 pages guideline is examined, it can be clearly seen that Google makes major strides in order to ensure trust and safety on the search results. Web pages are to be evaluated according to these major criteria:

- the purpose of the page
- expertise, authoritativeness, trustworthiness of the page
- main content quality and amount of the page
- who is responsible for the main content (creator) of the page
- who refers to that page on the web (reputation) of the page

The evaluation methods and examples of health-related pages are frequently handled in this document. It also includes some cases clearly demonstrating the poor and fully qualified medical information pages in terms of the 5 main criteria above.

If this approach of Google interpreted in reference to Berlo's SMCR model of communication, it can be said that it mainly focuses on the factors of the Source like knowledge and attitudes during conveying the Message to the Receiver, while the channel is itself. The approach of Google towards medical information pages can be understood in its statement:

“High E-A-T medical advice should be written or produced by people or organizations with appropriate medical expertise or accreditation. High E-A-T medical advice or information should be written or produced in a professional style and should be edited, reviewed, and updated on a regular basis.” (Google, 2018).

In order to understand the effect of this update, some data retrieved by using SearchMetrics, an online tool that measures the search visibility of websites. The methodology while measuring the search visibility, it bases the search volumes of keywords and the rank of a website for that keyword on search engines. In short, better ranking in highly searched

queries brings the sites more visibility score on the data of SearchMetrics (SearchMetrics, n.d.). Because it is not possible to see the private data of websites, this scoring method simulates of the organic traffic comes from search engines. Thus, it is commonly used in digital marketing sector to monitor organic traffic of websites.

There are numerous hospital websites in Turkey, but the analysis is sampled upon these three esteemed hospital sites since they have high level shares on online health searches: memorial.com.tr, acibadem.com.tr, and yeditepehastanesi.com.tr.

The graphs retrieved from SearchMetrics can be seen in Figure 2.9, Figure 2.10, and Figure 2.11.



Figure 2.9 Search visibility of Memorial.com.tr in 2018 (source: SearchMetrics)



Figure 2.10 Search visibility of Acibadem.com.tr in 2018 (source: SearchMetrics)

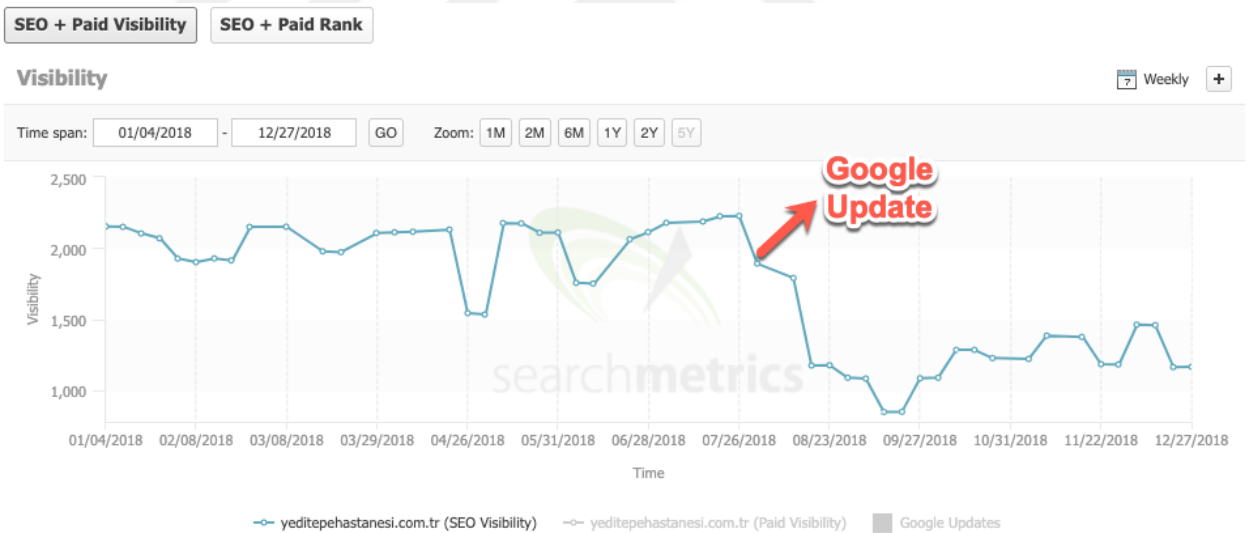


Figure 2.11 Search visibility of Yeditepehastanesi.com.tr in 2018 (source: SearchMetrics)

When these graphs are interpreted, it can be deduced that these websites have lost their ranks and their organic traffic significantly decreased after the marked date when aforementioned Google update was introduced. Therefore, it can be suggested that they may not abide by expertise, authoritativeness, and trustworthiness criteria of Google.

In order to examine the situation closer, the news sites serving medical articles under a specific health category on their websites are sampled by these three commonly known news sites: sabah.com.tr, haber7.com, and cnnturk.com

The graphs retrieved from SearchMetrics can be seen in Figure 2.12, Figure 2.13, and Figure 2.14.



Figure 2.12 Search visibility of Sabah.com.tr in 2018 (source: SearchMetrics)



Figure 2.13 Search visibility of Haber7.com in 2018 (source: SearchMetrics)

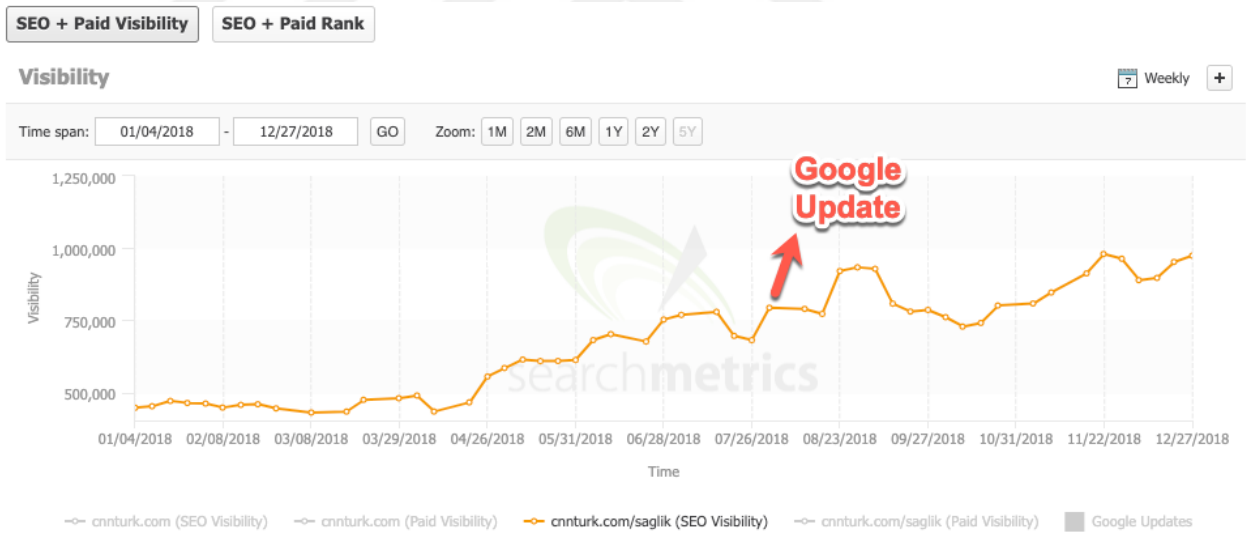


Figure 2.14 Search visibility of cnnurk.com in 2018 (source: SearchMetrics)

These graphs point out that these news sites have gained higher ranking for their medical articles on Google, after the update. According to comparative results, it can be suggested that the news sites may be corresponding to Google's E-A-T criteria better than the hospital sites in Turkey.

It should be noted that Google evaluates websites not only upon these guidelines but also hundreds of technical criteria such as coding, speed, performance on mobile devices etc. That's why the owners of websites get professional help from SEO consultants to optimize their websites according to Google's policies for commercial concerns.

To sum up, the main aim of this section is reviewing the impact of Google on online health information seeking in Turkey. The findings affirm that the search engines - the medium - are determining factor for the messages desired to be conveyed to public.

In the literature review, I apprehended the essential theories in communication studies. These theories helped me to get through to the communication design in health information. Evaluating the new media theories in the field of health communication, I figured out the main discussions about online health information seeking.

In consideration of significant theories and discussions in the literature, I restricted my research's scope to the correlation between new media and online health communication in Turkey. Reviewing the previous studies and findings, I obtained following arguments in brief:

- McLuhan's communication theory and Logan's thoughts towards new media are applicable for understanding the online health information seeking flow.
- The general frameworks designed for health communication in a broad sense do not fully compass the aspects in online health communication, brought by new media.
- As in the many countries, new media drive the online health communication in Turkey.
- In most of studies, trust issues are argued due to excess of inaccurate sources on the web in Turkey.
- New media play great role on Turkish public health since people are prone to make decision about their health upon online sources.

- The scopes of studies in Turkey are towards the effect of social media on health information seeking. There are few researches about search engines and websites in this field.
- Recently, Google has significantly affected the online health communication flow.
- Despite Google has boosted news sites on health-related searches, studies indicate that they mostly contain inaccurate and questionable information.



3. RESEARCH AND ANALYSIS

3.1 RESEARCH METHOD

In this research, a mixed methodology, quantitative and qualitative research, is followed while studying the main argument.

First of all, it is aimed to measure users' perception of trust with quantitative criteria on within an online survey. At this point, the principal orientation is deductive, a theory about trust and credibility in web-based health information is partly applied while designing the research. Conducting a systematic literature review on 73 studies in order to “identify the factors that impact judgments of trustworthiness and credibility, and to explore the role of demographic factors affecting trust formation” in online health information seeking, Laura Sbaffi and Jennifer Rowley assert the demographic factors, dependent variables in content features, and dependent variables in design features (Sbaffi & Rowley, 2017). Additionally, the quantitative evaluation of these criteria brings objectivism to the ontological orientation in this research.

On the other hand, qualitative research method also followed for interviews. Posing some open-ended questions to some people directly related in this field, their point of view towards the research topic is collected and evaluated. Since the findings are based on the experiences of society in the real world, constructivism is also adopted in ontological orientation of the research.

Investigated arguments and possible findings in the research topic are socially constructed and subjective even the quantitative method is involved. Thus, the general epistemological orientation is interpretivism in this research.

On the ethical aspects, the patient privacy aimed to be protected; therefore, the data is anonymously collected, personal information such as name and contact information is not

asked to the participants. The consent of Ethics Committee for Human Research (KHAS-IAEK) is obtained to carry out this research.

3.2 SURVEY DESIGN

An online survey composed via Google Forms is designed to collect data from the target audience. In total, 61 close-ended questions with rating and single choice answers, are posed to the participants. The questions in survey are gathered in 8 sections according to their scopes as follow:

Section 1 : Demography

Section 2 : Job

Section 3 : Behaviors on web-based health information seeking

Section 4 : Behaviors on internet activities

Section 5 : Impact of Google related issues

Section 6 : Evaluation of web site types in terms of the frequency while obtaining medical information

Section 7 : Evaluation of web site types in terms of trust while obtaining medical information

Section 8 : Evaluation of news sites in terms of trust while obtaining medical information

The questions in section 1, 2, and 8 are designed upon the research by Sbaffi & Rowley. The rest is included based on the findings obtained in literature review. The questions in section 8 are directly related to the research question (survey questions are also appended). This online survey was published on April 19, 2019 and it stayed open to the answers for 2 weeks. It was shared on new media channels such as, Facebook, Twitter, LinkedIn, and Whatsapp. A few social media profiles having more than 2000 followers shared this survey to reach a wider audience.

Additionally, two very similar online forms closed to public access was created via Google Forms for carrying out online interviews with some people in online health and news

industries. It involves almost same 14 questions, only the expressions “health site” and “news site” varies in the questions while addressing to the interviewee.

Moreover, 4 different open-ended questions are designed for online interview with a Google engineer in order to understand the approach of Google to online health communication. These questions are posed in a direct tone, aiming to find some certain answers on Google related issues.

3.3 RESEARCH RESULTS AND DISCUSSIONS

3.3.1 Survey

The online survey towards the internet users in Turkey, was participated in by 201 people in total. 60,2% (121) of the participants are female while 39,8% (80) of them are male. In terms of age, the majority of the participants was constituted by two groups of people: aged between 25 – 34 (84) and aged between 18 – 24 (81). They were followed by the people aged between 45 – 54 by 8% (16) and between 35 – 44 by 7,5 % (15). 3 people aged above 65 and 2 people aged between 55 – 64 make the rest of participants. The age distribution is quite similar to the report of TurkStat’s individual internet users by age groups in 2018 (TUİK, 2018). 81,1 % of participants (163) declared that they did not have any child while the rest (38) were parents. The great part of participants (129) was having bachelor’s degree, by 64,2%. In the rest, 16,9% (34) of them were having graduate degree and 16,4% (33) of them were high school graduate while 2,5% (5) of them was having PhD. Nobody was elementary education graduate or a person who did not attend school among the participants. The survey collected answers from 27 different cities, by a majority in the first two biggest cities in Turkey: in Istanbul by 54,2% (109) and Ankara by 26,9% (54). The other cities distributed at a similar rate.

The majority of participants declared that they full time employees by 56,7% (114). The unemployed participants are mostly students by 29,9% (60). 5 retired people also participated

in the survey. A separate question was posed to 114 full time employees to learn their sector. 41,2% of them (47) were in digital marketing, 10,5% of them (12) were in health, 9,6% of them (11) were in education, and 7% of them (8) were in commerce (sales and marketing) sectors.

The participants were also asked to define their health status over three options. 81,6% (164) of the participants declared that they did not have a chronic disease and did feel healthy. The option “I have a chronic disease (cancer, diabetes, etc.), I am currently being treated.” selected by 10,4% (21) while the other option “I had a serious, chronic disease before, but I'm healthy now.” selected by 8% (16).

The results of the questions about internet usage shows that the participants are active internet users. 26,9% of them (54) use the internet 5 to 8 hours per day, 19,4% of them (39) 3 to 5 hours while 23,9% of them over 8 hours per day. Only 6,5% of them (13) selected “less than 1 hour per day” option. Google is the most used search engine among the participants by 95,5% (192). Few of them selected other search engines like Yandex and DuckDuckGo.

A series of questions were asked with the objective to understand the user behaviors on health information seeking on the web.

Table 3.1 Results for user behaviors while getting medical information

Q: How do you define your behavior while getting medical information on the web?	# out of all participants	Never	Rarely	Sometimes	Often	Always
I do research on the internet when I feel sick.		12	25	63	39	62
I do research on the internet when my		17	29	59	40	56

relatives feel sick.					
When diagnosed by a physician, I do research on the internet about the disease.	7	13	32	48	101
I regularly follow medical information on the net even I do not feel sick.	77	55	35	14	20
The medical information obtained on the web influences my decision making on my health.	26	54	72	28	21

The results show that the main motivation to seek medical information online is being diagnosed by a physician among Turkish internet users. This conclusion supports the aforementioned argument that internet is more used for further research than preliminary research in the online medical information flow in Turkey. Additionally, it can be assumed that online health literacy is quite low in Turkey since most of the participants never or rarely follow medical information on the net. Online medical information is not a major impressive factor on decision making about health but occasionally affects people's mind.

In the scope of the research, it is aimed to detect the starting point of health information seeking. The question “How do you usually get the first information when you feel sick?” was responded as “by searching on the web” by 45,3% (91). The option “by consulting a health care provider or a doctor” was selected by 33,8% (68). 16,9% of the participants (34) declared that they would “consult their relatives” while 2% (4) of them would “go a pharmacy to ask medicines”. An open-ended “other” option was also included into this question. 3 participants answered that they were already in health sector so would easily get information from medical professionals and 1 person clearly stated that he or she would never get health information on the web. Therefore, it can be asserted that the starting point of health information is the internet in Turkey.

In order to determine the effect of online medical information on users’ decision making about health, two yes-no questions were asked in the survey.

Table 3.2 Results for treatment process

# out of participants	Yes	No
Have you ever treated yourself upon the information obtained on the web?	88	113
Have you ever consulted a doctor upon the information obtained on the web?	117	84

According to the results, it can be said that Turkish internet users usually do not treat themselves but consult a medical expert upon the obtained medical information on the web. Nevertheless, there is no significant gap between the percentages. 43% of the participants declared that they had treated themselves upon the information obtained on the web. This is a considerable rate for the risks caused by online medical information.

In single choice question, participants were asked to complete this statement: “When I search a health-related issue on the web, I firstly ...” and got the results as in the Table 3.3.

Table 3.3 Results for user behaviors on search results

Q: Please complete this statement: “When I search a health-related issue on the web, I firstly ...”	# out of all participants	% out of all participants
“... click on the web pages listed at the top on search results.”	54	26,9
“... click on most of web pages listed not only at the top but also on following search results pages.”	98	48,8
“... look into videos on search results.”	2	1
“... look into images on search results.”	1	0,5
“... click the webpages that I know.”	46	22,9

It seems that users usually do further research on the web while seeking medical information. 48,8% of them visit most of the pages listed on search results. Search visibility, so search engine optimization, is an impressive factor for 26,9% of participants since they get the first information on the web pages listed at the top on search results. Moreover, brand awareness

for the websites is important for 22,9% of participants. They do not prefer to get information on images and videos at first.

In a question, it was aimed to understand how Google affects the online health information seeking by its own features on search results. Sampled screenshots for the answer boxes above the page, the image carousels, and the video carousels on Google search results, were presented to the participants (survey questions are also appended) and asked them to rate three statements about the effect of these features.

These questions were responded as the Table 3.4.

Table 3.4 Results for the effect of Google Features on users

Q: Please rate the following statements.	# out of all participants	Never	Rarely	Sometimes	Often	Always
“The answer boxes on search results make me click on that web page.”		11	21	58	69	42
“The image carousels on search results make me click on that web page.”		24	55	64	28	30
“The video carousels on search results make me click on that web page.”		44	43	45	39	30

According to the overall evaluation of ratings for these three statements, it is concluded that the features introduced by Google on the search results affect the online medical information flow. The answer boxes are impressive factors while getting medical information on the web. The effect of image carousels is less while video carousels have a moderate effect.

In the following parts of the survey, it is aimed to determine how different types of websites have impact on online health information seeking. The types of websites were divided into 10 and for each, participants were asked to rate both their frequency of getting medical information on these websites and their trust on these websites while getting medical information. The results were obtained as Table 3.5 and Table 3.6.

Table 3.5 Results for frequency of getting medical information on website types

Q: Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web.	# out of all participants	Never	Rarely	Sometimes	Often	Always
Hospital sites (pages of hospitals e.g. acibadem.com.tr, memorial.com.tr)	44	32	39	51	35	
News sites (news pages e.g. hurriyet.com.tr, milliyet.com.tr)	52	48	53	28	20	
Online encyclopedias (online encyclopedia pages e.g. wikipedia.org)	27	40	53	44	37	
Government agencies (pages of official governmental sites e.g. saglik.gov.tr)	39	33	50	48	31	
Forums and collaborative dictionaries (pages of sites	36	35	42	46	42	

consisted of user reviews e.g. eksisozluk.com, kizlarsoruyor.com)					
Health blog sites (pages of health sites not affiliated to health institutions e.g. anneysen.com, medikalakademi.com.tr)	48	49	59	29	16
Video content sites (pages of sites consisted of by doctor videos e.g. uzmantv.com, youtube.com)	32	39	55	41	34
Doctors' sites (pages of personal sites of doctors e.g. dribrahimsari.com)	40	50	51	34	26
Official associations and foundation sites (pages of association or foundation sites e.g. tkv.org.tr, kanservakfi.com)	52	40	53	34	22
Social content platforms (pages of sites where users produce the content e.g. onedio.com, listelist.com)	68	44	42	25	22

Table 3.6 Results for trust while getting medical information on website types

Q: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web.	# out of all participants	Never	Rarely	Sometimes	Often	Always
Hospital sites (pages of hospitals e.g. acibadem.com.tr, memorial.com.tr)		11	11	53	82	35
News sites (news pages e.g. hurriyet.com.tr, milliyet.com.tr)		44	61	61	22	13
Online encyclopedias (online encyclopedia pages e.g. wikipedia.org)		21	31	69	20	30
Government agencies (pages of official governmental sites e.g. saglik.gov.tr)		15	12	53	77	44
Forums and collaborative dictionaries (pages of sites consisted of user reviews e.g. eksisozluk.com, kizlarsoruyor.com)		42	50	60	35	14
Health blog sites (pages of health sites not affiliated to health institutions e.g.		48	45	72	25	11

anneysen.com, medikalakademi.com.tr)					
Video content sites (pages of sites consisted of by doctor videos e.g. uzmantv.com, youtube.com)	24	44	71	45	17
Doctors' sites (pages of personal sites of doctors e.g. dribrahimsari.com)	29	29	75	51	17
Official associations and foundation sites (pages of association or foundation sites e.g. tkv.org.tr, kanservakfi.com)	26	16	56	69	34
Social content platforms (pages of sites where users produce the content e.g. onedio.com, listelist.com)	72	57	45	17	10

When these two tables are compared, a slight difference between visit and trust behavior can be observed. Thus, two supplementary analysis are also done over the data.

Firstly, this data is analyzed to find the most trusted website types and the most distrusted website types in Turkey while seeking medical information on the web. For the question “Q: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web.”, the participants who answered as often and

always are defined as “trustful”, and the ones who answered as never and rarely are defined as “distrustful” on each website type. The participants who answered as “sometimes” are not included in the analysis. The results of this analysis are shown at Table 3.7.

Table 3.7 The most and the least trusted website types in Turkey

The most trusted website types	The most distrusted website types
Hospital sites (63%)	Social content platforms (64%)
Government agencies (60%)	News sites (52%)
Official associations and foundation sites (51%)	Health blog sites (46%)
Online encyclopedias (40%)	Forums and collaborative dictionaries (46%)
Doctors’ sites (34%)	Video content sites (34%)

According to the analysis, it can be said that the most trustful websites are hospital sites since 63% of all participants states that they always or often trust on these websites. They are followed by government agencies’ websites, official associations and foundation sites, online encyclopedias, and doctor’s sites. Social content platforms seem as the most unreliable sites since 64% of all participants states that they never or rarely trust on these websites. They are followed by news sites, health blog sites, forums and collaborative dictionaries, and video content sites.

Secondly, this data is analyzed to find the most visited website types and the least visited website types in Turkey while seeking medical information on the web. For the question “Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web”, the participants who answered as often and always are defined as “frequent visitors”, and the ones who answered as never and rarely are defined as “rare visitors” on each website type. The participants who answered as

“sometimes” are not included in the analysis. The results of this analysis are shown at Table 3.8.

Table 3.8 The most and the least visited website types in Turkey

The most visited website types	The least visited website types
Forums and collaborative dictionaries (44%)	Social content platforms (56%)
Hospital sites (43%)	News sites (50%)
Online encyclopedias (40%)	Health blog sites (48%)
Government agencies (39%)	Official associations and foundation sites (46%)
Video content sites (37%)	Doctors’ sites (45%)

According to the analysis, it can be said that the most visited websites are forums and collaborative dictionaries since 44% of all participants states that they always or often get information on these websites while seeking health related issues. They are followed by hospital sites, online encyclopedias, government agencies’ websites, and video content sites. Social content platforms seem as the least visited sites since 56% of all participants states that they never or rarely get information on these websites while seeking health related issues. They are followed by news sites, health blog sites, official associations and foundation sites, and doctors’ sites.

Some significant conclusions are obtained by this comparative analysis. Firstly, the websites more likely to have authoritative and official sources are more trusted than the websites more likely to have user generated and unqualified sources. Notwithstanding, this factor does not fully match the frequency of getting information rates. Interestingly, forums and collaborative dictionaries seem to get the most visits in online medical information flow. Video content sites are also taken place among the most visited websites. It can be assumed that these two website types are often used while seeking medical information, but they are

not reliable for the users. At this point, it can be said that people also follow peer-to-peer communication even if they are not likely to trust in others' opinions. Furthermore, official associations and foundation sites and doctors' sites are rarely used in online medical information flow even if they are found more reliable. It can be supposed that the rankings of these sites are lower on the search engines, so people may hardly find these sites on the search results.

The aim of the last part of the survey was to reach in depth results for the main research question. The participants were asked to evaluate their trust on the news sites while getting medical information on the web. The participants rated 19 different statements based on the trust factors introduced in aforementioned study by Sbaffi and Rowley. Each statement was addressing a trust factor on that study. All statements were affirmative sentences about news sites (survey questions are also appended). Participants rated these statements from 1 (strongly disagree) to 5 (strongly agree). The obtained data reprocessed to define negative approach, neutral approach, and positive approach to these factors. The sum of choices for strongly disagree and disagree options was evaluated as negative approach while the sum of choices for strongly agree and agree options was evaluated as positive approach. The sum of choices for neutral option was evaluated as neutral approach. Additionally, the statements divided into two groups according to content related trust factors and design related trust factors upon Sbaffi and Rowley's study. After all, the analysis was represented in Table 3.9 and Table 3.10.

Table 3.9 Evaluation of content related trust factors on news sites while getting medical information

Q: Please evaluate following statements for your trust on medical information that you obtain from news sites.	addressed content related trust factors based on Sbaffi and Rowley’s study	% of negative approach (participants selected strongly disagree OR disagree options out of all)	% of neutral approach (participants selected neutral option out of all)	% of positive approach (participants selected strongly agree OR agree options out of all)
Statement 1	Authority of author	43	30	27
Statement 2	Objectivity	47	21	32
Statement 3	Ease of use	56	21	23
Statement 4	Clarity / understandability	47	30	23
Statement 5	Familiarity	59	19	21
Statement 6	Currency (up-to-date)	46	32	22
Statement 7	References	34	39	27
Statement 8	Comprehensiveness	46	29	25
Statement 9	Relevance	45	33	22
Statement 10	Statistics	43	35	21
Statement 11	Recommended by others	67	14	19
Statement 12	Bias of information	49	22	29

Not surprisingly, due to common distrust on news sites, most of the participants negatively evaluated content related trust factors for news sites. Most of the participants (67) stated that being shared of a news page about health issues on social media by others is not a trust factor. Therefore, recommendation of by others can be count as the least reliable factor for news pages about health issues. The highest positive approach is through the objectivity of news sites by 32%; nevertheless, 42% of participants evaluated news sites on medical information as not objective, on the contrary.

Table 3.10 Evaluation of design related trust factors on news sites while getting medical information

Q: Please evaluate following statements for your trust on medical information that you obtain from news sites.	addressed design related trust factors based on Sbaffi and Rowley’s study	% of negative approach (participants selected strongly disagree OR disagree options out of all)	% of neutral approach (participants selected neutral option out of all)	% of positive approach (participants selected strongly agree OR agree options out of all)
Statement 13	Clear layout / design	43	30	27
Statement 14	Brand	47	21	32
Statement 15	Interactive features	56	21	23
Statement 16	Contact details	47	30	23
Statement 17	Commercial Domain	59	19	21
Statement 18	Slow	46	32	22
Statement 19	Pictures (and Videos)	34	39	27

Alike the statements referring to content related trust factors, it can be seen that the approach to design related trust factors is also mostly negative. 59% of participants evaluated that the commercial elements such as advertisements are trust breaking factor for the news sites while getting medical information. The significant finding in this part is that the pictures or videos on a news page about health issues slightly decreases the negative approach. Unlike the other statements, Statement 19 had a neutral approach by the participants. Thus, it can be assumed that not the text content but including some audio-visual content may increase the trust on news articles.

The results and analyses thus far clearly indicate that news sites are not reliable for online health information seekers in Turkey for various reasons. In order to elaborate the results finally, it is tried to find out the characteristic differences between the participants who can trust in news sites and the ones mostly distrust news sites on medical information. For this analysis, two groups were identified among the participants: 35 participants (Group 1) who choose “often” or “always” options for trust in news sites, 105 participants (Group 2) who choose “never” or “rarely” options for trust in news sites. The other 61 participants who choose “sometimes” option for the related question are excluded. For single choice questions, the most selected option was picked as the most common answer. For the rating questions, the most common answers were picked by counting the sum of “strongly agree / always” and “agree / often” options or the sum of “strongly disagree / never” and “disagree / rarely” options, depending on the statements. Analyzing the all answers of these two groups throughout the survey, the significant differences were conducted and represented at Table 3.11.

Table 3.11 Differences between the person trust in news sites and the person distrust in news sites

Group 1	Group 2
35 participants who are likely to “trust” news sites on medical information	105 participants who are likely to “distrust” news sites on medical information
The most common answer (% of that answer among 35 participants)	The most common answer (% of that answer among 105 participants)
Aged between 18 – 24 (63%)	Aged between 25 – 34 (51%)
Student (60%)	Full time employee (65%)
Uses internet over 3 hours per day (71%)	Uses internet over 5 hours per day (57%)
Mostly seeks medical information on the web once feels sick or for relatives (63%)	Mostly seeks medical information on the web once diagnosed by a physician (74%)
Not an online health literate (54%)	An online health literate (73%)
Medical information on the web affects decision making on health (43%)	Medical information on the web does not affect decision making on health (53%)
Gets the first medical information on the web once feels sick (49%)	Gets the first medical information on the web once feels sick (44%)
Clicks most of the pages on the search results (57%)	Clicks most of the pages on the search results (46%)
The most visited sites are forums and collaborative dictionaries while seeking medical information (71%)	The most visited sites are hospital sites while seeking medical information (42%)
The less visited sites are personal sites of doctors while seeking medical information on the web (34 %)	The less visited sites are news sites while seeking medical information on the web (27 %)
The most trusted websites are news sites for online medical information (100%)	The most trusted websites are hospital sites for online medical information (59%)

The least trusted websites are health blog sites for online medical information (26%)	The least trusted websites are news sites for online medical information (100%)
The relevancy between the search query and the content of news sites is the most positive factor for trusting news sites (83%)	The opinions of medical experts on the news sites is the most positive factor for trusting news sites (22%)

By this comparative analysis, it can be generalized that the young people under 25 in Turkey, mostly students, are more likely to rely on news sites while seeking medical information on the web. The participants in Group 1 cannot be defined as online health literates and medical information on the web affects their decision making on health. They usually seek medical information for themselves or their relatives once feel sick. The significant result is that Group 1 mostly goes for forums and collaborative dictionaries while getting medical information even they generally trust in news sites. The major factor for relying on news sites is the relevancy of news articles with the keyword that they are searching for. They rarely visit and get information from personal sites of doctors while the least trusted websites are health blog sites for them.

On the other hand, the people aged between 25 – 34, mostly full-time employees, are less likely to rely on news sites while seeking medical information on the web. Unlike Group 1, the participants in Group 2 can be defined as online health literates and medical information on the web does not affect decision making on health. They use internet more than Group 1 per a day and usually seek medical information on the web once diagnosed by a physician. They generally visit hospital websites to get medical information while preferring news sites at least. Their perception of trust on websites is in parallel with their visit frequency, the hospital sites are the most reliable sites for them while seeking medical information on the web.

The results of the survey help to make inferences about the perception of trust of Turkish internet users on news sites while seeking medical information on the web, which is the main research question of this research.

3.3.2 In Depth Online Interview

In addition to the online survey, some online interviews were also conducted to find answers for the supplemental questions of this research. The aim of these online interviews is to approach the research question with three other perspectives: hospital sites, news sites, and Google.

Several questions were addressed to two persons from hospital sites and two persons from news sites via Google Forms to figure out online medical information flow and challenges in these sectors. Additionally, an analyst from Google was interviewed via e-mail in order to understand the approach of Google towards online medical information and trust issues. Having informed and getting their consents, the personal information of these interviewees is shown at appended list.

When the answers of interviewees are compared, it can be assumed that news sites produce an article about health and publish it on the web so quicker (almost within one day) than the hospital sites (it may take a week). In the interviews, it is understood that hospital websites have a special department for producing health-related content on the website. The articles are prepared by the experts in these departments and they are revised by authoritative persons such as department managers before publishing them. On the contrary, news articles about health-related issues are prepared and revised by news editors on news sites. One of these interviewees, Oktay Çomak who is SEO consultant at Milliyet, states that some of these articles are revised by doctors but sometimes they are not checked by any medical experts (Çomak, 2019). The responses also indicate that news sites are less likely to include references than hospital sites. These conclusions may explain the aforementioned discussions about inaccurate medical information on news articles.

Moreover, it seems that news sites are more likely to do search engine optimization for their websites than hospital sites. As explained before, after the algorithm change in August 2018, news sites have gained more search visibility on health-related searches. Thus, it can be said that the efforts to make websites proper for Google's guidelines affect the online health communication flow.

The challenges for news sites and hospital sites when preparing health-related content and after publishing it on the website are asked to the four interviewees and obtained these answers:

Q: What challenges do you encounter when preparing health articles for publishing on your website?

Hatice Pınar Karakoca: There are some difficulties in health industry, we cannot use certain definitions such as “the only” and “authorized”. This is sometimes challenging but we do not usually have any difficulties.

Salih Kural: To receive information from doctors and receive approval to publish the prepared content on the website.

Oktay Çomak: The fact that the information is vary, they do not have a single line. Doctors do not always give the same answers because the effects may be different from person to person. We can get 20 different answers on a single subject.

Mustafa Ergün: To reach accurate information.

Q: What are the challenges you encounter after publishing health articles on your website?

Hatice Pınar Karakoca: The process of getting to the top of search engines is a bit long

Salih Kural: As the pre-publication process is quite strict, we usually do not encounter any problem.

Oktay Çomak: People are totally committed to that article; they believe in it without any further research. Medical experts do not object to the information that they think inaccurate.

Mustafa Ergün: The problem of low read rate.

The answers above points out the main challenges for these sites. The strictness and limitations to give accurate medical information is challenging for hospital sites. On the other hand, finding the most accurate medical information is a barrier for news sites. The hospital sites may be hardly listed on the top of search results while news sites complain of disregard to their articles.

In the last part of the online interviews, general thoughts about online health communication in Turkey were obtained as follow:

Q: What are your general thoughts about online health information seeking and medical information on websites in Turkey?

Hatice Pınar Karakoca: Hospitals' websites are insufficient in terms of general information (not sales-oriented). More detailed information about diseases and ways to prevent diseases should be produced to raise awareness in the public.

Salih Kural: It is an area that needs very wide and accurate, reliable and well prepared, qualified contents.

Oktay Çomak: Experts have an unrealistic approach to the health-related issues to doing their own PR and only mention the positive aspects of the issues, not negative aspects. This causes people who have serious health problems to not receive a clear information.

Mustafa Ergün: Because of the low number of readings, most of the health news are constituted by commercial contents advertising medical experts or hospitals. In order to get more accurate information and expert opinions, there is a need for particular support in health news so the media organizations should get grants or financial support from the authorities.

In these answers, interviewees from hospital sites emphasize the lack of comprehensive and accurate information on the web. The others call attention to the commercial concerns on health news.

As the reviews at the beginning of this paper and some of answers obtained from interviewees from hospital and news sites indicates that Google may affect the flow of medical information on the web, so it is tried to understand how Google handles this issue by interviewing Fatih Özkösemen who currently works as UX & data consultant at Google, previously data analyst

in Search Quality Department. The addressed questions and some significant points on received responses are given below:

Q1: What is the approach of Google to health-related searches? Does Google run different algorithms health-related searches? Are the ranking criteria different in each country?

Fatih Özkösemen: Some types of pages could potentially impact the future happiness, health, financial stability, or safety of users. We call such pages “Your Money or Your Life” pages, or YMYL. [...] We have very high Page Quality standards for YMYL pages because low quality YMYL pages could potentially negatively impact users’ happiness, health, financial stability, or safety.

Q2: Are there any methods to detect fake information and to give penalty for those websites?

Fatih Özkösemen: We have an important responsibility to our users and to the societies in which we operate to curb the efforts of those who aim to propagate false information on our platforms. At the same time, we respect our users’ fundamental human rights (such as free expression) [...] We face complex trade-offs and there is no ‘silver bullet’ that will resolve the issue of disinformation, because:

- It can be extremely difficult (or even impossible) for humans or technology to determine the veracity of, or intent behind, a given piece of content, especially when it relates to current events.
- Reasonable people can have different perspectives on the right balance between risks of harm to good faith, free expression, and the imperative to tackle disinformation.
- The solutions we build have to apply in ways that are understandable and predictable for users and content creators, and compatible with the kind of automation that is required when operating services on the scale of the web. We cannot create standards that require deep deliberation for every individual decision.
- Disinformation manifests differently on different products and surfaces. Solutions that might be relevant in one context might be irrelevant or counter-productive in others. Our products cannot operate in the exact same way in that regard, and this is why they approach disinformation in their own specific ways.
- Our approach to tackling disinformation in our products and services is based around a framework of three strategies: make quality count in our ranking systems, counteract malicious actors, and give users more context. We also undertake beyond the scope of our products and services to team up with newsrooms and outside experts, and to get ahead of future risks. [...]

Q3: We could see that the online performance of news sites got better than hospital sites in Turkey after 2018 August Core Update, namely Medic Update. Could you evaluate the position of the web sites consistently aiming to improve web site performance such

as news sites and the web sites mostly aiming to give true information such as hospital sites on health-related searches?

Fatih Özkösemen: Each day, Google usually releases one or more changes designed to improve our search results. Most have little noticeable change but help us continue to incrementally improve search. [...]. In 2018, we shared about two broad core algorithm updates we had: in April and August. We also had a further update we can confirm, one that began the week of September 24. [...]. For advice on great content, a good starting point is to review our search quality rater guidelines which are available online. Raters are people who give us feedback on if our algorithms seem to be providing good results, a way to help confirm our changes are working well. Just to keep in mind, search raters have no control over how pages rank. Rater data is not used in our algorithms. Rather, we use them as a restaurant might get feedback cards from diners. The feedback helps us know if our search “recipes” seem to be working. If you understand how raters learn to assess good content, that might help you improve your own content and, in turn, perhaps do better in search. You’ll also find plenty of advice about good content with the resources we offer on our online channels, guidelines, help pages and our forums.

Q4: Is there any relation between quality rating and users' perception of trust on health-related searches? What are quality criteria on health-related searches?

Fatih Özkösemen: As previously explained, we have very high Page Quality standards for YMYL (Your Money or Your Life) pages because low quality YMYL pages could potentially negatively impact users’ happiness, health, financial stability, or safety. Our quality algorithms are aimed at helping people find "high-quality" sites by reducing the rankings of low-quality content. Taking a step back, let's take a look at some of the ideas and research that drive the development of our algorithms. Below are some questions that one could use to assess the "quality" of a page or an article. These are the kinds of questions we ask ourselves as we write algorithms that attempt to assess site quality. Think of it as our take at encoding what we think our users want. Of course, we aren't disclosing the actual ranking signals used in our algorithms because we don't want folks to game our search results [...]. Writing an algorithm to assess page or site quality is a much harder task, but we hope the questions above give some insight into how we try to write algorithms that distinguish higher-quality sites from lower-quality sites.

It must be mentioned that Fatih interpersonally stated that he was not able to give some direct answers due to the privacy policies of Google. Upon the obtained answers, it can be understood that Google feels responsibility for users’ happiness, health, financial stability, or safety; thus, it has very high page quality standards for these issues. He pointed out that although Google makes great efforts for eliminating misinformation on the web, it also respects users’ freedom of expression. There are some challenges for Google while protecting this fine line: difficulty of detecting misinformation by technology (even by human), different

perspectives on an issue, difficulty of setting universal standards can be applied on all issues, and unstable form of information in different channels and contexts.

At the beginning of this research, it was presupposed that the personal evaluations of “quality raters” may affect the medical information on the web in terms of trust but this assumption was refuted by Fatih in his statement “search raters have no control over how pages rank”.

Lastly, it can be expressed that Google uses its algorithms to distinguish reliable content from unreliable ones and always push online information creators to produce safe contents for human-being.

4. CONCLUSION

The results of this research indicate that the internet has an influential role on health communication in Turkey. 45,3% of the participants of the survey, conducted among 201 internet users, use the internet as a primary source to get medical information before consulting a medical expert. The hypothesis has been disproved since news sites are one of the most distrusted website types in Turkey. 52% of the participants rated “I never trust” or “I rarely trust” options for news sites on their online health information seeking. The several trust criteria presented for news sites obtained mostly negative evaluation by internet users. The commercial elements such as advertisements seem to increase distrust on health news. This argument was also supported by the interviewees from news sites.

Some significant findings also conducted to cover the supplementary research questions in this research. The common user behavior to start seeking health information is being diagnosed by a physician. Additionally, 48,8 of participants do not stick to the first webpages on search results; they do further research by visiting most of the pages while seeking medical information. Online medical information may occasionally impact decision making about health but lead users to consult a medical expert. Nevertheless, the impact of online medical information on public is undeniable since 43% of the participants stated that they had threatened themselves before upon the information obtained on the web. The results showed that Turkish internet users were likely to rely on hospital sites (63%) at the most while seeking health information on the web, it was followed by governmental and official sources. The most notable output was that the forums and collaborative dictionaries were the most visited websites by 44% while seeking medical information; nevertheless, 46% of the participants stated that they never or rarely trust them in. In further researches, discourse analyses can be carried out to find out the reason behind this.

Moreover, it is deduced that Google itself usually affect the online health communication flow by the answer boxes or image and video carousels on the search results. After interviewing an analyst at Google, it was deduced that quality rater’s evaluations would not

have control over webpage rankings. Google makes great strides in presenting the most qualified and accurate results to its users for their safety, but it also tries to ensure freedom of expression on the web. The undeniable impact of Google on medical communication supports the argument of McLuhan: “the medium is the message”.

Additionally, interviewing people from news sites and hospital sites in Turkey, some challenges in those industries were conducted. The strict policies for publishing health articles are a barrier for the hospital sites while the disinterestedness and commercial concerns are the most challenging factors for news sites on health communication.

Besides, the literature review shows that the health communication models introduced by governmental and official institutions, are lack of online health communication factors. The internet should also be included into these models and it should be aimed of eliminating the such challenges as conducted by this research.

This research has some limitations since limited people participated in the online survey while the total internet user number is over 56 million in Turkey. Additionally, the perception of trust may vary on each health issue depending on users’ health condition, personal background, the seriousness of the issue etc. However, this research has sampled some significant conclusions on this issue that may underlie further researches.

REFERENCES

- Ünal, R. & Taylan, A., 2017. *Sağlık İletişiminde Yalan Haber - Yanlış Enformasyon Sorunu Ve Doğrulama Platformları*. Erzurum, Dergipark.
- Çetinkaya, P. U., Güvenir, H., Çetinkaya, E. & Kocabaş, C. N., 2016. How Reliable is the Information in the Internet on Atopic Dermatitis?. *Asthma Allergy Immunology*, Volume 14, pp. 64-70.
- Çomak, O., 2019. *Türkiye'de Haber Web Sitelerinin Sağlık Konularında Bilgi Paylaşımının İncelenmesi* [Interview] (29 April 2019).
- Özer, Ö., Şantaş, F. & Budak, F., 2012. A Study of Health Web Sites' Usage Level: A Case Application. *Gumushane University Faculty of Communication Electronic Journal*, 1(4), pp. 128-140.
- Ahrefs, 2019. *Ahrefs - Arama Trafiğinizi Büyütmek için SEO Araçları & Kaynakları*. [Online]
Available at: <https://ahrefs.com/tr/>
[Accessed 29 April 2019].
- Anon., 2010. *İnternette hastalığınızı araştırmayın*. [Online]
Available at: <https://www.haberturk.com/saglik/haber/210421-internette-hastaliginizi-arastirmayin>
[Accessed 26 April 2019].
- Anon., 2013. *Türkiye'de İnternetin Sağlık Amaçlı Kullanımı*. [Online]
Available at: <http://www.socialtouch.com.tr/%E2%9E%A8-turkiyede-internetin-saglik-amacli-kullanimi/>
[Accessed 24 April 2019].
- Anon., 2017. *Yeni medya sağlık okuryazarlığı açısından yaşamsal önemde*. [Online]
Available at: <https://haber.yasar.edu.tr/genel/yeni-medya-saglik-okuryazarligi-acisindan-yasamsal-onemde.html>
[Accessed 1 May 2019].
- Anon., 2019. *kalp krizinde ne yapılmalı - Google'da Ara*, İstanbul: Google.
- Aslan, D. & Yavuz, C. I., 2013. Use of Web Based Research in Public Health. *Turkish Journal of Public Health*, 11(2), pp. 104-110.

- Association, T. P., 2019. *İnternetten Satılan İlaçlar Sahtedir*. [Online]
Available at: <https://www.teb.org.tr/news/8208/%C4%B0nternetten-Sat%C4%B1lan-%C4%B0la%C3%A7lar-Sahtedir>
[Accessed 26 April 2019].
- Barr, T., 2000. *Newmedia.com.au: The Changing Face of Australia's Media and Communications*. Crows Nest: Allen & Unwin.
- Blythe, J., 2009. The Schramm Model of Communication. In: *Key Concepts in Marketing*. London: SAGE Publications, pp. 177-180.
- Brady, E., Segar, J. & Sanders, C., 2016. "You get to know the people and whether they're talking sense or not": Negotiating trust on health-related forums. *Elsevier logo Journals & Books Social Science & Medicine*, Volume 162, pp. 151-157.
- Can, A. B. et al., 2014. A research on internet use as health seeking behavior. *Cumhuriyet Medical Journal*, Volume 36, pp. 486-494.
- Ceylan, H. H. et al., 2016. Information Quality on Developmental Dysplasia of the Hip on Turkish Websites. *JOURNAL OF ACADEMIC RESEARCH IN MEDICINE*, 6(2), pp. 84-86.
- Cotten, S. R. & Gupta, S. S., 2004. Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, Volume 59, p. 1795–1806.
- DataReportal, 2019. *Digital 2019 Turkey (January 2019) v01*. [Online]
Available at: <https://www.slideshare.net/DataReportal/digital-2019-turkey-january-2019-v01>
[Accessed 25 April 2019].
- ECDC, n.d. *What is health communication?*. [Online]
Available at: <https://ecdc.europa.eu/en/health-communication/facts>
[Accessed 1 May 2019].
- Elicabuk, H. et al., 2016. The Reliability of Turkish "Basic Life Support" and "Cardiac Massage" Videos Uploaded to Websites. *The Eurasian Journal of Medicine*, Volume 48, pp. 15-19.
- Encyclopedia of Communication and Information , 2002. *Health Communication*. [Online]
Available at: <https://www.encyclopedia.com/media/encyclopedias-almanacs->

transcripts-and-maps/health-communication
[Accessed 1 May 2019].

Görkemli, N., 2017. Sağlık İletişiminde İnternet Kullanımı Üzerine Bir Araştırma. *The Turkish Online Journal of Design, Art and Communication*, 7(1), pp. 122-138.

Gencer, Z. T., Daşlı, Y. & Biçer, E. B., 2019. New Approaches In Health Communication: Using Dıgital Media. *Sosyal Bilimler Meslek Yüksekokulu Dergisi*, 22(1), pp. 42-52.

Google, 2018. *Search Quality Evaluator Guidelines*. [Online]

Available at:

<http://static.googleusercontent.com/media/www.google.de/tr/de/insidesearch/howsearchworks/assets/searchqualityevaluatorguidelines.pdf>

[Accessed 1 May 2019].

Hülür, A. B., 2016. Sağlık İletişimi, Medya ve Etik: Bir Sağlık Haberinin Analizi. *CBÜ Sosyal Bilimler Dergisi*, 14(1), pp. 155-178.

Hollnagel, E. & Woods, D. D., 2005. *Joint Cognitive Systems: Foundations of Cognitive Systems Engineering*. Florida: CRC Press.

Hu, Y. & Sundar, S. S., 2010. Effects of Online Health Sources on Credibility and Behavioral Intentions. *Communication Research*, 37(1), pp. 105-132.

Küçükduymaz, F., Ceylan, H. H. & Tuncay, İ., 2013. The Quality of Information about Hip Fractures in Turkish Internet Sites. *Journal of Clinical and Analytical Medicine*, 4(3), pp. 200-203.

Küçükduymaz, F., Mutlu, S., Mutlu, H. & Parvizi, J., 2015. A comparison of the quality of online information about total knee arthroplasty available in Turkish and English: a cross-sectional study. *Acta Orthop Traumatol Turc*, 49(4), pp. 370-374.

Kayalar, E., 2019. *Verilerle yazılı basın: Tirajlar düşüyor, gazeteler kapanıyor; medya çıkış yolu arıyor*. [Online]

Available at: <http://www.dokuz8haber.net/manset/verilerle-yazili-basin-tirajlar-dusuyor-gazeteler-kapaniyor-medya-cikis-yolu-ariyor/>

[Accessed 25 April 2019].

Kincaid, D. L., Delate, R., Storey, D. & Figueroa, M. E., 2013. Closing the Gaps in Practice and in Theory: Evaluation of the Scrutinize HIV Campaign in South Africa . In: R. E. Rice & C. K. Atkin, eds. *Public Communication Campaigns*. California: SAGE Publications Inc., pp. 305-320.

- Kreps, G. L. & Thornton, B. C., 1992. *Health Communication: Theory and Practice*. 2nd Edition ed. Illinois: Waveland Press Inc..
- Logan, R. K., 2010. *Understanding New Media: Extending Marshall McLuhan*. New York: Peter Lang Inc..
- McLuhan, M., 1994. *Understanding Media: The Extensions of Man*. Reprint edition ed. Cambridge: The MIT Press.
- Neuhauser, L. & Kreps, G., 2003. Rethinking Communication in the E-Health Era. *Journal of Health Psychology*, 8(1), pp. 109-132.
- Oberstein, M., 2018. *Google Is Replacing Video Thumbnails With A Desktop Carousel*. [Online]
Available at: <https://www.rankranger.com/blog/video-thumbnails-replaced-by-carousel>
[Accessed 26 April 2019].
- OpenSignal, 2018. *The State of LTE (February 2018)*. [Online]
Available at: <https://www.opensignal.com/reports/2018/02/state-of-lte>
[Accessed 23 April 2019].
- Parrott, R., 2004. Emphasizing “Communication” in Health Communication. *Journal of Communication*, 54(4), pp. 751-787.
- Sbaffi, L. & Rowley, J., 2017. Trust and Credibility in Web-Based Health Information: A Review and Agenda for Future Research. *Journal of Medical Internet Research*, 19(6), p. 218.
- Schwartz, B., 2018. *Google’s Aug. 1 core algorithm update: Who did it impact, and how much?*. [Online]
Available at: <https://searchengineland.com/googles-august-first-core-algorithm-update-who-did-it-impact-and-how-much-303538>
[Accessed 26 April 2019].
- SearchMetrics, n.d. *SEO Visibility*. [Online]
Available at: <https://www.searchmetrics.com/glossary/seo-visibility-faq/>
[Accessed 1 May 2019].
- StatCounter, 2019. *Search Engine Market Share Turkey Search Engine Market Share in Turkey - April 2019*. [Online]

Available at: <http://gs.statcounter.com/search-engine-market-share/all/turkey>
[Accessed 2 May 2019].

Statista, 2019. *Turkey: number of internet users 2013-2019*. [Online]
Available at: <https://www.statista.com/statistics/369725/internet-users-turkey/>
[Accessed 19 April 2019].

Taylan, A. & Ünal, R., 2017. *Sağlık İletişiminde Yalan Haber - Yanlış Enformasyon Sorunu Ve Doğrulama Platformları*. Erzurum, Atatürk İletişim Dergisi.

TELLME, 2014. *D3.1 - A new model for risk communication in health*. [Online]
Available at: <https://www.tellmeproject.eu/content/d31-new-model-risk-communication-health>
[Accessed 1 May 2019].

Tosun, B. et al., 2015. Determination of attitudes of healthcare professionals regarding health information on the internet. *Gulhane Medical Journal*, 57(3), pp. 247-251.

TUİK, 2018. *Son Üç Ay İçinde İnternet Kullanan Bireylerin İnterneti Kişisel Kullanma Amaçları*. [Online]
Available at: http://www.tuik.gov.tr/PreTablo.do?alt_id=1028
[Accessed 19 April 2019].

TUİK, 2018. *Son Üç Ay İçinde Bireylerin Yaş Grubuna ve Cinsiyetine Göre Bilgisayar ve İnternet Kullanım Oranları*. [Online]
Available at: http://www.tuik.gov.tr/PreTablo.do?alt_id=1028
[Accessed 19 April 2019].

TUİK, 2019. *Türkiye İstatistik Kurumu, Nüfus Projeksiyonları, 2018-2080*. [Online]
Available at: <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=30567>
[Accessed 19 April 2019].

Uden-Kraan, C. F. v. et al., 2010. Experiences and attitudes of Dutch rheumatologists and oncologists with regard to their patients' health-related Internet use. *Clinical Rheumatology*, 29(11), p. 1229–1236.

Watson, J. & Hill, A., 2015. Berlo's SMCR model of communication, 1960. In: *Dictionary of Media and Communication Studies (8th edition)*. London: Bloomsbury, p. 25.

WHO, n.d. *Evaluate campaigns and other complex communication interventions*. [Online]
Available at: <https://www.who.int/communicating-for-health/evaluation/campaigns->

[evaluation/en/](#)
[Accessed 1 May 2019].

Zülfikar, H., 2014. The Internet Usage Behaviour and Access Patterns of the Patients to the Health Information on the Internet. *Florence Nightingale Hemşirelik Dergisi*, 22(1), pp. 46-52.



CURRICULUM VITAE

Personal Information

Name Surname : Okan akır
Place and Date of Birth : Ankara, 02.06.1992

Educational Background

Undergraduate Study : Bilkent University, *Translation and Interpretation*
(2015)
Graduate Study : Kadir Has University, *New Media* (2019)
Languages : Turkish, English, French

Job Experience

Organizations : Zeo Agency, (2016 – Current)
Sr. SEO Analyst

Duzen Laboratories Group (2015 – 2016)
International Communication Expert

Contact

Phone : +905373431707
E-mail Address : okanckr@hotmail.com

APPENDIX A

A.1 ONLINE SURVEY QUESTIONS

Q1: What's your gender?
Q2: What's your age?
Q3: Are you parent?
Q4: What is your education level?
Q5: Do you work?
Q6: In which city do you live?
Q7: How do you define your health status?
Q8: In which field do you work?
Q9: How do you define your behavior while getting medical information on the web? (please rate the statements below from never to always)
Q10: How many hours do you spend on the internet in a day?
Q11: Which search engine do you usually use?
Q12: How do you usually get the first information when you feel sick?
Q13: Please complete this statement: "When I search a health-related issue on the web, I firstly ..."
Q14: Please rate this statement: "The answer boxes on search results make me click on that web page." (rate from never to always)
Q15: Please rate this statement: "The image carousels on search results make me click on that web page." (rate from never to always)
Q16: Please rate this statement: "The video carousels on search results make me click on that web page." (rate from never to always)
Q17: Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web. (rate from never to always)
Q18: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web. (rate from never trust to always trust)
Q19: Please evaluate following statements for your trust on medical information that you obtain from news sites.

APPENDIX B

B.1 THE LIST OF ONLINE INTERVIEWEES

Interviewee	Job	Field	Experience
Hatice Pınar Karakoca	Web Content Specialist at Yeditepe University Hospitals	Hospital Website	Less than 1 year
Salih Kural	Digital Marketing Executive at Memorial Health Group	Hospital Website	3 – 5 years
Oktay Çomak	SEO Consultant at Milliyet	News Website	5 - 10 years
Mustafa Ergün	Editor at Presshaber	News Website	3 – 5 Years
Fatih Özkösemen	UX & Data Consultant at Google	Search Engine	5 -10 Years



KADIR HAS UNIVERSITY
SCHOOL OF GRADUATE STUDIES
PROGRAM OF NEW MEDIA

**TRUST FACTOR IN ONLINE HEALTH
COMMUNICATION: APPROACH OF USERS TO NEWS
SITES IN TURKEY**

OKAN ÇAKIR

ADVISOR: ASSOC. PROF. DR. EYLEM YANARDAĞOĞLU

MASTER'S THESIS

ISTANBUL, MAY, 2019

**TRUST FACTOR IN ONLINE HEALTH
COMMUNICATION: APPROACH OF USERS TO NEWS
SITES IN TURKEY**

OKAN AKIR

ADVISOR: ASSOC. PROF. DR. EYLEM YANARDAĐOĐLU

MASTER'S THESIS

Submitted to the School of Graduate Studies in partial fulfilment of the requirements for
the degree of Master of Arts in New Media.

ISTANBUL, MAY, 2019

TABLE OF CONTENTS

DECLARATION OF RESEARCH ETHICS / METHODS OF DISSEMINATION	i
ACCEPTANCE AND APPROVAL	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
ABSTRACT	vii
ÖZET	viii
GLOSSARY	ix
ACKNOWLEDGEMENTS	x
1. INTRODUCTION	1
2.1 Understanding Online Health Communication	5
2.1.1 Communication theories	5
2.1.2 Defining health communication.....	9
2.1.3 Online health communication.....	12
2.2 Review Of Online Health Communication In Turkey	16
2.2.1 Effect of new media on health information seeking	16
2.2.2 Effect of online sources on human health and decision making.....	17
2.2.3 User behaviors on online health information seeking in Turkey.....	18
2.2.4 Accuracy of web sources on health-related searches.....	25
2.2.5 Effect of news sites on online health information seeking	29
2.2.6 Effect of Google on online health information seeking.....	29
3. RESEARCH AND ANALYSIS	38
3.1 Research Method	38
3.2 Survey Design	39
3.3 Research Results And Discussions	40
3.3.1 Survey	40
3.3.2 In depth online interview	58
4. CONCLUSION	64
REFERENCES	66
CURRICULUM VITAE	72
APPENDIX A	73

A.1 Online Survey Questions	73
APPENDIX B	74
B.1 The List Of Online Interviewees	74



LIST OF TABLES

Table 1.1 Internet activities of individuals in 2018 (source:TurkStat)	3
Table 2.1 Principles of EU in health communication (source: ECDC)	11
Table 2.2 Search Volumes of the Top 20 Keywords Having the Word "symptoms" in Turkish, 2019	19
Table 2.3 Search Volumes of the Top 20 Keywords Having the Word "disease" in Turkish, 2019	21
Table 2.4 Search Volumes of the Top 20 Keywords Having the Word "treatment" in Turkish, 2019	23
Table 3.1 Results for user behaviors while getting medical information	41
Table 3.2 Results for treatment process	43
Table 3.3 Results for user behaviors on search results	44
Table 3.4 Results for the effect of Google Features on users	45
Table 3.5 Results for frequency of getting medical information on website types	46
Table 3.6 Results for trust while getting medical information on website types	48
Table 3.7 The most and the least trusted website types in Turkey	50
Table 3.8 The most and the least visited website types in Turkey	51
Table 3.9 Evaluation of content related trust factors on news sites while getting medical information	53
Table 3.10 Evaluation of design related trust factors on news sites while getting medical information	54
Table 3.11 Differences between the person trust in news sites and the person distrust in news sites	56

LIST OF FIGURES

Figure 2.1 The Shannon and Weaver Model	5
Figure 2.2 The Schramm Model	6
Figure 2.3 SMCR model of communication	7
Figure 2.4 Logic Model or Frame for Health Communication (source: WHO)	10
Figure 2.5 Health communication flow by 11 Kincaid, et al	12
Figure 2.6 New model for health communication (source: TELLME)	13
Figure 2.7 The online source typology by Neuhauser & Kreps	14
Figure 2.8 Video carousel on “What to do during a heart attack” search (source: Google)	28
Figure 2.9 Search visibility of Memorial.com.tr in 2018 (source: SearchMetrics)	32
Figure 2.10 Search visibility of Acibadem.com.tr in 2018 (source: SearchMetrics)	33
Figure 2.11 Search visibility of Yeditepehastanesi.com.tr in 2018 (source: SearchMetrics)	33
Figure 2.12 Search visibility of Sabah.com.tr in 2018 (source: SearchMetrics)	34
Figure 2.13 Search visibility of Haber7.com in 2018 (source: SearchMetrics)	35
Figure 2.14 Search visibility of cnnturk.com in 2018 (source: SearchMetrics)	35

ABSTRACT

ÇAKIR, OKAN. *TRUST FACTOR IN ONLINE HEALTH COMMUNICATION: APPROACH OF USERS TO NEWS SITES IN TURKEY*, MASTER'S THESIS, İstanbul, 2019.

The aim of this research is to comprehend the internet users' perception of trust towards health news on the web while seeking medical information in Turkey. Thus, the purpose is to emphasize the effect of new media in health communication. For that purpose, the researcher conducted an online survey among 201 internet users in Turkey. To investigate the current situation and challenges in related industries on the web, 5 online interviews were conducted with two persons from hospital sites, two persons from news sites and one person from Google. The findings of the research enabled the researcher to define the approach of internet users in Turkey towards online health information seeking. The data were limited to online survey results and the online interviews that the researcher had designed. The conclusions obtained in this context are exemplary findings to define trust issues online health communication in Turkey.

Keywords: health communication, online health information seeking, online trust, new media

ÖZET

ÇAKIR, OKAN. *İNTERNET TABANLI SAĞLIK İLETİŞİMİNDE GÜVEN UNSURU: TÜRKİYE'DEKİ KULLANICILARIN HABER SİTELERİNE YAKLAŞIMI*, MASTER'S THESIS, İstanbul, 2019.

Bu araştırmanın amacı, Türkiye'deki internet kullanıcılarının internette sağlık araması yaparken haber sitelerine karşı güven algısının anlaşılmasıdır. Bu sayede, yeni medyanın sağlık iletişimindeki önemi vurgulanmak istenmiştir. Bu amaç doğrultusunda araştırmacı Türkiye'deki 201 internet kullanıcısı arasında bir çevrimiçi anket çalışması yapmıştır. İnternette ilgili sektörlerdeki durum ve güçlükler araştırılmak üzere, hastane sitelerinden iki kişiyle, haber sitelerinden iki kişiyle ve Google'dan bir kişi ile, toplamda 5 çevrimiçi görüşme yapılmıştır. Araştırma sonucu elde edilen bulgular araştırmacının Türkiye'deki internet kullanıcılarının çevrimiçi sağlık bilgisi aramaya karşı yaklaşımını tanımlamasına imkan sağlamıştır. Elde edilen veri, araştırmacının hazırlamış olduğu çevrimiçi anket ve çevrimiçi görüşmelerle sınırlandırılmıştır. Bu bağlamda edilen çıkarımlar, Türkiye'deki internet tabanlı sağlık iletişimindeki güven unsurlarını tanımlamak için örnek niteliğinde bulgulardır.

Anahtar Sözcükler: sağlık iletişimi, internette sağlık bilgisi arama, çevrimiçi güven, yeni medya

GLOSSARY

E-A-T criteria: The criteria Expertise – Authoritativeness – Trustworthiness introduced by Google

Medical information pages: The webpages that provide advice or information about health, drugs, specific diseases or conditions, mental health, nutrition, etc., according to Google.

Organic traffic: The clicks comes from search results of search engines.

Ranking: The position of a webpage in search results for the searched term.

Search engine: The online platforms allow users to browse the net by typing some words.

Search results: The list of webpages for a search term presented by a search engine

Search term (Search query): The words entered to search engines while searching an issue.

Search visibility (Organic visibility): The score simulating the rankings and organic visits of websites on search engines

Search volume: The average monthly count of searches for a search term

SEO analyst: The person who consults websites for search engine optimization.

SEO: Abbreviation of Search Engine Optimization, means the developments on a website according to algorithms of search engines in order to be at the top of search results.

Web page visitor: The person who enters a website.

Your money or your life topics: The topics affecting users' financial or health condition.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor Assoc. Prof. Dr. Eylem Yanardağođlu for her useful comments, endless support and engagement through the learning process of this master thesis. Furthermore, I would like to thank my father Oktay, my mother Tulay and my little brother Onur, who have always supported me through all my life. And last but not least, I would like to express my gratefulness to Pelin, who made me believe that I can do this.



1. INTRODUCTION

Associated with technological advancements, investments in fiber cable network, and huge increase in smartphone users; the number of internet users has been continuously increasing in Turkey. Even elder people have begun to use smartphones for following news or communicating via online messaging platforms such as WhatsApp. Generation Y and Generation Z spent most of their time on social media or web surfing. According to the statistics portal Statista, the number of internet users in 2019 is nearly 56 million and this number has increased by 53% since 2013 (Statista, 2019).

On the other hand, Turkey has increasing population, the surveys of Turkish Statistical Institute (TurkStat) indicates that the population of Turkey is around 82 million in 2019 (TUİK, 2019). Although the population so high, when these data are compared between each other, it can be deduced that almost 68% of people in Turkey are internet users in 2019.

Thanks to the opportunity of internet access, people are being able to access information in quicker and easier way; therefore, their information seeking behaviors change day by day into online from old school ways such as looking up encyclopedias and other printed materials. This is the result of re-formation of media in the 21st century, which can be called as new media. The present condition of media consumption is predicted and visualized by Trevor Barr in 2000, who is one of the notable persons in media and communications area. According to his convergence theory of media industries, new media platforms such as internet, are the compound of media (information content generation, e.g. films, TV and radio programs, books, music), computer (information processing, e.g. PC and memory) and telecommunication (information carriage, e.g. delivery networks, transmission). As a result, it offers an exhaustive, online and interactive medium for entertainment and information (Barr, 2000). Thus, both persons' habits while consuming media and organization of media industry is evolving towards this junction point. It can be observed that new media disrupts old media providers and brings forth next generation medium like Netflix, Google or

Facebook. People are getting used to prefer multi-channel networks especially while they are mobile. One can carry thousands of books as electronic document on Kindle, watch movies or TV series anytime on mobile phones, and follow the news without needing television or radio devices.

New media has taken effect also in Turkey and has begun to change persons' behaviors. Before the 21st century, Turkish people used to mostly consume traditional media in public communication. Especially in rural areas such as the villages in Anatolia, newspapers and TV broadcasts had significant impact on people due to lack of access to information. Most of households still do not have fiber cable network in Anatolian villages due to be a rough country; however, these people can connect web via wireless, mobile internet. According to a report in 2018 by OpenSignal, a company measuring wireless internet coverage in global, Turkey has 67.95% of 4G availability country wide (OpenSignal, 2018). This percentage is quite same with previously mentioned internet user rate in Turkey. This might have penetrated printed media industry in recent years. The circulation of printed newspapers shows a steady decline after 2013, the annual readership number of national and regional newspapers recedes from 6.3 million to 4.3 million between 2013 and 2017. One of the negative effectors in this change is that readers prefer online news rather than printed ones (Kayalar, 2019).

Internet is a limitless platform, user intents for going online may differ country to country. In order to better understand for what purpose Turkish people use the internet, Turkish Statistical Institute's (TurkStat) annual survey named "Internet activities of individuals who have accessed the Internet in the last 3 months, by private purposes, 2018" should be examined (TUIK, 2018). The results of this survey are showed in Table 1.1.

According to this table, the primary reason to use internet is participating in social networks for Turkish citizens. This is followed by consuming video content, telephoning over the internet, and seeking health-related information. When this data is reviewed, it can be clearly

seen that information seeking and social media using are significantly higher than online shopping and playing games.

Table 1.1 Internet activities of individuals in 2018 (source: TurkStat)

Son üç ay içinde İnternet kullanan bireylerin İnterneti kişisel kullanma amaçları, 2018
Internet activities of individuals who have accessed the Internet in the last 3 months, by private purposes, 2018

Amaçlar-Purposes	(%)		
	Toplam Total	Erkek Male	Kadın Female
E-Posta gönderme/alma Sending / receiving e-mails	44.8	51.1	37.1
İnternet üzerinden telefonla görüşme/ video görüşmesi (webcam ile) Telephoning over the Internet / video calls (via webcam) over the Internet	69.5	68.0	71.3
Sosyal medya üzerinde profil oluşturma, mesaj gönderme veya fotoğraf vb. içerik paylaşma Participating in social networks (creating user profile, posting messages or other contributions)	84.1	86.9	80.7
Mal ve hizmetler hakkında bilgi arama Finding information about goods or services	67.8	71.5	63.3
Müzik dinlemek (Web radyosu dahil) Listening to music	61.4	62.2	60.5
İnternet üzerinden TV izleme (canlı veya kaçırılan programlar dahil) Watching internet streamed TV (live or catch-up)	40.0	40.8	39.1
Ücretli video izleme Watching video on demand	4.4	5.1	3.6
Paylaşım sitelerinden video izleme (Örn. YouTube) Watching video content from sharing services	78.1	80.0	75.9
Oyun oynama ya da indirme Playing or downloading game	35.3	40.3	29.3
Sağlıkla ilgili bilgi arama (yaralanma, hastalık, beslenme, vb.) Seeking health-related information (e.g. injury, disease, nutrition, improving health, etc.)	68.8	65.0	73.5
Web sitesi üzerinden bir doktordan randevu alma (sağlık kuruluşu veya hastane vb.) Making an appointment with a practitioner via the website	34.7	34.7	34.8
Mal veya hizmet satışı Selling of goods or services, e.g. via auctions (e.g. eBay)	21.3	24.9	17.0
İnternet bankacılığı Internet banking	39.5	49.8	27.0

In the light of statistics presented in this section, it is concluded that internet is widely available in Turkey and new media is becoming the primary source to reach information in daily life. At this point, the motivation types for finding information online should be examined in terms of the effect on lives. Entertainment or buying oriented searches may not have critical impact on the masses but health-related searches.

At this point, I must share a personal anecdote. One day in 2018, my father, who had not had any cardiac disease until that day, felt some abdominal pains while sitting at home. Later on, he started to seek its causes online and then had a suspicion if it could be a heart attack, so, he went to emergency. Actually, he was suffering heart attack and as a result, after immediate treatment he got healthy again thanks to early intervention. Based on this experiment, I can express that online health information seeking may save lives and convince people to get support from medical experts.

Moreover, as SEO experts, we have witnessed remarkable changes in online health industry after an algorithm change by Google in Turkey. Based on the quality and expertness of websites, Google rearranged the rankings of websites, especially on health-related searches. I would expect medical institutions such as hospital websites to increase their search visibility since these websites are reputable due to the comprehensive contents prepared by physicians, in my opinion. Nevertheless, hospital sites have been badly affected by this update and lost a large number of visitors online. On the other hand, the major changes in search visibility of news sites in Turkey after the update have aroused interest among digital marketing community. We have experienced that Turkish news sites have remarkably gained search visibility during that period, even on health-related searches.

These two incidents have made me come up with this research. In my opinion, it is quite remarkable that Google has reputed news sites on medical information as the result of artifactual evaluation by quality raters. Thus, there may be a correlation between Google's approach and user behaviors towards news sites in terms of trust. In the light of this insight, my hypothesis is that Turkish internet users rely on news sites on their online health information seeking. Studying this argument is quite important to figure out online trust issues in public health.

In this research, I will also try to find answers for these questions:

- What are the common user behaviors while seeking online health information?
- Do online medical sources affect users' decision-making on their health?
- Besides the news sites, on which sort of websites do users rely while obtaining medical information?
- How does Google lead the online health communication flow?
- What are the challenges for medical sites and news sites in online health communication in Turkey?

2. LITERATURE REVIEW

2.1 UNDERSTANDING ONLINE HEALTH COMMUNICATION

The main theme of this paper is the effects of online health communication on users in Turkey. Thus, it is better to understand the environment of this subject at first, so I reviewed the literature to find out the theories from wide to narrow scoped. Reviewing these theories, my aim is to explore the situation of online health communication concept in communication models and health communication theories.

2.1.1 Communication Theories

The communication process has been defined and modelled by many theoreticians in communication sciences so far. The foundation of communication theory was grounded in the 1940s, the years when scientists and engineers were trying to find a way out to transmit information via electronic devices, by two scientists named Claude E. Shannon and Warren Weaver. The Shannon and Weaver Model of Communication, referred as “mother of all models”, diagrammatizes communication in linear and one-way flow as in Figure 2.1 (Hollnagel & Woods, 2005).

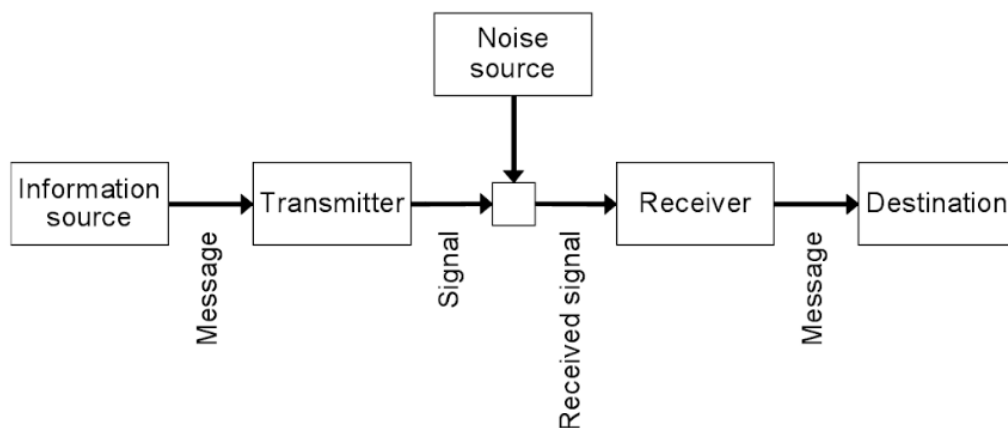


Figure 2.1 The Shannon and Weaver Model

In this schema, it can be seen that communication defined as conveying a message from the source to the destination in a technical perspective. The reason behind this perspective may be the concern for transmitting data without loss while using electronic devices as transmitter and receiver.

Few years later, in 1948, The Shannon and Weaver Model is expanded by Wilbur Schramm, an American scholar known for his studies on mass communication. In his communication process model named as The Schramm Model, he includes some contextual factors and argues that communication is a two-way process due to the feedback loop between the receiver and transmitter as in Figure 2.2 (Blythe, 2009).

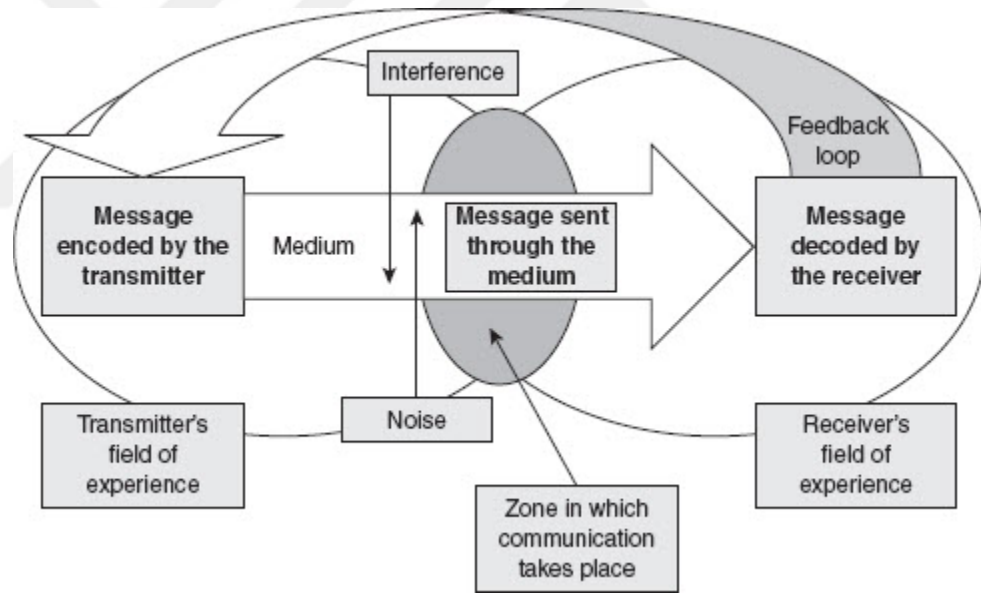


Figure 2.2 The Schramm Model

Based on The Schramm Model, transmitter's and receiver's fields of experience, the interferences and noises in medium and the place may change the flow of the message. This diagram is closer to modern communication flow than the previous theory.

One of the most known communication models has been introduced by David Kenneth Berlo, an American communications theorist lived between 1929 and 1996, in the book named “The Process of Communication: An Introduction to Theory and Practice” in 1960. According to SMCR model of communication, also called as Berlo’s model of communication, the flow of communication consists of four elements: source, message, channel, and receiver. Each element has some variables that may affect the communication flow as visualized in Figure 2.3 (Watson & Hill, 2015).

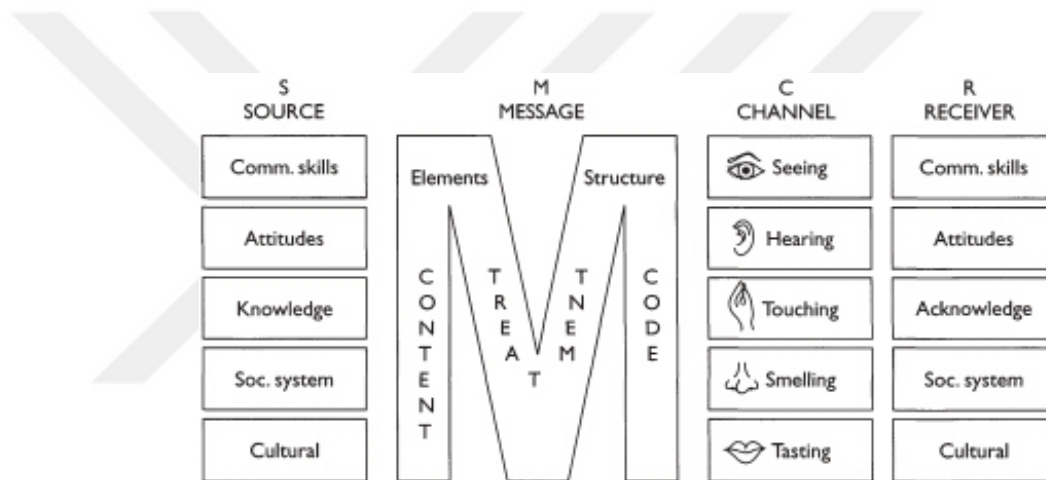


Figure 2.3 SMCR model of communication

With this theory, some major dimensions are involved in communication flow. Berlo approaches communication with anthropological and sociological aspects by asserting that the five senses of human, cultural and sociological factors are the part of communication since they may affect the conduction and perception of message.

All of these fundamental models of communication are based on the content or the transmitter and the receiver in the flow of conveying message. They are still valid; however, it can be stated that the communication model has been re-shaped in recent years due to internet. The communication theories in digital era are argued within the field of “New Media”. Thus, we

can call new media as “The Modern Communication” so the theories in this field lay a foundation to form modern communication modals.

In contradistinction to The Shannon and Weaver Model of Communication, The Schramm Model, and The SMCR model, well-known communication theorist Marshall McLuhan do not focus on the meaning of the message or the characteristics of the transmitter and receiver, he sees the medium as the modificative factor in the communication. With this approach, in his book “Understanding Media: The Extensions of Man”, published in 1964, McLuhan he creates a groundbreaking concept in the literature: “The medium is the message.” (McLuhan, 1994).

The argument of McLuhan underlies to today’s new media studies since the modern communication flow are based on the medium such as e-mail, social media, smartphones, websites etc. Since the medium is more diverse today than the past, we should examine the medium itself and understand how the message is comprehended depending on media. Based on McLuhan’s approach towards communication, Robert K. Logan who is one of the notable academicians in new media studies, updates “the medium is the message” concept within today’s communication methods and defines the new media modal in his book named “Understanding New Media: Extending Marshall McLuhan” in 2010. Logan states that the new technology media such as personal computers are not threatened in McLuhan’s work due to the bounds of technological facilities in 1964. However, when McLuhan’s argument is reviewed according to today’s conditions, it is clear that modern communication modal should be formed based on the medium itself since new media is becoming more and more important in communication (Logan, 2010).

To sum up, the old communication modals which go mainly around the sender and receiver, are getting outdated. New media such as internet add a different dimension to mass communication. Regarding the research subject of this paper, these theories indicate that why the health communication should be discussed in detail in terms of new media environment.

2.1.2 Defining Health Communication

The characteristics of communication should be specifically studied for each field because the factors for the message as mentioned in communication theories may differ from subject to subject. Beyond any doubt, one of the most important fields for the public welfare is healthcare. The uninterrupted and accurate conveyance of a message is quite significant for the public health. Thus, the governments, players of health industry and many researchers try to figure out the optimum structure and requirements for better communication in healthcare, which is conceptualized as health communication.

The concept of health communication is defined by Encyclopedia.com as “a rich, exciting, and relevant area of study that investigates and elucidates the many ways that human and mediated communication dramatically influences the outcomes of health-care and health-promotion efforts” (Encyclopedia of Communication and Information, 2002). In an article, it is mentioned that the interest in health communication has grown over the past two decades because this issue had appeared for the first time since 1979, within the objectives of “Healthy People 2010”, an act by U.S. Department of Health and Human Services (Parrott, 2004).

When the literature is reviewed, the very first significant study about health communication is the book named “Health Communication: Theory and Practice”, written by two scholars Gary L. Kreps and Barbara C. Thornton in 1984, in which the essentials of health communication are theoretically discussed in terms of the delivery of health care and the promotion of health (Kreps & Thornton, 1992).

Although some scholars examine the health communication in the discipline of communication modals on their studies, my literature review makes me conclude that the health communication theories and models are mostly discussed and defined by government agencies or international organizations. The main reason seems that the governmental intuitions are trying to create the most efficient discipline for their health campaigns in order

to regulate health industry, improve the public health, and ensure efficient use of allocated funds. For instance, communication is one of the factors to achieve health goals according to World Health Organization (WHO), and it offers a logic model for multi-dimensional health communication projects (see Figure 2.4).

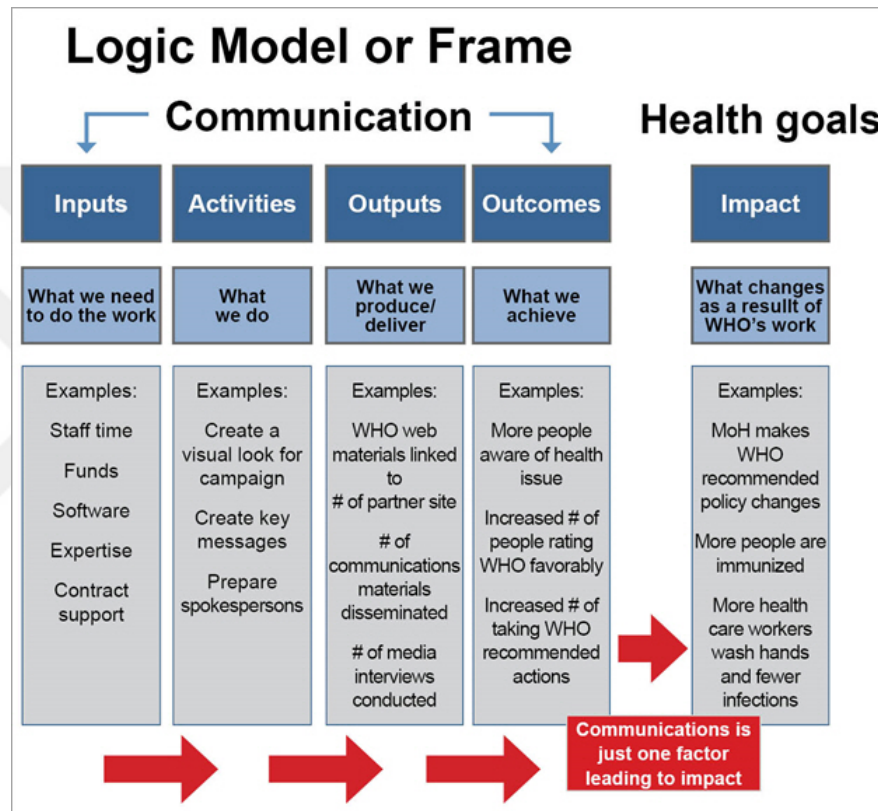


Figure 2.4 Logic Model or Frame for Health Communication (source: WHO)

In this frame, the communication flow is divided into four stages: inputs, activities, outputs, and outcomes (WHO, n.d.). This result-oriented model differently includes financial and technical requirements and desired outcomes in communication process while conveying a health-related messages to the public.

The messages in health communication is not only conveyed instantly but also in very long term. For this reason, European Centre for Disease Prevention and Control agency designs the health communication according to 11 principles that can be seen in Table 2.1 (ECDC, n.d.).

Table 2.1 Principles of EU in health communication (source: ECDC)

Accuracy:	the content is valid and without errors of fact, interpretation, or judgment.
Availability:	the content (whether targeted message or other information) is delivered or placed where the audience can access it.
Balance:	where appropriate, the content presents the benefits and risks of potential actions or recognizes different and valid perspectives on the issue.
Consistency:	the content remains internally consistent over time and also is consistent with information from other sources.
Cultural competence:	the design, implementation, and evaluation process that accounts for special issues for select population groups and also educational levels and disability.
Evidence base:	relevant scientific evidence that has undergone comprehensive review and rigorous analysis to formulate practice guidelines, performance measure, review criteria, and technology assessments.
Reach:	the content gets to or is available to the largest possible number of people in the target population.
Reliability:	the source of the content is credible, and the content itself is kept up to date.
Repetition:	the delivery of/access to the content is continued or repeated over time, both to reinforce the impact with a given audience and to reach new generations.
Timeliness:	the content is provided or available when the audience is most receptive to, or in need of, the specific information.
Understandability:	the reading or language level and format (including multimedia) are appropriate for the specific audience.

This design prioritizes creating long-lasting, consistent, understandable and accurate messages for the global community; therefore, there is no certain frame for medium, sender and receiver. I assume that this discipline requires using time and space independent media, that's why new media comes into prominence in health communication.

Besides the frames composed by the dignified organizations and governmental agencies, a metatheory of health communication is revealed in the literature by some researches as shown in Figure 2.5 (Kincaid, et al., 2013).

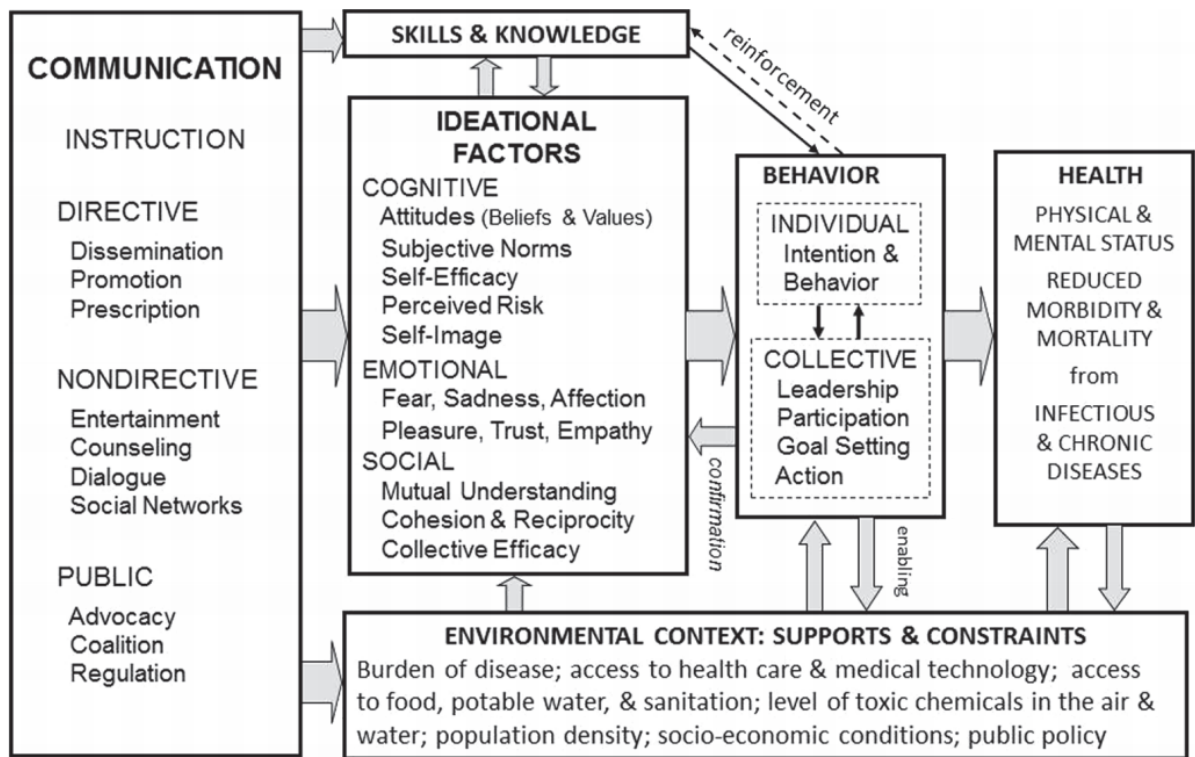


Figure 2.5 Health communication flow by 11 Kincaid, et al.

This theory introduces a multi-directional model for health communication. According to this, communication is in 4 different forms: instructive, directive, nondirective, and public. It can be conducted that the communication is proceeded to improve people’s health. In this flow, the message is exposed to skills and knowledge, ideational factors, environmental context, and people’s behavior. Consequently, in can be said that demographical and environmental factors have a great impact on the journey of message in health communication.

2.1.3 Online Health Communication

The arguments stated in this chapter so far emphasizes the importance of medium in modern communication and the impacts of communication on public health. As mentioned in Logan’s theory, new media drives message, so online health communication theories and reviews should be deeply investigated.

I believe that the online health information seeking activities underlies online health communication flow. In aforementioned disciplines and theories in health communication, it can be seen that the sender is authorities while the receiver is public. However, the traditional communication flow has been interrupted by new media; the producer of a message can be the public itself thanks to internet. Thus, it is not possible to evaluate health communication as one-way flow today. Besides the messages conveyed by governmental organizations, a multi-directional communication flow exists on the web. This situation proves McLuhan's theory, the medium constitutes the message.

The unregulated environment of new media brings along the discussions about challenges and impact on health communication. It seems that modern health communication models are mostly based on eliminating the risks that may interfere in message. TELLME experts from the School of Public Health at the University of Haifa, which is funded by the European Union, reveals a new model for health communication as in Figure 2.6 (TELLME, 2014).

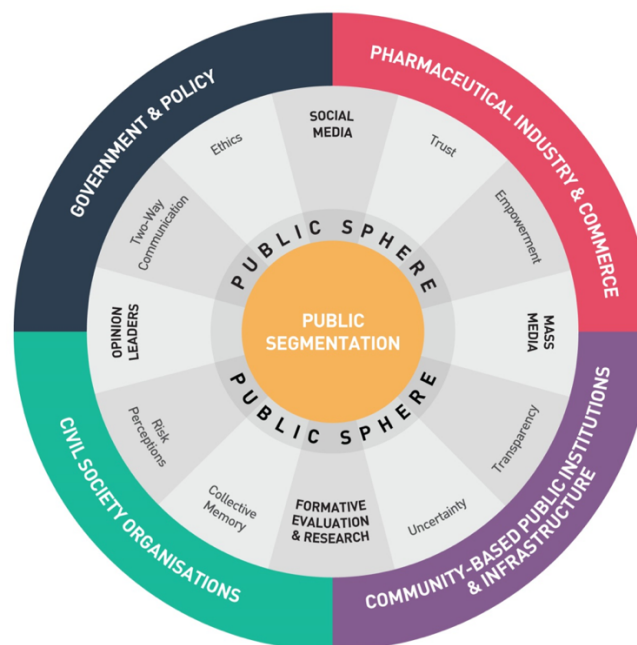


Figure 2.6 New model for health communication (source: TELLME)

It can be claimed that online health information seeking takes part in every share in this graphic while the message is conveyed through the center, namely the public. Especially the factors under the two parts “Pharmaceutical Industry & Commerce” and “Community Based Public Institutions & Infrastructure” such as trust and uncertainty, establish the discussions in this thesis study.

Gary L. Kreps, who is one of the writers of aforementioned book “Health Communication: Theory and Practice”, and his colleague Linda Neuhauser re-evaluate the health communication based on the effects of internet in their study named “Rethinking Communication in the E-Health Era” in 2003. They remark that behaviors in health communication have been deeply changed after internet by pointing out “whereas the traditional view has been that transmitting knowledge to individuals will result in healthier behavior, a current concept is that people ‘create health’ within their own settings” (Neuhauser & Kreps, 2003). Accordingly, user behaviors should be examined in online health communication, so I am going to look closer at users’ preferences and activities on the web while seeking information within the scope of this research.

The impact of the health online sources on decision-making and people’s health communication behaviors is also proven in another research named “Effects of Online Health Sources on Credibility and Behavioral Intentions”. Examining the online health sources in theoretical and methodological aspects, the online source typology is visualized as in Figure 2.7.

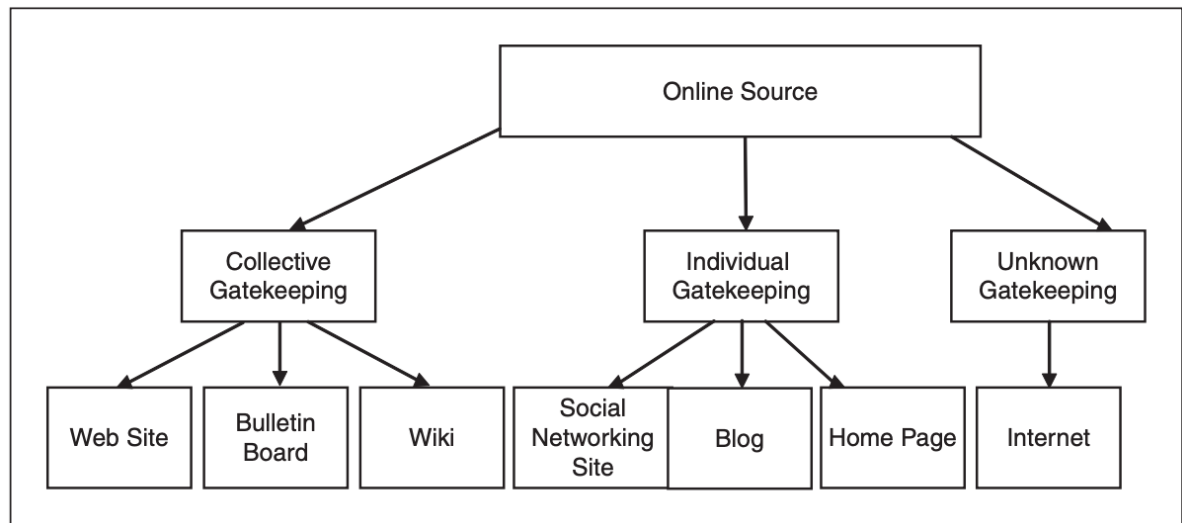


Figure 2.7 The online source typology by Neuhauser & Kreps

The researchers divide the gatekeeping in online sources into three characteristics: collective, individual, and unknown. They also point out that information selected collectively such as news sites, has more chance to be consumed by the mass audience than information selected individually (Hu & Sundar, 2010). By taking into consideration this inference, I believe that examining the user behaviors towards the sources on news websites is quite noteworthy for the literature in this field, so this have led me to carry out a survey a specific to news sites.

Additionally, a study carried out by two scholars, aspiring to define the characteristics of online and offline health information seekers, indicates that sociodemographic characteristics affect health information seeking on the web and they state that this factor may be considered in further researches (Cotten & Gupta, 2004). For this reason, I limit my study's scope into Turkish internet users.

In consequence of reviewing main theories about communication, health communication, and online health information seeking, I have better defined the outline and scope of my research. I would like to express that the arguments mentioned in this chapter mostly cover

the global studies. In the following parts of this paper, I will also be reviewing the literature in Turkey to detail my research and findings.

2.2 REVIEW OF ONLINE HEALTH COMMUNICATION IN TURKEY

In the previous section, where the main discussions underlying the online health communication are handled, shows how to approach the literature and researches in Turkey. Based on the before received findings, I aspire to figure out the online health communication aspects in Turkey by approaching in these ways:

- a. understanding the impact of online health information seeking in Turkey
- b. understanding the accuracy of online health sources in Turkey
- c. understanding the influence of online health sources on decision making in Turkey
- d. understanding the impact of news sites on online health communication in Turkey
- e. understanding the effect of new media on online health information seeking in Turkey
- f. understanding the relation between Google and websites on online health information seeking in Turkey

My literature review is centralized upon these aspects in following sections.

2.2.1 Effect Of New Media On Health Information Seeking

On the basis of the phrase “The medium is the message”, new media should also be analyzed in order to better understand the message on online health information seeking.

When the literature is reviewed in Turkey in the field of online health communication, most of the studies are carried out upon the impact of social media on public health. One of the latest researches is “New Approaches in Health Communication: Using Digital Media” reveals that 55% of Turkish undergraduate students sees the internet, especially sources in social media, as “beneficial” while decision-making about health (Gencer, et al., 2019). Prof.

Dr. Umit Atabek, Vice Dean of the Faculty of Communication at Yaşar University, emphasizes that the health literacy rate in Turkey is quite lower than Europe and their studies reveal that 55 percent of young people prefer internet as a source of information on nutrition and health issues. He also says that social media is the primary source for young people in Turkey for health information (Anon., 2017).

Consequently, social media has great impact on health information seeking in Turkey, so the literature is enriched by the studies covering this side of the new media effect. Nevertheless, other significant channels of new media such as websites and their correlation with online health information seeking behaviors should be examined to expand the findings.

2.2.2 Effect Of Online Sources On Human Health And Decision Making

Internet provides time and space independency, so people quickly access information 7 days 24 hours. Before world wide web, one needed to make an appointment and see a doctor when he or she felt sick. Nevertheless, internet users have health information provider just a click away today. This may save lives in case of urgency; for instance, when one feels sick at midnight and should take some precautions since need to wait the day after for seeing a doctor. On the other hand, any inaccurate information or misinterpreting of user may lead fatal results.

There are some anti-theses against lifesaving attribute of online health sources. In Assoc. Prof. Dr. Haluk Zülfikar's research where he analyzes users' behaviors, online health information seeking leads some cancer patients to make decision and helps them to see a doctor, although some of them are confused by the online information while decision making on their disease (Zülfikar, 2014). In a statement to HaberTurk, internal medicine specialist Dr. İbrahim Bağcivan defines online health information seekers as "e-patient" and says that these e-patients who prefer to get medical information online rather than physicians, get desperate or misinformed by online sources (Anon., 2010). Moreover, webpages having commercial purposes to sell some medicines or food supplements that claim to cure some

diseases, may lead to death of people due to unconscious treatment. This sort of web sites has increased Turkey in significant number that Turkish Pharmacists' Association publishes a press release to warn the public against medicine selling websites since many citizens have lost their lives after the use of these products (Association, 2019).

Moreover, some people need to take somebody's advice who has same symptoms or pulled through the illness when they feel sick. After Web 2.0, internet allow users to share their thoughts or interact with anonymously with other users on blogs, social media, forums etc. Peer to peer communication on web can shape one's decision about their health for better or for worse. Ellen Brady et al., from Centre for Primary Care, Institute of Population Health, The University of Manchester states that "users are attracted to members who in line with their own beliefs and experiences on forums so that the internet goes beyond an information source; instead, it provides information that individuals interact with, depending on their daily lives and health practices" (Brady, et al., 2016).

2.2.3 User Behaviors On Online Health Information Seeking In Turkey

In advance of analyzing the discussions on online health information seeking, it is better to understand how big the volume of those searches and why people use internet in their treatment process. As the Table 1.1 shows that seeking health-related information (e.g. injury, disease, nutrition, improving health, etc.) is the fourth purpose in internet activities by 68.8% according to 2018 statistics. According to this report, it seems that female users have more tendency to seek health related information online than male users. Taking into consideration that the rate of finding information about health is 36% in 2004, it can be asserted that this purpose has consistently increased in the last 15 years in Turkey. In addition to this, 34.7% of internet activates are in an attempt to make an appointment with a practitioner via a website today. Therefore, internet is not only a communication or entertainment medium in our daily lives, it plays a large part in treatment process while seeking medical advices or a physician.

Unlike the most of studies in the literature in Turkey, I include the top health-related searches and their volumes into this paper. For this analysis, I used the data retrieved on Ahrefs.com (Ahrefs, 2019), a well-known paid online toolset that explores the web and collects websites' performance and keyword volumes in numerous countries. In this tool, one can see all keywords even including a specific word and their monthly average search counts. Using this methodology, I downloaded the data of 3 types of search queries in Turkey:

- Search queries having the word “belirtileri”, which means “symptoms”, since I believe that they are indeterminate user intents before a diagnosis.
- Search queries having the word “hastalığı”, which means “disease”, since I believe that they are semi-certain user intents before or after a diagnosis.
- Search queries having the word “tedavisi”, which means “treatment”, since I believe that they are certain user intents after a diagnosis.

The data shows that there are 32429 different search terms having the word “symptom” and their total average search count is 3024870 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.

Table 2.2 Search Volumes of the Top 20 Keywords Having the Word "symptoms" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
hamilelik belirtileri	pregnancy symptoms	60000
apandisit belirtileri	symptoms of appendicitis	40000
şeker hastalığı belirtileri	diabetes symptoms	27000
akciğer kanseri belirtileri	symptoms of lung cancer	25000
boyun fitiği belirtileri	symptoms of neck hernia	24000

kalp krizinin belirtileri	symptoms of a heart attack	24000
bel fitiđı belirtileri	symptoms of lumbar hernia	23000
kalp krizi belirtileri	symptoms of heart attack	22000
b12 eksikliđi belirtileri	b12 deficiency symptoms	20000
beyin kanaması belirtileri	symptoms of brain hemorrhage	19000
menopoz belirtileri	symptoms of menopause	19000
beyin tümörü belirtileri	symptoms of brain tumor	18000
mide kanseri belirtileri	stomach cancer symptoms	18000
safra kesesi belirtileri	symptoms of gallbladder	17000
depresyon belirtileri	symptoms of depression	16000
lösemi belirtileri	leukemia symptoms	15000
panik atak belirtileri	symptoms of panic attacks	15000
zatürre belirtileri	symptoms of pneumonia	15000
aids belirtileri	aids symptoms	15000
kolesterol belirtileri	cholesterol symptoms	14000
mide kanaması belirtileri	symptoms of gastric bleeding	14000
kanser belirtileri	cancer symptoms	14000
gebelik belirtileri	signs of pregnancy	14000
reflü belirtileri	symptoms of reflux	13000
apandisit belirtileri nedir	what are the symptoms of appendicitis	13000
tansiyon yükselmesi belirtileri	symptoms of elevated blood pressure	13000
böbrek yetmezliđi belirtileri	symptoms of kidney failure	12000
bađırsak kanseri belirtileri	bowel cancer symptoms	12000
idrar yolu enfeksiyonu belirtileri	symptoms of urinary tract infection	12000
sinüzit belirtileri	sinusitis symptoms	12000

This table indicates that most of health information seekers explore the symptoms before they are certain about their health situation and search terms about pregnancy, appendicitis, cancer types and some other types of illnesses. The noteworthy insight is that the keywords related to gynecological diseases such as pregnancy symptoms, symptoms of menopause and signs of pregnancy are frequently searched according to this table and there is no male-specific disease, so it can be deduced that women may be using the internet more often for health information seeking. The accuracy of online sources and personal inferences of users are very critical at this point. The explanations on the web may appear similar to users with their illness so initiate the treatment process or they may find very irrelevant information on the search results and do not take any action even if they have actually a disease.

Secondly, according to the data of Ahrefs.com, there are 28947 different search terms having the word “disease” and their total average search count is 1782320 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.3.

Table 2.3 Search Volumes of the Top 20 Keywords Having the Word "disease" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
el ayak hastalığı	hand-foot-and-mouth disease	36000
gut hastalığı	gout disease	36000
sedef hastalığı	psoriasis disease	34000
sma hastalığı	sma disease	30000
şeker hastalığı belirtileri	diabetes disease's symptoms	27000
ms hastalığı	ms disease	27000

behçet hastalığı	Behcet's disease	27000
çölyak hastalığı nedir	what is celiac disease	22000
zona hastalığı	shingles disease	20000
şeker hastalığı	diabetes disease	18000
koah hastalığı	koah disease	16000
gül hastalığı	rose disease	16000
als hastalığı	als disease	15000
kelebek hastalığı	butterfly disease	15000
zona hastalığı nedir	what is shingles disease	15000
crohn hastalığı	crohn's disease	14000
çölyak hastalığı	celiac disease	12000
fmf hastalığı	fmf disease	11000
emes hastalığı	emes disease	11000
lyme hastalığı	lyme disease	11000

At this table, it can be seen that searches about disease are having specific terms. The most searched diseases are hand-foot-and-mouth disease and gout disease. People may seek information when they are suspicious about a disease or diagnosed by a medical expert. In the first presumption, users may decide to see a physician or treat themselves upon the information found on the web. So, the sources may affect their treatment process. In the first presumption, users are probably conscious about their existing disease and want to get detailed information with further research.

Lastly, in the data of Ahrefs.com, there are 51997 different search terms having the word “disease” and their total average search count is 2092840 per month. These keywords are sorted by their monthly average search counts and the most searched 20 terms are included at Table 2.4.

Table 2.4 Search Volumes of the Top 20 Keywords Having the Word "treatment" in Turkish, 2019

Search Query	Translation	Average Search Count (Monthly)
kanal tedavisi	canal treatment	22000
ozon tedavisi	ozone therapy	12000
varis tedavisi	varicose veins treatment	11000
sülük tedavisi	leech therapy	10000
topuk dikenli tedavisi	heel spur treatment	9400
sinüzit tedavisi	sinusitis treatment	8000
kök hücre tedavisi	stem cell therapy	7800
basur tedavisi	hemorrhoids treatment	6900
prp tedavisi	prp treatment	6800
bel fitiği tedavisi	lumbar hernia treatment	6700
nasır tedavisi	callus treatment	6400
migren tedavisi	migraine treatment	6400
hemoroid tedavisi	hemorrhoids treatment	6000
panik atak tedavisi	treatment of panic attacks	5400
ayak mantarı tedavisi	treatment of athlete's foot	5300
prp tedavisi nedir	what is prp treatment	5100
tırnak mantarı tedavisi	nail fungus treatment	5000
yanık tedavisi	burn treatment	5000
zona tedavisi	shingles treatment	4900
boyun fitiği tedavisi	treatment of neck hernia	4700

This table shows that people mostly seek some treatment methods such as canal treatment and ozone therapy and the search terms do not coincide with Table 2.3. Therefore, it can be

deduced that when people are conscious about their diseases, they seek information such as the process, medical intuition or prices about specific treatment methods upon their physician's referral or the obtained information by web sources or relatives etc.

Some arguments by the interpretation of these three tables are listed below:

- Although the volume of searches about symptoms seems significantly high, it is less than the sum of searches for treatment and disease. Thus, it can be concluded that the internet may be more used for further research than preliminary research in the online medical information flow in Turkey.
- The total search volumes of keywords about diseases are less than symptoms and treatment related searches. It can be assumed that those users might already have been informed about the disease by a physician when they were diagnosed.
- Interestingly, the number of unique searches about treatments are much more than symptoms and diseases. This may be result of existing numerous methods for diseases so users may investigate every way to survive their diseases.

As mentioned, people make great numbers of health-related searches every second on search engines. Not only the quantity of those queries but also the purpose behind them should be deeply examined to figure out users' behavior. Several studies demonstrate the purposes of Turkish users while health information seeking on web. Very first study in the literature was done in 2012, a case study named "A Study of Health Web Sites' Usage Level: A Case Application" examines the behaviors of academic staff at a state university and asserts that the primary reason is searching diseases by 85% for one's own or relatives since the internet is much cheaper and quicker to access information (Özer, et al., 2012). The next year, in the the online survey of Social Touch on 8001 users of Doktorsitesi.com in 2013, a website allows one to make an appointment online and contains articles about health-related issues, the participants affirm that they primarily use search engines for getting information about diseases or health issues by 89%. The following purposes are finding information upon medicines (55%), health care services (47%), physicians (44%), and making an appointment

(42%). Most of these participants state that they make those searches for themselves or their relatives so it can be said that they principally carry personal purposes (Anon., 2013). This report so precious in this subject that many articles in the literature refers it; however, the data has been outdated since it was done in 2013. For instance, it points out that searches on computer are higher than mobile but today, in 2019, mobile devices' penetration is almost 67% and ahead of computers (DataReportal, 2019). For this reason, the purposes of health information seeking in Turkey should be analyzed and updated, which is one of the aims of this thesis.

Moreover, when the medium for accessing health related information are compared, the rate of web-based searches is remarkably higher than relatives, printed materials and television among the patients (Görkemli, 2017). Excessive use of the internet brings some advantages and disadvantages. In the review of literature on the relation between web-based searches and public health by two medical researchers, these amenities and disabilities are listed. Firstly, it is mentioned that internet users go online for health information since it is time-saving, low cost, easy access for physically disabled persons etc. On the other hand, it has some deficiency since it the effect of information may vary in different demographics, multiple answers for a same subject, difficulty of access for elder people etc. (Aslan & Yavuz, 2013).

Consequently, an undeniable fact that online health information seeking has a very important place on public health. People mostly go online before consulting a physician since internet is easiest and quickest way to find information.

2.2.4 Accuracy Of Web Sources On Health-Related Searches

Internet is a public and interactive platform that allows everyone either consume or create content. Thus, most of the content on the internet are generated by internet users or non-expert editors working for a website, there is no strict regulation for disseminating information on the net. At this point, due to lack of fact-checking, any misinformation can

spread out and may be widely believed in it. This weak side of new media should be discussed especially for online health information-seeking since any misinformation may vitally affect people's decision and even harm one's health.

The quality and accuracy of information may differ by languages and countries. A recent cross-sectional study comparing the first 30 search results in terms of the quality of online information about total knee arthroplasty available in Turkish and English search results reveals that Turkish articles are as accessible as English ones; however, the former is less accurate than the latter (Küçükdemir, et al., 2015). On the other hand, Dutch physicians are “moderately positive about the consequences of health-related Internet use for their patients, the physician-patient relation, and the health care” (Uden-Kraan, et al., 2010). This give clue about the deficiency on online health information-seeking in Turkey.

According to another cross-sectional survey, 41% of 103 healthcare professionals have the opinion that health-related information on the net in Turkey is mostly inaccurate and the better part of these professionals indicate this speciousness mislead the patients before they see medical experts (Tosun, et al., 2015). Additionally, not only inaccuracy but also any lack of information can also mislead or confuse health information seekers and there are three significant research in literature pointing out that the top results on search engines for health-related queries in Turkish have incomplete or incorrect information. Some years earlier, in 2013, three researchers who are expert in orthopedics and traumatology department reveal that the web pages ranked at first results on search engines such as Google, Yahoo and MSN gives missing and inadequate information about hip fractures (Küçükdemir, et al., 2013). Three years later, a study named “How Reliable is the Information in the Internet on Atopic Dermatitis?” where the search results and content quality are evaluated in quite similar methodology as previous one, deduces that most of web pages about eczema contain unwarranted user generated content on Google (Çetinkaya, et al., 2016). In another research where the top 14 sites on search engines for hip dislocation search are examined by medical professionals, Turkish users are exposed incorrect practices, irreversible prejudices on web (Ceylan, et al., 2016).

Except for hospital websites and governmental sources, most of the sites on the web include advertisements on the pages and they publish contents in an attempt to get revenue. The commercial concern should also be discussed for health-related search results. Some websites may manipulate contents to get more traffic and this argument has been confirmed in on a research. 10 researcher reports that 65% of web pages contain advertisement when they analyze search results on Google Turkey for 12 different symptoms with varied keywords such as “symptom alone”, symptom and prevention”, “symptom and diagnosis”, and “symptom and treatment”. In consequence of the analysis, they deny recommending these commercial concerned websites to their patients due to non-medical context (Can, et al., 2014).

Search engines sometimes list rich content apart from web pages on search results such as videos and users may click them and get information on during their health seeking. For instance, Google has been featuring video carousels on web searches since 2018 (Oberstein, 2018), as the example at Figure 2.8:

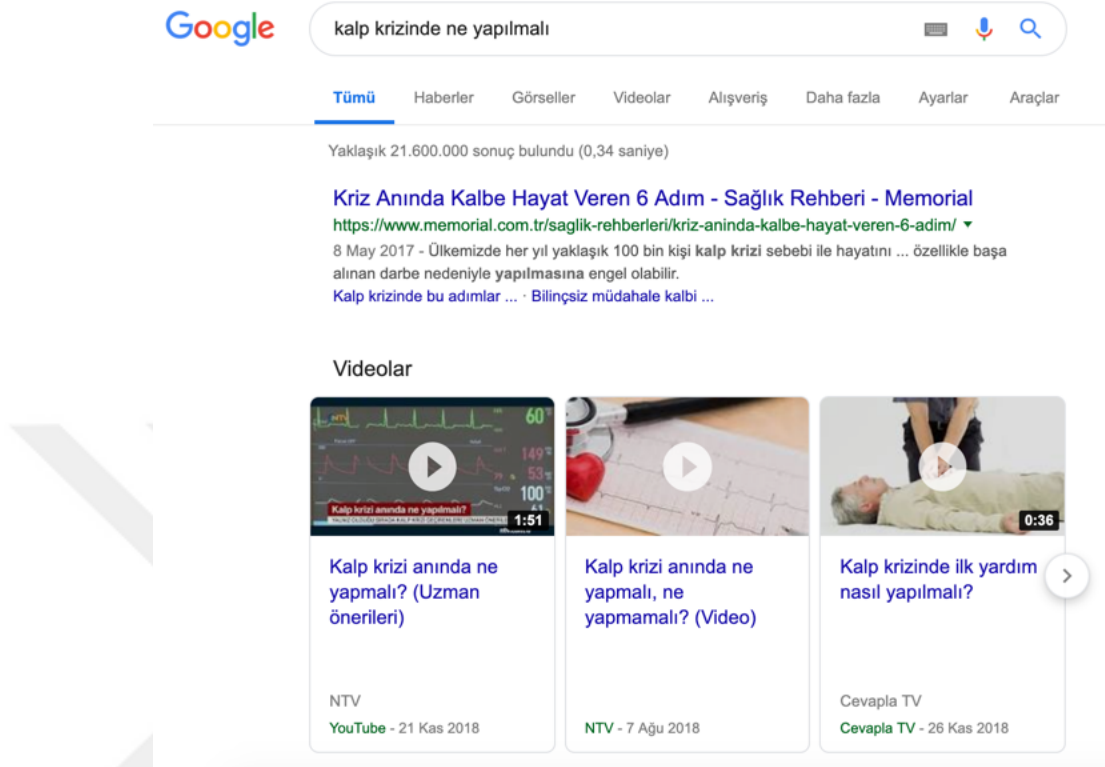


Figure 2.8 Video carousel on “What to do during a heart attack” search. (source: Google)

This update by Google bring along discussions about reliability of videos about health. As it can be seen on the figure above, the videos by newspaper sites (e.g. NTV) or video sites (e.g. Cevapla TV), which are not medical institutions, can be shown on the results. In a research named “The Reliability of Turkish ‘Basic Life Support’ and ‘Cardiac Massage’ Videos Uploaded to Websites”, it has been found out that “one fourth of the videos were observed to not be suitable for 2010 CPR guideline” and the videos uploaded by persons are significantly gets lower score in terms of accuracy rather than the ones uploaded by official institution or medical person (Elicabuk, et al., 2016).

Consequently, above-mentioned research results clearly indicate that Turkish health-related search results on search engines like Google are less accurate than some other languages and most of the web pages or videos are incorrect or deficient. Therefore, it can be claimed that

Turkish web pages have a tendency to contain misinformation and so the trustworthiness of health-related search results in Turkey are questionable.

2.2.5 Effect Of News Sites On Online Health Information Seeking

According to the online source typology explained in previous chapter (see Figure 10), the collective sources on news sites have great impact on online health information seekers. Interestingly, the studies carried out towards on news sites raise doubt on the accuracy of health information on these sources.

A discourse analysis on news sources on the web in Turkey, which examines sources in terms of content, grammar, structure interactivity and presentment; shows that they include inaccurate statements and create false impression about health issues (Hülür, 2016).

In a conference proceeding, sabah.com.tr and sozcu.com.tr which are well-known news sites in mainstream media, are comparatively analyzed and concluded that only in the 25% of the health-related news are composed upon the medical experts' opinions, most of them have questionable discourse that may negatively affect the reader's health (Taylan & Ünal, 2017).

The discussions show that there is a need for validation mechanism online health sources in Turkey. A recent organism named Teyit.org targets to create a validation mechanism by fact-checking the claims made online sources; however, there are still some deficiencies on this platform. The same conference proceeding also cover the false information problem in health communication, and points out that the fact-checking results of health-related claims on Teyit.org are mostly inaccurate or open to discussion (Ünal & Taylan, 2017).

2.2.6 Effect Of Google On Online Health Information Seeking

Most of statistics show that one of the most common media is search engines in World Wide Web in the online health communication flow. Therefore, the search engines and the listed

web pages form the message for online health information seekers. According to StatCounter, the most used search engine is Google in Turkey by 91% (StatCounter, 2019). Due to this huge gap between other search engines, it can be said that “Google is the message” on online health communication in Turkey.

The changeable nature of search engines conveys variable messages for the users. They list the web pages in a search query according to their algorithms and these algorithms are changed and updated frequently. For the message producers, there is no guarantee to reach the receiver all the time. This poses a challenge and barriers for the authorities that desire to regulate public as mentioned in health communication theories. Unknown sources or individual gatekeeping in online health communication may get ahead of authorized sources on search results. This may cause information pollution on the web about health issues and the public health may be badly affected. It can be said that the regulator of online health communication is search engines like Google unlike the public sphere. Governments sometimes interfere in this environment by restricting the access to some websites, but it is not limiting for users, they can still find to reach these sources by create fake virtual locations.

In spite of user-serviceable nature of the web, Google works on regulating the search results to protect users. It frequently updates its algorithm with certain purposes for enhancing the search results for the common good. For instance, in a recent update named “August 2018 Core Update”, it can be understood how Google takes vital issues on the web seriously. Google has not declared the scope of that update; however, the studies by digital marketers indicate that it is clearly aiming “Your Money or Your Life” pages, the web pages about finance and health that may directly affect users’ life. According to the non-official insights after a comprehensive analysis on 300 domains by Barry Schwartz, a notable expert in digital marketing, the websites in health industry are the most affected from this update by 41% (Schwartz, 2018). This algorithm change is called as “Medic Update” and “Expertise – Authoritativeness – Trustworthiness (EAT) Update” by the digital marketing community since Google had updated its “Search Quality Evaluator Guidelines” 10 days before this update for the “Quality Raters” who are the people working for Google to manually evaluate

websites in terms of quality according to the policies defined by Google. When the scope of this 164 pages guideline is examined, it can be clearly seen that Google makes major strides in order to ensure trust and safety on the search results. Web pages are to be evaluated according to these major criteria:

- the purpose of the page
- expertise, authoritativeness, trustworthiness of the page
- main content quality and amount of the page
- who is responsible for the main content (creator) of the page
- who refers to that page on the web (reputation) of the page

The evaluation methods and examples of health-related pages are frequently handled in this document. It also includes some cases clearly demonstrating the poor and fully qualified medical information pages in terms of the 5 main criteria above.

If this approach of Google interpreted in reference to Berlo's SMCR model of communication, it can be said that it mainly focuses on the factors of the Source like knowledge and attitudes during conveying the Message to the Receiver, while the channel is itself. The approach of Google towards medical information pages can be understood in its statement:

“High E-A-T medical advice should be written or produced by people or organizations with appropriate medical expertise or accreditation. High E-A-T medical advice or information should be written or produced in a professional style and should be edited, reviewed, and updated on a regular basis.” (Google, 2018).

In order to understand the effect of this update, some data retrieved by using SearchMetrics, an online tool that measures the search visibility of websites. The methodology while measuring the search visibility, it bases the search volumes of keywords and the rank of a website for that keyword on search engines. In short, better ranking in highly searched

queries brings the sites more visibility score on the data of SearchMetrics (SearchMetrics, n.d.). Because it is not possible to see the private data of websites, this scoring method simulates of the organic traffic comes from search engines. Thus, it is commonly used in digital marketing sector to monitor organic traffic of websites.

There are numerous hospital websites in Turkey, but the analysis is sampled upon these three esteemed hospital sites since they have high level shares on online health searches: memorial.com.tr, acibadem.com.tr, and yeditepehastanesi.com.tr.

The graphs retrieved from SearchMetrics can be seen in Figure 2.9, Figure 2.10, and Figure 2.11.



Figure 2.9 Search visibility of Memorial.com.tr in 2018 (source: SearchMetrics)



Figure 2.10 Search visibility of Acibadem.com.tr in 2018 (source: SearchMetrics)

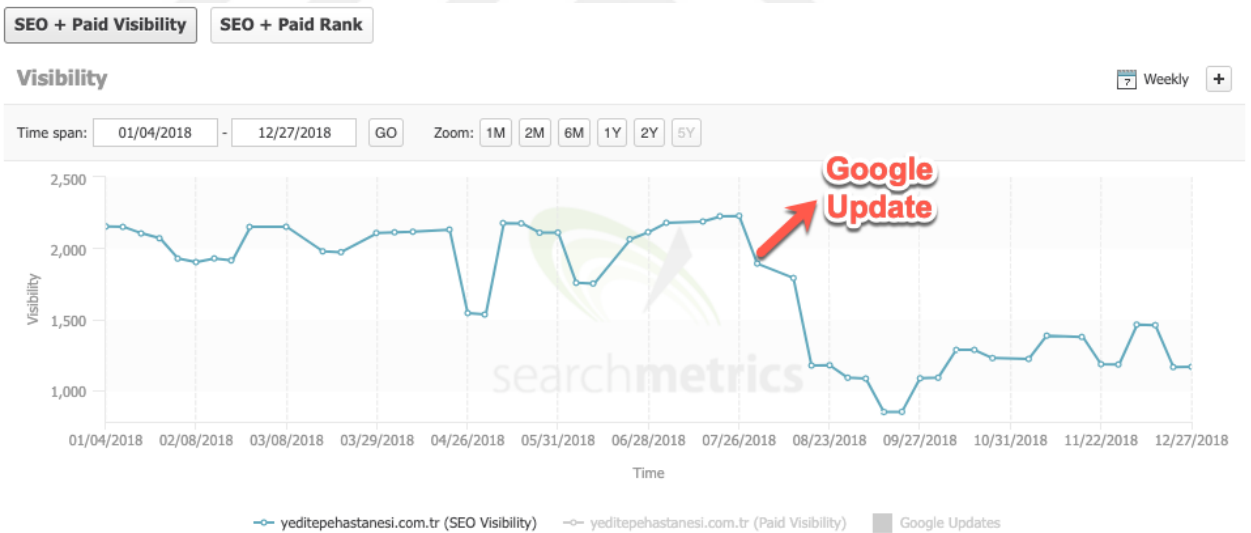


Figure 2.11 Search visibility of Yeditepehastanesi.com.tr in 2018 (source: SearchMetrics)

When these graphs are interpreted, it can be deduced that these websites have lost their ranks and their organic traffic significantly decreased after the marked date when aforementioned Google update was introduced. Therefore, it can be suggested that they may not abide by expertise, authoritativeness, and trustworthiness criteria of Google.

In order to examine the situation closer, the news sites serving medical articles under a specific health category on their websites are sampled by these three commonly known news sites: sabah.com.tr, haber7.com, and cnnturk.com

The graphs retrieved from SearchMetrics can be seen in Figure 2.12, Figure 2.13, and Figure 2.14.



Figure 2.12 Search visibility of Sabah.com.tr in 2018 (source: SearchMetrics)



Figure 2.13 Search visibility of Haber7.com in 2018 (source: SearchMetrics)

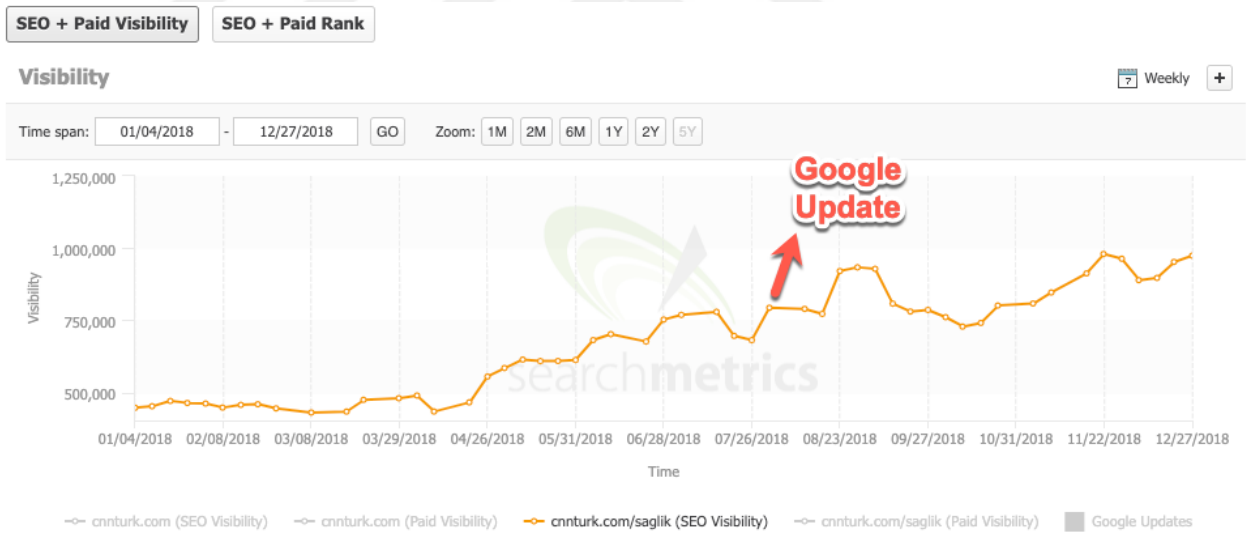


Figure 2.14 Search visibility of cnnurk.com in 2018 (source: SearchMetrics)

These graphs point out that these news sites have gained higher ranking for their medical articles on Google, after the update. According to comparative results, it can be suggested that the news sites may be corresponding to Google's E-A-T criteria better than the hospital sites in Turkey.

It should be noted that Google evaluates websites not only upon these guidelines but also hundreds of technical criteria such as coding, speed, performance on mobile devices etc. That's why the owners of websites get professional help from SEO consultants to optimize their websites according to Google's policies for commercial concerns.

To sum up, the main aim of this section is reviewing the impact of Google on online health information seeking in Turkey. The findings affirm that the search engines - the medium - are determining factor for the messages desired to be conveyed to public.

In the literature review, I apprehended the essential theories in communication studies. These theories helped me to get through to the communication design in health information. Evaluating the new media theories in the field of health communication, I figured out the main discussions about online health information seeking.

In consideration of significant theories and discussions in the literature, I restricted my research's scope to the correlation between new media and online health communication in Turkey. Reviewing the previous studies and findings, I obtained following arguments in brief:

- McLuhan's communication theory and Logan's thoughts towards new media are applicable for understanding the online health information seeking flow.
- The general frameworks designed for health communication in a broad sense do not fully compass the aspects in online health communication, brought by new media.
- As in the many countries, new media drive the online health communication in Turkey.
- In most of studies, trust issues are argued due to excess of inaccurate sources on the web in Turkey.
- New media play great role on Turkish public health since people are prone to make decision about their health upon online sources.

- The scopes of studies in Turkey are towards the effect of social media on health information seeking. There are few researches about search engines and websites in this field.
- Recently, Google has significantly affected the online health communication flow.
- Despite Google has boosted news sites on health-related searches, studies indicate that they mostly contain inaccurate and questionable information.



3. RESEARCH AND ANALYSIS

3.1 RESEARCH METHOD

In this research, a mixed methodology, quantitative and qualitative research, is followed while studying the main argument.

First of all, it is aimed to measure users' perception of trust with quantitative criteria on within an online survey. At this point, the principal orientation is deductive, a theory about trust and credibility in web-based health information is partly applied while designing the research. Conducting a systematic literature review on 73 studies in order to "identify the factors that impact judgments of trustworthiness and credibility, and to explore the role of demographic factors affecting trust formation" in online health information seeking, Laura Sbaffi and Jennifer Rowley assert the demographic factors, dependent variables in content features, and dependent variables in design features (Sbaffi & Rowley, 2017). Additionally, the quantitative evaluation of these criteria brings objectivism to the ontological orientation in this research.

On the other hand, qualitative research method also followed for interviews. Posing some open-ended questions to some people directly related in this field, their point of view towards the research topic is collected and evaluated. Since the findings are based on the experiences of society in the real world, constructivism is also adopted in ontological orientation of the research.

Investigated arguments and possible findings in the research topic are socially constructed and subjective even the quantitative method is involved. Thus, the general epistemological orientation is interpretivism in this research.

On the ethical aspects, the patient privacy aimed to be protected; therefore, the data is anonymously collected, personal information such as name and contact information is not

asked to the participants. The consent of Ethics Committee for Human Research (KHAS-IAEK) is obtained to carry out this research.

3.2 SURVEY DESIGN

An online survey composed via Google Forms is designed to collect data from the target audience. In total, 61 close-ended questions with rating and single choice answers, are posed to the participants. The questions in survey are gathered in 8 sections according to their scopes as follow:

Section 1 : Demography

Section 2 : Job

Section 3 : Behaviors on web-based health information seeking

Section 4 : Behaviors on internet activities

Section 5 : Impact of Google related issues

Section 6 : Evaluation of web site types in terms of the frequency while obtaining medical information

Section 7 : Evaluation of web site types in terms of trust while obtaining medical information

Section 8 : Evaluation of news sites in terms of trust while obtaining medical information

The questions in section 1, 2, and 8 are designed upon the research by Sbaffi & Rowley. The rest is included based on the findings obtained in literature review. The questions in section 8 are directly related to the research question (survey questions are also appended). This online survey was published on April 19, 2019 and it stayed open to the answers for 2 weeks. It was shared on new media channels such as, Facebook, Twitter, LinkedIn, and Whatsapp. A few social media profiles having more than 2000 followers shared this survey to reach a wider audience.

Additionally, two very similar online forms closed to public access was created via Google Forms for carrying out online interviews with some people in online health and news

industries. It involves almost same 14 questions, only the expressions “health site” and “news site” varies in the questions while addressing to the interviewee.

Moreover, 4 different open-ended questions are designed for online interview with a Google engineer in order to understand the approach of Google to online health communication. These questions are posed in a direct tone, aiming to find some certain answers on Google related issues.

3.3 RESEARCH RESULTS AND DISCUSSIONS

3.3.1 Survey

The online survey towards the internet users in Turkey, was participated in by 201 people in total. 60,2% (121) of the participants are female while 39,8% (80) of them are male. In terms of age, the majority of the participants was constituted by two groups of people: aged between 25 – 34 (84) and aged between 18 – 24 (81). They were followed by the people aged between 45 – 54 by 8% (16) and between 35 – 44 by 7,5 % (15). 3 people aged above 65 and 2 people aged between 55 – 64 make the rest of participants. The age distribution is quite similar to the report of TurkStat’s individual internet users by age groups in 2018 (TUİK, 2018). 81,1 % of participants (163) declared that they did not have any child while the rest (38) were parents. The great part of participants (129) was having bachelor’s degree, by 64,2%. In the rest, 16,9% (34) of them were having graduate degree and 16,4% (33) of them were high school graduate while 2,5% (5) of them was having PhD. Nobody was elementary education graduate or a person who did not attend school among the participants. The survey collected answers from 27 different cities, by a majority in the first two biggest cities in Turkey: in Istanbul by 54,2% (109) and Ankara by 26,9% (54). The other cities distributed at a similar rate.

The majority of participants declared that they full time employees by 56,7% (114). The unemployed participants are mostly students by 29,9% (60). 5 retired people also participated

in the survey. A separate question was posed to 114 full time employees to learn their sector. 41,2% of them (47) were in digital marketing, 10,5% of them (12) were in health, 9,6% of them (11) were in education, and 7% of them (8) were in commerce (sales and marketing) sectors.

The participants were also asked to define their health status over three options. 81,6% (164) of the participants declared that they did not have a chronic disease and did feel healthy. The option “I have a chronic disease (cancer, diabetes, etc.), I am currently being treated.” selected by 10,4% (21) while the other option “I had a serious, chronic disease before, but I'm healthy now.” selected by 8% (16).

The results of the questions about internet usage shows that the participants are active internet users. 26,9% of them (54) use the internet 5 to 8 hours per day, 19,4% of them (39) 3 to 5 hours while 23,9% of them over 8 hours per day. Only 6,5% of them (13) selected “less than 1 hour per day” option. Google is the most used search engine among the participants by 95,5% (192). Few of them selected other search engines like Yandex and DuckDuckGo.

A series of questions were asked with the objective to understand the user behaviors on health information seeking on the web.

Table 3.1 Results for user behaviors while getting medical information

Q: How do you define your behavior while getting medical information on the web?	# out of all participants	Never	Rarely	Sometimes	Often	Always
I do research on the internet when I feel sick.		12	25	63	39	62
I do research on the internet when my		17	29	59	40	56

relatives feel sick.					
When diagnosed by a physician, I do research on the internet about the disease.	7	13	32	48	101
I regularly follow medical information on the net even I do not feel sick.	77	55	35	14	20
The medical information obtained on the web influences my decision making on my health.	26	54	72	28	21

The results show that the main motivation to seek medical information online is being diagnosed by a physician among Turkish internet users. This conclusion supports the aforementioned argument that internet is more used for further research than preliminary research in the online medical information flow in Turkey. Additionally, it can be assumed that online health literacy is quite low in Turkey since most of the participants never or rarely follow medical information on the net. Online medical information is not a major impressive factor on decision making about health but occasionally affects people's mind.

In the scope of the research, it is aimed to detect the starting point of health information seeking. The question “How do you usually get the first information when you feel sick?” was responded as “by searching on the web” by 45,3% (91). The option “by consulting a health care provider or a doctor” was selected by 33,8% (68). 16,9% of the participants (34) declared that they would “consult their relatives” while 2% (4) of them would “go a pharmacy to ask medicines”. An open-ended “other” option was also included into this question. 3 participants answered that they were already in health sector so would easily get information from medical professionals and 1 person clearly stated that he or she would never get health information on the web. Therefore, it can be asserted that the starting point of health information is the internet in Turkey.

In order to determine the effect of online medical information on users’ decision making about health, two yes-no questions were asked in the survey.

Table 3.2 Results for treatment process

# out of participants	Yes	No
Have you ever treated yourself upon the information obtained on the web?	88	113
Have you ever consulted a doctor upon the information obtained on the web?	117	84

According to the results, it can be said that Turkish internet users usually do not treat themselves but consult a medical expert upon the obtained medical information on the web. Nevertheless, there is no significant gap between the percentages. 43% of the participants declared that they had treated themselves upon the information obtained on the web. This is a considerable rate for the risks caused by online medical information.

In single choice question, participants were asked to complete this statement: “When I search a health-related issue on the web, I firstly ...” and got the results as in the Table 3.3.

Table 3.3 Results for user behaviors on search results

Q: Please complete this statement: “When I search a health-related issue on the web, I firstly ...”	# out of all participants	% out of all participants
“... click on the web pages listed at the top on search results.”	54	26,9
“... click on most of web pages listed not only at the top but also on following search results pages.”	98	48,8
“... look into videos on search results.”	2	1
“... look into images on search results.”	1	0,5
“... click the webpages that I know.”	46	22,9

It seems that users usually do further research on the web while seeking medical information. 48,8% of them visit most of the pages listed on search results. Search visibility, so search engine optimization, is an impressive factor for 26,9% of participants since they get the first information on the web pages listed at the top on search results. Moreover, brand awareness

for the websites is important for 22,9% of participants. They do not prefer to get information on images and videos at first.

In a question, it was aimed to understand how Google affects the online health information seeking by its own features on search results. Sampled screenshots for the answer boxes above the page, the image carousels, and the video carousels on Google search results, were presented to the participants (survey questions are also appended) and asked them to rate three statements about the effect of these features.

These questions were responded as the Table 3.4.

Table 3.4 Results for the effect of Google Features on users

Q: Please rate the following statements.	# out of all participants	Never	Rarely	Sometimes	Often	Always
“The answer boxes on search results make me click on that web page.”		11	21	58	69	42
“The image carousels on search results make me click on that web page.”		24	55	64	28	30
“The video carousels on search results make me click on that web page.”		44	43	45	39	30

According to the overall evaluation of ratings for these three statements, it is concluded that the features introduced by Google on the search results affect the online medical information flow. The answer boxes are impressive factors while getting medical information on the web. The effect of image carousels is less while video carousels have a moderate effect.

In the following parts of the survey, it is aimed to determine how different types of websites have impact on online health information seeking. The types of websites were divided into 10 and for each, participants were asked to rate both their frequency of getting medical information on these websites and their trust on these websites while getting medical information. The results were obtained as Table 3.5 and Table 3.6.

Table 3.5 Results for frequency of getting medical information on website types

Q: Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web.	# out of all participants	Never	Rarely	Sometimes	Often	Always
Hospital sites (pages of hospitals e.g. acibadem.com.tr, memorial.com.tr)	44	32	39	51	35	
News sites (news pages e.g. hurriyet.com.tr, milliyet.com.tr)	52	48	53	28	20	
Online encyclopedias (online encyclopedia pages e.g. wikipedia.org)	27	40	53	44	37	
Government agencies (pages of official governmental sites e.g. saglik.gov.tr)	39	33	50	48	31	
Forums and collaborative dictionaries (pages of sites	36	35	42	46	42	

consisted of user reviews e.g. eksisozluk.com, kizlarsoruyor.com)					
Health blog sites (pages of health sites not affiliated to health institutions e.g. anneysen.com, medikalakademi.com.tr)	48	49	59	29	16
Video content sites (pages of sites consisted of by doctor videos e.g. uzmantv.com, youtube.com)	32	39	55	41	34
Doctors' sites (pages of personal sites of doctors e.g. dribrahimsari.com)	40	50	51	34	26
Official associations and foundation sites (pages of association or foundation sites e.g. tkv.org.tr, kanservakfi.com)	52	40	53	34	22
Social content platforms (pages of sites where users produce the content e.g. onedio.com, listelist.com)	68	44	42	25	22

Table 3.6 Results for trust while getting medical information on website types

Q: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web.	# out of all participants	Never	Rarely	Sometimes	Often	Always
Hospital sites (pages of hospitals e.g. acibadem.com.tr, memorial.com.tr)		11	11	53	82	35
News sites (news pages e.g. hurriyet.com.tr, milliyet.com.tr)		44	61	61	22	13
Online encyclopedias (online encyclopedia pages e.g. wikipedia.org)		21	31	69	20	30
Government agencies (pages of official governmental sites e.g. saglik.gov.tr)		15	12	53	77	44
Forums and collaborative dictionaries (pages of sites consisted of user reviews e.g. eksisozluk.com, kizlarsoruyor.com)		42	50	60	35	14
Health blog sites (pages of health sites not affiliated to health institutions e.g.		48	45	72	25	11

anneysen.com, medikalakademi.com.tr)					
Video content sites (pages of sites consisted of by doctor videos e.g. uzmantv.com, youtube.com)	24	44	71	45	17
Doctors' sites (pages of personal sites of doctors e.g. dribrahimsari.com)	29	29	75	51	17
Official associations and foundation sites (pages of association or foundation sites e.g. tkv.org.tr, kanservakfi.com)	26	16	56	69	34
Social content platforms (pages of sites where users produce the content e.g. onedio.com, listelist.com)	72	57	45	17	10

When these two tables are compared, a slight difference between visit and trust behavior can be observed. Thus, two supplementary analysis are also done over the data.

Firstly, this data is analyzed to find the most trusted website types and the most distrusted website types in Turkey while seeking medical information on the web. For the question “Q: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web.”, the participants who answered as often and

always are defined as “trustful”, and the ones who answered as never and rarely are defined as “distrustful” on each website type. The participants who answered as “sometimes” are not included in the analysis. The results of this analysis are shown at Table 3.7.

Table 3.7 The most and the least trusted website types in Turkey

The most trusted website types	The most distrusted website types
Hospital sites (63%)	Social content platforms (64%)
Government agencies (60%)	News sites (52%)
Official associations and foundation sites (51%)	Health blog sites (46%)
Online encyclopedias (40%)	Forums and collaborative dictionaries (46%)
Doctors’ sites (34%)	Video content sites (34%)

According to the analysis, it can be said that the most trustful websites are hospital sites since 63% of all participants states that they always or often trust on these websites. They are followed by government agencies’ websites, official associations and foundation sites, online encyclopedias, and doctor’s sites. Social content platforms seem as the most unreliable sites since 64% of all participants states that they never or rarely trust on these websites. They are followed by news sites, health blog sites, forums and collaborative dictionaries, and video content sites.

Secondly, this data is analyzed to find the most visited website types and the least visited website types in Turkey while seeking medical information on the web. For the question “Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web”, the participants who answered as often and always are defined as “frequent visitors”, and the ones who answered as never and rarely are defined as “rare visitors” on each website type. The participants who answered as

“sometimes” are not included in the analysis. The results of this analysis are shown at Table 3.8.

Table 3.8 The most and the least visited website types in Turkey

The most visited website types	The least visited website types
Forums and collaborative dictionaries (44%)	Social content platforms (56%)
Hospital sites (43%)	News sites (50%)
Online encyclopedias (40%)	Health blog sites (48%)
Government agencies (39%)	Official associations and foundation sites (46%)
Video content sites (37%)	Doctors’ sites (45%)

According to the analysis, it can be said that the most visited websites are forums and collaborative dictionaries since 44% of all participants states that they always or often get information on these websites while seeking health related issues. They are followed by hospital sites, online encyclopedias, government agencies’ websites, and video content sites. Social content platforms seem as the least visited sites since 56% of all participants states that they never or rarely get information on these websites while seeking health related issues. They are followed by news sites, health blog sites, official associations and foundation sites, and doctors’ sites.

Some significant conclusions are obtained by this comparative analysis. Firstly, the websites more likely to have authoritative and official sources are more trusted than the websites more likely to have user generated and unqualified sources. Notwithstanding, this factor does not fully match the frequency of getting information rates. Interestingly, forums and collaborative dictionaries seem to get the most visits in online medical information flow. Video content sites are also taken place among the most visited websites. It can be assumed that these two website types are often used while seeking medical information, but they are

not reliable for the users. At this point, it can be said that people also follow peer-to-peer communication even if they are not likely to trust in others' opinions. Furthermore, official associations and foundation sites and doctors' sites are rarely used in online medical information flow even if they are found more reliable. It can be supposed that the rankings of these sites are lower on the search engines, so people may hardly find these sites on the search results.

The aim of the last part of the survey was to reach in depth results for the main research question. The participants were asked to evaluate their trust on the news sites while getting medical information on the web. The participants rated 19 different statements based on the trust factors introduced in aforementioned study by Sbaffi and Rowley. Each statement was addressing a trust factor on that study. All statements were affirmative sentences about news sites (survey questions are also appended). Participants rated these statements from 1 (strongly disagree) to 5 (strongly agree). The obtained data reprocessed to define negative approach, neutral approach, and positive approach to these factors. The sum of choices for strongly disagree and disagree options was evaluated as negative approach while the sum of choices for strongly agree and agree options was evaluated as positive approach. The sum of choices for neutral option was evaluated as neutral approach. Additionally, the statements divided into two groups according to content related trust factors and design related trust factors upon Sbaffi and Rowley's study. After all, the analysis was represented in Table 3.9 and Table 3.10.

Table 3.9 Evaluation of content related trust factors on news sites while getting medical information

Q: Please evaluate following statements for your trust on medical information that you obtain from news sites.	addressed content related trust factors based on Sbaffi and Rowley’s study	% of negative approach (participants selected strongly disagree OR disagree options out of all)	% of neutral approach (participants selected neutral option out of all)	% of positive approach (participants selected strongly agree OR agree options out of all)
Statement 1	Authority of author	43	30	27
Statement 2	Objectivity	47	21	32
Statement 3	Ease of use	56	21	23
Statement 4	Clarity / understandability	47	30	23
Statement 5	Familiarity	59	19	21
Statement 6	Currency (up-to-date)	46	32	22
Statement 7	References	34	39	27
Statement 8	Comprehensiveness	46	29	25
Statement 9	Relevance	45	33	22
Statement 10	Statistics	43	35	21
Statement 11	Recommended by others	67	14	19
Statement 12	Bias of information	49	22	29

Not surprisingly, due to common distrust on news sites, most of the participants negatively evaluated content related trust factors for news sites. Most of the participants (67) stated that being shared of a news page about health issues on social media by others is not a trust factor. Therefore, recommendation of by others can be count as the least reliable factor for news pages about health issues. The highest positive approach is through the objectivity of news sites by 32%; nevertheless, 42% of participants evaluated news sites on medical information as not objective, on the contrary.

Table 3.10 Evaluation of design related trust factors on news sites while getting medical information

Q: Please evaluate following statements for your trust on medical information that you obtain from news sites.	addressed design related trust factors based on Sbaffi and Rowley’s study	% of negative approach (participants selected strongly disagree OR disagree options out of all)	% of neutral approach (participants selected neutral option out of all)	% of positive approach (participants selected strongly agree OR agree options out of all)
Statement 13	Clear layout / design	43	30	27
Statement 14	Brand	47	21	32
Statement 15	Interactive features	56	21	23
Statement 16	Contact details	47	30	23
Statement 17	Commercial Domain	59	19	21
Statement 18	Slow	46	32	22
Statement 19	Pictures (and Videos)	34	39	27

Alike the statements referring to content related trust factors, it can be seen that the approach to design related trust factors is also mostly negative. 59% of participants evaluated that the commercial elements such as advertisements are trust breaking factor for the news sites while getting medical information. The significant finding in this part is that the pictures or videos on a news page about health issues slightly decreases the negative approach. Unlike the other statements, Statement 19 had a neutral approach by the participants. Thus, it can be assumed that not the text content but including some audio-visual content may increase the trust on news articles.

The results and analyses thus far clearly indicate that news sites are not reliable for online health information seekers in Turkey for various reasons. In order to elaborate the results finally, it is tried to find out the characteristic differences between the participants who can trust in news sites and the ones mostly distrust news sites on medical information. For this analysis, two groups were identified among the participants: 35 participants (Group 1) who choose “often” or “always” options for trust in news sites, 105 participants (Group 2) who choose “never” or “rarely” options for trust in news sites. The other 61 participants who choose “sometimes” option for the related question are excluded. For single choice questions, the most selected option was picked as the most common answer. For the rating questions, the most common answers were picked by counting the sum of “strongly agree / always” and “agree / often” options or the sum of “strongly disagree / never” and “disagree / rarely” options, depending on the statements. Analyzing the all answers of these two groups throughout the survey, the significant differences were conducted and represented at Table 3.11.

Table 3.11 Differences between the person trust in news sites and the person distrust in news sites

Group 1	Group 2
35 participants who are likely to “trust” news sites on medical information	105 participants who are likely to “distrust” news sites on medical information
The most common answer (% of that answer among 35 participants)	The most common answer (% of that answer among 105 participants)
Aged between 18 – 24 (63%)	Aged between 25 – 34 (51%)
Student (60%)	Full time employee (65%)
Uses internet over 3 hours per day (71%)	Uses internet over 5 hours per day (57%)
Mostly seeks medical information on the web once feels sick or for relatives (63%)	Mostly seeks medical information on the web once diagnosed by a physician (74%)
Not an online health literate (54%)	An online health literate (73%)
Medical information on the web affects decision making on health (43%)	Medical information on the web does not affect decision making on health (53%)
Gets the first medical information on the web once feels sick (49%)	Gets the first medical information on the web once feels sick (44%)
Clicks most of the pages on the search results (57%)	Clicks most of the pages on the search results (46%)
The most visited sites are forums and collaborative dictionaries while seeking medical information (71%)	The most visited sites are hospital sites while seeking medical information (42%)
The less visited sites are personal sites of doctors while seeking medical information on the web (34 %)	The less visited sites are news sites while seeking medical information on the web (27 %)
The most trusted websites are news sites for online medical information (100%)	The most trusted websites are hospital sites for online medical information (59%)

The least trusted websites are health blog sites for online medical information (26%)	The least trusted websites are news sites for online medical information (100%)
The relevancy between the search query and the content of news sites is the most positive factor for trusting news sites (83%)	The opinions of medical experts on the news sites is the most positive factor for trusting news sites (22%)

By this comparative analysis, it can be generalized that the young people under 25 in Turkey, mostly students, are more likely to rely on news sites while seeking medical information on the web. The participants in Group 1 cannot be defined as online health literates and medical information on the web affects their decision making on health. They usually seek medical information for themselves or their relatives once feel sick. The significant result is that Group 1 mostly goes for forums and collaborative dictionaries while getting medical information even they generally trust in news sites. The major factor for relying on news sites is the relevancy of news articles with the keyword that they are searching for. They rarely visit and get information from personal sites of doctors while the least trusted websites are health blog sites for them.

On the other hand, the people aged between 25 – 34, mostly full-time employees, are less likely to rely on news sites while seeking medical information on the web. Unlike Group 1, the participants in Group 2 can be defined as online health literates and medical information on the web does not affect decision making on health. They use internet more than Group 1 per a day and usually seek medical information on the web once diagnosed by a physician. They generally visit hospital websites to get medical information while preferring news sites at least. Their perception of trust on websites is in parallel with their visit frequency, the hospital sites are the most reliable sites for them while seeking medical information on the web.

The results of the survey help to make inferences about the perception of trust of Turkish internet users on news sites while seeking medical information on the web, which is the main research question of this research.

3.3.2 In Depth Online Interview

In addition to the online survey, some online interviews were also conducted to find answers for the supplemental questions of this research. The aim of these online interviews is to approach the research question with three other perspectives: hospital sites, news sites, and Google.

Several questions were addressed to two persons from hospital sites and two persons from news sites via Google Forms to figure out online medical information flow and challenges in these sectors. Additionally, an analyst from Google was interviewed via e-mail in order to understand the approach of Google towards online medical information and trust issues. Having informed and getting their consents, the personal information of these interviewees is shown at appended list.

When the answers of interviewees are compared, it can be assumed that news sites produce an article about health and publish it on the web so quicker (almost within one day) than the hospital sites (it may take a week). In the interviews, it is understood that hospital websites have a special department for producing health-related content on the website. The articles are prepared by the experts in these departments and they are revised by authoritative persons such as department managers before publishing them. On the contrary, news articles about health-related issues are prepared and revised by news editors on news sites. One of these interviewees, Oktay Çomak who is SEO consultant at Milliyet, states that some of these articles are revised by doctors but sometimes they are not checked by any medical experts (Çomak, 2019). The responses also indicate that news sites are less likely to include references than hospital sites. These conclusions may explain the aforementioned discussions about inaccurate medical information on news articles.

Moreover, it seems that news sites are more likely to do search engine optimization for their websites than hospital sites. As explained before, after the algorithm change in August 2018, news sites have gained more search visibility on health-related searches. Thus, it can be said that the efforts to make websites proper for Google's guidelines affect the online health communication flow.

The challenges for news sites and hospital sites when preparing health-related content and after publishing it on the website are asked to the four interviewees and obtained these answers:

Q: What challenges do you encounter when preparing health articles for publishing on your website?

Hatice Pınar Karakoca: There are some difficulties in health industry, we cannot use certain definitions such as “the only” and “authorized”. This is sometimes challenging but we do not usually have any difficulties.

Salih Kural: To receive information from doctors and receive approval to publish the prepared content on the website.

Oktay Çomak: The fact that the information is vary, they do not have a single line. Doctors do not always give the same answers because the effects may be different from person to person. We can get 20 different answers on a single subject.

Mustafa Ergün: To reach accurate information.

Q: What are the challenges you encounter after publishing health articles on your website?

Hatice Pınar Karakoca: The process of getting to the top of search engines is a bit long

Salih Kural: As the pre-publication process is quite strict, we usually do not encounter any problem.

Oktay Çomak: People are totally committed to that article; they believe in it without any further research. Medical experts do not object to the information that they think inaccurate.

Mustafa Ergün: The problem of low read rate.

The answers above points out the main challenges for these sites. The strictness and limitations to give accurate medical information is challenging for hospital sites. On the other hand, finding the most accurate medical information is a barrier for news sites. The hospital sites may be hardly listed on the top of search results while news sites complain of disregard to their articles.

In the last part of the online interviews, general thoughts about online health communication in Turkey were obtained as follow:

Q: What are your general thoughts about online health information seeking and medical information on websites in Turkey?

Hatice Pınar Karakoca: Hospitals' websites are insufficient in terms of general information (not sales-oriented). More detailed information about diseases and ways to prevent diseases should be produced to raise awareness in the public.

Salih Kural: It is an area that needs very wide and accurate, reliable and well prepared, qualified contents.

Oktay Çomak: Experts have an unrealistic approach to the health-related issues to doing their own PR and only mention the positive aspects of the issues, not negative aspects. This causes people who have serious health problems to not receive a clear information.

Mustafa Ergün: Because of the low number of readings, most of the health news are constituted by commercial contents advertising medical experts or hospitals. In order to get more accurate information and expert opinions, there is a need for particular support in health news so the media organizations should get grants or financial support from the authorities.

In these answers, interviewees from hospital sites emphasize the lack of comprehensive and accurate information on the web. The others call attention to the commercial concerns on health news.

As the reviews at the beginning of this paper and some of answers obtained from interviewees from hospital and news sites indicates that Google may affect the flow of medical information on the web, so it is tried to understand how Google handles this issue by interviewing Fatih Özkösemen who currently works as UX & data consultant at Google, previously data analyst

in Search Quality Department. The addressed questions and some significant points on received responses are given below:

Q1: What is the approach of Google to health-related searches? Does Google run different algorithms health-related searches? Are the ranking criteria different in each country?

Fatih Özkösemen: Some types of pages could potentially impact the future happiness, health, financial stability, or safety of users. We call such pages “Your Money or Your Life” pages, or YMYL. [...] We have very high Page Quality standards for YMYL pages because low quality YMYL pages could potentially negatively impact users’ happiness, health, financial stability, or safety.

Q2: Are there any methods to detect fake information and to give penalty for those websites?

Fatih Özkösemen: We have an important responsibility to our users and to the societies in which we operate to curb the efforts of those who aim to propagate false information on our platforms. At the same time, we respect our users’ fundamental human rights (such as free expression) [...] We face complex trade-offs and there is no ‘silver bullet’ that will resolve the issue of disinformation, because:

- It can be extremely difficult (or even impossible) for humans or technology to determine the veracity of, or intent behind, a given piece of content, especially when it relates to current events.
- Reasonable people can have different perspectives on the right balance between risks of harm to good faith, free expression, and the imperative to tackle disinformation.
- The solutions we build have to apply in ways that are understandable and predictable for users and content creators, and compatible with the kind of automation that is required when operating services on the scale of the web. We cannot create standards that require deep deliberation for every individual decision.
- Disinformation manifests differently on different products and surfaces. Solutions that might be relevant in one context might be irrelevant or counter-productive in others. Our products cannot operate in the exact same way in that regard, and this is why they approach disinformation in their own specific ways.
- Our approach to tackling disinformation in our products and services is based around a framework of three strategies: make quality count in our ranking systems, counteract malicious actors, and give users more context. We also undertake beyond the scope of our products and services to team up with newsrooms and outside experts, and to get ahead of future risks. [...]

Q3: We could see that the online performance of news sites got better than hospital sites in Turkey after 2018 August Core Update, namely Medic Update. Could you evaluate the position of the web sites consistently aiming to improve web site performance such

as news sites and the web sites mostly aiming to give true information such as hospital sites on health-related searches?

Fatih Özkösemen: Each day, Google usually releases one or more changes designed to improve our search results. Most have little noticeable change but help us continue to incrementally improve search. [...]. In 2018, we shared about two broad core algorithm updates we had: in April and August. We also had a further update we can confirm, one that began the week of September 24. [...]. For advice on great content, a good starting point is to review our search quality rater guidelines which are available online. Raters are people who give us feedback on if our algorithms seem to be providing good results, a way to help confirm our changes are working well. Just to keep in mind, search raters have no control over how pages rank. Rater data is not used in our algorithms. Rather, we use them as a restaurant might get feedback cards from diners. The feedback helps us know if our search “recipes” seem to be working. If you understand how raters learn to assess good content, that might help you improve your own content and, in turn, perhaps do better in search. You’ll also find plenty of advice about good content with the resources we offer on our online channels, guidelines, help pages and our forums.

Q4: Is there any relation between quality rating and users' perception of trust on health-related searches? What are quality criteria on health-related searches?

Fatih Özkösemen: As previously explained, we have very high Page Quality standards for YMYL (Your Money or Your Life) pages because low quality YMYL pages could potentially negatively impact users’ happiness, health, financial stability, or safety. Our quality algorithms are aimed at helping people find "high-quality" sites by reducing the rankings of low-quality content. Taking a step back, let's take a look at some of the ideas and research that drive the development of our algorithms. Below are some questions that one could use to assess the "quality" of a page or an article. These are the kinds of questions we ask ourselves as we write algorithms that attempt to assess site quality. Think of it as our take at encoding what we think our users want. Of course, we aren't disclosing the actual ranking signals used in our algorithms because we don't want folks to game our search results [...]. Writing an algorithm to assess page or site quality is a much harder task, but we hope the questions above give some insight into how we try to write algorithms that distinguish higher-quality sites from lower-quality sites.

It must be mentioned that Fatih interpersonally stated that he was not able to give some direct answers due to the privacy policies of Google. Upon the obtained answers, it can be understood that Google feels responsibility for users’ happiness, health, financial stability, or safety; thus, it has very high page quality standards for these issues. He pointed out that although Google makes great efforts for eliminating misinformation on the web, it also respects users’ freedom of expression. There are some challenges for Google while protecting this fine line: difficulty of detecting misinformation by technology (even by human), different

perspectives on an issue, difficulty of setting universal standards can be applied on all issues, and unstable form of information in different channels and contexts.

At the beginning of this research, it was presupposed that the personal evaluations of “quality raters” may affect the medical information on the web in terms of trust but this assumption was refuted by Fatih in his statement “search raters have no control over how pages rank”.

Lastly, it can be expressed that Google uses its algorithms to distinguish reliable content from unreliable ones and always push online information creators to produce safe contents for human-being.

4. CONCLUSION

The results of this research indicate that the internet has an influential role on health communication in Turkey. 45,3% of the participants of the survey, conducted among 201 internet users, use the internet as a primary source to get medical information before consulting a medical expert. The hypothesis has been disproved since news sites are one of the most distrusted website types in Turkey. 52% of the participants rated “I never trust” or “I rarely trust” options for news sites on their online health information seeking. The several trust criteria presented for news sites obtained mostly negative evaluation by internet users. The commercial elements such as advertisements seem to increase distrust on health news. This argument was also supported by the interviewees from news sites.

Some significant findings also conducted to cover the supplementary research questions in this research. The common user behavior to start seeking health information is being diagnosed by a physician. Additionally, 48,8 of participants do not stick to the first webpages on search results; they do further research by visiting most of the pages while seeking medical information. Online medical information may occasionally impact decision making about health but lead users to consult a medical expert. Nevertheless, the impact of online medical information on public is undeniable since 43% of the participants stated that they had threatened themselves before upon the information obtained on the web. The results showed that Turkish internet users were likely to rely on hospital sites (63%) at the most while seeking health information on the web, it was followed by governmental and official sources. The most notable output was that the forums and collaborative dictionaries were the most visited websites by 44% while seeking medical information; nevertheless, 46% of the participants stated that they never or rarely trust them in. In further researches, discourse analyses can be carried out to find out the reason behind this.

Moreover, it is deduced that Google itself usually affect the online health communication flow by the answer boxes or image and video carousels on the search results. After interviewing an analyst at Google, it was deduced that quality rater’s evaluations would not

have control over webpage rankings. Google makes great strides in presenting the most qualified and accurate results to its users for their safety, but it also tries to ensure freedom of expression on the web. The undeniable impact of Google on medical communication supports the argument of McLuhan: “the medium is the message”.

Additionally, interviewing people from news sites and hospital sites in Turkey, some challenges in those industries were conducted. The strict policies for publishing health articles are a barrier for the hospital sites while the disinterestedness and commercial concerns are the most challenging factors for news sites on health communication.

Besides, the literature review shows that the health communication models introduced by governmental and official institutions, are lack of online health communication factors. The internet should also be included into these models and it should be aimed of eliminating the such challenges as conducted by this research.

This research has some limitations since limited people participated in the online survey while the total internet user number is over 56 million in Turkey. Additionally, the perception of trust may vary on each health issue depending on users’ health condition, personal background, the seriousness of the issue etc. However, this research has sampled some significant conclusions on this issue that may underlie further researches.

REFERENCES

- Ünal, R. & Taylan, A., 2017. *Sağlık İletişiminde Yalan Haber - Yanlış Enformasyon Sorunu Ve Doğrulama Platformları*. Erzurum, Dergipark.
- Çetinkaya, P. U., Güvenir, H., Çetinkaya, E. & Kocabaş, C. N., 2016. How Reliable is the Information in the Internet on Atopic Dermatitis?. *Asthma Allergy Immunology*, Volume 14, pp. 64-70.
- Çomak, O., 2019. *Türkiye'de Haber Web Sitelerinin Sağlık Konularında Bilgi Paylaşımının İncelenmesi* [Interview] (29 April 2019).
- Özer, Ö., Şantaş, F. & Budak, F., 2012. A Study of Health Web Sites' Usage Level: A Case Application. *Gumushane University Faculty of Communication Electronic Journal*, 1(4), pp. 128-140.
- Ahrefs, 2019. *Ahrefs - Arama Trafiğinizi Büyütmek için SEO Araçları & Kaynakları*. [Online]
Available at: <https://ahrefs.com/tr/>
[Accessed 29 April 2019].
- Anon., 2010. *İnternette hastalığınızı araştırmayın*. [Online]
Available at: <https://www.haberturk.com/saglik/haber/210421-internette-hastaliginizi-arastirmayin>
[Accessed 26 April 2019].
- Anon., 2013. *Türkiye'de İnternetin Sağlık Amaçlı Kullanımı*. [Online]
Available at: <http://www.socialtouch.com.tr/%E2%9E%A8-turkiyede-internetin-saglik-amacli-kullanimi/>
[Accessed 24 April 2019].
- Anon., 2017. *Yeni medya sağlık okuryazarlığı açısından yaşamsal önemde*. [Online]
Available at: <https://haber.yasar.edu.tr/genel/yeni-medya-saglik-okuryazarligi-acisindan-yasamsal-onemde.html>
[Accessed 1 May 2019].
- Anon., 2019. *kalp krizinde ne yapılmalı - Google'da Ara*, İstanbul: Google.
- Aslan, D. & Yavuz, C. I., 2013. Use of Web Based Research in Public Health. *Turkish Journal of Public Health*, 11(2), pp. 104-110.

- Association, T. P., 2019. *İnternetten Satılan İlaçlar Sahtedir*. [Online]
Available at: <https://www.teb.org.tr/news/8208/%C4%B0nternetten-Sat%C4%B1lan-%C4%B0la%C3%A7lar-Sahtedir>
[Accessed 26 April 2019].
- Barr, T., 2000. *Newmedia.com.au: The Changing Face of Australia's Media and Communications*. Crows Nest: Allen & Unwin.
- Blythe, J., 2009. The Schramm Model of Communication. In: *Key Concepts in Marketing*. London: SAGE Publications, pp. 177-180.
- Brady, E., Segar, J. & Sanders, C., 2016. "You get to know the people and whether they're talking sense or not": Negotiating trust on health-related forums. *Elsevier logo Journals & Books Social Science & Medicine*, Volume 162, pp. 151-157.
- Can, A. B. et al., 2014. A research on internet use as health seeking behavior. *Cumhuriyet Medical Journal*, Volume 36, pp. 486-494.
- Ceylan, H. H. et al., 2016. Information Quality on Developmental Dysplasia of the Hip on Turkish Websites. *JOURNAL OF ACADEMIC RESEARCH IN MEDICINE*, 6(2), pp. 84-86.
- Cotten, S. R. & Gupta, S. S., 2004. Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, Volume 59, p. 1795–1806.
- DataReportal, 2019. *Digital 2019 Turkey (January 2019) v01*. [Online]
Available at: <https://www.slideshare.net/DataReportal/digital-2019-turkey-january-2019-v01>
[Accessed 25 April 2019].
- ECDC, n.d. *What is health communication?*. [Online]
Available at: <https://ecdc.europa.eu/en/health-communication/facts>
[Accessed 1 May 2019].
- Elicabuk, H. et al., 2016. The Reliability of Turkish "Basic Life Support" and "Cardiac Massage" Videos Uploaded to Websites. *The Eurasian Journal of Medicine*, Volume 48, pp. 15-19.
- Encyclopedia of Communication and Information , 2002. *Health Communication*. [Online]
Available at: <https://www.encyclopedia.com/media/encyclopedias-almanacs->

transcripts-and-maps/health-communication
[Accessed 1 May 2019].

Görkemli, N., 2017. Sağlık İletişiminde İnternet Kullanımı Üzerine Bir Araştırma. *The Turkish Online Journal of Design, Art and Communication*, 7(1), pp. 122-138.

Gencer, Z. T., Daşlı, Y. & Biçer, E. B., 2019. New Approaches In Health Communication: Using Dıgital Media. *Sosyal Bilimler Meslek Yüksekokulu Dergisi*, 22(1), pp. 42-52.

Google, 2018. *Search Quality Evaluator Guidelines*. [Online]

Available at:

<http://static.googleusercontent.com/media/www.google.de/tr/de/insidesearch/howsearchworks/assets/searchqualityevaluatorguidelines.pdf>

[Accessed 1 May 2019].

Hülür, A. B., 2016. Sağlık İletişimi, Medya ve Etik: Bir Sağlık Haberinin Analizi. *CBÜ Sosyal Bilimler Dergisi*, 14(1), pp. 155-178.

Hollnagel, E. & Woods, D. D., 2005. *Joint Cognitive Systems: Foundations of Cognitive Systems Engineering*. Florida: CRC Press.

Hu, Y. & Sundar, S. S., 2010. Effects of Online Health Sources on Credibility and Behavioral Intentions. *Communication Research*, 37(1), pp. 105-132.

Küçükduymaz, F., Ceylan, H. H. & Tuncay, İ., 2013. The Quality of Information about Hip Fractures in Turkish Internet Sites. *Journal of Clinical and Analytical Medicine*, 4(3), pp. 200-203.

Küçükduymaz, F., Mutlu, S., Mutlu, H. & Parvizi, J., 2015. A comparison of the quality of online information about total knee arthroplasty available in Turkish and English: a cross-sectional study. *Acta Orthop Traumatol Turc*, 49(4), pp. 370-374.

Kayalar, E., 2019. *Verilerle yazılı basın: Tirajlar düşüyor, gazeteler kapanıyor; medya çıkış yolu arıyor*. [Online]

Available at: <http://www.dokuz8haber.net/manset/verilerle-yazili-basin-tirajlar-dusuyor-gazeteler-kapaniyor-medya-cikis-yolu-ariyor/>

[Accessed 25 April 2019].

Kincaid, D. L., Delate, R., Storey, D. & Figueroa, M. E., 2013. Closing the Gaps in Practice and in Theory: Evaluation of the Scrutinize HIV Campaign in South Africa . In: R. E. Rice & C. K. Atkin, eds. *Public Communication Campaigns*. California: SAGE Publications Inc., pp. 305-320.

- Kreps, G. L. & Thornton, B. C., 1992. *Health Communication: Theory and Practice*. 2nd Edition ed. Illinois: Waveland Press Inc..
- Logan, R. K., 2010. *Understanding New Media: Extending Marshall McLuhan*. New York: Peter Lang Inc..
- McLuhan, M., 1994. *Understanding Media: The Extensions of Man*. Reprint edition ed. Cambridge: The MIT Press.
- Neuhauser, L. & Kreps, G., 2003. Rethinking Communication in the E-Health Era. *Journal of Health Psychology*, 8(1), pp. 109-132.
- Oberstein, M., 2018. *Google Is Replacing Video Thumbnails With A Desktop Carousel*. [Online]
Available at: <https://www.rankranger.com/blog/video-thumbnails-replaced-by-carousel>
[Accessed 26 April 2019].
- OpenSignal, 2018. *The State of LTE (February 2018)*. [Online]
Available at: <https://www.opensignal.com/reports/2018/02/state-of-lte>
[Accessed 23 April 2019].
- Parrott, R., 2004. Emphasizing “Communication” in Health Communication. *Journal of Communication*, 54(4), pp. 751-787.
- Sbaffi, L. & Rowley, J., 2017. Trust and Credibility in Web-Based Health Information: A Review and Agenda for Future Research. *Journal of Medical Internet Research*, 19(6), p. 218.
- Schwartz, B., 2018. *Google’s Aug. 1 core algorithm update: Who did it impact, and how much?*. [Online]
Available at: <https://searchengineland.com/googles-august-first-core-algorithm-update-who-did-it-impact-and-how-much-303538>
[Accessed 26 April 2019].
- SearchMetrics, n.d. *SEO Visibility*. [Online]
Available at: <https://www.searchmetrics.com/glossary/seo-visibility-faq/>
[Accessed 1 May 2019].
- StatCounter, 2019. *Search Engine Market Share Turkey Search Engine Market Share in Turkey - April 2019*. [Online]

Available at: <http://gs.statcounter.com/search-engine-market-share/all/turkey>
[Accessed 2 May 2019].

Statista, 2019. *Turkey: number of internet users 2013-2019*. [Online]
Available at: <https://www.statista.com/statistics/369725/internet-users-turkey/>
[Accessed 19 April 2019].

Taylan, A. & Ünal, R., 2017. *Sağlık İletişiminde Yalan Haber - Yanlış Enformasyon Sorunu Ve Doğrulama Platformları*. Erzurum, Atatürk İletişim Dergisi.

TELLME, 2014. *D3.1 - A new model for risk communication in health*. [Online]
Available at: <https://www.tellmeproject.eu/content/d31-new-model-risk-communication-health>
[Accessed 1 May 2019].

Tosun, B. et al., 2015. Determination of attitudes of healthcare professionals regarding health information on the internet. *Gulhane Medical Journal*, 57(3), pp. 247-251.

TUİK, 2018. *Son Üç Ay İçinde İnternet Kullanan Bireylerin İnterneti Kişisel Kullanma Amaçları*. [Online]
Available at: http://www.tuik.gov.tr/PreTablo.do?alt_id=1028
[Accessed 19 April 2019].

TUİK, 2018. *Son Üç Ay İçinde Bireylerin Yaş Grubuna ve Cinsiyetine Göre Bilgisayar ve İnternet Kullanım Oranları*. [Online]
Available at: http://www.tuik.gov.tr/PreTablo.do?alt_id=1028
[Accessed 19 April 2019].

TUİK, 2019. *Türkiye İstatistik Kurumu, Nüfus Projeksiyonları, 2018-2080*. [Online]
Available at: <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=30567>
[Accessed 19 April 2019].

Uden-Kraan, C. F. v. et al., 2010. Experiences and attitudes of Dutch rheumatologists and oncologists with regard to their patients' health-related Internet use. *Clinical Rheumatology*, 29(11), p. 1229–1236.

Watson, J. & Hill, A., 2015. Berlo's SMCR model of communication, 1960. In: *Dictionary of Media and Communication Studies (8th edition)*. London: Bloomsbury, p. 25.

WHO, n.d. *Evaluate campaigns and other complex communication interventions*. [Online]
Available at: <https://www.who.int/communicating-for-health/evaluation/campaigns->

[evaluation/en/](#)
[Accessed 1 May 2019].

Zülfikar, H., 2014. The Internet Usage Behaviour and Access Patterns of the Patients to the Health Information on the Internet. *Florence Nightingale Hemşirelik Dergisi*, 22(1), pp. 46-52.



CURRICULUM VITAE

Personal Information

Name Surname : Okan akır
Place and Date of Birth : Ankara, 02.06.1992

Educational Background

Undergraduate Study : Bilkent University, *Translation and Interpretation*
(2015)
Graduate Study : Kadir Has University, *New Media* (2019)
Languages : Turkish, English, French

Job Experience

Organizations : Zeo Agency, (2016 – Current)
Sr. SEO Analyst

Duzen Laboratories Group (2015 – 2016)
International Communication Expert

Contact

Phone : +905373431707
E-mail Address : okanckr@hotmail.com

APPENDIX A

A.1 ONLINE SURVEY QUESTIONS

Q1: What's your gender?
Q2: What's your age?
Q3: Are you parent?
Q4: What is your education level?
Q5: Do you work?
Q6: In which city do you live?
Q7: How do you define your health status?
Q8: In which field do you work?
Q9: How do you define your behavior while getting medical information on the web? (please rate the statements below from never to always)
Q10: How many hours do you spend on the internet in a day?
Q11: Which search engine do you usually use?
Q12: How do you usually get the first information when you feel sick?
Q13: Please complete this statement: "When I search a health-related issue on the web, I firstly ..."
Q14: Please rate this statement: "The answer boxes on search results make me click on that web page." (rate from never to always)
Q15: Please rate this statement: "The image carousels on search results make me click on that web page." (rate from never to always)
Q16: Please rate this statement: "The video carousels on search results make me click on that web page." (rate from never to always)
Q17: Please evaluate the following website types by rating the frequency of getting information from them, while seeking health issues on the web. (rate from never to always)
Q18: Please evaluate the following website types by rating your trust on information obtained from them, while seeking health issues on the web. (rate from never trust to always trust)
Q19: Please evaluate following statements for your trust on medical information that you obtain from news sites.

APPENDIX B

B.1 THE LIST OF ONLINE INTERVIEWEES

Interviewee	Job	Field	Experience
Hatice Pınar Karakoca	Web Content Specialist at Yeditepe University Hospitals	Hospital Website	Less than 1 year
Salih Kural	Digital Marketing Executive at Memorial Health Group	Hospital Website	3 – 5 years
Oktay Çomak	SEO Consultant at Milliyet	News Website	5 - 10 years
Mustafa Ergün	Editor at Presshaber	News Website	3 – 5 Years
Fatih Özkösemen	UX & Data Consultant at Google	Search Engine	5 -10 Years