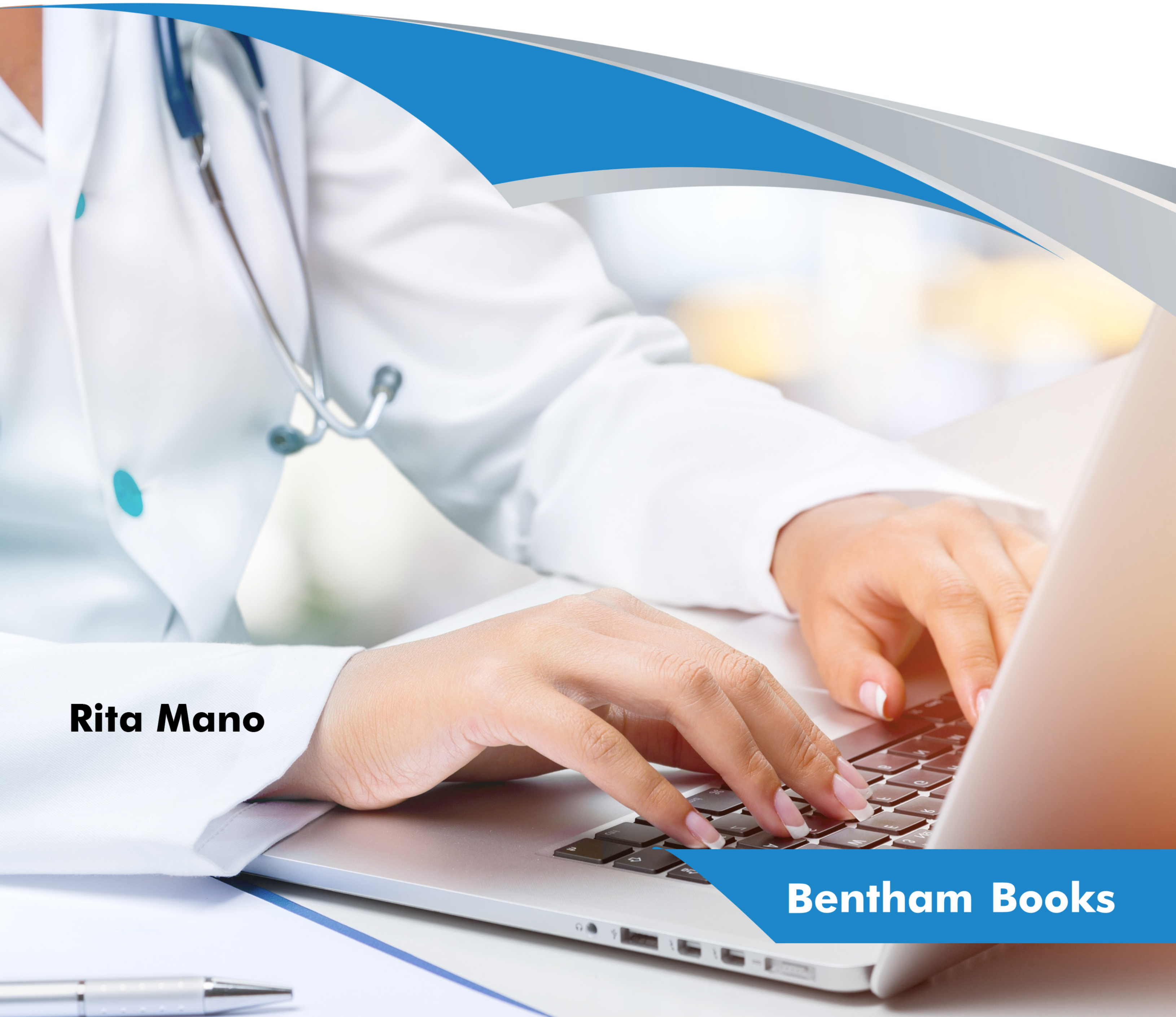
ONLINE HEALTH FORUMS AND SERVICES: BENEFITS, RISKS AND PERSPECTIVES



Rita Mano

Bentham Books

Online Health Forums and Services: Benefits, Risks and Perspectives

Authored by

Rita Mano
Department of Human Services,
University of Haifa,
Haifa, 3498838,
Israel

Online Health Forums and Services: Benefits, Risks and Perspectives

Author: Rita Mano

ISBN (Online): 978-981-14-9965-4

ISBN (Print): 978-981-14-9963-0

ISBN (Paperback): 978-981-14-9964-7

Published by Bentham Science Publishers Pte. Ltd. Singapore.

BENTHAM SCIENCE PUBLISHERS LTD.

End User License Agreement (for non-institutional, personal use)

This is an agreement between you and Bentham Science Publishers Ltd. Please read this License Agreement carefully before using the ebook/echapter/ejournal (**"Work"**). Your use of the Work constitutes your agreement to the terms and conditions set forth in this License Agreement. If you do not agree to these terms and conditions then you should not use the Work.

Bentham Science Publishers agrees to grant you a non-exclusive, non-transferable limited license to use the Work subject to and in accordance with the following terms and conditions. This License Agreement is for non-library, personal use only. For a library / institutional / multi user license in respect of the Work, please contact: permission@benthamscience.net.

Usage Rules:

1. All rights reserved: The Work is the subject of copyright and Bentham Science Publishers either owns the Work (and the copyright in it) or is licensed to distribute the Work. You shall not copy, reproduce, modify, remove, delete, augment, add to, publish, transmit, sell, resell, create derivative works from, or in any way exploit the Work or make the Work available for others to do any of the same, in any form or by any means, in whole or in part, in each case without the prior written permission of Bentham Science Publishers, unless stated otherwise in this License Agreement.
2. You may download a copy of the Work on one occasion to one personal computer (including tablet, laptop, desktop, or other such devices). You may make one back-up copy of the Work to avoid losing it.
3. The unauthorised use or distribution of copyrighted or other proprietary content is illegal and could subject you to liability for substantial money damages. You will be liable for any damage resulting from your misuse of the Work or any violation of this License Agreement, including any infringement by you of copyrights or proprietary rights.

Disclaimer:

Bentham Science Publishers does not guarantee that the information in the Work is error-free, or warrant that it will meet your requirements or that access to the Work will be uninterrupted or error-free. The Work is provided "as is" without warranty of any kind, either express or implied or statutory, including, without limitation, implied warranties of merchantability and fitness for a particular purpose. The entire risk as to the results and performance of the Work is assumed by you. No responsibility is assumed by Bentham Science Publishers, its staff, editors and/or authors for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products instruction, advertisements or ideas contained in the Work.

Limitation of Liability:

In no event will Bentham Science Publishers, its staff, editors and/or authors, be liable for any damages, including, without limitation, special, incidental and/or consequential damages and/or damages for lost data and/or profits arising out of (whether directly or indirectly) the use or inability to use the Work. The entire liability of Bentham Science Publishers shall be limited to the amount actually paid by you for the Work.

General:

1. Any dispute or claim arising out of or in connection with this License Agreement or the Work (including non-contractual disputes or claims) will be governed by and construed in accordance with the laws of Singapore. Each party agrees that the courts of the state of Singapore shall have exclusive jurisdiction to settle any dispute or claim arising out of or in connection with this License Agreement or the Work (including non-contractual disputes or claims).
2. Your rights under this License Agreement will automatically terminate without notice and without the

need for a court order if at any point you breach any terms of this License Agreement. In no event will any delay or failure by Bentham Science Publishers in enforcing your compliance with this License Agreement constitute a waiver of any of its rights.

3. You acknowledge that you have read this License Agreement, and agree to be bound by its terms and conditions. To the extent that any other terms and conditions presented on any website of Bentham Science Publishers conflict with, or are inconsistent with, the terms and conditions set out in this License Agreement, you acknowledge that the terms and conditions set out in this License Agreement shall prevail.

Bentham Science Publishers Pte. Ltd.
80 Robinson Road #02-00
Singapore 068898
Singapore
Email: subscriptions@benthamscience.net

CONTENTS

PREFACE

A turning point to better health care includes the introduction of the Internet as a media source. Online access to health information and communication about health is associated with improved knowledge about health issues. Individuals in the past obtained information mainly through health professionals, their friends and families. They are now turning to virtual sources of information and social media to gather health information. They do so for a variety of reasons, including identifying symptoms of a health ailment and self-diagnosis, collecting knowledge on available treatment strategies and their effectiveness, evaluating the costs involved, and finding coping strategies for better self-management.

Individuals are becoming more aware and interested in adopting health changes in dietary and wellbeing routines. 61% of U.S. adults look online for health information, and the number of people using the Internet has almost tripled between 2011 and 2018, and more than 50% of users today look for online health information (Seth & Grant Harrington, 2018). Another recent survey indicates that 65% of online adults in the United States, or half of all US adults, use social media, with Facebook and Twitter being the most widely used (Madden & Zickuhr, 2017). Each minute, 695 000 Facebook statuses are updated, and 98,000 tweets are sent (Teiman, 2019). The use of online social media and online health forums for information seeking is especially noted when individuals face a serious health issue (Pew Research Center, 2013). “Dr. Google” has indeed become a favorite choice when seeking information from a virtual health center and was soon followed by the increase in the use of networking sites (Rosenberg *et al*., 2017).

Following the rise of internet use, the phenomenon of digital health, including electronic health and mobile health, has risen as well. Using the web to access information and communication with peers can help individuals fulfill unmet informational needs and prepare them to consider changes in health habits. This is more likely for individuals who perceive the need for changing unhealthy habits to improve their health status when exposed to online information. In that sense, exposure to online health information through browsing and online communication might increase the likelihood of making a change in health habits empowering individuals to take responsibility for their health status (Lustria *et al*., 2011; Pena-Purcell, 2008; Mano, 2018).

The health empowerment process involves the understanding that some means are better facilitators towards the desired health end. When individuals recognize their right to express aspirations and are able to define them as an outcome, they develop a critical “consciousness” of the existing situation. This consciousness increases their sense of self-efficacy (Bandura, 1997) and contributes to a healthy lifestyle throughout an individual’s life span. The health empowerment process is possible by introducing, adjusting, and developing services that are easily accessed, regardless of lack of technical skills and basic health literacy (Mesch *et al*., 2012; Mano, 2016; 2019) and is expanding among different social groups (Kummervold *et al*., 2008; Wessels, 2013) shaped by individuals’ health expectations and health attitudes. While technology plays a central role in health empowerment, knowledge alone cannot guarantee the adoption of healthy behaviors (Iverson *et al*.,2008; Shim *et al*., 2006; Eisenberg & Berkowitz, 2009). Neither the access nor the use of the Internet is similar for all individuals in all social groups (Mano, 2017; 2019; Rosenberg *et al*., 2020). As a result, health institutions and policy-makers encourage the development of services and programs that enable individuals to endorse the health empowerment process and assume responsibility for their own health needs, diagnosis, and treatment.

eHealth and mHealth technologies have enormous potential advancing health information exchange and improving healthcare access and public as well as personalized medicine (Bashshur and Shannon 2009; Wentzer and Bygholm 2013). The World Health Organization (WHO) and the International Telecommunication Union (ITU) defined the term "eHealth" as the field "concerned with improving the flow of information, through electronic means, to support the delivery of health services and the management of health systems" (p.1, World Health Organization, 2012c). A new definition shows that the World Health Organization (WHO; 2016) has defined Electronic Health (eHealth) as: "the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including healthcare services, health surveillance, health literature, health education, knowledge, and research." WHO defined *Mobile Health (mHealth)* as: "mobile computing, medical sensor, and communications technologies for health care" (WHO, 2009). mHealth is also defined as the use of portable devices to deliver medical and public health services and is a subset of eHealth (Betjeman *et al*., 2013; Wittet, 2012). Both phenomena are related to the commitment of individuals and health care providers to enhance healthcare and health management practices and form the basis of the health empowerment phenomenon which became a major theme in health-oriented western societies (Sillence *et al*., 2007; Andreassen, *et al*., 2007) often considered as the "holy grail of health promotion" (Rissel, 1994).

Health consumers arriving at the health provider with the information they found on the web, with a preconceived idea about their diagnosis, want to actively participate in therapeutic decisions relying on misleading or misinterpreted health information. Health institutions and health policy-makers prompt individuals to claim more responsibility, and they have eagerly employed technology to provide more effective and efficient services in order to handle health budgets in order to successfully combine between effective and efficient administration of virtual health devices (Aceijas, 2011; Mattke *et al*., 2012; Balatsoukas *et al*., 2015). These systems play a critical part in unifying communications, allowing people to access, process, store, and transmit data through fully integrated audiovisual, data communications, and electronic systems (Henriquez-Camacho *et al*.,2014). This means that the potential of social media to reach a large segment of the younger as well as the adult population searching for online insights to their health concerns. These systems seek to minimize digital divide effects and increase health literacy (Wessels, 2013) by introducing macro level systems based on online Information and communication technology (ICT).

At the same time, the empowered "Information control" process challenges the institutional health care provider into equality-based roles with patients. These challenges first and foremost included the outcomes of the shift in the "Information control" process from the authority of the institutional healthcare provider into the power of the informed individuals facing situations hardships in health. The empowered "Information control" process challenges the institutional health care provider into equality like roles with patients. In this process questions about differences in health attitudes and health behavior rise because knowledge alone cannot guarantee the adoption of healthy behaviors (Iverson *et al*., 2008; Shim *et al*., 2006; Eisenberg & Berkowitz, 2009).

Moreover, despite major investment in the development and introduction of advanced digital health services and programs, also seeking to reduce costs, health literacy is still low and access to online health services limited increasing doubts about the level of equality among socio economic groups. Even today the Internet is not accessible or used with similar levels of knowledge and skills in particular among the disadvantaged who need it most (Mattke *et al*., 2012; Baran & Davis, 2009; Eisenberg & Berkowitz, 2009; Aceijas, 2011; Mano, 2016). Disadvantaged groups in terms of technology skills and/or access to online health information and services may ignore health issues, they do not ask for help and support, and have little motivation to deal with prevention of illness. The phenomenon of first and second-level effects of the digital divide is therefore discussed more often because they can affect health management and perhaps even life expectancy (Renahy *et al*., 2008; Lorence *et al*., 2006; Mesch *et al*. 2012; Rosenberg *et al*., 2019). They terms describe lower investment in improved health whether or not they access online health services and the existence of mistrust (Gibbons, 2008; Mesch *et al*.,2012; Rosenberg *et al*., 2019). As a result, health empowerment and successful self-management practices among those who need it most - the elderly, those located in remote geographic areas, and/or facing chronic illness and disabilities maybe missed (Hadwich *et al*., 2006; Eisenberg & Berkowitz, 2009; Aceijas, 2011; Mano, 2016). This is why it is important to consider the sources of individual level variations in the health empowerment process including health attitudes, differences between health behaviors, trust and technology skills (Mano, 2019). The gap between the willingness and actual behavior to adopt digital services have profound impact for different sectors and they may affect decision making and allocation of resources to the online tools used by institutional health providers that manifest in the delivery of health services and health programs.

The purpose of this book is to provide the theoretical and empirical background to instigate an interdisciplinary perspective to issues of digital health in the 21st century.

In order to so, we discuss the factors associated with the use of online sources of health. The fundamental assumptions of this book refer to three dimensions of use of online forums for health purpose: first, at the micro level health attitudes and behaviors reflect a wide range of personal differences in terms of socioeconomic characteristics, technology skills, and preferences. Second, we refer to the quality of these sources of information regarding their suitability and accuracy is limited raising concerns about its usefulness to patients (Manchaiah *et al*., 2020) raising doubts about the effectiveness of the health empowerment process. Third, we will discuss how variations at the individual level affect both the access and extent of use of virtual sources of health information and health services. Finally, we will present the basic problems associated with the use of virtual sources of health information and services at the level of institutional health practices and the association between the micro-level use of the Internet for health purposes and macro level challenges in the promotion of virtual sources of health products and health services.

We seek to present a comprehensive perspective that link between the aspects of the micro-level use of the Internet for health purposes (accessing health related websites, participation in health forums, bulletin boards and health related social networking sites) and the macro level practices of digital health that promote health empowerment. We also seek to identify the social and health characteristics of the different groups of patients and estimate to what extent individuals in need of health and medical information (chronic illness) are taking advantage of the availability of information and communication platforms to improve their health or are being left behind. More specifically, we intend to seek the differences in health outcomes - access to quantity and quality of health information, involvement in decision making empowerment in health behavior and health changes. In doing so, we refer to the following aspects of health:

1. access to online health information
2. use of online health services
3. social media and participation online health forums
4. mobile health applications and health risks
5. lifestyle health behaviors
6. self-management of health

7. digital divides in health
8. health systems

Due to its interdisciplinary nature, this book is a valuable source of empirical evidence information and theoretical contribution for an academic audience including students and researchers- as well as for public health practice institutions and policy makers. This is also a valuable source of those working in the field of health for the general public who have become very much health-aware these recent years since the internet has allowed for a great number of individuals a quick and immediate access to health information. Finally, the book enables a wide-audience friendly approach to issues of health to be used in connection with teaching, training and consulting activity in digital health. As the importance of particular and general concerns increases among the public, affecting current health policies, so does the importance of understanding the patterns of access and use of online platforms. After all, knowledge and information alone cannot guarantee the adoption of healthy behaviors (Iverson *et al*., 2008; Eisenberg & Berkowitz, 2009).

CONSENT FOR PUBLICATION

Not applicable

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

Declared none.

Rita Mano
Department of Human Services
University of Haifa
Haifa, 3498838
Israel

CHAPTER 1

Theories

The internet is an integral part of the lives of millions of people around the world. It has brought about changes in individuals' social, political, and economic practices (Srinivasan & Fish, 2017) and has promoted the introduction of new forms of thinking and new assumptions about the central role of digital communications and information in everyday life. Online health searches, online health services and social media on health websites, blogs, and portals are all easily accessed (Li *et al*. 2015; Lin *et al*. 2016). These new trends have intrigued academic researchers, who aspire to find new paradigms to explain these trends. Theories and paradigms play a paramount role in understanding issues related to health. All theories, both old and new, seek to determine how society, individuals, and health behaviors and outcomes are related. Often the choice of a particular theory or paradigm can lead to different and sometimes contradictory hypotheses, resulting in different outcomes for similar data. Here, we provide a glimpse into the prominent theories of health and technology.

SOCIOLOGICAL THEORIES OF HEALTH AND TECHNOLOGY

Studies addressing issues of health in sociology are divided into two principal groups: sociology in medicine and sociology of medicine (Bradby *et al*., 2017). The first group focuses on the role of sociologists in providing guidelines to various sponsors in health-related fields, among them government agencies, foundations, hospitals, or medical schools. They do this by developing health surveys that address topics related to health care, including access to care, use of services, health status determinants, and more (Higgs & Gilleard, 2015). The second group of studies focuses on testing sociological hypotheses with respect to inequalities and social stratification (Kapilashrami, & Meer, 2015), socialization, social values and norms (Mackenbach, 2016; Karnoven *et al*., 2018), thus contributing to the analysis of health institutions and health policies. Such analysis is central in examining emergent themes, such as the health of vulnerable groups and international comparisons of social inequalities and quality of care. It is within this set of studies that the role of technology has gained special attention.

Rita Mano

Early studies on technological determinism or the impact of technology on society (Postman, 1954) identified technology or technological advances as the central causal element in processes of social change (Croteau & Hoynes, 1967). As a particular technology becomes stable, its design tends to dictate users' behaviors, consequently diminishing human agency. There are two types of technology determinism: *hard determinism* and *soft determinism.* According to the *hard determinism* perspective, technology emerges regardless of social concerns and creates an institutional force of its own that shapes social norms and behaviors. Its autonomous activation serves the interests of technology-oriented agents, and individuals cannot control its outcomes. This perspective, however, overlooks the social and cultural circumstances in which the technology was developed. In contrast, *soft determinism* in technology is a moderate perspective, which posits that technology agents leave enough space for individuals to decide how technology is used and how its outcomes are defined.

One form of technological determinism is media determinism, a philosophical and sociological standpoint, according to which the media have the power to impact society. The theory of technological determinism in media gained attention when Marshall McLuhan's statement, *"the medium is the message*" became a central theme in technology studies for describing the essence of civilization. McLuhan (1962) later claimed that not all types of technology matter and that in the area of communication, only certain communication media can significantly affect social behaviors. Extending this line of thought, the media ecology perspective suggests that new forms of media communication technology may become the main framework that will facilitate the implementation of a wide range of social norms and behaviors (Chipidza & Leidner, 2019; Gencarelli, 2006), including health behaviors (Verhoeven & Tonkens, 2013). In fact, the more information and communication technologies (ICT) penetrate the lives of individuals, the more likely they will become more engaged in technology-based information, with the intensity and wide range of ICT crosscutting national and international borders (Verhoeven & Tonkens, 2013; Amnå, 2012). In nations that invest more in technology, the flow of information will be more intense and the odds of higher exposure to health issues will be greater (Chaeyoon & Sander, 2013; Jho & Song, 2015; Carty, 2010). This trend will affect existing institutions that organize support for and further develop new technology (Lenzi *et al*., 2015).

Indeed, the expanded influence and expansion of ICT in society has led to the *normalization hypothesis.* This hypothesis posits that when *technology* affects the processes through which practices become routinely embedded in everyday life and implemented across a range of individuals' life. These processes will gradually become fully embedded, even in previously conflicted areas of social interactions that are of primary importance (May & Finch, 2009; Kim & Zhang, 2015). In fact, the Media-System Dependency theory, suggests that "the more a person depends on having his or her needs met by media use, the more important will be the role that media play in the person's life, and therefore the more influence those media will have on the person" (p. 273). As a result, the rise of the information society and the adoption of the Internet will reduce social inequalities because accessing and using the Internet at home and at work can increase access to services, including health services (Mesch *et al.*, 2012).

The social stratification perspective maintains though, that the use of technology will benefit primarily those who already have better resources, therefore amplifying existing social inequalities (Chen *et al.*, 2014; Neves *et al.*, 2018). Internet use among advantaged groups will expand their social capital and consequently enhance their position of domination in society (Rosenberg, 2020). This is why knowing how to create and use technology needs to be connected with social processes at the time when socially bound knowledge is introduced and advanced and should find expression in how other institutions change and adapt to evolving situations (Mano, 2015; Mesch, 2016).

The interactive play between technology and social institutions facilitates making adjustments in use according to how individuals respond to technology innovations. Indeed, as opposed to hard and soft technology determinism approaches, the *social determinism* approach suggests that social circumstances "select" which technologies are adopted, while technology intertwines with implicated social processes. This interplay has led to the development of a novel approach to the use of online health information and access to online health forums. Known as social construction of technology (also referred to as SCOT), this approach contends that no technology can determine human action, but rather that human action shapes how technology is used. This is because technology is "embedded" in different social contexts, and different groups will use technology in various ways and to different extents (Rosenblum *et al.*, 2017). As a result, the degree that technology is adopted necessitates that individuals are in favor of its use.

MEDIA THEORIES OF TECHNOLOGY ADOPTION

The Technology Acceptance Model (TAM) (Davis, 1989) is a general model that considers how variations in accepting computerized technology reflect a set of facilitating conditions, including expected effort, performance and social influence (Al-Ali & Haddad, 2004; Venkatesh & Bala, 2008). First, individuals will adopt technology when they assess its perceived usefulness and perceived ease of use as high. In fact, existing studies suggest that individuals who are skilled in and/or accustomed to using mobile devices, as is often the case with the

CHAPTER 2

Online Health Information Search and Epatients

The concept of patient engagement in health care has been gaining increasing attention, not only in the scientific literature but also as a requirement in the everyday practices of health care organizations. The growing body of literature devoted to patient engagement is mainly inspired by sociological and public health perspectives that have generated various theories and models to explain how people become active agents in their health and care management (Carman *et al*., 2013, Guendalina *et al*., 2018). This approach seeks to ensure that patients' needs, values, and preferences are taken into consideration (Matthys *et al*., 2009). The emergence of e-patients plays an important role in this interactive process.

e-patients or "expert patients" are those who seek information and knowledge to solve their health needs, reflecting empowerment as "an active, participatory process through which individuals, organizations, and communities gain greater control, efficacy, and social justice" (Mo & Coulson 2014). e-patients are health consumers who come to their health providers armed with the information they found on the web (Ferguson, 2008). In many cases, these e-patients come to their health providers armed with the information they found on the web and preconceived notions about their diagnosis. They wish to participate actively in therapeutic decisions while relying on misleading or misinterpreted health information (Purcell & Fox, 2010). This select group of consumers has developed a sense of responsibility and willingness to be more involved in their health care. Yet, at the same time, in taking responsibility for their treatment, they are also more willing to challenge the authority of health care providers (Okun & Caligan, 2018; Mano, 2015) when these are not related to the line of thought adopted by their professional health provider.

INDIVIDUAL LEVEL EFFECTS

Online searching for health information reflects two aspects relevant to health attitudes: (a) degree of functionality: online health searches cover a wide range of sources and facilitate selective processing, channel complementation (Dutta and Bodie, 2008); (b) level of gratification: online information-seeking improves

Rita Mano

knowledge about health concerns (Dutta-Bergman, 2004b, 2006). Understanding why and whether, intentionally or not, e-patients are likely to trust their sources of information is highly significant, especially in the case of vulnerable individuals.

A large proportion of e-patients use online forums and social network sites to extract information about health care concerns and/or use the information to increase their knowledge about conditions of members belonging to the relevant group (Fox & Jones, 2009; Potts & Wyatt, 2002). People's capacity to attain health, for example, their ability to change health behavior, derives from access, collection, processing, and dissemination of appropriate information. Health information seekers are interested in increasing their level of empowerment so they can "consult" with their physicians armed with online information (Dutta-Bergman 2006; Murero & Rice 2006). Variations in the use of online health services and forums may derive from different motivations reflecting the degree to which individuals feel connected to a larger group (Yamamoto, 2011) and/or their trust in virtual communities (Hsu *et al.*, 2011). Individuals who are highly interested in health and medical issues from the outset are more likely to search for information, participate in online health-related groups, and feel more empowered as a result of acquiring and understanding health information (Dutta-Bergman, 2004a, 2004d). Individual empowerment can be associated with modern individualism and the reflexive construction of the "I" (Gidden, 1991).

According to media system dependency theory (Baran and Davis, 2000), "the more a person depends on having his or her needs met by the use of media, use the more important will be the role that media play in that person's life, and therefore the more influence those media will have on the person" (p. 273). Yet, according to Rissel (1994), individual-level empowerment should not be disconnected from the individual's social, political, economic, and cultural context because an individual cannot be seen as a context-free creature. In fact, empowerment as a collective and active participatory process enables individuals to exert more control over their environment (Mo & Coulson 2014). Examples of this may be found among patients who choose to avoid vaccinations based on extensive and possibly unsolicited and erroneous information on the internet (Mesch & Sverian, 2017). To one degree or another, these variations reflect relationships with institutional health care providers.

e-patients usually are younger and tend to be women. Women are more likely to have searched for health topics than men, and younger people tend to be better educated and belong to higher income groups (Rice, 2006; Fox & Jones, 2009).

In terms of health needs, health information-seekers on the internet can be grouped into three groups: healthy individuals, patients with chronic illnesses, and patients with acute illnesses who have a more acute need to search for information than others. Moreover, levels of technology skills distinguish between early and late adopters of technology. Indeed, as the pace of technology innovations increases, so does the probability that late adopters will probably face new and more demanding barriers (Barzilai-Nahon, 2006). Empirical findings suggest that for diseases such as heart disease, diabetes, and cancer, "sick-prone" groups differ from "healthy" groups in that "sick-prone" groups more likely to search for health-related information on the internet (Dutta-Bergman, 2006). A more important factor is the impact of online health information on the patient-physician relationship due to the high likelihood that a conscious patient who accesses health and medical information will attempt to break the knowledge monopoly traditionally assigned to doctors (Friedman *et al.*, 2014; Rogers *et al.*, 1997). Frequency and previous experience improve search skills, allowing users to trust social media (McKinley & Wright, 2014; Park *et al.*, 2009).

Autonomy, competence, and relatedness are often reported to be major factors in well-being. More important to health is the likelihood that individuals with higher autonomy levels will become more competent in fully interacting with others and sharing opinions in decision-making processes. These skills provide individuals with greater potential to cope with what is expected of them during health delivery processes, as in completing forms, for example (Nutbeam, 2008; O`Neil *et al.*, 2014). More importantly, these individuals are more likely to be more satisfied with health providers (Sharma *et al.*, 2017) and less discontent with health services provision (Street *et al.*, 2009). It is then that the patient-doctor relationship is associated with increased patient satisfaction. The result is adherence to treatment and continuity of care.

INSTITUTIONAL LEVEL EFFECTS

e-patients challenge and contradict the traditional physician-patient relationship (Lytle, 2017). They question the physician's monopoly on professional knowledge and are skeptical about previously held beliefs regarding the physician's exclusive access to medical knowledge (TIM, 2010; Diaz *et al.*, 2002). This leads to questioning the power relations between patients and physicians and necessitates more cooperation between the sides (Dutta-Bergman, 2006; Dutta & Boddie, 2008).

Three types of relationships between patients and health institutions emerge at the institutional level (Szasz & Hollender, 1956):

CHAPTER 3

Social Media and Social Networks For Health Purposes

In affluent post-industrial societies, online information has expanded rapidly over time, providing easy and inexpensive access to information and other people (Bundorf *et al*., 2006; DiMaggio & Bonikowski, 2008; Graham & Dutton, 2018). Communication on health issues is growing as more and more people go online to interact with others having the same or similar health conditions (Greene *et al*., 2010; Li, 2013). This new state of connectivity has expanded and even replaced traditional modes of communication. It has increased people's interest in health changes and in dietary and wellbeing routines and has made them aware of existing health alternatives that find expression on both the micro and macro levels of online health services and online forums. Considering the importance of these new forms of connectivity and influence on everyday life activities, institutional health providers have gradually adopted the use of virtual platforms to increase the involvement of individuals in their health care management.

The rapid increase in the number of users of online health information has been accompanied by the development of health-related expectations and attitudes towards health and has facilitated the emergence and expansion of groups interested in health (Chen & Lee, 2014) both among individuals with health concerns and among those without such concerns. The literature mentions three main types of health participation activities: sharing personal experiences regarding chronic health conditions (Kendall Roundtree, 2017); discussing the work of health institutions, usually by means of posting of reviews about doctors (Thackeray *et al*., 2013); and posting or commenting on health-related content (Palsdottir, 2014) and even on "expert" information.

Health-related information exchange (Thoren *et al*., 2013) has led to the establishment of health communities such as Patients Like Me (Murthy *et al*., 2011) and health-related groups on Facebook (Greene *et al*., 2010) and Twitter (Murthy *et al*., 2011; Zhang *et al*., 2013).

Rita Mano

Social media (SM) refer to the collective use of online communication channels dedicated to community-based input, interaction, content-sharing and collaboration. Social media reflect the symbiotic relationship between producing and consuming online content as well as the combined outcomes of globalization and networking.

The importance of social media emerges from the mass transition to the information era in the wake of the shift from traditional economies and the industrial revolution to the generation of global economies based on the amount of information available *via* technologies such as computers. The power inherent in social media reflects the potential of mass communication for exchanging worldviews, products, ideas and other cultural elements on virtual devices. In the United States, about seven out of ten individuals use social media to connect with others, receive news content, share information, and entertain themselves (Pew Research Center, 2018). Yet, the effectiveness of social media for healthcare remains inconclusive, with contradictory evidence from different countries (Twenge *et al*., 2018).

The impact of social media has been synchronous with the introduction of Web 2.0 platforms, which have generated a social phenomenon known as prosumption. Prosumption reflects the symbiotic relationship between producing and consuming online content. Individuals with network access and skills can obtain a vast amount of informative content without leaving their homes. With a single click they have immediate access to many sources of information whose content is available and constantly updated in different languages and formats. This content can offer different perspectives and opinions on the same topic (Miller & Bell 2012; Riggare *et al*. 2017).

Social media can offer individuals a platform that overcomes barriers of distance and time, enabling them to connect and reconnect with others and thereby expand and strengthen their offline networks and interactions (Antoci *et al*., 2015; Hall *et al*., 2018; Subrahmanyam *et al*., 2008). The use of SM has indeed successfully reached the health domain, mostly because SM helps people achieve a better perspective about health problems (Mano, 2014a). The ability to connect with others who have similar health conditions (Greene *et al*., 2010; Li, 2013) has increased the impact of health-related online forums and social networks in providing social support and “expert” information. This interaction has generated active and collaborative creation (Scanfeld *et al*., 2010) and updating of health content (Kaplan & Haenlein, 2010). SM applications include blogs, social networking sites such as Facebook, content-sharing sites such as YouTube and more (Househ *et al*., 2014). As a result, health communities such as Patients Like Me (Murthy *et al*., 2011) and health-related groups on Facebook (Greene *et al*.,

2010) and Twitter (Murthy *et al*., 2011) have been established. Clearly the use of social media is especially meaningful for individuals facing health concerns.

The rapid integration of social media into everyday communication, including social network sites and weblogs, offers new sources of information that have become evident in the workplace (Skeels & Grudin, 2009), in entertainment and culture (Kim *et al*., 2010; Zheng, 2014), in social change (Kim *et al*., 2010) and in health (Korda & Itani, 2013; Li, 2013; Newman *et al*., 2011; Zhang, 2013; Bekalu *et al*., 2019). Social media have helped create social networks which have facilitated the formation and development of social capital. Through the social networks available online, people can share their ideas, knowledge and apprehensions with people who have experienced the same problem. Online discussion networks that discuss cases or symptoms experienced by patients with similar problems have the potential to bring about improvements in health and to promote greater patient autonomy. This capacity enables users to develop and disseminate their own content (Benetoli *et al*., 2018) and to communicate (Alas *et al*., 2013) effectively regardless of place and time (Antheunis *et al*., 2013, p.426).

Individuals who have access to the network and the skills to handle this tool can obtain a vast amount of informative content. Without leaving home, they can access many sources of information at any time with a single click. The content they access is updated continuously, available in different languages and formats, and can provide different perspectives and opinions on the same topic (Miller & Bell 2012; Riggare *et al*. 2017). Through WIFI routes, the internet has become available in all places and at no cost, enabling users to develop and disseminate their own content (Benetoli, Chen & Aslani, 2018) and to communicate (Alas *et al*. 2013) efficiently in terms of place and time (Antheunis *et al*., 2013, p.426). In line with this contention, Moretti and Barsottini (2017) observed that participation in social networks has the potential to improve patients' social life and reduce their sense of hopelessness. Indeed, the internet has transformed researching health information from an uncommon practice to one that is part of the daily routine of many individuals (Holmes *et al*. 2017).

This social capital, in turn, allows individuals to capitalize on the resources of other network members, for example in the form of information and social support (Viswanath, 2008). Social networks are therefore linked to a variety of positive social outcomes such as trust and reciprocity that engender better health (Ellison *et al*., 2007; Nabi *et al*., 2013; Nieminen *et al*., 2013). Social networks serve to support people and relationships that are separated by time, geographic location and/or even cultural and group identification characteristics. By increasing the proximity between members in the virtual space, social networks

CHAPTER 4

Mobile Health Applications

The technological advancements in ICT have been mainly apparent in the use of smartphones and mobile internet. Indeed, this form of use has become prevalent in the everyday lives of smartphone and tablet users and has enabled consumers to access and share information on the go. Smartphone owners can choose from a wide-ranging assortment of messaging apps such as WhatsApp and can use mobile social media applications for travel, banking and avoiding traffic. Mobile health applications have been facilitated by the use of smartphones and other mobile communication devices. More than 3.4 billion smartphone and tablet users use mobile health applications. The use of these apps has enhanced individuals' health management, primarily because they are affordable and easy to use (Balapour *et al*., 2019).

Mobile healthcare applications enable individuals to improve their state of healthcare (Veríssimo, 2018). Users of mobile health applications download and update health fitness programs, contact healthcare professionals and monitor health conditions. These apps improve medical data collection, medical service delivery, patient-doctor communication, and real-time monitoring and adherence support (Islam *et al*., 2020). Most users access at least one health-related application (Krebs & Duncan, 2015). Evidence also supports the importance of social media and smartphones in facilitating communication exchanges with others who have similar health concerns (Scanfeld *et al*., 2010; Church & de Oliveira, 2013), providing appointment reminders (Hocking *et al*.,2012) and encouraging the use of online health services (Mano, 2016a; Wu, *et al*., 2007; Wu *et al*., 2011).

In a recent study, 44% of the participants in a weight loss program chose to use their smartphones to record food intake. These participants reported greater adherence to self-monitoring behaviors during weight loss (Burke *et al.,* 2011; Rusin *et al*., 2013; Recio-Rodríguez *et al*., 2014; Dai *et al*., 2020). Today the global mobile population totals 4 billion users and global mobile data traffic is expected to rise exponentially through at least 2022. Hence, it is not surprising that mobile communication technology has been called the "fastest diffusing medium on the planet ever" (Campbell, 2013:9).

Rita Mano

Mobile health applications provide general support in the areas of preventative healthcare (de Jongh *et al*., 2012), health monitoring (Luxton *et al*., 2011; Mano, 2015, 2016) and illness management (Vodopivec-Jamsek, 2012; Mano 2016; 2018). Evidence shows that mobile health applications have been helpful for different health concerns. They provide feedback, goal-setting and self-monitoring in eating disorders (Azar *et al*., 2013), alcohol use disorders (Fowler *et al*., 2016) and in programs for stopping smoking (Ubhi *et al*., 2016), encouraging physical activity (Coughlin *et al*., 2015) and addressing issues during psychotherapy sessions (Prentice & Dobson, 2014).

Recent studies (Alalwan *et al*., 2017) found that hedonic motivation, performance expectancy, effort expectancy, price value and trust are the main predictors of users' intentions to adopt mobile apps. Some mobile health applications such as Fitbit are especially designed to track patient health, while others can be used for fitness, cardiology, diabetes, obesity, stopping smoking, and chronic disease tracking for all age ranges (Lim & Noh, 2017; Silva *et al*., 2015). Extrinsic/intrinsic motivation and technology constructs such as ease of use and usefulness have been expanded into novel constructs such as privacy concerns, risk beliefs, self-efficacy, autonomy and control (Fox & Connolly, 2018; Liu *et al*., 2019; Zhao *et al*., 2018).

Mobile health applications have been found effective in medical interventions (Rumsey & Harcourt, 2012) and attracted the attention of institutional healthcare providers (Ahad & Lim, 2014; Church *et al*., 2013). Healthcare providers use mobile health applications for various purposes, including direct monitoring of patients, drug-referencing, decision support, electronic health records, medical education and more (Boulos *et al*., 2014) reducing the number of times patients must visit the doctor because they enable at-home checkups (Mendiola *et al*., 2015). These applications decrease the problems associated with shortage of time (Deng *et al*., 2018). Some applications, such as InpharmD, enable professionals to make ad-hoc decisions and address issues regarding medication effectiveness, dosage and costs promptly (Wicklung, 2018). In that way, institutional health providers are able to decrease the pressure on professionals especially when individuals face chronic diseases (Quinn *et al*., 2008).

Among the most notable of these applications are digital platforms for women providing ample support for fertility management, prenatal management and postpartum management. They also provide solutions facilitating the health of mother and child during the first six months. Other solutions include female diseases, such as breast cancer and menopause management. Due to their potential to enable self-monitoring these applications decrease the need to engage in time-consuming visits to professional clinics (Mendiola *et al*., 2015). The use of applications has been particularly effective when complex health conditions are related to psychological difficulties (Rumsey & Harcourt, 2012; Normana *et al*., 2019).

Yet, applications are seldom used as an alternative to traditional face-to-face contacts with healthcare professionals (Bessell & Moss, 2007). First, mobile devices present challenges for users in dealing with applications that require large amounts of computational resources (Dai *et al*., 2020). Second, users' socio economic profile affects the quality of connectivity and higher expenses for updating smartphones and/or to fees for this high connectivity. For example, access to social media through smartphones and other connected technology has been found to be significantly lower among older adults, those with less education, and those with serious mental illnesses (Klee *et al*., 2016). Third, the lack of tailored programs may lead to risks among individuals who lack health literacy or are relatively reckless (Mano, 2019).

Indeed, while it is reasonable to assume that institutional-level efforts should encourage the use of virtual health sources to increase health empowerment and self-management practices, considerable effort is now being invested in addressing individual-level constraints that play a significant role in the adoption of technology for health purposes. Individual-level constraints, among them lack of technology skills, chronic conditions and the gap between lifestyle and healthcare goals, prevent the effective use of eHealth and mHealth sources. As a result, and despite the potential benefits of mHealth apps, a number of reviews have highlighted their deficiencies, indicating that although these apps are often helpful, in some cases they may be detrimental to those who use them. Not many apps have been validated empirically (Bakker *et al*., 2016), and those that have been evaluated are often unavailable to the public (Firth *et al*., 2017; Parker *et al*., 2018). Another concern about mHealth apps is their tendency to suggest that mental illness can be managed without treatment (Parker *et al*., 2018). These concerns regarding the use of mobile health apps are both theoretical and methodological.

On the theoretical level, studies supporting the adoption of mHealth apps are based on considering mHealth in terms of the Theory of Reasoned Action (Fishbein & Ajzen, 1975; Zhang *et al*., 2014), the Technology Acceptance Model (Davis, 1989; Deng *et al*., 2018; Dou *et al*., 2017) and the Unified Theory of Acceptance and Use of Technology (Hoque & Sorwar, 2017; Venkatesh *et al*., 2003). The relatively restricted spectrum of these theories precludes the introduction of modifications. The social diversification hypothesis (Mesch *et al*., 2014) and the technology identity theory (Carter & Grover, 2015) are of special relevance in analyzing new forms of technology (Kwon *et al*., 2017; Lee & Cho,

CHAPTER 5

Health Systems

Health systems have addressed the new role of individuals as patient-consumers as a positive sign because they aimed to increase individuals' potential to enjoy better health. This positive approach aimed to alleviate the heavy costs of the traditional healthcare budgets and the development of concrete plans and strategies reflecting the social conditions and the potential of contact with (a) a health agent/provider (b) a health physical/virtual social setting. The first includes mostly the direct contact with a healthcare provider whereas the second reflects the influence of a larger health information locus such as the social media (Dutta-Bergman 2008). These macro level policies of the health systems and institutions encourage the development of digital services and programs that enable individuals to take more responsibility for their own health needs, diagnosis and treatment (Mano, 2019).

Analysis of health systems ranges from macro-level to micro-level perspectives. In other words, health systems seek to provide health answers to individuals as well as to whole populations by incorporating agents from the entire range of the health system. This may be why the *WHO Health Promotion Glossary* distinguishes between health promotion and other health concepts, such as burden of disease, capacity building, evidence-based health promotion, global health, health impact assessment, needs assessment, self-efficacy, social marketing, sustainable health promotion strategies, and wellness.

Healthcare systems are defined as the institutional entities responsible for providing health services and products to ensure the healthcare and wellbeing of the population. According to the World Health Organization, "a health system consists of all organizations." Indeed, today assessment of a health system includes both micro-level agents of health (*e.g.*, women and men caring for sick persons at home including children, disabled individuals and older members of the family), as well as macro-level agents (*e.g.*, health staff and other private providers responsible for health behavioral change programs, health insurance organizations and health and safety legislation). The literature addressing the importance of health systems focuses mainly on the different ways the government supplies the public with services and products that ensure solutions to individual health concerns.

Rita Mano

A basic distinction in analyzing health systems is between two major types of health care systems—public and private. Additional typologies reflect the centrality of different criteria. The OECD concept is based on a combination of modes of governance and healthcare system characteristics, such as degree of coverage. This concept organizes healthcare arrangements along the following three dimensions: (1) access to healthcare as measured by the degree of population coverage; (2) sources of financing, such as general taxation, social insurance or private insurance; and (3) the public-private mix of healthcare provision.

Health system analysis takes into consideration the interrelations between public and private stakeholders who seek to introduce, advance and reform health. These interrelations may include multiple aspects, both at the level of individual healthcare as well as at the macro level of research and introduction of new health procedures and the mezzo level of management of within-sector relationships between healthcare professionals as the ones who promote health staff education and labor relations. The synergy between these is central to ensuring appropriate levels and quality of health services (Tollen, 2008). Indeed, health is now defined as the outcome of the complex interaction between multiple stakeholders. The ecological models that are widely used in the public health discourse stress the importance of a multilevel focus for health promotion (Sallis *et al*., 2008; Winett, 1995). As a result the inclusion of various aspects of inter-sectoral action has been established, combining different institutional agents, such as the Ministry of Education to promote education for women and the Ministry of Welfare, to encourage individuals to study new as well as traditional health professions.

Scheiber (1987) pointed to three basic healthcare arrangements: (1) a national health service model with universal coverage, tax funding and public ownership of healthcare provision (*e.g*., Sweden, Great Britain); (2) a social insurance model with universal coverage, social insurance financing and public or private ownership of facilities for healthcare provision (*e.g*., Germany); and (3) a private insurance model with private coverage, financing and ownership of healthcare provision (*e.g*., the United States) (Wendt, 2009). Other typologies focus on the different modes of governance and consider the role of political actors in the healthcare sector (Tuohy, 1999; Moran, 1999; Burau & Blank, 2006; Wendt *et al*., 2009; Marmor & Wendt, 2011).

MICRO-LEVEL OUTCOMES OF HEALTH ASSESSMENT

Micro-level "subjective outcomes" can be measured and compared by describing how healthcare arrangements are understood by the population. This aspect is often expressed through the use of online health services (see *e.g.*, Mccoll-Kennedy *et al*., 2017; Tian *et al*., 2014). Indeed, individual behavior is the result of factors related to the level of expected services. If the level of expected service is high, the minimum level of expected service is also high and the range of tolerance is narrow. Some researchers who have examined how individuals use online health services (Kontos *et al*., 2014; Kim *et al*., 2012) suggest that the level of acceptance of online health services depends on the following factors:

- *Awareness of alternative services* that can affect the minimum level of expected services. If consumers have more alternatives, they set a higher minimum level of expectations than if fewer options are available.

- *Consumers' perceived role* in the provision and delivery of health services, which often depends on service quality. For example, when consumers are aware of their failure to comply with certain indications or treatments, their level of accepted service is lower.

- *Situational factors* (*e.g*., emergency situations) can temporarily lower the minimum level of expectations. For example, an urgent dental problem may cause a consumer to seek out the nearest dentist.

- *Health literacy* is also associated with higher use of healthcare services, especially more specialized services.

- *Emergency situations* tend to raise the level of accepted service, for example when consumers waiting for a prompt response from their family doctor are not willing to wait any longer.

In line with this consumer and marketing approach, recent studies have begun to examine the use of online health services in terms of consumer behavior (Stefanscu *et al*., 2019). According to the consumer approach, the provision of online health services must consider two basic components—threats and vulnerabilities in managing telehealth services. Stefanscu *et al*. (2019) suggest that online health service consumers are closely related to the providers of these services. Consumers are affected by providers' decisions, which often require agreements between different stakeholders representing various elements of service provision and its outcomes (Feng & Xie, 2015). Today, major investments are being directed toward the development and introduction of advanced health services and programs.

The effectiveness of online health services depends primarily on their accessibility and relevance, especially for self-management of health (Mano,

CHAPTER 6

The COVID-19 Pandemic and Digital Divides

The advantages of the internet as a source of health information include convenient access to a massive volume of information, ease of updating information and interactive formats that promote understanding and retention of information. The health empowerment paradigm has introduced the notion of health efficacy and the right to express health aspirations, thus enabling individuals to develop critical awareness about their existing health conditions (Bandura, 1977; Bandura, 2004; Dutta-Bergman, 2006). These models rely on two assumptions: First, as noted, easy access to information will give rise to rational consumer choice, such that individuals will be motivated to seek even more information and compare between multiple sources of information before making health decisions (Dutta-Bergman, 2006). Second, all individuals are equally able to learn and internalize aspects of health and disease. Hence, these models assess the functional aspects of digital technology and the way they complement each (Mesch *et al*., 2012).

THE NORMALIZATION HYPOTHESIS

According to the normalization hypothesis, the rise of the information society and the adoption of the internet have the capacity to reduce existing social inequalities in health. The prominence of the normalization hypothesis suggests that technology will ultimately minimize differences between individuals characterized by different socioeconomic variations such as education, income, occupation, gender and ethnicity (Hargitai & Hinnant, 2008; Lemire, *et al*., 2008; Renahy *et al*., 2008). Indeed, studies in the field of communication have pursued this line of thought. More specifically, the Media-System Dependency theory suggests that resources located on the internet allow users to explore a health topic fully. Users can also use the internet as a communications tool to increase their capacity to attain their goals, such as changing health behavior, engaging in physical activity and/or ceasing smoking (Dutta-Bergman, 2006; 2004b).

Rita Mano

THE SOCIAL DIVERSIFICATION HYPOTHESIS

According to the social diversification hypothesis, computer-mediated communication provides a platform for overcoming social inequalities in access to information and social networks. Residential and social segregation prevents members of minority groups from interacting across ethnicity and migration status (Mesch *et al*., 2012). Consequently, segregation reduces access to social networks that have the potential to provide available information on health-related conditions. Studies examining differences in access to health information in the US found a high level of agreement among African-Americans and Hispanics that the internet is a helpful resource for health information. There is both motivation and need for accessing health information, in particular among low income members of minority groups. Accordingly, the social diversification perspective maintains that disadvantaged groups (due to migration status and ethnicity) will use the internet to expand their social circles, to diversify their sources of information and social networks through computer-mediated communication and to access non-redundant information and networks. At the same time, majority groups will use ICT to maintain their existing levels of information and social networks, for example through interpersonal communication and direct communication with health providers. Indeed, some individuals or even entire groups of people are less likely to express health-related aspirations and expectations or to develop health-related consciousness.

The concept of a digital divide indeed reflects inequalities in access and use of online information and services and unequal outcomes in health. In turn, the outcome of ICT access and use may affect the motivations and beliefs of social groups, as shown in early studies of internet uses and outcomes (Van Dijk, 2006). Generally, this literature found that digital inequalities tend to mirror existing social inequalities in terms of socioeconomic status, education, gender, age, geographic location, employment status, and race (Robinson *et al*., 2015).

FIRST LEVEL DIGITAL DIVIDE EFFECTS

Differences in access to technology are also called first-level digital divides (Wyatt *et al*., 2000; Gui & Argentin, 2011). In contrast to the functional approach, demographic and socioeconomic factors (Lemire, *et al*., 2008; Renahy *et al*., 2008) and health status (Mano, 2016, 2018) play an important role in defining the depth of the first digital divide. Kolasa *et al*. (2020) for example, showed that sociodemographic factors influence the use of e-health among individuals with chronic conditions, and Fabienne Reiners *et al*. (2019) indicated that e-health seems to be used the least by those that may need it the most, such as older individuals and those with chronic diseases, low incomes and low educational levels who live in rural areas. Indeed, the use of virtual devices can initiate first-level digital divide effects on access to health-related information. The already disadvantaged citizens in society are equally disadvantaged on the internet, either through their limited access to technology and restricted opportunities for use, and / or lack of important digital skills (Hargittai, 2002; Hargittai & Hinnant, 2008; Robinson, 2009; Sims, 2014; Zillien & Hargittai, 2009). Such groups will be less likely to capitalize on information technology than more privileged groups (Blank & Lutz, 2018; Van Deursen & Helsper, 2015).

Age

Due to age's high correlation with technology and internet skills, elderly people are less likely to know how to use the internet and search engines and less likely to use these extensively (Van Deursen *et al.*, 2010). Since health usually deteriorates with age (Hardt & Hollis-Sawyer, 2007), growing older provides an important motivation for seeking online health-related information and participating in group discussions about health (Bundorf *et al.*, 2006). Recent studies also consistently point to the negative effect of age on health-related use of social media (Thackeray *et al.*, 2013). Older users tend to adopt technology later and are less internet savvy than younger users (Mesch, 2012). In fact, individuals who are 50-60 years old tend to search mainly for health information, while individuals who are between 60-80 years old search less due to the lack of computer skills. Moreover, because older people are more likely to be affected by health-related issues, differences in age are likely to be significant. Since health tends to deteriorate with age (Mano, 2016), older users are also less able to learn and become adept at health-related social media use. Therefore, they are also less likely to be influenced by health information on social media than younger users. Indeed, the 'grey divide' (Morris & Brading, 2007) continues to be documented in various internet studies (Demunter, 2005; Katz & Rice, 2002; Latzer *et al.*, 2013; Loges & Jung, 2001; Smith, 2014; Wei, 2012), possibly because the age barriers of trust are greater than any technological barriers.

Evidence points to age differences between older and younger adults in trust placed in health information on the internet. Younger adults appear to be more inclined to use the internet for health information regardless of their trust in this information, and this use can have a positive effect on their health behaviors (Fox & Rainie, 2000; Shim *et al.*, 2006). Many older adults who could go online to expand their knowledge of disease management, treatment options, and diet and exercise are not doing so (Hart *et al.*, 2004). Thus, the full potential of the internet in supporting healthy aging is not being realized. In light of research showing that

CHAPTER 7

The Case of COVID-19 and Digital Divides

The global crisis caused by COVID-19 has changed the reality of individuals in many ways and brought new conditions of financial and social ambiguity. Individuals experienced a substantial loss of social and economic resources, which increased vulnerability and affected resilience. The complexity of a crisis such as COVD -19 can be better understood by focusing on the role of technology (Reghezza-Zitt & Rufat, 2019). In light of research showing that knowledge is an important predictor of online health searching and search effectiveness (Keselman *et al*., 2008), we can expect that successful online searches and use of health forums will improve resilience in times of crisis such as the pandemic COVID-19.

Resilience is defined as the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Individuals seeking to regain control of the situation are likely to use the resources not affected by the crisis to install stability (Masten, 2018; Vindevogel, 2017). Resilience studies focus on positive recovery and adaptation processes and the analysis of a system's strengths, resilience has been gradually associated with social-ecological factors important in developing the sense of well-being under stress (Ungar, 2011b). Resilience in the COVID-19 crisis, according to the American Psychological Association, is the process of adequate adaptation to significant stressors and the potential for quick and decisive recovery, especially in times of crises when individuals need social support (Sippel *et al*., 2015). In order for resilience to rake place rapidly and completely resources should be available and accessible immediately. These resources should be abundant so that individuals would not compete be destroyed by excessive use. This is the case of social media use.

Online platforms of connectivity provide individuals with a platform that overcomes barriers of distance and time to connect and reconnect with others and thereby expand and strengthen their offline networks and interactions (Antoci *et al*., 2015; Hall *et al*., 2018; Subrahmanyam *et al*., 2008; Twenge *et al*., 2018).

Originally, social media has been regarded as an important source of information especially when individuals are in a state of uncertainty and possible dissatisfaction with existing sources of information (Ogawa, 2011; Jung & Moro,

Rita Mano

2014; Chan, 2013) and hence lower discomfort (Wixom & Todd, 2005; Wang *et al*., 2012; Rosenberg *et al*., 2019) that is especially important in times of crisis (Chan, 2013) such as the pandemic COVID-19.

Indeed, social media is a significant resource that is abundant and can protect against the detrimental effects of stress and threat commonly experienced by individuals during crises and enhance experiences of well-being (Barasa *et al*., 2018). Social media can therefore increase significantly the level of resilience among individuals who experience crises (Mano *et al*., 2019). An influential model addressing resilience is that of Norris and colleagues (2008). The model addresses resilience in community as the outcome of networked resources including economic development, social capital, and information communication. Indeed, Chan maintains that "by harnessing the characteristics of the social media tools, organizational capacity to demonstrate resilience in response to crises can be significantly enhanced by creating new avenues for collaboration to help build more resilient communities over time" (Chan, 2013; p. 5; Whittaker *et al*., 2015).

Witnessing now how online health services become an institutionalized form of service provision in the health industry it is important to identify the possible sources of deepening health digital divides (Mano, 2016; Marler, 2018), in order to increase the resilience of weak social groups (Robinson *et al*., 2015). This is especially evident among those most in need of health empowerment—the elderly, those located in remote geographic areas, and/or those coping with chronic illnesses and disabilities (Hadwich *et al*., 2006; Eisenberg & Berkowitz, 2009; Aceijas, 2011; Mano, 2016). More importantly, not all individuals develop the necessary levels of confidence that enable them to adhere to a healthier and focused approach (McKinley& Wright, 2014). Since all types of empowerment necessitate taking responsibility, asking questions and acting upon them (Fox *et al*., 2005), it is not surprising that some individual-level factors are likely to affect the acquisition of greater health literacy and empowerment (Baran & Davis, 2009; Ginossar & Nelson 2010). As a result, while the internet can improve health empowerment and encourage successful self-management practices, evidence indicates that differences in the use of online services reflect differences in socioeconomic status (Lorence *et al*, 2006; Lemire *et al*, 2008; Renahy *et al*., 2008). The concept of a third-level digital divide addresses differences in gains from internet use, particularly where access and use patterns are roughly similar. In the COVID-19, an important outcome of online forums is the potential to increase resilience (Notton, 2008).

POSITIVE EFFECTS ON RESILIENCE

First, social media decreases the likelihood of social isolation and increases the potential for virtual connectivity that facilitates the sense of belonging and togetherness (Maarten *et al*., 2009; Valkenburg & Schouten, 2006). These in turn decrease loneliness (Burke *et al*., 2010; Stepanikova *et al*., 2010). Second, social media lowers discomfort because it increases the potential of expression that is often limited in day-to-day interactions (Wixom & Todd, 2005; Wang *et al*., 2012; Rosenberg *et al*., 2019) that is especially important in times of crisis (Chan, 2013). Third, social media increases the likelihood for positive social support from social groups, family, friendships and community (Davis, 2012; Dolev-Cohen & Barak, 2013; Diener, 2009; Helliwell & Wang, 2011; Huang, 2012) that are especially important when we are disconnected from the external environment (Marcopulos, 2009). The notion of social support is especially noticed because it mediates the effects of life stress on health and well-being (Pawar AA, Rathod 2007; Sippel *et al*., 2015). Positive social support can provide protection against stress and facilitate in development of individual resilience among individuals who face significant adversity (Ungar, 2011; Zautra *et al*., 2010). Fourth, social media use has been associated with a decrease in depression and loneliness and an increase in self-esteem and social support among this population (Shaw & Gant 2004). Finally, online activity can increase resilience as well. Social media includes a variety of online activities involving the use of profiles, comments, photos, or video sharing. These expand the depth and extent of connectivity (Kavanaugh *et al*., 2005; Jurgens & Helsloot, 2018) and enable individuals to expand their network (Smith & Kidder, 2010) thus improving that chances for more extensive social support once the crisis is over. While social media use has been linked to psychological well-being, the findings have not been unanimous.

NEGATIVE EFFECTS ON RESILIENCE

The fact that social media use is considered to have become popular across all age groups (Smith & Anderson, 2018) is still debated especially because most studies have focused on adolescent and young adults in college settings (*e.g*., Booker *et al*., 2018; Ellison *et al*., 2007; Kross *et al*., 2013). The specific of these samples in terms of age led to a growing body of research asking how social media use is associated with some health-related outcomes. For example, a recent longitudinal study found that Facebook use is generally negatively associated with mental well-being (Shakya & Christakis, 2017). Another study examining the influence of Facebook use on subjective well-being over time among young adults found that Facebook, rather than enhancing well-being, might undermine it (Kross *et al*., 2013). Several recent studies have also found negative associations of social media use with a variety of indicators of mental health among adolescents and young adults. For example, in a study drawing data from a sample of adolescents and their parents throughout the United States, Barry *et al*., (2017) found that

CHAPTER 8

Discussion

The shift from “mechanical” to “informational” medicine has placed responsibility for health on individuals and on their ability to increase their own health awareness, particularly through personal involvement and access to health information. For many of us, this means that our social profile has expanded over time due to easy and cheap access to information, people and online communities. Everyday activities such as communicating with others, purchasing goods, banking, and searching for any kind of information have now become easier and more accessible. These changes have led to the development and introduction of a significant number of online health resources. Over time, individuals have become technologically skilled and willing to access sources of health-related information, participate in networking sites and search the web. Indeed, accessing the information we seek either on our own or with unsolicited support from online health forums as well as participation in support groups providing medical advice and online services may be too easy. Institutional healthcare providers emphasize low costs and efficient provision of health literacy through various forms of virtual connectivity to health resources. Younger and older individuals interested in issues of lifestyles, prevention, monitoring and wellbeing are now aware of available telemedicine and telehealth services.

At the individual level, internet-based information sources and services can provide individuals with insights regarding health concerns at any single point in time and over an extended period of time as well. In turn, users’ involvement in social networks boosts their level of health literacy and leads them toward various health behaviors. Being aware of health-related products and services may alleviate the unpleasant symptoms of a health problem. Hence, online information offers the necessary resources to make people more willing to form new health habits and facilitates effective monitoring of patterns of change among individuals with health concerns. Moreover, eHealth information on the internet makes individuals more confident and increases their level of trust in human resources such as physicians, nurses and medical staff. Internet users seem to be more satisfied with contact with their physicians. Nonetheless, in order to maximize the benefits of online health information, users must first possess or acquire the necessary technological skills and develop the “right” frame of mind as manifested in their health attitudes. For these reasons, gaining an understanding of

Rita Mano

the challenges associated with the use of virtual source for health issues remains a significant endeavor.

One major and potential challenge posed by this process of health empowerment is the shift in the focus of medical care from "physician-centered" to "patient-centered". Physician-centered care advocates an authority based approach to healthcare whereas patient-centered care promotes an empowering approach. First, contrary to the authoritarian approach, today's health consumers ask physicians and nurses and other health professionals for advice and make use of support groups and online access to medical services. Second, health attitudes and personal health conditions play a central role in the extent to which individuals can and do make use of virtual sources of health. Third, situational effects in the individual's environment are highly likely to impede implementation of desired health regimes. Such conditions are often the outcome of contact with a particular health agent or health context. Specific health conditions such as a chronic illness motivate individuals to search online in order to retrieve relevant information. Access to relevant information increases understanding, making it easier to acquire a complete perspective on one's medical condition, treatment or medications, thereby increasing the chances of recovery. These situational factors underscore the importance of addressing both the benefits and the risks of using eHealth and mHealth sources of health information and disclose the sources of potential dysfunctions in the use of digital health. Consequently, the entire spectrum of individual-level characteristics associated with healthcare behaviors should be examined in the development of institutional healthcare and the initiation of healthcare reforms based on the increasing significance of virtual sources of health communication.

At the institutional level, illness prevention, early diagnosis and regular attention to a healthy lifestyle are significant factors in promoting public health. Health institutions and policymakers must encourage the development of services and programs that enable individuals to take more responsibility for their own health needs, diagnosis and treatment. The health sector is affected by the rapid development of information and communication technologies. Hence, online communication about health issues, including linking individuals in need of specific information and support with healthcare professionals, is becoming more common. In this sector, the information revolution has enabled health consumers and patients to access information on health and drugs. Nonetheless, several factors in the micro-macro association have become problematic.

First, the lack of direct contact when individuals seek health consultation through virtual devices significantly reduces the potential to treat patients holistically because such consultations are based on decisions that are "objective" for most people. As a result, despite the greater potential for quick and efficient outcomes, concerns also arise regarding the implications for professional responsibility and judgment, justice, autonomy, and trust. Second, the quality of virtual devices designed to address health concerns must be assessed, particularly since both individuals and institutional healthcare providers are using mobile applications more and more. Third, assessment of a health system must consider various public and private health agents as well as agents directly or indirectly involved with health behavior, such as health institutions, health insurance organizations and agents of health and safety legislation. Finally, inter-sectoral factors must be considered. For example, the Ministry of Education should promote education for women, and the Ministry of Welfare should encourage individuals to study new as well as traditional health professions.

Indeed, the macro-level policies of health systems and institutions should implement the principles of a satisficing solution in providing virtual services. These services should be effective in providing answers to disadvantaged individuals and social groups on the one hand and economically efficient on the other. Yet without overlooking issues of efficiency, health institutions must also address issues of effectiveness in order to increase the successful implementation of programs geared to illness prevention, early diagnosis and regular attention to a healthy lifestyle. Successfully combining all of these will prevent the generation and continuation of health divides while increasing health empowerment and successful self-management practices among those who need it most—the elderly, those situated in remote geographic areas and/or those facing chronic illness and disabilities. Being aware of the potential for “secondary level” digital divide effects and the ways to avoid them will increase the potential for health literacy and health empowerment.

Another issue gaining interest among all public and private institutional agents of health is how to combine between micro-level factors associated with the use of digital loci of health consumption and macro-level uses of these digital loci to provide health information and services. The wide range of these loci, which include health-related websites, participation in health forums, bulletin boards and health-related social networking sites, challenges the ability to provide a clear picture of the pros and cons of these sources for individual wellbeing. The difficult task of identifying successful associations between micro- and macro-level factors in digital health is affected by immediate changes.

On one hand, all these factors are interrelated, while on the other hand they are separated from each other in terms of institutional locus. As a result, while the role of health in establishing positive relationships is paramount in defining wellbeing, we still seek ways to increase wellness and quality of life, which are

CHAPTER 9

Conclusions

Today's information society is characterized by rapid information production, distribution, storage and access. Information and communication technologies facilitate easy and updated access to information for all individuals who have technological and computer skills and access to the internet. Everyday activities such as communicating with others, purchasing goods, banking, and searching for any kind of information are all available online. The health landscape has changed as well, such that in a growing number of societies access to medical information has changed dramatically and the pursuit of health today takes place within a widening network of online and offline sources.

Social media and social networks that address people's needs for health information and health services and support are part of eHealth and mHealth, which has emerged from growing use of the internet and social media. In case of a health problem, people use health professionals, family and the internet as important sources of information. Individuals now have a choice. They can consult a health professional, go online to pursue more information, and connect with online and offline social networks that include both health professionals and experienced patients. As the use of apps and technology-based tools for health concerns increases, so does the need to adopt an interdisciplinary approach to examine variations in the use of online health forums.

The purpose of this review is to discuss the factors associated with the use of online sources of health and the association between micro-level use of the internet for health purposes and macro-level challenges in promoting virtual sources of health products and health services. Individuals who have adopted the health empowerment approach take responsibility, ask questions and act upon the answers. Accessing health-related websites and participation in health forums, bulletin boards and health-related social networking sites now constitute a major path to health information and self-management of health concerns.

First, online searches enable individuals to search on their own time and at their own pace. Second, access to relevant information can shape individuals' understanding of their medical situation. Third, online health forums can increase the chances for recovery because they empower individuals to take the necessary

Rita Mano

steps to eliminate sources of concern. Indeed, understanding makes it easier todevelop a complete perspective on one's medical condition, treatment type or medications. Fourth, online health information provides the resources necessary to increase an individual's willingness to form new health habits. Finally, knowing about health-related products and services may alleviate the bothersome symptoms of a health problem and increase the use of available online health services. As a result, individuals are more likely to set health goals, make concrete plans and understand that some means are better facilitators than others in achieving a desired health target.

The empowered information control process can place the institutional healthcare provider in a role that is equal to that of the patients. Health consumers who come to their health provider armed with information they found on the web and preconceived notions about their diagnosis want to play an active role in therapeutic decisions even though they may be relying on misleading or misinterpreted health information. Seeking virtual sources of information may initially be related to individuals' lack of satisfaction and trust in institutional health strategies and lack of trust in the authoritarian health information control process.

Indeed, health attitudes and specific health conditions play a central role in the extent to which individuals can and do implement virtual sources of health information. Novel constructs such as privacy concerns, risk beliefs, self-efficacy and autonomy have taken their place alongside traditional psychology-related constructs such as extrinsic/intrinsic motivation and technology constructs such as ease of use and usefulness. Socioeconomic variations are important factors in determining technological skills and the extent of online health forum use. If these factors are disregarded, unsolicited use of online forums may increase the risk of generating and deepening differences in access and use of eHealth and mHealth services, especially among individuals facing difficult health challenges. Additional variations in technology use for health can be attributed to (a) types of health behaviors, which are still not thoroughly defined; (b) differences in motivations and circumstances underlying personal health decisions and behaviors; (c) the effects of ICT use on the patient-healthcare provider relationship; and (d) the effects of ICT-based communication on health attitudes and on ethical issues related to the adoption of virtual health services.

Due to these variations, the mere use of virtual sources and online forums such as online health services and social media cannot guarantee the adoption of healthy behaviors. Consequently, neither access nor use of the internet and other related online sources of health such as mobile health applications is similar for all individuals and all social groups. In fact, the rising number of online health information seekers in western societies has made it obvious that differences in access to online health information will affect individuals with lower technology skills. Indeed, individuals or groups who are disadvantaged in terms of their technology skills and/or access to online health information and services may disregard health issues, not ask for help and support, and have little motivation to deal with illness prevention. Hence, a lack of skills that leads to less use of online health information and services may result in poorer health practices. Thus, despite major investments in the development and introduction of advanced health services and programs, the effectiveness of these services is questionable because health literacy is still limited, in particular among the disadvantaged who need it most.

Health institutions need to address notions of effectiveness and efficiency in order to increase the successful implementation of programs for illness prevention, early diagnosis and regular attention to a healthy lifestyle, without disregarding the importance of individual-level factors. Adopting comprehensive health policy programs rather than focusing on on-the-spot technology-facilitated solutions to promote healthy lifestyles in disadvantaged communities has been shown to have a lower impact and outcome. This is due to environmental changes and a lack of consideration for anthropological variables (deSilva Sanigorski *et al*., 2010). Without a multiple stakeholder approach, there is no basis for drawing conclusions about the effectiveness of the program or for deriving in-depth insights.

Recent studies promote adopting multilevel and multifaceted evaluation programs. Such programs should consider both the immediate short-range outcomes and the indirect long-range outcomes of health programs, especially when technology is involved. Moreover, such evaluations should be culturally diverse since these programs are often easily transferred from one nation to another and are thus subject to cultural factors. Programs and even policies often cannot be applied successfully to diverse settings and target groups. In fact, according to Broms (2019), the responsibility of social media for users' health may go beyond communications policies. Recent studies confirm that the public health risk posed by platforms such as Facebook goes deeper than content-level risks deriving from communications policies (Atroszko *et al*., 2018; Guedes *et al*., 2016). The for-profit orientation of these platforms means that the risk of user addiction is higher (Boweles, 2018). Hence, neither the quality nor the effective use of these online platforms is ideal in terms of several factors, among them health risks, ethical concerns and privacy (Lakshmanan, 2019). Stronger integration between healthcare providers in the public and private sectors is needed to ensure higher quality and less damage to health recipients. Public health researchers may not be satisfied with such a compromise.

References

Abel, T., Frohlich, K.L. (2012). Capitals and capabilities: linking structure and agency to reduce health inequalities. *Social Science & Medicine, 74*(2), 236-244.
[http://dx.doi.org/10.1016/j.socscimed.2011.10.028] [PMID: 22177750]

Abroms, L. C. (2019). Public health in the era of social media. *American Journal of Public Health, 109*(52), S130-S131.
[http://dx.doi.org/10.2105/AJPH.2018.304947]

Abroms, L. C., Gold, R. S., Allegrante, J. P. (2019). Promoting health on social media: The way forward. *Health Education and Behavior, 46*(2), 9-11.

Aceijas, C. (2011). *Assessing evidence to improve population health and wellbeing.* (pp. 3-16). UK: Exeter.

Ahadzadeh, A.S., Pahlevan Sharif, S., Ong, F.S., Khong, K.W. (2015). Integrating health belief model and technology acceptance model: an investigation of health-related internet use. *Journal of Medical Internet Research, 17*(2), e45.
[http://dx.doi.org/10.2196/jmir.3564] [PMID: 25700481]

Akbar, S., Coiera, E., Magrabi, F. (2020). Safety concerns with consumer-facing mobile health applications and their consequences: a scoping review. *Journal of the American Medical Informatics Association, 27*(2), 330-340.
[http://dx.doi.org/10.1093/jamia/ocz175] [PMID: 31599936]

Alas, A., Sajadi, K.P., Goldman, H.B., Anger, J.T. (2013). The rapidly increasing usefulness of social media in urogynecology. *Female Pelvic Medicine & Reconstructive Surgery, 19*(4), 210-213.
[http://dx.doi.org/10.1097/SPV.0b013e3182909872] [PMID: 23797519]

Albrecht, U-V. (2013). Transparency of health-apps for trust and decision making. *Journal of Medical Internet Research, 15*(12), e277.
[http://dx.doi.org/10.2196/jmir.2981] [PMID: 24449711]

Aljaber, T., Gordon, N. (2016). Evaluation of mobile health education applications for health pro- fessionals and patients. *Proceedings of the International Conference on E-Health, EH 2016 - Part of the Multi Conference on Computer Science and Information Systems 2016,* Funchal, Madeira107-114.

Alkhudairi, B., Pemberton, L. (2016). Factors affecting the acceptance of mHealth technology by Saudi diabetics and doctors. *Multi conference on computer science and information systems: eHealth,* Funchal, Madeira,199-202.

Allegrante, J.P., Elaine Auld, M. (2019). Advancing the Promise of Digital Technology and Social Media to Promote Population Health. *Health Education & Behavior, 46*(2S), 5S-8S.

Ancker, J.S., Barrón, Y., Rockoff, M.L., Hauser, D., Pichardo, M., Szerencsy, A., Calman, N. (2011). Use of an electronic patient portal among disadvantaged populations. *Journal of general internal medicine, 26*(10), 1117-1123.
[http://dx.doi.org/10.1007/s11606-011-1749-y] [PMID: 21647748]

Anderson, L., Ostrom, A.L. (2015). Transformative service research: Advancing our knowledge about service and well-being. *Journal of Service Research, 18*(3), 243-249.

[http://dx.doi.org/10.1177/1094670515591316]

Andoulsi, I., Wilson, P.P. (2013). Understanding liability in eHealth: towards greater clarity at European Union level. In: C, George, D, Whitehouse, P, Duquenoy, (Eds.), *eHealth: Legal, Ethical and Governance Challenges,* Heidelberg; New York: Springer.165-180.
[http://dx.doi.org/10.1007/978-3-642-22474-4_7]

Andreassen, H.K., Bujinowska, F., Chronaki, C.E., Dumitru, R.C., Pudule, I., Santana, S., Henning, V., Wynn, R. (2007). European Citizens' use of E-Health Services: A study of Seven Countries. *BMC Public Health.*

Andreotti, A., Anselmi, G., Eichhorn, T., Hoffmann, C.P., Micheli, M. (2017). European perspectives on participation in the sharing economy. *SSRN Electronic Journal.*
[http://dx.doi.org/10.2139/ssrn.3046550]

Antheunis, M.L., Tates, K., Nieboer, T.E. (2013). Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient Education and Counseling, 92*(3), 426-431.
[http://dx.doi.org/10.1016/j.pec.2013.06.020] [PMID: 23899831]

Aparicio-Martinez, P., Perea-Moreno, A.J., Martinez-Jimenez, M.P., Redel-Macías, M.D., Pagliari, C., Vaquero-Abellan, M. (2019). Social Media, Thin-Ideal, Body Dissatisfaction and Disordered Eating Attitudes: An Exploratory Analysis. *International Journal of Environmental Research and Public Health, 16*(21), 4177.
[http://dx.doi.org/10.3390/ijerph16214177] [PMID: 31671857]

Ariani, A., Koesoema, A.P., Soegijoko, S. (2017). Innovative healthcare applications of ict for developing countries. In: Qudrat-Ullah, H., Tsasis, P., (Eds.), *Innovative Healthcare Systems for the 21st Century. Understanding Complex Systems.* (pp. 15-70). Cham: Springer.
[http://dx.doi.org/10.1007/978-3-319-55774-8_2]

Arie, S (2015). Can mobile phones transform healthcare in low and middle income countries? *BMJ, 350*, h1975-h1975.
[http://dx.doi.org/10.1136/bmj.h1975]

Armstrong, N., Eborall, H. (2012). The sociology of medical screening: past, present and future. *Sociology of Health & Illness, 34*(2), 161-176.
[http://dx.doi.org/10.1111/j.1467-9566.2011.01441.x] [PMID: 22369578]

Ashill, N.J., Carruthers, J., Krisjanous, J. (2006). The effect of management commitment to service quality on frontline employees' affective and performance outcomes: An empirical investigation of the New Zealand public healthcare sector. *International Journal of Nonprofit Volunteer Sector Marketing, 11*, 271-287.
[http://dx.doi.org/10.1002/nvsm.281]

Atroszko, P.A., Balcerowska, J.M., Bereznowski, P., Biernatowska, A., Pallesen, S., Andreassen, C.S. (2018). Facebook addiction among polish undergraduate students: Validity of measurement and relationship with personality and well-being. *Computers in Human Behavior, 85*, 329-338.
[http://dx.doi.org/10.1016/j.chb.2018.04.001]

Bakker, D., Kazantzis, N., Rickwood, D., Rickard, N. (2016). Mental health smartphone apps: Review and evidence-based recommendations for uture developments. *JMIR Mental Health, 3*(1), e7.
[http://dx.doi.org/10.2196/mental.4984] [PMID: 26932350]

Bandura, A. (1997). *Self-Efficacy: The Exercise of control.*. New York: Freeman.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior, 31*(2), 143-

164.
[http://dx.doi.org/10.1177/1090198104263660] [PMID: 15090118]

Barak, A., Grohol, J.M. (2011). Current and future trends in Internet-supported mental health interventions. *Journal of Technology in Human Services, 29*(3), 155-196.
[http://dx.doi.org/10.1080/15228835.2011.616939]

Barak, A., Klein, B., Proudfoot, J.G. (2009). Defining Internet-supported therapeutic interventions. *Annals of Behavioral Medicine, 38*(1), 4-17.
[http://dx.doi.org/10.1007/s12160-009-9130-7]

Baran, S.J., Davis, D.K. (2000). Mass Communication Theory, Foundations, Ferment, and Future. CA: Wadsworth/Thomson Learning.

Barker, J.O., Rohde, J.A. (2019). Topic clustering of e-cigarette submissions among Reddit communities: A network perspective. *Health Education & Behavior, 46*(2_suppl), 59S-68S.
[http://dx.doi.org/10.1093/intqhc/13.4.317] [PMID: 11560351]

Baron-Epel, O., Dushenat, M., Friedman, N. (2001). Evaluation of the consumer model: relationship between patients' expectations, perceptions and satisfaction with care. *International Journal for Quality in Health Care, 13*(4), 317-323.

Batchelor, R., Bobrowicz, A., Mackenzie, R., Milne, A. (2012). Challenges of ethical and legal responsibilities when technologies' uses and users change: social networking sites, decision- making capacity and dementia. *Ethics and Information Technology, 14*(2), 99-108.
[http://dx.doi.org/10.1007/ s10676-012-9286-x]

Beckfield, J., Krieger, N. (2009). Epi+ demos+ cracy: linking political systems and priorities to the magnitude of health inequities—evidence, gaps, and a research agenda. *Epidemiologic reviews, 31*(1), 152-177.

Bekalu, M. A., McCloud, R. F., Viswanath, K. (2019). Association of social media use with social well-being, positive mental health, and self-rated health: disentangling routine use from emotional connection to use. *Health Education & Behavior, 46*(2_suppl), 69S-80S.

Bekalu, M. A., McCloud, R. F., Viswanath, K. (2019). Association of social media use with social well-being, positive mental health, and self-rated health: Disentangling routine use from emotional connection to use. *Health Education & Behavior, 46*(2_suppl), 69S-80S.

Benetoli, A., Chen, T.F., Aslani, P. (2018). How patients' use of social media impacts their interactions with healthcare professionals. *Patient Education and Counseling, 101*, 439-444.
[http://dx.doi.org/10.1016/j.pec.2017.08.015]

Bennett, L., Humphries, R. (2014). Making best use of the better care fund. *Spending to save?*. London: The King's Fund.

Bhambra, G.K., de Sousa Santos, B. (2017). Introduction: Global challenges for sociology. *Sociology, 51*, 3-10.
[http://dx.doi.org/10.1177/0038038516674665]

Bhattacherjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS quarterly, 25*, 351-370.

Biggs, J. (2016). Why bitcoin can't help the poorest—Yet. *Techcrunch.* https://techcrunch.com/2016 /01/10/why-bitcoin-cant-help-the-poorest-yet/

Black, K., Dobbs, D. (2013). Community-dwelling older adults' perceptions of dignity: core meanings, challenges, supports and opportunities. *Ageing and Society, 34*(8), 1292-1313.

Blank, G. (2013). Who creates content? *Information, Communication & Society, 16*(4), 590-612.

Blank, G., Groselj, D. (2014). The dimensions of Internet use: Amount, variety and types. *Information, Communication & Society, 17*(4), 417-435.

Blank, G., Lutz, C. (2017). Representativeness of social media in Great Britain: Investigating Facebook, Linkedin, Twitter, Pinterest, Google+, and Instagram. *American Behavioral Scientist, 61*(7), 741-756.

Blank, G., Lutz, C. (2018). Benefits and harms from Internet use: A differentiated analysis of Great Britain. *New Media & Society, 20*(2), 618-640.

Blank, R., Burau, V., Kuhlmann, E. (2017). Comparative health policy. *Macmillan International Higher Education.* London: Red Globe Press.

Blut, M., Wang, C., Schoefer, K. (2016). Factors influencing the acceptance of self-service technologies: A meta-analysis. *Journal of Service Research, 19*(4), 396-416.
[http://dx.doi.org/10.1177/1094670516662352]

Booker, C.L, Kelly, Y.J, Sacker, A (2018). Gender differences in the associations between age trends of social media interaction and well-being among 10-15 year olds in the UK. *BMC Public Health, 18*(1), 321.
[http://dx.doi.org/10.1186/s12889-018-5220-4]

Borzekowski, D. L. (2019). Constancy (the New Media “C”) and future generations. *Health Education & Behavior, 46*(2_suppl), 20S-29S.

Bowles, C. (2018). *Ghosts of Willowbrook: Disability, Mourning, and Feminism (Doctoral dissertation, Central European University).*

Bradby, H. (2016). Research agenda in medical sociology. *Frontiers in Sociology, 1*, 14.
[http://dx.doi.org/10.3389/fsoc.2016.00014]

Bradby, H., Green, G., Davison, C., Krause, K. (2017). Is super diversity a useful concept in European medical sociology? *Frontiers in Sociology., 1*, 17.
[http://dx.doi.org/10.3389/fsoc.2016.00017]

Brake, D. (2014). Are we all online content creators now? Web 2.0 and digital divides. *Journal of Computer-Mediated Communication, 19*(3), 591-609.

Broom, A. (2005). Virtually healthy: The impact of Internet use on disease experience and the doctor-patient relationship. *Qualitative Health Research, 15*(3), 325-345.

Brusilovskiy, E., Townley, G., Snethen, G., Salzer, M.S. (2016). Social media use, community participation and psychological well-being among individuals with serious mental illnesses. *Computers in Human Behavior, 65*, 232-240.
[http://dx.doi.org/10.1016/j.chb.2016.08.036]

Bucher, T. (2017). The algorithmic imaginary: Exploring the ordinary affects of Facebook algorithms. *Information, Communication & Society, 20*(1), 30-44.

Büchi, M., Festic, N., Latzer, M. (2018). How social wellbeing is affected by digital inequalities. *International Journal of Communication, 12*, 3686-3706.

Bundorf, M.K., Wagner, T.H., Singer, S.J., Baker, L.C. (2006). Who searches the Internet for health information? *Health Services Research, 41*, 819-836.

Burau, V., Blank, R.H. (2006). Comparing health policy: an assessment of typologies of health systems. *Journal of comparative policy analysis, 8*(01), 63-76.

Burawoy, M. (2005). The return of the repressed: recovering the public face of U.S. sociology, one hundred years on. *The ANNALS of the American Academy of Political and Social Science, 600*, 68-85.
[http://dx.doi.org/10.1177/0002716205277028]

Busse, R. (2006). Gesundheitssysteme als epidemiologischer Gegenstand–oder: Wie wissen wir, wie effektiv Gesundheitssysteme sind? *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz, 49*(7), 611-621.

Carrell, D., Ralston, J.D. (2006). Variation in adoption rates of a patient web portal with a shared medical record by age, gender, and morbidity level. *AMIA Annual Symposium Proceedings, 2006*, 871.

Casciaro, T., Piskorski, M.J. (2005). Power imbalance, mutual dependence and constraint absorption: Resource dependence theory revisited. *Administrative Science Quarterly, 50*(2), 167-199.

Casilari, E., Luque, R., Morón, M-J. (2015). Analysis of android device-based solutions for fall detection. *Sensors (Basel), 15*(8), 17827-17894.
[http://dx.doi.org/10.3390/s150817827]

Caspi, A., Chayut, E., Saporta, K. (2008). Participation in class and in online discussions: Gender differences. *Computers & Education, 50*(3), 718-724.10.1016/j.compedu.2006.08.003

Cavoukian, A., Castro, D. (2014). Big data and innovation, setting the record straight: de- identification does work. *Information and Privacy Commissioner.* Ontario, Canada. http://www2.itif.org/2014-big-data-deidentification.pdf

Chambers, R., Schmid, M., Birch-jones, J. (2016). *Digital healthcare: the essential guide.*. Oxford: Otmoor Publishing.

Charani, E., Castro-Sánchez, E., Moore, L.S., Holmes, A. (2014). Do smartphone applications in health- care require a governance and legal framework? It depends on the application! *BMC Medicine, 12*(1), 29.
[http://dx.doi.org/10.1186/1741-7015-12-29]

Charters, E. (2003). The use of think-aloud methods in qualitative research—An introdction to think-aloud methods. *Brock Education, 12*(2), 68-82.
[http://dx.doi.org/10.26522/brocked.v12i2.38]

Chen, W., Lee, K.H. (2014). More than search? Informational and participatory eHealth behaviors. *Computers in Human Behavior, 30*, 103-109.
[http://dx.doi.org/10.1016/j.chb.2013.07.028]

Chen, W., Lee, K.H., Straubhaar, J.D., Spence, J. (2014). Getting a second opinion: Social capital, digital inequalities, and health information repertoires. *Journal of the Association for Information Science and Technology, 65*(12), 2552-2563.

Chew, F., Palmer, S., Kim, S. (1998). Testing the influence of the health belief model and a television program on nutrition behavior. *Health Communication, 10*(3), 227-245.
[http://dx.doi.org/10.1207/s15327027hc1003_3]

Chomutare, T., Fernandez-Luque, L., Årsand, E., Hartvigsen, G. (2011). Features of mobile diabetes applications: review of the literature and analysis of current applications compared against evidence-based guidelines. *Journal of Medical Internet Research, 13*(3), e65.
[http://dx.doi.org/10.2196/jmir.1874]

Christakis, N.A., Fowler, J.H. (2013). Social contagion theory: examining dynamic social networks and human behavior. *Statistics in medicine, 32*(4), 556-577.

Christopherson, R. (2016). How do Alexa and Amazon Echo help disabled people? *Ability Net.* https://www.abilitynet.org.uk/news-blogs/how-do-alexa-and-amazon-echo-help-disabled-people

CIDA. (2000). CIDA Evaluation Guide.*Performance Review Branch.*

Clarke, M., Mars, M. (2015). An investigation into the use of 3G mobile communications to provide Telehealth Services in Rural KwaZulu-Natal. *Telemed E-Health, 21*(2), 115-119.
[http://dx.doi.org/10.1089/tmj.2014.0079]

Clemensen, J., Danbjorg, D., Syse, M., Coxon, I. (2016). The rise of patient 3.0. The impact of social media. *8th International Conference on e-Health,* 1-3.

Conley, D., Springer, K.W. (2001). Welfare state and infant mortality. *Journal of Sociology, 107*(3), 768-807.

Correa, T. (2010). The participation divide among “online experts”: Experience, skills and psychological factors as predictors of college students’ web content creation. *Journal of Computer□Mediated Communication, 16*(1), 71-92.

Cotten, S.R., Gupta, S.S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science and Medicine, 59*(9), 1795-1806.
[http://dx.doi.org/10.1016/j.socscimed.2004.02.020]

Coughlin, S.S., Stewart, J.L., Young, L., Heboyan, V., De Leo, G. (2018). Health literacy and patient web portals. *International journal of medical informatics, 113*, 43-48.

Cristensen, C.M., Grossmans, J.H., Hwang, J.H. (2009). *The Innovator’s prescription: a disruptive solu- tion for health care.*. New York: McGraw-Hill Education.

Cund, A, Connolly, P, Birch-Jones, J, Kay, M (2015). *The Innovator’s prescription: a disruptive solution for health care.* New York: McGraw-Hill Education.

Currie, S.L., Mcgrath, P.J., Day, V. (2010). Development and usability of an online CBT program for symptoms of moderate depression, anxiety, and stress in post-secondary students. *Computers in Human Behavior, 26*(6), 1419-1426.
[http://dx.doi.org/10.1016/j.chb.2010.04.020]

Dai, S.M. (2020). An adaptive computation offloading mechanism for mobile health applications. *IEEE Transactions on Vehicular Technology, 69*(1), 998-1007.

Darkins, A.W., Cary, M.A. (2000). Telemedicine and telehealth: principles, policies, performances and pitfalls. Berlin, Heidelberg: Springer.

Daskin, M.S., Dean, L.K., Sainfort&, F., P.Pierskalla, W. (2004). Location of health care facilities in Braudeau. *Operation Research and Healthcare,* 46-82.

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly,* 319-340.

Davis, S.E., Osborn, C.Y., Kripalani, S., Goggins, K.M., Jackson, G.P. (2015). Health literacy, education levels, and patient portal usage during hospitalizations. *AMIA Annual Symposium Proceedings, 2015*, 1871.

de los Reyes, G., Jr (2019). Institutional entrepreneurship for digital public health promotion: Challenges and opportunities. *Health Education & Behavior, 46*(2_suppl), 30S-36S.

de Silva-Sanigorski, AM., Bolton, K., Haby, M., Kremer, P., Gibbs, L. (2010). Scaling up community-based obesity prevention in Australia: background and evaluation design of the Health Promoting Communities: Being Active Eating Well initiative. *BMC public health, 10*, 65.

Degli Esposti, S. (2014). When big data meets dataveillance: the hidden side of analytics. *Surveillance & Society, 12*(2), 209-225. http://library.queensu.ca/ojs/index.php/surveillance-and-society/article/view/analytics/analytic

Delbanco, S. (2009). Using technology to improve quality and patient safety. *Healthcare Financial Management,* (December), 42-45.

Deng, L., Turner, D.E., Gehling, R., Prince, B. (2010). User experience, satisfaction, and continual usage intention of IT. *European Journal of Information Systems, 19*(1), 60-75.

Department of Health. (2013). The mandate. *A mandate from the Government to the NHS Commissioning Board.* London.

Dholakia, U.M., Bagozzi, R.P., Pearo, L.K. (2004). A social influence model of consumer participation in network- and small-group-based virtual communities. *International Journal of Research in Marketing, 21*(3), 241-263.
[http://dx.doi.org/10.1016/j.ijresmar.2003.12.004]

Diaz, J.A., Griffith, R.A., Ng, J.J., Reinert, S.E., Friedmann, P.D., Moulton, A.W. (2002). Patients' use of the Internet for medical information. *Journal of General Internal Medicine, 17*(3), 180-185.

DiMaggio, P., Bonikowski, B. (2008). Make money surfing the web? The impact of Internet use on the earnings of U.S. workers. *American Sociological Review, 73*, 227-250.

DiMaggio, P., Hargittai, E., Celeste, C., Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. In: Neckerman, K., (Ed.), *Social Inequality* (pp. 355-400). New York, NY: Russell Sage Foundation.

Dobransky, K., Hargittai, E. (2012). Inquiring minds acquiring wellness: Uses of online and offline sources for health information. *Health Communication, 27*(4), 331-343.
[http://dx.doi.org/10.1080/10410236.2011.585451]

Dodel, M., Mesch, G. (2018). Inequality in digital skills and the adoption of online safety behaviors. *Information, Communication & Society, 21*(5), 712-728.
[http://dx.doi.org/10.1080/1369118X.2018.1428652]

Döhler, M., Manow, P. (1995). Kapitel 5 Staatliche Reformpolitik und die Rolle der Verbände im Gesundheitssektor. *Gesellschaftliche Selbstregelung und politische Steuerung, 23*, 140.

Donaldson, S.I., Gooler, L.E., Scriven, M. (2002). Strategies for managing evaluation anxiety: Toward a psychology of program evaluation. *American Journal of Evaluation, 23*(3), 261-272.

Dowling, M., Rickwood, D. (2016). Exploring hope and expectations in the youth mental health online counselling environment. *Computers in Human Behavior, 55*, 62-68. [http://dx.doi.org/10.1016/j.chb.2015.08.009]

Dubois, E., Ford, H. (2015). Qualitative political communication| trace interviews: An actorcentered approach. *International Journal of Communication, 9*, 2067-2091.

Duffy, B.E., Pruchniewska, U., Scolere, L. (2017). Platformspecific selfbranding: Imagined affordances of the social media ecology. *Proceedings of the 8th International Conference on Social Media & Society,* New York, NYACM.1-9.

Dutta, M.J., Bodie, G.D. (2008). Web searching for health: Theoretical foundations and connections to health related outcomes. In: Spink, A., Zimmer, M., (Eds.), *Web searching: Interdisciplinary perspectives.* New York: Peter Lang Publishing.

Dutta-Bergman, M. (2004). Developing a profile of consumer intention, to seek out health information beyond the doctor. *Health Marketing Quarterly, 21*, 91-112. a

Dutta-Bergman, M. (2004). Primary sources of health information: comparison in the domain of health attitudes, health cognition and health behaviors. *Health Communication, 16*, 273-288. b

Dutta-Bergman, M. (2004). The impact of completeness and web use motivation on the credibility of health information. *Journal of Communication, 54*, 253-269. c

Dutta-Bergman, M. (2004). Health attitudes, health cognitions among Internet health information seekers: Population based survey. *Journal of Medical Internet Research, 6*, 15. http://www.jmir.org/2004/2e15/index.htm

Dutta-Bergman, M. (2006). Media use theory and internet use for health care. In: Murero, M, Rice, E., (Eds.), *The Internet and Health Care: Theory, Research and Practice.* (pp. 83-103). Mahwah, NJ: Lawrence Erlbaum Associates.

Eikemo, T.A., Bambra, C., Judge, K., Ringdal, K. (2008). Welfare state regimes and differences in self-perceived health in Europe: a multilevel analysis. *Social science & medicine, 66*(11), 2281-2295.

Eisenberg, M., Berkowtz, (2009). *The big approach to information literacy skills.* http://www.bigsix.com

Emmanouilidou, M. (2016). The status of mHealth in Europe and a review of regulative challenges. *Multi conference on computer science and information systems: eHealth* (pp. 203-206). Funchal, Madeira.

des Borde, J.K.A., Foreman, J., Westrich-Robertson, T., Lopez-Olivo, M.A., Peterson, S.K., Hofstetter, C., Lyddiatt, A., Willcockson, I., Leong, A., Suarez-Almazor, M.E. (2020). Interactions and perceptions of patients with rheumatoid arthritis participating in an online support group. *Clinical rheumatology, 39*(6), 1775-1782.

Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, K. (2015). I always assumed that I wasn't really that close to [her]: Reasoning about invisible algorithms in news feeds. *CHI'15: Proceedings of the 33rd annual ACM conference on human factors in computing systems,* New York, NYACM.153-162.

Eugenio Mantovani and Pedro Cristobal Bocos E. Mantovani. (2017). *Are mHealth Apps Safe? The Intended Purpose Rule, Its Shortcomings and the Regulatory Options Under the EU Medical Device Framework.*Belgium: Springer.

[http://dx.doi.org/10.1007/978-3-319-60672-9_12]

European Commission. (2014). *Green paper on mobile health.* http://ec.europa.eu/newsroom /dae/document.cfm?doc_id=5147

European Commission. (2014). *EU consultation on mHealth.* https://ec.europa.eu/digital -single-market/en/public-consultation-green-paper-mobile-health

European Commission. (2016). *Market surveillance and vigilance.* https://eu/growth/sectors/medical-devices/market-surveil lance_en

European Commission. (2016). *MEDDEV 2.1/6 guidelines on the qualification and classification of stand alone software used in healthcare within the regulatory framework of medical devices.* http://www.twobirds.com/~/media/pdfs/news/articles/2016/firstdraftguidelinesandannexes.pdf?la=en

European Commission. (2016). *EU guidelines on assessment of the reliability of mobile health applications.EU guidelines on assessment of the reliability of mobile health applications.* http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=16090

European Commission. (2016). *Code of conduct on privacy in mHealth.* http://ec.europa.eu/news-room/dae/document.cfm?action=display&doc_id=16125

European Commission. (2014). *Commission staff working document on the existing EU legal framework applicable to lifestyle and wellbeing apps.* Brussels.

European Commission. (2012). *eHealth Action Plan 2012–2020 – Innovative healthcare for the 21st century (2012), Brussels.*

European Union. (2016). *Treaty on the functioning of the European union.* http://eur-lex.europa.

Evans, W. D., Thomas, C. N., Favatas, D., Smyser, J., Briggs, J. (2019). Digital segmentation of priority populations in public health. *Health Education & Behavior, 46*(2_suppl), 81S-89S.

Eysenbach, G. (2009). Medicine 2.0: Social networking, collaboration, participation, apomediation, and openness. *Medical Internet Research, 10*(3), e22.

Ezendam, N. P., Noordegraaf, A., Kroeze, W., Brug, J., Oenema, A. (2013). Process evaluation of a computer-tailored intervention to prevent excessive weight gain among Dutch adolescents. *Health Promotion International, 28*(1), 26-35.

Ferguson, T. (2000). Online patient-helpers and physicians working together: a new partnership for high quality health care. *BMJ, 321*, 1129-1132.

Ferguson, T. (2008). E-patients: how they can help us heal healthcare. In: Earp, J.A., French, E.A., Gilkey, M.B., (Eds.), *Patient advocacy for health care quality: Strategies for achieving patient-centered care* (pp. 93-121). Massachusetts: Jones and Bartlett Publishers.

Figueras, J., Saltman, R. B., Busse, R., Dubois, H. F. (2004). Patterns and performance in social health insurance systems. *Series editors' introduction, 81*

Firth, J., Torous, J., Nicholas, J., Carney, R., Rosenbaum, S., Sarris, J. (2017). Can smartphone mental health interventions reduce symptoms of anxiety? A meta analysis of randomized controlled trials. *Journal of Affective Disorders, 218*, 15-22.https://doi-org.ezproxy.haifa.ac.il/10.1016/j.jad.2017.04.046

Forsström, J. (1997). Why certification of medical software would be useful? *International Journal of*

Medical Informatics, 47(3), 143-151.

Fox, N.J., Ward, K.J., O'Rourke, A.J. (2005). The expert patient: empowerment of medical dominance? The case of weight loss, pharmaceutical drugs and the internet. *Social Science & Medicine, 60*(6), 1299-1309.

Fox, S., Jones, S. (2009). The social life of health information. *Pew and American Life Project.* http://www.pewinternet.org/Reports/2009/8-The-Social-Life-of-Health-Information.aspx

Fox, S., Fallows, D. (2003). Internet health resources. *Pew Internet and American Life Project.*http://www.pewinternet.org.

Fox, S., Rainie, L. (2002). The online health care revolution. *Pew internet and American life project.*

Fraccaro, V., Balatsoukas, B., Peek, V. D. V. (2017). Patient portal adoption rates: a systematic literature review and meta-analysis. *Studies in health technology and informatics, 245*, 79-83.

Freeman, R. (2000). *The politics of health in Europe.* UK: Manchester University Press.

Fuchal, Madeira (2010). Same game, different rules? Gender differences in political participation. *Sex Roles, 62*(5-6), 318-333.
[http://dx.doi.org/10.1007/s11199-009-9729-y]

Gauld, R. (2009). *The new health policy.*. UK: McGraw-Hill Education.

Gelissen, J. (2002). *Worlds of welfare, worlds of consent? Public opinion on the welfare state.* Netherlands: Brill.

George, C., Whitehouse, D., Duquenoy, P. (2013). *Assessing legal, ethical and governance challenges in eHealth* (pp. 3-22). Berlin, Heidelberg: Springer. http://link.springer.com/10.1007/978-3-642-22474-4

Ghobakhloo, M., Zulkifli, N.B., Aziz, F.A. (2010). The interactive model of user information technology acceptance and satisfaction in small and medium-sized enterprises. *European*. *European Journal of economics, finance and administrative sciences, 19*(1), 7-27.

Giaimo, S., Manow, P. (1999). Adapting the welfare state: the case of health care reform in Britain, Germany, and the United States. *Comparative Political Studies, 32*(8), 967-1000.

Gibbons, M.C. (2008). eHealth: Solutions for healthcare disparities. *Science + Business Media, LLC.* Berlin: Springer.

Gill, P., Kamath, A., Gill, T.S. (2012). Distraction: an assessment of smartphone usage in health care work settings. *Risk Manag Healthcare Policy, 105*
[http://dx.doi.org/10.2147/RMHP.S34813]

Gimenez-Perez, G., Gallach, M., Acera, E., Prieto, A., Carro, O., Orrega, E., Conzalez-Clemente, J.M., Mauricio, D. (2002). Evaluation of accessibility and use of new communication technologies in patients with type 1 diabetes mellitus. *Journal of Medical Internet Research, 4*(3), e16.

Ginossar, T., Nelson, S. (2010). La Comunidad Habla: using internet community-based information interventions to increase empowerment and access to health care of low income Latino immigrants. *Communication Education, 59.3*, 328-3244.

Gitau, S., Marsden, G., Donner, J. (2010). After access: Challenges facing mobileonly Internet users in the developing world. *Proceedings of the SIGCHI conference on human factors in computing systems,* New York, NYACM.2603-2606.

Giunti, G., Baum, A., Giunta, D., Plazzotta, F., Benitez, S., Gómez, A., González Bernaldo de Quiros, F. (2015). Serious games: a concise overview on what they are and their potential applications to healthcare. In: Sarkar, IN, Georgiou, A., Mazzoncini de Azevedo Marques, P., (Eds.), *eHealth-enabled health: proceedings of the 15th world congress on health and biomedical informatics* (pp. 386-390). Sao Paulo: IOS Press.

Giveon, S., Yaphe, J., Hekselman, I., Mahamid, S., Hermoni, D. (2009). Survey of doctors' experience of patients using the internet. *The Israel Medical Association Journal, 11*, 537-541.

Goldman, D., Smith, J.P. (2011). The increasing value of education to health. *Social Science & Medicine, 72*(10), 1728-1737.

Golle, P. (2006). Revisiting the uniqueness of simple demographics in the US population. *Proceedings of the 5th ACM workshop on Privacy in electronic society (WPES '06).,* York, NY, USA: Association for Computing Machinery.77-80.
[http://dx.doi.org/10.1145/1179601.1179615]

Goodman, M. (2016). *Future crimes: inside the digital underground and the battle for our connected world.* Toronto: Anchor Books.

Goodyear-Smith, F., Buetow, S. (2001). Power issues in the doctor-patient relationship. *Health Care Analysis, 9*, 449-462.

Play, Google (2013). *COPD – NHS decision aid.* https://play.google.com/store/apps/details?id=uk.co.activata.TotallyHealth.condition119

Play, Google (2016). *Telemed.* https://play.google.com/store/apps/details?id=com.telemed.ae&hl=es

Government Office for Science. (2014). The internet of things: making the most of the second digital revolution. *A report by the UK Government Chief Scientific Adviser*. London.

Graafland, M., Dankbaar, M., Mert, A., Lagro, J., De Wit-Zuurendonk, L., Schuit, S. (2014). How to systematically assess serious games applied to health care. *JMIR Serious Games, 2*(2), e11.
[http://dx.doi.org/10.2196/games.3825]

Grau, S., Kleiser, S., Bright, L. (2019). Exploring social media addiction among student Millennials. *Qualitative Market Research: An International Journal, 22*(2), 200-216.

Gray, K., Gilbert, C. (2018). Digital health research methods and tools: suggestions and selected resources for researchers. In: Holmes, D., Jain, L., (Eds.), *Advances in Biomedical Informatics. Intelligent Systems Reference Library* (Vol. 137). Cham: Springer.

Greenough, J. (2015). *How the "Internet of Things" will impact consumers, businesses, and governments in 2016 and beyond.* http://www.techinsider.io/

Grönroos, C. (2006). Adopting a service logic for marketing. *Marketing Theory, 6*(3), 317-333.
[http://dx.doi.org/10.1177/1470593106066794]

Guedes, E., Sancassiani, F., Carta, M.G., Campos, C., Machado, S., King, A.L.S., Nardi, A.E. (2016). Internet addiction and excessive social networks use: what about Facebook? *Clinical Practice and Epidemiology in Mental Health: CP & EMH, 12*, 43.

Gui, M., Argentin, G. (2011). Digital skills of Internet natives: Different forms of digital literacy in a random sample of northern Italian high school students. *New Media & Society, 13*(6), 963-980.

Gümüş, R., Sönmez, Y. (2020). Quality of online communication tools at hospitals and their effects on health service consumers' preferences. *International Journal of Healthcare Management, 13*(1), 35-44.

Gurak, L.J., Hudson, B.L. (2006). E-Health: Trends and Theory. In: Rice, R., Murero, M., (Eds.), *The Internet and Health Care: Theory, Research and Practice.* UK: Routledge.

Hacker, J.S. (1998). The historical logic of national health insurance: structure and sequence in the development of British, Canadian, and US medical policy. *Studies in American Political Development, 12*(1), 57-130.

Hadwich, K., Georgi, G., Tuzovi, S., Buttner, J., Bruhn, M. (2009). Perceived quality of e-health services: A conceptual and empirical study of e-health services quality based on the C-OAR-SE Approach,in Straus. In: Brown, B.S., Edwardson, B., Johnston, R., (Eds.), *QUIS 11: Moving forward with service quality,* 183-186.

Halford, S., Savage, M. (2010). Reconceptualizing digital social inequality. *Information, Communication & Society, 13*(7), 937-955.

Hanlon, B, Thiel, S (2016). *The mobile health application revolution: tapping its potential.* http://www.covance.com/content/dam/covance/assetLibrary/whitepapers/Mobile-Health-Applications-WPCVD002-0816.pdf

Hardt, J.H., Hollis-Sawyer, L. (2007). Older adults seeking healthcare information on the Internet. *Educational Gerontology, 33*, 561-572.

Hargitai, E., Hsie, P.L. (2010). Predictors and consequences of differentiated practices on social network sites. *Information, Communication and Society, 13*(4), 515-536.

Hargittai, E., Hinnant, A. (2008). Digital inequality differences in young adults 'use of the Internet. *Communication Research, 35*(1), 602-621.

Hargittai, E. (2007). Whose space? Differences among users and nonusers of social network sites. *Journal of Computer-Mediated Communication, 13*(1), 276-297.

Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the "net generation". *Sociological Inquiry, 80*(1), 92-113.

Hargittai, E. (2015). Is bigger always better? Potential biases of big data derived from social network sites. *The Annals of the American Academy of Political and Social Science, 659*(1), 63-76.

Hargittai, E., Hinnant, A. (2008). Digital inequality: Differences in young adults' use of the Internet. *Communication Research, 35*(5), 602-621.

Hargittai, E., Walejko, G. (2008). The participation divide: Content creation and sharing in the digital age. *Information, Communication & Society, 11*(2), 239-256.

Hartmann, C. W., Sciamanna, C. N., Blanch, D. C., Mui, S., Lawless, H., Manocchia, M., Rosen, R.K., Pietropaoli, A. (2007). A website to improve asthma care by suggesting patient questions for physicians: qualitative analysis of user experiences. *Journal of Medical Internet Research, 9*(1), e3.

Hassenteufel, P., Smyrl, M., Genieys, W., Moreno-Fuentes, F.J. (2010). Programmatic actors and the transformation of European health care states. *Journal of Health Politics, Policy and Law, 35*(4), 517-538.

Haug, M.R., Lavin, B. (1981). Practitioner or patient – Who is in charge? *Journal of Health and Social Behavior, 22*, 212-229.

Hawley, A.H. (1986). *Human ecology: a theoretical essay.*. Chicago: University of Chicago Press.

Heath, M., Porter, T.H. (2017). Patient health records: An exploratory study of patient satisfaction. *Health Policy Technol., 6*(4), 401-409.

Stallman, H.M. (2019). Efficacy of the my coping plan mobile application in reducing distress: A randomised controlled trial. *Clinical Psychologist., 23*(3), 206-212.

Hendrie, G.A., Hussain, M.S., Brindal, E., James-Martin, G., Williams, G., Crook, A. (2020). Impact of a mobile phone app to increase vegetable consumption and variety in adults: large-scale community cohort study. *JMIR Mhealth Uhealth, 8*(4), e14726.

Higgs, P., Gilleard, C. (2015). Rethinking old age. *Theorising the Fourth Age.* London: Palgrave Macmillan.

Hildebrandt, M. (2015). *Smart technologies and the end(s) of law: novel entanglements of law and technology.* Cheltenham: Edward Elgar Publishing.

Hilts, A., Parsons, C., Knockel, J. (2016). Every step you fake: a comparative analysis of fitness tracker privacy and security. *Open Effect Report.*https://openeffect.ca/reports/Every_Step_You_Fake.pdf

Hoffmann, C.P., Lutz, C., Meckel, M. (2015). Content creation on the Internet: A social cognitive perspective on the participation divide. *Information, Communication & Society, 18*(6), 696-716.

Holmes, M., Bishop, F.L., Calman, L. (2017). "I just googled and read everything": Exploring breast cancer survivors' use of the internet to find information on complementary medicine. *Complementary Therapies in Medicine, 33*, 78-84.

Househ, M., Borycki, E., Kushniruk, A. (2014). Empowering patients through social media: The benefits and challenges. *Health Informatics Journal, 20*(1), 50-58. http://www.openmhealth.org [http://dx.doi.org/10.1177/1460458213476969]

Huckvale, P, Tilney, B (2015). Unaddressed privacy risks in accredited health and wellness apps: a cross-sectional systematic assessment. *BMC Medicine, 13*, 214.

Huerta, TR, Walker, DM, Ford, EW (2016). An evaluation and ranking of children's hospital websites in the USA. *Journal of Medical Internet Research, 18*(8), e228.

Humphreys, L., Von Pape, T., Karnowski, V. (2013). Evolving mobile media: Uses and conceptualizations of the mobile Internet. *Journal of Computer‐Mediated Communication, 18*(4), 491-507.

Husereau, D., Drummond, M., Petrou, S. (2013). Consolidated health economic evaluation reporting standards statement. *Journal of Medical Economics, 16*(6), 713-719. [http://dx.doi.org/10.3111/13696998.2013.784591]

Igarashi, T., Takai, J., Yoshida, T. (2005). Gender differences in social network development *via* mobile phone text messages: A longitudinal study. *Journal of Social and Personal Relationships, 22*(5), 691-713. [http://dx.doi.org/10.1177/0265407505056492]

Ignatow, G., Robinson, L. (2017). Pierre Bourdieu: Theorizing the digital. *Information, Communication & Society, 20*(7), 950-966.

IHS report. (2013). *The world market for sports & fitness monitors.*

Immergut, E.M. (1992). *Health politics: interests and institutions in Western Europe.* UK: Cambridge

University Press.

International Telecommunications Union. (2014). *Filling the gap: legal and regulatory challenges of mobile health (mHealth) in Europe.* https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/ITU%20mHealth%20Regulatory%20gaps%20Discussion%20Paper%20June2014.pdf

International Telecommunications Union. (2017). *ICT facts and figures*. Geneva. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2017.pdf

Irizarry, T., Dabbs, A.D., Curran, C.R. (2015). Patient portals and patient engagement: a state of the science review. *Journal of Medical Internet Research, 17*(6), e148.

Islam, Muhammad Nazrul, Karim, Md. Mahboob, Inan, Toki Tahmid, Islam, A. K. M. Najmul (2020). Investigating usability of mobile health applications in Bangladesh. *BMC Medical Informatics and Decision Making, 20*, 19.

ITU. (2015). *m-Powering development initiative: a report by the m-Powering development ini- tiative advisory board.* http://www.itu.int/en/ITU-D/Initiatives/m-Powering/Documents/m-PoweringDevelopment Initiative_Report2015.pdf

Itunes. (2015). *Self-help for anxiety management.* https://itunes.apple.com/us/app/self-help-for- anxiety-management/id666767947?mt=8

Iverson, S.A., Howard, K.B., Penney, B.K. (2008). Impact of Internet use on health related behaviors and the patient physician relationship: A survey-based study and review. *Journal of the American Osteopath Association, 108*, 699-711.

Jacobs, L., Marmor, T., Oberlander, J. (1999). The Oregon Health Plan and the political paradox of rationing: what advocates and critics have claimed and what Oregon did. *Journal of Health Politics, Policy and Law, 24*(1), 161-180.

Jaeger, M.M. (2016). Are the 'deserving needy'really deserving everywhere? cross-cultural heterogeneity and popular support for the old and the sick in eight western countries. *Social Justice, Legitimacy and the Welfare State.* (pp. 91-112). UK: Routledge.

Johnson, A. C., Lipkus, I., Tercyak, K. P., Luta, G., Rehberg, K., Phan, L., Mays, D. (2019). Development and pretesting of risk-based mobile multimedia message content for young adult hookah use. *Health Education & Behavior, 46*(2_suppl), 97S-105S.

Johnson, K.F., Kalkbrenner, M.T. (2017). The utilization of technological innovations to support college student mental health: Mobile health communication. *Journal of Technology in Human Services, 35*(4), 314-339.
[http://dx.doi.org/10.1080/15228835.2017.1368428]

Jönsson, B., Musgrove, P. (1997). Government financing. *Proceedings of a World Bank Conference,* World Bank Publications. *365*, 41.

Joseffson, U. (2006). Patient's online information-seeking behavior. In: Rice, R., Murero, M., (Eds.), *The Internet and Health Care: Theory, Research and Methods.* (pp. 127-149). UK: Routledge.

Kakai, H., Maskarinec, G., Shumay, D.M., Tatsumura, Y., Tasaki, K. (2003). Ethnic differences in choices of health information by cancer patients using complementary and alternative medicine: An exploratory study with correspondence analysis. *Social Science & Medicine, 56*(4), 851-862.

Kaler, L.S., Stebleton, M.J., Potts, C. (2020). It makes me feel even worse: empowering first-year women to

reconsider social media’s impact on mental health. *About Campus, 24*(6), 10-17.
[http://dx.doi.org/10.1177/1086482219899650]

Kamerow, D (2013). Regulating medical apps: which ones and how much? *BMJ, 347*, f6009-f6009.

Kanavos, P., McKee, M. (1998). Macroeconomic constraints and health challenges facing health systems in the European Region. *Critical Challenges for Healthcare Reform,* 23-52.

Kapilashrami, A., Hill, S., Meer, N. (2015). What can health inequalities researchers learn from an intersectionality perspective? Understanding social dynamics with an inter-categorical approach. *Social Theory & Health, 13*, 288-307.
[http://dx.doi.org/10.1057/sth.2015.16]

Karvonen, S., Kestilä, L.M., Mäki-Opas, T.E. (2018). Who needs the sociology of health and illness? a new agenda for responsive and interdisciplinary sociology of health and medicine. *Frontiers in Sociology, 3*, 4.
[http://dx.doi.org/10.3389/fsoc.2018.00004]

Katz, J., Aspden, P. (2001). Networked communication practices and the security and privacy of electronic health care records. In: Rice, R., Katz, J., (Eds.), *The internet and health communication* (pp. 417-430). Thousand Oaks, CA: Sage.

Katz, J.R.R., Acord, S. (2004). E-health networks and social transformations: Expectations of centralization, experiences of decentralization. In: Castells, M., (Ed.), *The Network Society: A cross-cultural perspective* (pp. 298-319). Cheltenham, UK: Edward Elgar Publishing.

Kearney, M. D., Selvan, P., Hauer, M. K., Leader, A. E., Massey, P. M. (2019). Characterizing HPV vaccine sentiments and content on Instagram. *Health Education & Behavior, 46*(2_suppl), 37S-48S.

Kelson, J.N., Lam, M.K., Keep, M., Campbell, A.J. (2017). Development and evaluation of an online acceptance and commitment therapy program for anxiety: Phase I iterative design. *Journal of Technology in Human Services, 35*(2), 135-151.
[http://dx.doi.org/10.1080/15228835.2017.1309311]

Kendall Roundtree, A. (2017). Social health content and activity on Facebook: A survey study. *Journal of Technical Writing and Communication, 47*(3), 300-329.
[http://dx.doi.org/10.1177/0047281616641925]

Keogh, B (2012). *Poly implant Protheses(PIP) breast implants: interim report of the expert group.* http://www.nhs.uk/news/2012/01January/Documents/pip-report.pdfhttp://www.knmg.

Khuderia, S. (2016). *Intechnic, 12 Best Hospital and healthcare Websites.* https://www.intechnic.com/blog/12-best-hospital-and-healthcare-websites/

Kim, H., Zhang, Y. (2015). Health information seeking of low socioeconomic status Hispanic adults using smartphones. *Aslib Journal of Information Management, 67*(5), 542-561.

Kirch, W. (2008). Health belief model. *Encyclopedia of Public Health.* Netherlands: Springer.

Klein, R. (1997). Learning from others: shall the last be the first? *Journal of Health Politics, Policy and Law, 22*(5), 1267-1278.

Korp, P. (2006). Health on the internet: implications for health promotion. *Health Education Research, 21*(1), 78-86.

Korup, S., Szydlik, M. (2005). Causes and trends of the digital divide. *European Sociological Review, 21*(4), 409-422.

Kozica, S.L., Lombard, C.B., Hider, K., Harrison, C.L., Teede, H.J. (2015). Developing comprehensive health promotion evaluations: a methodological review. *MOJ Public Health, 2*(1), 00007.
[http://dx.doi.org/10.15406/mojph.2015.02.00007]

Kramer, D.B., Xu, S., Kesselheim, A.S. (2012). Regulation of medical devices in the United States and European Union. *New England journal of medicine, 366*(9), 848-855.

Kushniruk, A. (2002). Evaluation in the design of health information systems: Application of approaches emerging from usability engineering. *Computers in Biology and Medicine, 32*(3), 141-149.
[http://dx.doi.org/10.1016/s0010-4825(02)00011-2]

Kutzin, J. (2010). Conceptual framework for analysing health financing systems and the effects of reforms. *Implementing Health Financing Reform.*World Health Organization.

Kutzin, J., Cashin, C., Jakab, M., Fidler, A., Menabde, N. (2010). Implementing health financing reform in CE/EECCA countries: synthesis and lessons earned. *Implementing Health Financing Reform, 383*.

Kvasny, L. (2006). Cultural (re)production of digital inequality in a US community technology initiative. *Information, Communication & Society, 9*(2), 160-181.

Lafontaine, C. (2016). My body, my capital. Bio-citizenship in the era of Neoliberalism. *Plenary at the 16th European Society for Health and Medical Sociology Conference.*Geneva

Lakshmanan, R. YouTube is making it easier to remove recommendations you don't like. (2019). https://thenextweb.com/google/2019/06/27/youtube-is-making-it-easier-to-remove-recommenations-you-dont-like.

Lambert, S., Loiselle, C.G. (2007). Health information seeking behavior. *Qualitative Health Research, 17*(8), 1006-1019.

Lee, M.J., Chen, F. (2017). Circulating humorous antitobacco videos on social media: Platform *versus* context. *Health Promotion Practice, 18*(2), 184-192.
[http://dx.doi.org/10.1177/1524839916677521]

Lee, Y.J., Boden-Albala, B., Larson, E., Wilcox, A., Bakken, S. (2014). Online health information seeking behaviors of Hispanics in New York City: A community-based cross-sectional study. *Journal of Medical Internet Research, 16*(7).
[http://dx.doi.org/10.2196/jmir.3499]

Lemire, M., Sicotte, C., Pare, G. (2008). Internet use and the logics of personal empowerment in health. *Health Policy, 88*(1), 130-140.

Lewis, T.L. (2013). A systematic self-certification model for mobile medical apps. *Journal of Medical Internet Research, 15*(4), e89.
[http://dx.doi.org/10.2196/jmir.2446]

Lewis, T.L., Wyatt, J.C. (2014). mHealth and mobile medical apps: a framework to assess risk and promote safer use. *Journal of Medical Internet Research, 16*(9), e210.
[http://dx.doi.org/10.2196/jmir.3133]

Lewis, T. (2006). Seeking health information on the Internet: lifestyle choice or bad attack of cyberchondria? *Media Culture & Society, 28*, 521-521.

Li, J., Tang, J., Liu, X., Ma, L. (2019). How do users adopt health information from social media? The narrative paradigm perspective. *Health Information Management Journal, 48*(3), 116-126. [http://dx.doi.org/10.1177/1833358318798742]

Li, J., Theng, Y-L., Foo, S. (2015). Predictors of online health information seeking behavior: Changes between 2002 and 2012. *Health Informatics Journal, 22*, 1-11.

Li, Y., Wang, X., Lin, X., Hajli, M. (2018). Seeking and sharing health information on social media: A net valence model and cross-cultural comparison. *Technological Forecasting & Social Change, 126*, 28-40. [http://dx.doi.org/10.1016/j.techfore.2016.07.021]

Lin, N. (2001). *A theory of social structure and action.*. Cambridge, UK: Cambridge University Press.

Lin, W-Y., Zhang, X., Song, H., Omori, K. (2016). Health information seeking in the Web 2.0 age: Trust in social media, uncertainty reduction, and self-disclosure. *Computers in Human Behavior, 56*, 289-294.

Lorence, D.P., Park, H., Fox, S. (2006). Racial disparities in health information access: Resilience of the digital divide. *Journal of Medical Systems, 30*, 241-249.

Lucivero, F., Jongsma, K.R. (2018). A mobile revolution for healthcare? Setting the agenda for bioethics. *Journal of Medical Ethics, 44*(10), 685-689.

Lupton, D. (2016). Digital health technologies and digital data: new ways of monitoring, measuring and commodifying human embodiment, health and illness. In: Xavier Olleros, F., Zhegu, M., (Eds.), *Research Handbook on Digital Transformations*Northampton: Edward Elgar.

Lurie, J (2003). Error-free software is in reach, but is anyone reaching? http://www.devx.com/enterprise/Article/16687

Lustria, M.L., Smith, S.A., Hinnant, C. (2011). Exploring digital divides: examination of health technology use, health information seeking, communication and personal health management. *Health Informatics Journal, 17*, 224-243.

Lutz, C. (2016). A social milieu approach to the online participation divides in Germany. *Social Media + Society, 2*(1), 1-14.

Maarse, H., Paulus, A. (2003). Has solidarity survived? A comparative analysis of the effect of social health insurance reform in four European countries. *Journal of Health Politics, Policy and Law, 28*(4), 585-614.

Mackenbach, J. (2012). The persistence of health inequalities in modern welfare states: the explanation of paradox. *Social Science & Medicine, 75*(4), 761-769.

Mackenbach, J.P., Stirbu, I., Roskam, A.J.R., Schaap, M.M., Menvielle, G., Leinsalu, M., Kunst, A.E. (2008). Socioeconomic inequalities in health in 22 European countries. *New England journal of medicine, 358*(23), 2468-2481.

Magnezi, R., Grosberg, D., Novikov, I., Ziv, A., Shani, M., Freedman, L.S. (2015). Characteristics of patients seeking health information online *via* social health networks *versus* general Internet sites: A comparative study. *Informatics for Health and Social Care, 40*(2), 125-138. [http://dx.doi.org/10.3109/17538157.2013.879147]

Malvey, D., Slovensky, D.J. (2014). *mHealth: transforming healthcare.* Springer.New York:

Manchaiah, V., Pyykkő, I., Pyykkő, N. (2020). The use of the internet and social media by individuals with

Ménière's disease: an exploratory survey of finnish Ménière federation members. *Journal of International Advanced Otology, 16*(1), 13-17.

Manhattan Research. (2012). *Cybercitizen Health: Europe.* http://www.ihealthbeat.org/data-points/2012/what-percentage-of-eu-internet-users-have-pursued-healthrelated-activities-online.aspx#ixzz2Mrm5uTVc

Mano, R. (2018). Online and virtual health information uses, health empowerment and health risks. *Journal of Community Preventive Medicine, 1*(2), 1-7.

Mano, R., Mesch, G., Tsamir, Y. (2009). *Health electronic services in Israel and inequality, Report.*. Tel Aviv: Maccabi Health Services.

Mano, R (2019). Mobile health applications and the self-management of cancer: A gendered approach. *Open Journal of Preventive Medicine, 9*, 21-32.

Mano, R. (2014). Social media and online health services: A health empowerment perspective to online health information. *Computers in Human Behavior, 3*, 404-412.

Mano, R. (2015). Online health information, situational effects and health changes among e-patients in Israel: A "push / pull" perspective. *Health Expect., 18*(6), 2489-2500.

Mano, R. (2016). Chronic illness, online health information and online health services. *International Journal of Hospital Administration, 5*(4), 55-60.
[http://dx.doi.org/10.5430/jha.v5n4p55]

Mano, R. (2016). Online health information and health changes: A gender approach to technology and health empowerment among Jewish women in Israel. *Journal of Community Medicine & Public Health Care, 3*, 023.

Mano, R. (2018). Use of mobile health applications and the self-management of chronic disease. *Diversity and equality in health care, 15*(5), 5-25.

Mano, R.G., Mesch, Y.Tsamir (2009). *Inequalities in health care and health services, Unpublished Report, Maccabi Health Insurance Organization, Tel Aviv.*

Mantovani, E, Guihen Barry, B, Quinn, P, Habbig, A-K, De Hert, P (2013). eHealth to mHealth. A journey precariously dependent upon apps? *European Journal of ePractice, 21*, 48-66.

Marler, W. (2018). Mobile phones and inequality: Findings, trends, and future directions. *New Media & Society, 20*(9), 3498-3520.

Marmor, T., Wendt, C. (2011). *Reforming healthcare systems.* UK: Edward Elgar Publishing.

Marmor, T., Wendt, C. (2012). Conceptual frameworks for comparing healthcare politics and policy. *Health Policy, 107*(1), 11-20.

Marston, H.R., Smith, S.T. (2013). Understanding the digital game classification system: a review of the current classification system and its implications for use within games for health. In: Holzinger, A., Ziefle, M., Hitz, M., Debevc, M., (Eds.), (pp. 314-331). Berlin: Springer.

Marton, C., Choo, C.W. (2012). A review of theoretical models of health information seeking on the web. *Journal of Documentation.*

Matthys, J., Elwyn, G., Van Nuland, M., Van Maele, G., De Sutter, A. (2009). Patients' ideas, concerns, and

expectations (ICE) in general practice: impact on prescribing. *British Journal of General Practice, 59*(558), 29-36.
[http://dx.doi.org/10.3399/bjgp09X394833]

Mattke, S., Klautzer, L., Mengistu, T., Garnett, J., Hu, J., Wu, H. (2012). *Health and well-being in the home: A global analysis of needs, expectations, and priorities for Home health care technology.*. Rand, California Press.

May, C., Finch, T. (2009). Implementing, Embedding, and Integrating Practices: An Outline of Normalization Process Theory. *Sociology, 43*(3), 535-554.

Mccoll-Kennedy, J.R., Snyder, H., Elg, M., Witell, L., Helkkula, A., Hogan, S.J., Anderson, L. (2017). The changing role of the health care customer: Review, synthesis and research agenda. Journal of Service. *Management, 28*(1), 2-33.
[http://dx.doi.org/10.1108/josm-01-2016-0018]

McFarlane, B (2014). *FDA regulation ofmobile medical apps.* https://www.namsa.com/wp-content/uploads/2015/10/WP-FDA-Regulation-of-Mobile-Medical-Apps-7-7-2014.pdf

McKinstry, B. (1992). Paternalism and the doctor-patient relationship in general practice. *Br. J. Gen. Pract., 42*, 340-342.

McPherson, K. (1989). International differences in medical care practices. *Health care financing review,* 9-20.

Medical Device and Diagnosis Industry. (2015). *Consumer mHealth app or regulated medical device?*.
http://www.mddionline.com/blog/devicetalk/consumer-mhealth-app-or-regulated-medical-device-03-04-15

Meldrum, S., Savarimuthu, B.T.R., Licorish, S., Tahir, A., Bosu, M., Jayakaran, P. (2017). Is knee pain information on YouTube videos perceived to be helpful? An analysis of user comments and implications for dissemination on social media. *Digital Health, 3*, 1-18.
[http://dx.doi.org/10.1177/2055207617698908]

Merchant, K. (2012). How men and women differ: gender differences in communication styles, influence tactics, and leadership styles. *CMC Senior Theses, 513.*

Merolli, M., Gray, K., Martin-Sanchez, F. (2013). Health outcomes and related effects of using social media in chronic disease management: A literature review and analysis of affordances. *Journal of Biomedical Informatics, 46*(6), 957-969.
[http://dx.doi.org/10.1016/j.jbi.2013.04.010]

Mesch, G., Talmud, I. (2006). Online friendship formation, communication channels, and social closeness. *International Journal of Internet Sciences, 1*(1), 29-44. Available at: http://www.ijis.net/

Mesch, G., Talmud, I. (2011). Ethnic differences in internet access: the role of occupation and exposure to information. *Communication & Society, 14*(4).

Mesch, G.S. (2016). Ethnic origin and access to electronic health services. *Health Informatics Journal, 22*(4), 791-803.

Mesch, G.S., Talmud, I. (2007). Editorial Comment: e-Relationships–the blurring and reconfiguration of offline and online social boundaries. *Information, Communication & Society, 10*(5), 585-589.

Mesch, G., Talmud, I. (2006). The quality of online and offline relationships: The role of multiplexity and

duration of social relationships. *The Information Society, 22*(3), 137-148.
[http://dx.doi.org/10.1080/01972240600677805]

Mesch, G., Mano, R., Tsamir, Y. (2012). Minority status and the search for health information online: a test of the social diversification hypothesis. *Social Science & Medicine, 75*(5), 854-858.

Mesch, G.S. (2009). Parental mediation, online activities, and cyberbullying. *CyberPsychology & Behavior, 12*(4), 387-393.
[http://dx.doi.org/10.1089/cpb.2009.0068]

Mesch, G.S. (2012). Minority status and the use of computer-mediated communication: A test of the social diversification hypothesis. *Communication Research, 39*(3), 317-337.
[http://dx.doi.org/10.1177/0093650211398865]

Mesch, G.S. Perceptions of risk, lifestyle activities, and fear of crime. *Deviant Behavior, 21*(1), 47-62.
[http://dx.doi.org/10.1080/016396200266379]

Mesch, G.S., Beker, G. (2010). Are norms of disclosure of online and offline personal information associated with the disclosure of personal information online? *Human Communication Research, 36*, 570-592.
[http://dx.doi.org/10.1111/j.1468-2958.2010.01389.x]

Mesny, A. (2009). What do 'we' know that 'they' don't? Sociologists' *versus* nonsociologists' knowledge. *Canadian Journal of Sociology, 34*, 671-695.https://journals.library.ualberta.ca/cjs/index.php/cjs/article/view/6313

Micheli, M., Lutz, C., Büchi, M. (2018). Digital footprints: An emerging dimension of digital inequality. *Journal of Information. Communication and Ethics in Society, 16*(3), 242-251.

Mikulic, M. (2020). *Statista: Mobile medical apps market size worldwide 2017 and 2025.*

Millenson, M.L., Baldwin, J.L., Zipperer, L., Singh, H. (2018). Beyond Dr. Google: the evidence on consumer-facing digital tools for diagnosis. *Diagnosis (Berl.), 5*(3), 95-105.
[http://dx.doi.org/10.1515/dx-2018-0009]

Miller, C. A., Guidry, J. P., Fuemmeler, B. F. (2019). Breast Cancer Voices on Pinterest: Raising Awareness or Just an Inspirational Image? *Health Education & Behavior, 46*(2_suppl), 49S-58S.

Mo, P.K.H., Coulson, N.S. (2014). Are online support groups always beneficial?: A qualitative exploration of the empowering and disempowering processes of participation within HIV/AIDS-related online support groups. *International Journal of Nursing Studies, 51*, 983-993.

Moran, M. (1999). *Governing the health care state: a comparative study of the United Kingdom, the United States, and Germany*. UK: Manchester University Press.

Moretti, F.A., Barsottini, C. (2017). Support, attention and distant guidance for chronic pain patients: Case report. *Revista Dor, 18*, 85-87.

Mossialos, E. (1997). Citizens' views on health care systems in the 15 member states of the European Union. *Health economics, 6*(2), 109-116.

Mossialos, E., Dixon, A., Kutzin, J., Figueras, J. (2002). Funding health care: options for Europe. *European Observatory on Health Care Systems Series.* Buckingham, Philadelphia: Open University Press.

Murero, M., Rice, R. (2006). *The Internet and health care.*. New Jersey: LEA & Associates.

Musiat, P., Goldstone, P., Tarrier, N. (2014). Understanding the acceptability of e-mental health—attitudes and expectations towards computerised self-help treatments for mental health problems. *BMC Psychiatry, 14*(1), 109.
[http://dx.doi.org/10.1186/1471-244x-14-109]

Napoli, P., Obar, J. (2014). The emerging mobile Internet underclass: A critique of mobile Internet access. *The Information Society, 30*(5), 323-334.

National Telecommunications and Information Administration. (2000). *Falling through the Net II: Toward digital inclusion*.http://www.ntia.doc.gov/ntiahome/fttn00/contents00.html

National Telecommunications and Information Administration. (2002). *A nation online: how Americans are expanding their use of the Internet*.http://www.ntia.doc.gov/ntiahome/dn/index.html

Nelson, R. (2017). "Informatics: Empowering ePatients to Drive Healthcare Reform - Part II" OJIN. *The Online Journal of Issues in Nursing, 22*(3), 9.

Neuner, J., Fedders, M., Caravella, M., Bradford, L., Schapira, M. (2015). Meaningful use and the patient portal: patient enrollment, use, and satisfaction with patient portals at a later-adopting center. *American Journal of Medical Quality, 30*(2), 105-113.

Neves, B.B., Fonseca, J.R., Amaro, F., Pasqualotti, A. (2018). Social capital and Internet use in an age-comparative perspective with a focus on later life. *PLoS One, 13*(2)

Newlands, G., Lutz, C., Fieseler, C. (2018). Collective action and provider classification in the sharing economy. *New Technology, Work and Employment, 33*(3), 250-267.

Newman, M.W., Lauterbach, D., Munson, S.A., Resnick, P., Morris, M.E. (2011). It's not that I don't have problems, I'm just not putting them on Facebook. *Proceedings of the ACM 2011 Conference on Computer-Supported Cooperative Work,* New York, NYACM. 341-350. nl/Over-KNMG/About-KNMG/Ne-s-English/152830/Medical-App-Checker-a-Guide-to-assessing-Mobile-Medical-Apps.htm

Noble, S.U. (2018). *Algorithms of oppression: How search engines reinforce racism.*. New York: NYU Press.

Nolte, E., McKee, C.M. (2008). Measuring the health of nations: updating an earlier analysis. *Health affairs, 27*(1), 58-71.

Nolte, E., McKee, M. (2011). Variations in amenable mortality—trends in 16 high-income nations. *Health Policy, 103*(1), 47-52.

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide.*. Cambridge, MA: Cambridge University Press.

OECD. (1999). *Improving Evaluation Practices: Best Practice Guidelines for Evaluation and Background Paper.* Paris, France.

Office of Evaluation and Strategic Planning. (1997). New York.

Oh, H.J., Lauckner, C., Boehmer, J., Fewins-Bliss, R., Li, K. (2013). Facebooking for health: An examination into the solicitation and effects of health-related social support on social networking sites. *Computers in Human Behavior, 29*(5), 2072-2080.
[http://dx.doi.org/10.1016/j.chb.2013.04.017]

Okun, S., Caligan, C. (2018). The Evolving ePatient. In: Nelson, R., Staggers, N., (Eds.), *Health Informatics: An Interprofessional Approach.* (2nd ed., pp. 204-219). St Louis: Elsevier.

Ontario Ministry of Health and Long-Term Care. (2007). Introduction to evaluation health promotion programs.*Public Health Branch In: The Health Communication Unit at the Centre for Health Promotion.*

OpenmHealth. (2019). *Want To Use Mobile Health Data AND Have It To Make Sense?*.

Orben, A., Przybylski, A.K. (2019). The association between adolescent wellbeing and digital technology use. *Nature Human Behaviour, 3*, 173-182.

Organisation for Economic Co-operation and Development. (1990). *Health care systems in transition: the search for efficiency*.

Organisation for Economic Co-operation and Development. Washington, DC: OECD Publications and Information Centre.

Ostrom, A.L., Parasuraman, A., Bowen, D.E., Patricio, L., Voss, C.A. (2015). Service research priorities in a rapidly changing context. *Journal of Service Research, 18*(2), 127-159. [http://dx.doi.org/10.1177/1094670515576315]

Parker, L., Bero, L., Gillies, D., Raven, M., Mintzes, B., Jureidini, J., Grundy, Q. (2018). Mental health messages in prominent mental health apps. *Annals of Family Medicine, 16*(4), 338-342. https://doi-org.ezproxy.haifa.ac.il/10.1370/afm.2260

Peacock, S., Reddy, A., Leveille, S.G., Walker, J., Payne, T.H., Oster, N.V., Elmore, J.G. (2017). Patient portals and personal health information online: perception, access, and use by US adults. *Journal of the American Medical Informatics Association, 24*(e1), e173-e177.

Pearce, K., Rice, R. (2013). Digital divides from access to activities: Comparing mobile and personal computer Internet users. *Journal of Communication, 63*(4), 721-744.

Pena-Purcell, N. (2008). Hispanics' use of Internet health information: An exploratory study. *Journal Medical Library Association, 96*(2), 101-107.

Fox, S., Durgan, M. (2013). *Tracking for health.* Pew Research Center. http://www.pewinternet.org/2013/01/28/tracking-for-health-2/

Pew Research Center. (2013). *Health fact sheet: Highlights of the Pew Internet Project's research related to health and health care.*http://www. pewinternet.org/fact-sheets/health-fact-sheet/

Internet/broadband fact sheet. Washington, DC: Pew Research Center: Internet & Technology. http://www.pewinternet.org/fact-sheet/ internet-broadband/

Pfizer, U.K. (2011). *Dear doctor letter: "Pfizer rheumatology calculator" iPhone/android applica- tion — important information.*http://www.pharma-mkting.com/images/Pfizer_Rheum_BugLetter.pdf

Pierson, P. (2002). Coping with permanent austerity: welfare state restructuring in affluent democracies. *Revue française de sociologie,* 369-406.

Potts, H.W., Wyatt, J.C. (2002). Survey of doctors' experience of patients using the internet. *Journal of Medical Internet Research, 4*(1), e5.

Pousti, H., Urquhart, C., Linger, H. (2014). Exploring the role of social media in chronic care management: A sociomaterial approach. *Working Conference on Information Systems and Organizations* (pp. 163-185). Berlin, Heidelberg: Springer.

Power, J. M., Phelan, S., Hatley, K., Brannen, A., Muñoz-Christian, K., Legato, M., Tate, D. F. (2019). Engagement and weight loss in a web and mobile program for low-income postpartum women: Fit moms/mamás activas. *Health Education & Behavior, 46*(2_suppl), 114S-123S.

Prainsack, B. (2014). The powers of participatory medicine. *PLOS Biology, 12*(4), e1001837.

Purcell, K., Fox, S. (2010). Chronic disease and the Internet. *Pew and American Life Project.*http://www.pewinternet.org/Reports/2010/Chronic-Disease.aspx

PWC. (2012). *Emerging mHealth: Paths for growth.*www.pwc.com/mhealth

Quinn, P. (2013). Medical apps and accountability – where can the patient/consumer find protec- tion? *European Journal of Health Law.Fourth Conference on European Health Law, Book of Abstracts.*

Ragnedda, M., Muschert, G.W. (2013). *The digital divide: The internet and social inequality in international perspective.* UK: Routledge. https://ebookcentral.proquest.com

Raijman, R. (2016). *South African Jews in Israel: Assimilation in multigenerational perspective.* Nebraska, United States: University of Nebraska Press.

Rains, S.A. (2007). Perceptions of traditional information sources and use of the World Wide Web to seek health information. *Journal of Health Communication: International Perspectives, 12*, 667-680.

Rasmussen, E.E., LaFreniere, Jenna R., Norman, Mary S., Kimball, Thomas G. Narissra Punyanunt-Carter. (2020). The serially mediated relationship between emerging adults' social media use and mental well-being. *Computers in Human Behavior, 102*, 206-213.

Reading, J. M., Buhr, K. J., Stuckey, H. L. (2019). Social experiences of adults using online support forums to lose weight: A qualitative content analysis. *Health Education & Behavior, 46*(2_suppl), 129S-133S.

Rechel, B. (2019). A Framework for Health System Comparisons: The Health Systems in Transition (HiT) Series of the European Observatory on Health Systems and Policies. In: Adrian Levy, A., Goring, S., Gatsonis, C., Sobolev, B., Ginneken, E.V., (Eds.), *Health Services Evaluation, Health Services Research* (pp. 279-296). New York, NY: Springer.

Reczek, C., Umberson, D. (2012). Gender, health behavior, and intimate relationships: Lesbian, gay, and straight contexts. *Social Science & Medicine, 74*(11), 1783-1790.
[http://dx.doi.org/10.1016/j.socscimed.2011.11.011]

Reibling, N., Wendt, C. (2011). Regulating patients' access to healthcare services. *International Journal of Public and Private Healthcare Management and Economics (IJPPHME), 1*(2), 1-16. [IJPPHME].

Renahy, E., Parizot, I., Chauvin, P. (2008). Health information seeking on the internet: A double-divide? Results from a representative survey in the Paris metropolitan area, France, 2005-2006. *BMC Public Health,* 1-10.

Research2Guidance. (2016). *mHealth app developer economics.* http:// research2guidance.com/r2g/r2g-mHealth-App-Developer-Economics-2016.pdf

Rice, R. (2006). Influences, usage and outcomes of internet health information searching: Multivariate results from the Pew surveys. *International Journal of Medical Informatics, 75*(1), 8-28.

Riggare, S., Höglund, P.J., Forsberg, H.H., Eftimovska, E., Svenningsson, P., Hägglund, M. (2017). Patients are doing it for themselves: A survey on disease-specific knowledge acquisition among people with Parkinson's disease in Sweden. *Health Informatics Journal, 25*(1), 91-105. [http://dx.doi.org/10.1177/1460458217704248]

Riley, W. T., Oh, A., Aklin, W. M., Wolff-Hughes, D. L. (2019). National institutes of health support of digital health behavior research. *Health Education & Behavior, 46*(2_suppl), 12S-19S.

Risk, A., Petersen, C. (2002). Health information on the internet: quality issues and international initiatives. *JAMA, 87*(20), 2713-5.

Rissel, C. (1993). Empowerment: The holy grail of health promotion? *Health Promotion International, 9*(1), 39-47.

Robinson, J.R., Davis, S.E., Cronin, R.M., Jackson, G.P. (2016). Use of a patient portal during hospital admissions to surgical services. *AMIA Annual Symposium Proceedings,* 1967-1976.

Robinson, L., Cotten, S., Ono, H., QuanHaase, A., Mesch, G., Chen, W., Stern, M. (2015). Digital inequalities and why they matter. *Information, Communication & Society, 18*(5), 569-582.

Roeser, S. (2018). *Risk, technology, and moral emotions..* New York, NY: Routledge.

Rogers, E.S., Chamberlin, J., Ellison, M.L., Crean, T. (1997). A consumer-constructed scale to measure empowerment among users of mental health services. *Psychiatric Services, 48*(8), 1042-1047.

Ronfenbrenner, Urie (1979). *The Ecology of Human Development: Experiments by Nature and Design.* Cambridge, MA: Harvard University Press.

Rosenberg, D., Mano, R., Mesch, G. (2017). They have needs, they have goals: using communication theories to explain health-related social media use and health behavior change. *MOJ Public Health, 6*(2), 00163. [http://dx.doi.org/10.15406/mojph.2017.06.00163]

Rosenberg, D., Mano, R., Mesh, G. (2019). Absolute monopoly", "areas of control" or "democracy"? Examining gender differences in health participation on social media. *Computers in Human Behavior.*

Rosser, B.A., Eccleston, C. (2011). Smartphone applications for pain management. *Journal of Telemedicine and Telecare, 17*(6), 308-312. [http://dx.doi.org/10.1258/jtt.2011.101102]

Rozenblum, R., Greaves, F., Bates, D.W. (2017). The role of social media around patient experience and engagement. *BMJ Quality & Safety, 26*(10), 845-848.

Rübsamen, K, Sakellariou, S (2015). *Mobile health apps: are they a regulated medical device?.* http://www.whitecase.com/publications/article/mobile-health-apps-are-they-regulated-medical-device

Salmon, P., Hall, G.K. (2003). Patient empowerment and control: a psychological discourse in the service of medicine. *Social Science & Medicine, 57*(10), 1969-1980.

Saltman, R.B. (1997). Equity and distributive justice in European health care reform. *International Journal of Health Services, 27*(3), 443-453.

Scalvini, S., Baratti, D., Assoni, G., Zanardini, M., Comini, L., Bernocchi, P. (2013). Information and communication technology in chronic diseases: a patient's opportunity. *Journal of Medicine and the Person, 12*(3), 1-5.

Scanfeld, D., Scanfeld, V., Larson, E.L. (2010). Dissemination of health information through social networks: Twitter and antibiotics. *American Journal of Infection Control, 38*(3), 182-188.
[http://dx.doi.org/10.1016/j.ajic.2009.11.004]

Scheerder, A., Van Deursen, A., Van Dijk, J. (2017). Determinants of Internet skills, uses and outcomes. A systematic review of the secondand thirdlevel digital divide. *Telematics and Informatics, 34*(8), 1607-1624.

Scheiber, G. J. (1987). *Financing and delivering health care: a comparative analysis of OECD countries.* Paris, France: Organisation for Economic Co-operation and Development.

Schiavo, R. (2007). *Health communication: from theory to practice.*. San Francisco: Jossey-Bass.

Schieber, G.J., Poullier, J.P. (1989). Overview of international comparisons of health care expenditures. *Health care financing review,* (Suppl.), 1.

Schnall, R., Higgins, T., Brown, W., Carballo-Dieguez, A., Bakken, S. (2015). Trust, perceived risk, perceived ease of use and perceived usefulness as factors related to mHealth technology use. *Studies in Health Technology and Informatics, 216*, 467-471.
[http://dx.doi.org/10.3233/978-1-61499-564-7-467]

Schrecker, T., Bambra, C. (2015). *How Politics Makes Us Sick: Neoliberal Epidemics*. London: Palgrave Macmillan.

Ralph, S., Caldas, A., Dutton, W., Mesch, G. (2008). Patterns of Information Search and Access on the World Wide Web: Democratizing Expertise or Creating New Hierarchies? *Journal of Computer Mediated Communication, 13*(4), 769-793.

Schulze, E-D. (2005). *Plant Ecology.*. Berlin: Springer.

Schuster, L., Drennan, J., Lings, I.N. (2013). Consumer acceptance of m-wellbeing services: A social marketing perspective. *European Journal of Marketing, 47*(9), 1439-1457.
[http://dx.doi.org/10.1108/ejm-10-2011-0556]

Sebastian, J., Richards, D. (2017). Changing stigmatizing attitudes to mental health *via* education and contact with embodied conversational agents. *Computers in Human Behavior, 73*, 479-488.
[http://dx.doi.org/10.1016/j.chb.2017.03.071]

Seth, M.N., Grant-Harrington, N. (2012). *eHealth applications: Promising strategies for behavior change.* UK: Routledge.

Shim, M., Kelly, B., Hornik, R. (2006). Cancer information scanning and seeking behavior associated with knowledge, lifestyle choices and screening. *Journal of Health Communication, 1*, 157-172.

Sillence, E, Briggs, P., Harris, P. R. (2007). How do patients evaluate and make use of online health information? *Social Science & Medicine, 64*, 1853-1862.

Silver, R.A., Subramaniam, C., Stylianou, A. (2020). The Impact of Portal Satisfaction on Portal Use and Health-Seeking Behavior: Structural Equation Analysis. *Journal of Medical Internet Research,* 16260.

Singleton, A., Abeles, P., Smith, I.C. (2016). Online social networking and psychological experiences: The perceptions of young people with mental health difficulties. *Computers in Human Behavior, 61*, 394-403.

[http://dx.doi.org/10.1016/j.chb.2016.03.011]

Siu, A.L., Mittman, B.S. (1992). Implementing outcomes and effectiveness research in health care.*The Baxter Health Policy Review.* Health Administration Press.

Smailhodzic, E., Attema, S. (2016). Self-determination theory as an explaining mechanism for the effects of patient's social media use. *ICIS '16 Proceedings of the International Conference on Information Systems.* Dublin, Ireland: AIS.

Smith, B.J., Tang, K.C., Nutbeam, D. (2006). *WHO Health Promotion Glossary: new terms Health Promotion International, 21*(4)

Smith, P.C., Anell, A., Busse, R., Crivelli, L., Healy, J., Lindahl, A.K. (2012). Leadership and governance in seven developed health systems. *Health Policy, 106*(1), 37-49.

Smith, P.C., Mossialos, E., Leatherman, S., Papanicolas, I. (2009). *Performance measurement for health system improvement: experiences, challenges and prospects..* UK: Cambridge University Press.

Smith, PC., Busse, R. (2009). Targets and performance measurement. In: Smith, PC., Mossialos, E., Papanicolas, I., Leatherman, S., (Eds.), *Performance Measurement for Health System Improvement: Experiences, Challenges and Prospects.* Cambridge: Cambridge University Press.

Smock, A.D., Ellison, N.B., Lampe, C., Wohn, D.Y. (2011). Facebook as a toolkit: A uses and gratification approach to unbundling feature use. *Computers in Human Behavior, 27*, 2322-2329.
[http://dx.doi.org/10.1016/j.chb.2011.07.011]

Sorenson, C., Drummond, M. (2016). Improving medical device regulation: the United States and Europe in perspective. *Milbank Quarterly, 92*(1), 145-150.

Srinivasan, R., Fish, A. (2017). *After the Internet..* Cambridge: Polity Press.

Stallman, H.M., Ohan, J.L., Chiera, B. (2018). The role of social support, being present and selfkindness in university student wellbeing. *British Journal of Guidance & Counselling, 46*(4), 365-374. b

Stefanescu, E.D.N., Bilcan, F.R., Ifrim, A.M. (2019). Analysing the consumer behaviour of online health services. *Academic Journal of Economic Studies, 5*(3), 126-131.

Steinmo, S., Watts, J. (1995). It's the institutions, stupid! Why comprehensive national health insurance always fails in America. *Journal of Health Politics, Policy and Law, 20*(2), 329-372.

Stellefson, M., Hanik, B., Chaney, B., Chaney, D., Tennant, B., Chavarria, E.A. (2011). eHealth literacy among college students: A systematic review with implications for eHealth education. *Journal of Medical Internet Research, 13*(4), e102.
[http://dx.doi.org/10.2196/jmir.1703]

Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion, 10*, 282-298.
[http://dx.doi.org/10.4278/0890-1171-10.4.282]

Stokols, D. (1992). Establishing and maintaining healthy environments: toward a social ecology of health promotion. *American Psychologist, 47*, 6-22.
[http://dx.doi.org/10.1037/0003-066x.47.1.6]

Streiner, D.L., Geoffrey, N.R. (2008). *Health measurement scales: a practical guide to their development and use.* Oxford: Oxford University Press.

Stuckler, D., Basu, S. (2013). *The body economic: why austerity kills. Recessions, budget battles, and the politics of life and death.* New York, NY: Basic Books.

Su, R., Tay, L., Diener, E. (2014). The Development and Validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology. Health and Well‐Being, 6*(3), 251-271.

Sundmacher, L., Busse, R. (2011). The impact of physician supply on avoidable cancer deaths in Germany. A spatial analysis. *Health Policy, 103*(1), 53-62.

Gümüş, R., Sönmez, Y. (2020). Quality of online communication tools at hospitals and their effects on health service consumers' preferences. *International Journal of Healthcare Management, 13*(1), 35-44.
[http://dx.doi.org/10.1080/20479700.2018.1470816]

Sweeney, L. (2000). Uniqueness of simple demographics in the U.S. *Population.* Pittsburgh.

Szasz, T.S., Hollender, M.H. (1956). A Contribution to the Philosophy of Medicine: The Basic Models of the Doctor-Patient Relationship. *Archives of Internal Medicine, 97*(5), 585-592.

Taiminen, H., Saraniemi, S. (2018). Acceptance of Online Health Services for Self-Help in the Context of Mental Health: Understanding Young Adults' Experiences. *Journal of Technology in Human Services, 36*(2/3), 125-139.https://doi-org.ezproxy.haifa.ac.il/10.1080/15228835.2018.1426081

Tang, W., Ren, J., Zhang, Y. (2019). Enabling trusted and privacy-preserving healthcare services in social media health networks. *IEEE Transactions on Multimedia, 21*(3), 579-590. https://doi-org.ezproxy.haifa.ac.il/10.1109/TMM.2018.2889934

Tavares, J., Oliveira, T. (2016). Electronic health record patient portal adoption by health care consumers: an acceptance model and survey. *Journal of Medical Internet Research, 18*(3), e49.

Taylor, T.E. (2015). The markers of wellbeing: A basis for a theory-neutral approach. *International Journal of Wellbeing, 5*(2), 75-90.
[http://dx.doi.org/10.5502/ijw.v5i2.5]

Tene, O, Polonetsky, J (2013). Big data for all: privacy and user control in the age of analytics. *Northwestern Journal of Technology and Intellectual Property, 11*(5), xxvii-274.

Terrasse, M.Gorin, Sisti, D. (2019). Social Media, e-Health, and Medical Ethics. *Hastings Center Report, 49*(1), 24-33.

Thackeray, R., Crookston, B.T., West, J.H. (2013). Correlates of health-related social media use among adults. *Journal of Medical Internet Research, 15*(1), e21.
[http://dx.doi.org/10.2196/jmir.2297]

Thaler, R., Sunstein, C. (2008). *Nudge: improving decisions about health, wealth, and happiness.*. New Haven, CT: Yale University Press.

Thelwall, M., Wilkinson, D., Uppal, S. (2009). Data mining emotion in social network communication: Gender differences in MySpace. *Journal of the American Society for Information Science and Technology Banner, 61*(1), 190-199.
[http://dx.doi.org/10.1002/asi.21180]

Thompson, BM, Brodsky, I (2013). Should the FDA regulate mobile medical apps? *BMJ, 347*, f5211-f5211.

Thomson, S., Foubister, T., Mossialos, E. (2009). Financing health care in the European Union: challenges and policy responses. *World Health Organization*Regional Office for Europe.

Tian, K., Sautter, P., Fisher, D., Fischbach, S., Luna-Nevarez, C., Boberg, K. (2014). Transforming health care: Empowering therapeutic communities through technology-enhanced narratives. *Journal of Consumer Research, 41*(2), 237-260.
[http://dx.doi.org/10.1086/676311]

TIM. (2010). *Patterns of use of Internet in Israel.* http://www.pc.co.il/?p=25351

Torabi, S., Beznosov, K. (2016). Sharing health information on facebook: practices, preferences, and risk perceptions of North American users. *Twelfth Symposium on Usable Privacy and Security ({SOUPS} 2016),* 301-320.

Tsetsi, E., Rains, S. (2017). Smartphone Internet access and use: Extending the digital divide and usage gap. *Mobile Media & Communication, 5*(3), 239-255.

Tuohy, C.H. (1999). *Accidental logics: The dynamics of change in the health care arena in the United States, Britain, and Canada.*. UK: Oxford University Press.

Tuohy, C.H. (2003). Agency, contract, and governance: shifting shapes of accountability in the health care arena. *Journal of Health Politics, Policy and Law, 28*(2-3), 195-216.

Turjeman, H., Mesch, G., Fishman, G. (2008). The effect of acculturation on depressive moods: Immigrant boys and girls during their transition from late adolescence to early adulthood. *International Journal of Psychology, 43*(1), 32-44.
[http://dx.doi.org/10.1080/00207590701804362]

Tustin, N. (2010). The role of patient satisfaction in online health information seeking. *Journal of Health Communication, 15*(1), 3-17.

U.S. Centres for Disease Control and Prevention (CDC). (1999). *Framework for Program Evaluation in Public Health.*http://www.cdc.gov/eval/over.htm

U.S. Department of Health and Human Services. (1997). *Administration on Children, Youth, and Families (ACYF).*The Program Manager's Guide to Evaluation.

UNDP. (1997). *Results-Oriented Monitoring and Evaluation: A Handbook for Programme Managers.* New York.

UNICEF. (1991). *A UNICEF Guide for Monitoring and Evaluation: Making a Difference?* New York: Evaluation Office.

UNICEF. (2004). *Evaluation Reports Standards.*

United States Congress. (1938). *Federal Food.* Drug, and Cosmetic Act. https://www.epw.senate.gov/FDA_001.pdf

United States Congress. (1976). *Medical device amendment.* https://www.congress.gov/bill/94th-congress/house-bill/11124

US Food and Drugs Administration. (2013). *Mobile medical Applications.* http://www.gpo.gov/fdsys/pkg/FR-2013-09-25/pdf/2013-23293.pdf

US Food and Drugs Administration. (2013). *23 and Me, Inc.* http://www.fda.gov /ICECI/ EnforcementActions/WarningLetters/2013/ucm376296.htm

US Food and Drugs Administration. (2015). Mobile medical applications. http://www.fda.gov/downloads/ MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM263366.pdf

US Food and Drugs Administration. (2015). *Medical device data systems, medical image storage devices, and medical image communications devices.*http://www.fda.gov/downloads/MedicalDevices/ DeviceRegulationandGuidance/GuidanceDocuments/UCM401996.pdf

US Food and Drugs Administration. (2016). *Examples of mobile apps for which the fda will exercise enforcement discretion.*http://www.fda.gov/MedicalDevices/DigitalHealth/MobileMedicalApplications/ucm368744.htm

US Food and Drugs Administration. (2016). *General wellness: policy for low risk devices.* http://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM429674.pdf?source=govdelivery&utm_medium=email&utm_source=govdelivery

USAID Performance Monitoring and Evaluation Tips, TIPS # 3: Preparing an Evaluation Scope of work.

Van der Kleij, R, Kasteleyn, MJ, Meijer, E, Meijer, E, Bonten, T.N, Houwink, E.J.F, Teichert, M., Van, Luenen S., Vedanthan, R., Evers, A., Car, J., Pinnock, H., Chavannes, N.H. (2019). SERIES: eHealth in primary care. Part 1: Concepts, conditions and challenges. *European Journal of General Practice, 25*(4), 179-189.
[http://dx.doi.org/10.1080/13814788.2019.1658190]

Van Deursen, A., Van Dijk, J. (2010). Internet skills and the digital divide. *New Media & Society, 13*(6), 893-911.
[http://dx.doi.org/10.1177/1461444810386774]

Van Deursen, A.J.A.M., Helsper, E.J. (2015). The thirdlevel digital divide: Who benefits most from being online? In: Robinson, L., Cotten, S.R., Schulz, J., Hale, T.M., Williams, A., (Eds.), *Communication and Information Technologies Annual (Studies in Media and Communications)* (Vol. 10, pp. 29-52). Bingley, United Kingdom: Emerald Group Publishing Limited.
[http://dx.doi.org/10.1108/S2050-206020150000010002]

Van Deursen, A., Helsper, E. (2018). Collateral benefits of Internet use: Explaining the diverse outcomes of engaging with the Internet. *New Media & Society, 20*(7), 2333-2351.

Van Deursen, A., Van Dijk, J. (2011). Internet skills and the digital divide. *New Media & Society, 13*(6), 893-911.

Van Deursen, A., Van Dijk, J. (2014). The digital divide shifts to differences in usage. *New Media & Society, 16*(3), 507-526.

Van Deursen, A., Van Dijk, J. (2019). The firstlevel digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society, 21*(2), 354-375.

van Deursen, A., van Dijk, J.A.G.M., Peters, O. (2010). The older the better: Rethinking Internet skills. *The role of gender, age, education, Internet experience, and hours spent online. Paper presented at the 2010 ICA Conference.*Singapore

Van Deursen, A., Helsper, E., Eynon, R., Van Dijk, J. (2017). The compoundness and sequentiality of digital inequality. *International Journal of Communication, 11*, 452-473.

van Dijk, J.A.G.M. (2005). *The deepening divide.*. London: Sage Publications.

Van Doorslaer, E., Masseria, C., Koolman, X. (2006). Inequalities in access to medical care by income in developed countries. *CMAJ, 174*(2), 177-183.

van Velsen, L., Beaujean, D.J., van Gemert-Pijnen, J.E. (2013). Why mobile health app overload drives us crazy, and how to restore the sanity. *BMC Medical Informatics and Decision Making, 13*(1), 23.
[http://dx.doi.org/10.1186/1472-6947-13-23]

Vargo, S.L., Lusch, R.F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing, 68*(1), 1-17.
[http://dx.doi.org/10.1509/jmkg.68.1.1.24036]

Vaterlaus, J.M., Patten, E.V., Roche, C., Young, J.A. (2015). #Gettinghealthy: The perceived influence of social media on young adult health behaviors. *Computers in Human Behavior, 45*, 151-157.
[http://dx.doi.org/10.1016/j.chb.2014.12.013]

Venkatesh, V., Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science, 46*(2), 186-204.

Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly,* 425-478.

Vernon, J.A., Trujillo, A., Rosenbaum, S., DeBuono, B. (2007). *Low Health Literacy: Implications for National Health Policy.*https://publichealth.gwu.edu/departments/healthpolicy/CHPR/downloads10_4_07.pdf

Wagner, T.H., Baker, L.C., Bundorf, M.K., Snger, S. (2004). Use of the internet for health information by the chronically ill. *Preventing Chronic Disease, 1*(4), A13.

Waitzkin, H. (1986). Micropolitics of medicine: Theoretical issues.*Medical Anthropology Quarterly, 17*, 134-136.Micropolitics of medicine: Theoretical issues.

Chinitz, D., Preker, A., Wasem, J. (1997). Balancing competition and solidarity in health care financing. In: Saltman, R.B., Figueras, J., Sakellarides, C., (Eds.), *Critical Challenges for Health Care Reform in Europe,* Buckingham: Open University Press.55-77.

Wasserman, I.M., Richmond-Abbott, M. (2005). Gender and the internet: Causes of variation in access, level, and scope of use. *Social Science Quarterly, 86*(1), 252-273.

Wathen, C.N., Harris, R.M. (2007). I try to take care of it myself how rural women search for health information. *Qualitative Health Research, 17*(5), 639-651.

Wei, K.K., Teo, H.H., Chan, H.C., Tan, B.C. (2011). Conceptualizing and testing a social cognitive model of the digital divide. *Information Systems Research, 22*(1), 170-187.

Weller, J.A., Dieckman, N.F., Martin, T., Mertz, C.K., Burns, W.J., Peters, E. (2012). Development and testing of an abbreviated numeracy scale: a rasch analysis approach. *Journal of Behavioral Decision Making, 26*, 198-212. https://doi-org.ezproxy.haifa.ac.il/10.1002/bdm.1751

Wendt, C. (2009). Mapping European healthcare systems: a comparative analysis of financing, service provision and access to healthcare. *Journal of European Social Policy, 19*(5), 432-445.

Wendt, C., Kohl, J. (2010). Translating monetary inputs into health care provision: a comparative analysis of the impact of different modes of public policy. *Journal of Comparative Policy Analysis, 12*(1-2), 11-31.

Wendt, C., Frisina, L., Rothgang, H. (2009). Healthcare system types: a conceptual framework for comparison. *Social Policy & Administration, 43*(1), 70-90.

Wendt, C., Kohl, J., Mischke, M., Pfeifer, M. (2009). How do Europeans perceive their healthcare system? Patterns of satisfaction and preference for state involvement in the field of healthcare. *European Sociological Review, 26*(2), 177-192.

West, R. (2006). Identifying key factors for success in delivery: A report of the Stop Smoking Services Workshop. London: Department of Health.

WHO. (2008). Closing the Gap in a Generation. *Health Equity through Action on the Social Determinants of Health. Final report of the commission on social determinants of health*Geneva: World Health Organization. whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf

WHO. (2016). Global Health Observatory Data. *Healthy Life-Expectancy at Birth*.who.int/gho/mortality_burden_disease/life_tables/hale/en/

WHO: UNFPA. (2004). Programme manager's planning monitoring & evaluation toolkit. *Division for oversight services.*

Wilhelm, M.O., Bekkers, R. (2010). Helping behavior, dispositional empathic concern, and the principle of care. *Social Psychology Quarterly, 73*(1), 11-32.

Willis, K., Elmer, S. (2007). *Society, culture and health: |An introduction to health sociology for nurses.* Melbourne: Oxford University Press.

Wilsford, D. (1994). Path dependency, or why history makes it difficult but not impossible to reform health care systems in a big way. *Journal of public policy, 14*(3), 251-283.

Wired. (2014). *These medical apps have doctors and the FDA worried.*http://www.wired.com/2014/07/medical_apps/

Witte, K., Allen, M. (2000). A meta analysis of fear appeals: implications for effective public health campaigns. *Health Education & Behavior, 27*(5), 591-615.

Wolf, J., Moreau, J., Akilov, O. (2013). Diagnostic inaccuracy of Smartphone applications for melanoma detection. *JAMA Dermatol, 149*(4), 422-426.

Wood, W., Ridgewat, C.L. (2010). Gender: An interdisciplinary perspective. *Social Psychology Quarterly, 73*(4), 334-339.

Wood, Stacy (2002). Prior knowledge and complacency in new product learning. *Journal of Consumer Research, 29*(December), 416-426.

Work", 1996 and "TIPS # 11: The Role of Evaluation in USAID", 1997, Centre for Development Information and Evaluation. http://www.dec.org/usaid_eval/#004

World Health Organization – WHO. (2008). Closing the gap in a generation: Health equality through action on the social determinants of health. *Final Report of the Commission on Social Determinants of Health.* Geneva: WHO.

World Health Organization – WHO. (2009). *Towards the development of a mHealth strategy: A literature review.* Columbia University: World Health Organization & the Earth Institute.

Xiao, N., Sharman, R., Rao, H.R., Upadhyaya, S. (2014). Factors influencing online health information search: An empirical analysis of a national cancer-related survey. *Decision Support Systems, 57*, 417-427. [http://dx.doi.org/10.1016/j.dss.2012.10.047]

Ybarra, M., Suman, M. (2008). Reasons, assessments and actions taken: sex and age differences in the use of Internet health information. *Health Education Research, 23*, 512-521.

Yelton, A. (2013). *Bridging the Digital Divide with Mobile Services.*. Chicago: ALA Editions.

Zainuddin, N., Tam, L., McCosker, A. (2016). Serving yourself: Value self-creation in health care service. *Journal of Services Marketing, 30*(6), 586-600. [http://dx.doi.org/10.1108/jsm-02-2016-0075]

Zhang, N.J., Terry, A., McHorney, C.A. (2014). Impact of health literacy on medication adherence: a systematic review and meta analysis. *Annals of Pharmacotherapy, 48*(6), 741-751.

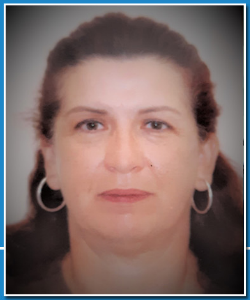
Zhang, Y., He, D., Sang, Y. (2013). Facebook as a platform for health information and communication: A case study of a diabetes group. *Journal of Medical Systems, 37*(3), 9942-9953. [http://dx.doi.org/10.1007/s10916-013-9942-7]

Zhang, Y., Sun, Y., Kim, Y. (2017). The influence of individual differences on consumer's selection of online sources for health information. *Computers in Human Behavior,* Elsevier Ltd. *67*, 303-312.

Zheng, Y. (2014). Patterns and motivations of young adults' health information acquisitions on Facebook. *Journal of Consumer Health on the Internet, 18*(2), 157-175. [http://dx.doi.org/10.1080/15398285.2014.902275]

Zickmund, S.L., Hess, R., Bryce, C.L., McTigue, K., Olshansky, E., Fitzgerald, K., Fischer, G.S. (2008). Interest in the use of computerized patient portals: role of the provider–patient relationship. *Journal of general internal medicine, 23*(1), 20-26.

SUBJECT INDEX



Rita Mano

Professor Rita Mano received her PhD from the Polytechnic Institute of Israel, Faculty of Industrial Engineering and Management, in 1995. She currently engages in a wide range of studies in mHealth, e-Health, and nonprofit management studies. Her research has been funded by Maccabi Health Services (2011) and Israel Society Foundation (2016). Professor Rita Mano regularly publishes in leading social sciences, technology, and health journals, including Health Expectations, Social Science and Medicine, Computers in Human Behavior, and Human Relations. Professor Rita Mano has published three books on the following: (1) Complexity of Management in human services, (2) Nonprofit organizations in Israel, and (3) eHealth, mHealth, and the self-management of health concerns (forthcoming). Professor Mano serves as a member of the Editorial Boards in several journals related to health and human services. Professor Rita Mano currently serves as the Head of Department in Human Services for a second term.