Impact of Modern Information Technologies on Healthcare Seeking Behavior (Literature Review)

Simon Gabritchidze

The University of Georgia, School of Health Sciences and Public Health[1], Welfare Foundation[2]
[1]MD, MS, MA, PhD (c) , [2]Executive Director

Summary

There is growing interest worldwide to study various factors that influence on patients (health care consumers) behavior while seeking health care. Findings from these studies may be successfully utilized for future planning of health care system to make it more consumer-centered, comprehensive and responsive. In parallel to traditional health seeking, during the recent decades more and more consumers apply to modern information technologies to obtain healthcare information. In many developed countries, patients and their family members intensively utilize internet in seeking health care providers. Recently, specially developed web-sites and mobile phone applications give health care consumers great chances to search and select desired providers. Information and communication technologies (ICTs) may positively influence on health seeking behavior in developing countries as well. There has been extensive international discussion about the increasing potential of ICTs to make considerable impact in improving health and well-being of poor and marginalized population, alleviate poverty, and increase efficiency and effectiveness of health care system. During the last decade, the Government of Georgia (GoG) has privatized almost all health care facilities as trying to implement radical neo-liberal reforms in all sectors of economy including health and social welfare. Expanding role of the private sector has been accompanied by considerable reduction of the state regulating functions. As a result, Georgian patients have very limited access to information on quality and safety of health care services offered by various providers. Few papers studied health care seeking behavior in Georgia with particular focus on barriers to health care utilization. So far, no study exists that have analyzed the impact of modern information technologies on health seeking behavior of the patients in Georgia. This is considerable challenge, particularly taking consideration significant speed of contemporary informational technologies development.

Abbreviations: *ICTs- Information and communication technologies, GoG- Government of Georgia, WHO- World Health Organization.*

Key words: *health care seeking, determinants of health seeking, impact of information technology, health systems and policy, Georgia.*

Introduction

This paper is based on a literature review on health care seeking behavior, social/economic/cultural determinants of health seeking and its implications on health policy and system development, impact of modern information technology on health care consumer's (patient's) decision. A search of peer-reviewed, indexed paper was done using PubMed, Science Direct, HINARY Library and Google Schoolars. A combination of the keywords was used: health care seeking, social/economic/cultural determinants of health seeking, impact of information technology, health systems, health policy, developing countries and Georgia. Further to this, a report of World Health Organization was consulted for providing further evidence on challenges and future prospects of using electronic processes and communication in health care practices and their relation to policy. Moreover, some World Bank's working and policy papers on the related topics were also reviewed and discussed.

Patient (health care consumer) health seeking behavior – theoretical frameworks

There is growing interest worldwide to study various factors that influence on patients behavior while seeking health care. Findings from these studies may be successfully utilized for future planning of different levels of health care system to make them more consumer-centered and responsive. According to Tipping and Segall, two broad categories can be identified in health seeking behavior studies: there are studies which make focus on the 'end point' (utilization of the formal system, or *health care seeking behavior*); secondly, there are those which emphasize the 'process' (illness response, or *health seeking behavior*) (Tipping & Segall, 1995).

The studies that focus on utilization of formal system reveals that particular decision influenced by a variety of socio-economic variables, sex, age, the social status of women, the type of illness, access to services and perceived quality of the service (Tipping and Segall, 1995). In mapping out the factors behind such patterns, there are two broad trends. Firstly there are studies which categorize the types of barriers or determinants which lie between patients and services. In this approach, there are as many classifications in terminology as there are studies, but they tend to fall under the divisions of geographical, social, economic, cultural and organizational factors.

Decision-making in the household is a critical element in the status of its members since it involves the allocation of resources and the distribution of roles within the household. Decision-making among other things affects general health care and treatment seeking in particular. Studies revealed that women often follow quite diverse pathways for different illness episodes, predominantly depending on the role of their husbands, social networks and cultural norms (Ahmed et al. 2000). Number of studies indicated that gender plays role in making decision about selecting provider. For example, Yamasaki-Nakagawa et al (2001) found women in Nepal were more likely than men to seek initial help from traditional healers. Rahman (2000) in rural Bangladesh found that 86% of women received health care from non-qualified health care providers. All these factors have further implications for the period of diagnosis. The studies found that women had significantly longer delays in diagnosis than men (Needham et al, 2001; Yamasaki-Nakagawa et al, 2001).

Local knowledge should be carefully considered in order to understand health care seeking behavior in many developing, resource-poor countries. Poverty is one of the main determinants of health care seeking. In the World Bank Research Working Paper, Das et al. (2011) demonstrated great impact of the household income on health seeking behavior in India. The authors concluded that often poor do not perceive illness as “extraordinary event” but usual part of their “normal life”. A poorer person does not complaint on chronic illness unless there has been an acute episode of the sickness (Das et al 2011). This is coupled with the fact that people (especially in resource poor settings) often apply to non-formally trained local healers and do not seek care from Western practitioners. There are abundant evidence of this type of behavior and its profound effect on health. For example, in Bangladesh there is a large and growing sector of non-qualified allopathic providers engaged in the distribution of modern pharmaceuticals. They provide an accessible means of reaching Western medicines to a wider range of the population, yet lack formal medical training. There is therefore the associated problem of bad, unregulated prescriptive practices. Incorporating these unqualified providers into more formal training may therefore be beneficial for the whole society (Ahmed et al. 2000). Uzma et al (1999) also suggested involving unqualified traditional healers into training programs for reproductive and maternal health in order to improve the health status of women. Thus increasingly health care seeking behavior studies are drawing to the conclusion that traditional and unqualified practitioners need to be recognized as ‘the main providers of care’ (Rahman, 2000) in relation to various health problems in many developing countries. Some authors however, concede that only incorporation of traditional healers in formal trainings has little effect in terms of changing practice. For this purpose, managerial and regulatory interventions are additionally needed in order to reduce health inequality and promote adequate health care seeking behavior (Ahmed et al. 2000).

Privatization of health care facilities is widespread trend in many developed and developing countries during the recent decades. As a result, public and private facilities simultaneously exist in many settings. Additionally, great number of private sector providers runs their own clinic on a for-profit basis while also working within a not-for-profit organization or in the public sector. Some authors have suggested the need to improve integration of private sector providers with public care (Needham et al. 2001). WHO encourages active work with private sector providers for better health outcomes and even promotes special guide for increasing coverage, improving quality of care and controlling the excessive health care cost (Smith et al. 2001). It is interesting to learn more about health care seeking behavior and preferences made between public and private providers. According to various studies this depends on the type of provided services: although the number of private health care providers has increased substantially due to neo-liberal reforms, the bulk of inpatient services in developing countries are mainly provided by the public sector (Jowett et al. 2004). More important factor in health care decision-making process is availability of health insurance. Beoge et. al. (2014) indicated that having insurance was the strongest predictor for seeking treatment from private-for-profit providers among urban adults in Burkina Faso. As Jowett et al. (2004) found out insurance has particular strong influence on health care-seeking among poorer individuals. At higher income levels, the study found no significant difference in health care seeking behavior of insured and uninsured individuals (Jowett et al. 2004).

Majority of studies on health care seeking behavior mainly focus on the end point – utilization (among them are all studies conducted in Georgia, which I review below). There is necessity to look health care behavior more generally and address the multifaceted nature of the process involved. The studies suggest that the process of health care seeking may be quite versatile and not correspond to the preferred end points of service providers. The health issues are complex and necessitate systematic knowledge that goes well beyond the health sector to address them. Substantial body of work, rooted especially in psychology, looks at health seeking behavior more generally; drawing out the factors which enable or prevent people from making ‘healthy choices’, in either their lifestyle behavior or their use of medical care and treatment (MacKian, 2003).

Number of ‘social cognition models’ have been developed in order to explain perceived ill health and corresponding behaviour patterns. These models are based on a combination of demographic, social, emotional and cognitive factors, perceived symptoms, access to care and personality. The underlying assumption is that behavior is best understood in terms of an individual’s perception of their social environment (Conner and Norman, 1996).

The creation of this knowledge involves a number of social science disciplines working together with the medical professions. Sheeran and Abraham (1996) classify the range of behavior that have been examined using health belief models into three broad areas: preventive health behaviors, sick role behaviors and clinic use. In this type of model, individual beliefs offer the link between socialization and behaviors. Health belief model consists of two components: 'threat perception' and 'behavior evaluation'. Threat perception is related to a particular person's attitude to illness and expected disease severity. Behavior evaluation links to certain beliefs regarding benefits of particular behavior and the barriers to it. This model was criticized mainly for representing individuals as asocial economic decision-makers (Sheeran and Abraham, 1996).

Another type of 'social cognition model' is linked to the general assumption that those persons who believe they have control over their health are more likely to engage in health promoting behavior (Normand and Bennett, 1996). This approach is in line with main assumption of neo-classical economics which postulates that individuals are rational decision-makers as they systematically assess available information and shape their behavior based on it. It is assumed that individuals better know what the best options for them are. This assumption is true even in the cases when people clearly exhibit risky behavior (e.g. drug abuse). Of course, neoclassical economists admit that access to complete information is necessary in order to make a rational decision which is seldom available in the reality. The main issue is that these models focus *on the individual* and the centrality of *cognitive processes* ('I know, therefore I act'). According to MacKian "this loses the sense that we are all rooted in social contexts that affect, in a far more complex manner, the way we process and act on information" (MacKian, 2003). In this context, the studies of MacPhail and Campbell (2001) should to be noted as they tried to explore the neglected societal, normative and cultural contexts in which individual-level phenomena such as knowledge, attitudes and behavior are negotiated or constructed. They strongly emphasized the necessity of having better research in developing countries in order to understand "social rootedness" of health seeking behavior. Lash (2000) suggests that in order to understand the complexities of how people explore their relationship to particular decisions or actions, how and why they weigh up options as they do, we might think of '*reflexive communities'*. "Reflexive communities reflect the particular ways of behaving, thinking and reaching decisions of individuals or groups that in turn reflect the social construction of their position in wider society at a particular place and time. Acts within these reflexive communities do not rely solely on the processing of information and knowledge. They reflect something far more complex, emotional, social and practical" (Lash, 2000). In order to better understand how people make decisions about health seeking behavior, one needs to analyze not only the information sources and how they are interpreted, but also the underlying, unspoken, unconscious feelings and assumptions which support that cognitive process and the journey taken during it. This reflects findings of some previous studies on health seeking behaviours that stress equal importance of both rational cognitive processes and less easily identifiable affective-emotional processes in making decision on health care seeking. Thus, the way people *perceive* risks and *experience* risk should be a matter for public policy (MacKian, 1996). The relatively new field of behavioral economics presents useful insight in understanding behavior of health consumers. The founder of the behavior economics is Daniel Kahneman who shared Nobel Prize in economics in 2002 with Vernon Smith, for work in this area. Their approach differs from neo-classical economic theory. Instead of assuming that behavior is always rational, behavioral economist proved that individuals sometimes behave in seemingly irrational, but still often predictable ways. Behavior economists incorporated elements of psychology as well as economics in analyzing issues and formulating solutions.

Number of researchers employed theoretical framework provided by Andersen and Newman. Their model is particularly suitable for analyzing health seeking behavior in developed world. Initially, Andersen and Newman developed theoretical framework in order to understand societal and individual determinants of health care utilization in the United States of America (USA). The authors underlined lack of understanding of societal factors in health service utilization. Greater part of empirical studies and theories pay much attention to individual characteristics. Thus, Andersen & Newman's framework consists of societal and individual determinants. Specifically, the main societal determinants of health services utilization represent technology and norms. Technology can be defined as "a set of principles and techniques useful to bring about change toward desired ends" (Taylor, 1971). Norms "correspond to Wilbert Moore's description of social control as representing the spectrum of modes whereby social systems induce or insure normal compliance on the part of members" (Moore, 1969: 300). On the other hand, individual characteristics of health care use includes: (1) the predisposition of the individual to use services; (2) factors that enables or hinders use; (3) individuals illness level and need for care (Andersen & Newman, 2005).

Modern Information technologies and health seeking behavior

In parallel to traditional pathways, during the recent decades more and more consumers apply to modern information technologies to obtain health or healthcare information. In many developed countries, patients and their family members intensively utilize internet in seeking health care providers. Specially developed web-sites and mobile phone applications give health care consumers great chances to search and select desired providers.

Information and communication technologies (ICTs) may improve health seeking behavior in developing countries as well. There has been extensive international discussion about the increasing potential of ICTs to make considerable impact in improving health and well-being of poor and marginalized population, alleviate poverty, and increase efficiency and effectiveness of health care system (Chetley & McNamara, 2006). Similarly, World Health Organization (WHO) highlights importance of ICTs in attainment of desired outcomes across the entire health system and meeting of Millennium Development Goals (MDGs) (Dzenowagis, 1996). ICTs include traditional media sources (radio and television) and fixed telephones as well as modern technologies (smart phones and the Internet). Recent developments of internet and various smart phone applications have made particular impact on health care seeking behavior. This conclusion is made by many authors across the globe. As Ybarra and Suman highlighted, “health-related websites have a powerful effects on the attitudes and behavior of people” (Ybarra & Suman, 2006).

C. Marton and C. W. Choo reviewed theoretical models of health information seeking on the web. Their purpose was to provide an informal assessment of the theoretical foundations and research methods that have been used to study this type of information behavior. Marton and Choo specifically selected four theoretically grounded qualitative studies that explained health information seeking on the web. The reviewed studies clearly indicated the need for multidisciplinary frameworks that can capture the complexity of online health information behavior. The first selected study found that middle age women played key roles in health information seeking on the web. The findings were explained by two models: (1) the theory of planned behavior from social psychology (Ajzen, 1985, 1991); and (2) the uses and gratifications approach from mass communication research (Palmgreen and Rayburn, 1982; Palmgreen, 1984; Palmgreen et al., 1985; Rubin, 1994; Rayburn, 1996; Ruggiero, 2000). The other studies conducted in Hong Kong, South Korea and USA combined elements from theories of human behavior in social psychology, communication research, health behavior, and information science. In particular, there was significant use of the theory of planned behavior, the technology acceptance model, uses and gratifications approach, health belief model, and information seeking models. The results clearly demonstrated that an integration of theoretical perspectives from the health sciences, social psychology, communication research, and information science, is required to fully understand health seeking behavior in the internet. The authors concluded that conceptual models and analytical methods explaining the study results are feasible and promising for future research (Marton & Choo, 2012).

Before exploring eHealth issues in more details, it is important to define who health (or health care) information consumer is – is it patient only, or someone else? First of all, under the term a patient or his/her relatives and friends are considered. But, except the patient, health information seeker may be any person interested in health and healthcare issues. There exists bulk of literature on the informational needs of healthcare professionals. Contrary, there is little information on needs of patients and community members. According to Scott and Thompson, e-Health planning is based on the providers’ conception on patients’ needs, instead of real evaluation of consumers’ demand (Scott and Thompson, 2003). The Researchers also admit that more scientific studies have to be focused on caregivers, family members and other interested persons’ health information needs (Scriven and Chesterton, 1994). Available studies are mainly focused on the information related to specific diseases or conditions, definite groups of people or stages of diseases and treatment methods. Usually this kind of studies does not consider “non-patients” informational needs. For example, great numbers of patient oriented studies have been conducted on oncologic patients’ information needs (Mosman et al. 1999).

The studies demonstrate that profiles of health information seekers on the web are different based on various factors. The following factors are particularly important to emphasize:

◊ Gender
◊ Age
◊ Education
◊ Income
◊ Health status

In general, the first important barrier in utilization of e-health resources is related to consumers’ accessibility to the internet. According to the Pew project, 27% of adult had no access to internet in USA and most of the Americans used low-frequency network (Fox, 2006). According to the similar study, the following groups of people used the internet particularly seldom:

◊ Poor/low income individuals
◊ People with primary or secondary education
◊ Elderly people, 65 year-old and more
◊ Persons with disabilities
◊ Ethnic minorities and
◊ Civilians for whom English was not native language.

However, the recent studies demonstrate that internet is becoming more acceptable for different group of people and inequality between them is less noticeable. A more fundamental problem detected lately is consumers’ education on health related issues. Based on these findings, consumers’ low awareness on the health issues is the most important barrier in the decision making process through the internet (Institute of Medicine of the National Academies, 2004).

It is recommended to consider consumers' health education in connection with competencies useful for seeking and processing the information through the internet. The conceptual models consider different but somehow similar instrumental abilities as well (Kaufman et al. 2002; Baker, 2006). These include:

- ◊ common educational abilities (reading, speaking and writing)
- ◊ Mathematical competencies (evaluation, calculation, probability perception)
- ◊ Conceptual knowledge
- ◊ knowledge of health vocabulary
- ◊ Document understanding (comprehension in specific health forms and functions)
- ◊ Technological knowledge (informational technologies management skills) and
- ◊ Seeking information and rhetorical competencies (advocacy, statements making and complaints).

Using health related information is connected to person's cognitive ability, her/his health/physiologic status, attitude to the media and influences of social and cultural norms as well. For example, about 50% of Americans do not possess adequate health communication and management skills (Zarcaduulas et al. 2006; Nielsen-Bolman et al 2004). Like internet accessibility, understanding ability of health related issues is low among people with low-economic status, elderly people and ethnic minorities too (Baker et al. 2002; Schillinger et al. 2002). Problems of health information perception often are connected to person's common cognitive abilities. For example, 43% of USA population is unable to make two different concluding statements from moderate complicated prosaic work (USA National Center for Education Statistics, 2003). Various studies demonstrate that women are particularly interested in searching health/ healthcare issues on the web (Andreasen et al. 2007; Atkinson et al 2009; Gallagher et al. 2008; Fox and Jones 2009). Similar findings are logical as women utilize healthcare services more often than men. In some cases, women visits to internet or healthcare centers are related to family member's health issues (e.g. child illness). In such cases, women are more actively involved in care of family members and seek adequate health services for them. Generally, number of studies highlights importance of women awareness on diseases prevention and healthy lifestyle issues, not only for women but also for their families and whole society (Jashi, 2011).

Besides gender, the consumer's income and education status has also the huge impact on health information seeking process through the internet. Consumers with high education level and income status utilize internet resources more intensively and have accessibility to "fast internet" as well (Kumerfold et al. 2008; Wangberg et al. 2008). In this regard, smart phones may have potential to promote equity in access to digital health information. Kim and Zhang (2015) studied how low-income Hispanics used their smart phone in obtaining health information. The study revealed that low-income users mainly relied on public Wi-Fi to access to the internet. They searched a wide range of health topics - mostly using the mobile web to get information. However, low-income Hispanics did not possess adequate knowledge and skills for using mobile applications effectively as well as for evaluating the quality of health information and following to it. The author concluded that only access to smart phones does not promote to bridge the digital gap for low-income Hispanics. Further actions are necessary to improve the users' smart phone and health literacy as well as to ensure their access to Wi-Fi networks and more quality content in their mother tongue (Spanish) (Kim and Zhang, 2015).

Using the internet and seeking health information is closely related to consumer's age, lifestyle and health risks, which increase with age. Deloitte study has clearly demonstrated differences among various age groups of internet users. According to this study, every 1 in 3 respondents born between 1982-1994 demonstrated interest in internet health information seeking, contrary to every 1 in 5 respondents born until 1945. They preferred to receive information through the telephone or post (Deloitte Center for Health Solutions, 2012). Adolescents (13-19 years old) mainly utilize the internet to find information about their own health related problems, young (20-30 years old) and middle-aged people (30-45 years old) search health information in the internet for their partners. Andreasen et al. argue that European health information seekers are especially active between 30-45 ages (Andearsen et al. 2007). According to Pew researches, American consumers actively seek health information for others, rather than for their own personal reasons (Pew Research Center, 2014). Studies demonstrated that patients feel more self-confident when they find health information through the internet (Hu & Sundar, 2010). Consumer's health status plays an important role in health information seeking behavior. Studies demonstrated that those patients who are under higher risk of death often apply to the internet search for getting health related information. For example, according to Kalichman et al., in the USA, two-thirds of 347 men and 72 women with HIV/ AIDS infection devoted more than half of the total time spent in internet seeking health-related information (Kalichman et al. 2006). World Health Organization (WHO) has been conducted several eHealth Surveys since 2005. In the survey of 2015 WHO focused attention to eHealth importance in universal accessibility of healthcare services. eHealth "increases possibilities, transparency and accessibility to medical services and health information" (WHO, 2016). The report outlines e-technologies positive impact on consumers' abilities to evaluate existing health services and make informed decision while seeking affordable providers. In the previous report of the similar study conducted in 2008 is highlighted that 29% of patients had used the internet in the decision making process to visit a doctor (Sorensen, 2008). Nowadays, this indicator would be much higher.

Although, development of informational technologies considerably improved health consumers communication with health care system eHealth still has challenges. As consumers of healthcare services are different groups, they have different culture, education and past social experiences. Therefore, it is difficult to plan and design common eHealth system for all various groups of consumers. Another issue is consumers' ethnicity. As Nguyen and Bellamy concluded conducting more surveys would be necessary to examine impact of ethnic differences on health information needs. (Nguyen and Bellamy, 2006).

Online Health Information Portals

Continuous efforts to improve health care quality and protect patient's rights requires a complete online information portals of health care facilities, where every interested consumer is able to choose a desirable healthcare provider according to a profile of medical facilities, location, quality of provided services and other criteria. Currently, in an increasing number of countries various online portals offer information to health care consumers for making comparisons among hospitals and sometimes among family doctors as well. Active privatization of health care further actualized this issue. The studies demonstrated consumers' particular interest in web-sites that give them opportunity to compare different providers (e.g. hospitals) (TNS healthcare, 2010). In online searching process, other important aspects are to examine costs and waiting time of medical services. These information can be obtained through the USA and European countries informational portals (U.S. News Hospitals Rankings and Ratings, 2017; Health Consumers Powerhouse, 2010).

Health Consumers Powerhouse in their study have described five European Union (EU) countries with different kinds of user-friendly web portals aiming to inform citizens in need of a hospital or general practitioner visit of the qualities and capacity of such care providers. In spite of these portals are in acceptable quality still lot s of improvements are necessary in terms methodology, type and quality of information and etc. According to the authors, the Internet as an information source, which is available 24 hours and 7 days a week, plays a leading role in all thinkable areas of a consumer's life. In healthcare however, it is still in an initial stage and quality of care information has a long way to go before it can become a serious alternative to other information sources.

In the USA the uniformed hospital ranking system was created to increase the patients' awareness and their involvement in the prevention, diagnostic and treatment processes. Through this electronic ranking system every patient has opportunity to compare any hospital in USA and choose a relevant provider clinic. The following organizations are involved in the hospital ranking process: Joint Commission on Healthcare Organizations (JCAHO), Leapfrog, US News and World Report (USNews), and Centers for Medicare and Medicaid Hospital Compare (CMS). For example, Leapfrog Group is non-governmental organization, which has created the uniformed database with a rating score of each medical facility. The evaluation criteria include wide range of structure, process and outcome indicators. Analysis of the data provided by the Leapfrog Group gives opportunity to the medical service purchasers and the insurance companies to choose the desirable provider. For more motivation, The Leapfrog Group has established annual reward – The Leapfrog Top Hospitals. The prize is given into three different categories: Top Urban Hospitals, Top Rural Hospitals and Top Children's Hospitals.

Similar to some other countries, US consumer organizations play active role in providing information on hospital services to consumers. For example, Consumer Reports' developed the uniformed system of the clinics in USA. It is independent, non-profit organization aiming to educate consumers on various products. For hospitals Consumer Reports uses the following evaluation indicators: Patient Outcomes (prevention of infectious disease, re-hospitalization and mortality rates in the surgery department), Patient Experience (patient information about prices, co-payment, medicines, treatment schemes and communication between patients and clinic), and Hospital Practice (using of existing services for medical reason, avoiding of artificial increase the volume of medical services; for example, number of conducted cessation, CT and MRI etc. with no clear clinical indication).

Although all the rankings hope to identify "best" hospitals, they differ in methodology. Some emphasize surrogate markers; some emphasize safety, i.e., a lack of complications; some factor in the hospital's reputation; some factor in patient-centered outcomes. However, most do not emphasize traditional outcome measures such as mortality, mortality, length of stay and readmission rates. Some authors argue that although hospital rankings become popular whether these rankings identify better hospitals is unclear. To solve this issue Robbins and Gerkin recommended choosing more relevant criteria and including in hospital rankings more patient-centered outcomes such as mortality and readmission rates (Robbins & Gerkin, 2013).

Due to arrangement of healthcare system in the United Kingdom, the government is responsible for the safety and raising awareness of the patient and the quality of medical facilities. The Health and Social Care Information Center provides information for patients through NHS system. The main goal of this center is to provide information for patients about existing medical services, location of medical facilities, screening tests and score of the provider. For this purpose the health Department, NHS-England, Public Health Department of England and Health Quality Department created the uniformed on-line database, which is free of charge and easily accessible for each interested person.

Despite the fact that USA and European countries have national system of medical service providers' database, there was a need to compare and evaluate the clinics all over the world. For this purpose, the global ranking system was developed (worldwide – ranking web of hospitals). The clinics' scoring are based on web-analysis offered by Spanish research organization – Conejio Superior de Investigaciones Cientificas (CSIC). According to the global ranking system, everybody is able to compare and find a desired clinic. It is possible to find some Georgian medical facilities in this online global ranking system as well.

Georgian health care system

After the collapse of the USSR, maintaining former Semashko model was practically impossible in Georgia as a newly independent country experienced overwhelming economic and socio-political issues. Ethnic conflicts, causing massive movement of the population and influx of refugees, further exacerbated existing troubles. Because of budgetary problems and high inflation the salary of health personnel become too little that promoted informal payments. Maintaining oversupplied health infrastructure was impossible that further deteriorated quality of medical care. All these developments caused serious pressure on the Georgian authorities to reform the health care system and adjust it to new realities. However, the movement from the centralized, command-and-control system towards decentralized, more democratic structures was controversial process. Discussion on the reform of welfare system was largely absent from the political agenda during the first years of the independence. The main issue was lack of public health experts and skilled managers who could design and implement effective reforms. The institutional as well as technical capacity was quite weak in the country. Therefore, although there were some attempts of the Governments of Georgia (GoG) to modernize the health system, the success was little evident.

Due to the various reasons, GoG started planning their HSRs only mid-1990s. The role of international organizations and experts was substantial in this process. The first Georgian health sector reform (HSR) initiatives launched in 1995. The main element of it was changes in health financing system. GoG introduced user charges and co-payments. Additionally, social health insurance was initiated in the country. The focus on PHC was outlined as a priority. This process was accompanied by decentralization and partial privatization of health facilities and services.

Decentralization was marked feature of HSR in Georgia after the independence. Under the term of decentralization is mainly implied the devolution of responsibilities for service provision and financing (both in primary and secondary health care) from central to regional level. As a result, local health authorities and service providers acquired more institutional autonomy and their administrative rights and responsibilities expanded. However, in reality, the central government retained strong control over the system. It also became clear that the capacity of local health authorities and providers was weak and nobody took care of their capacity building. At the same time, the scope of responsibilities of regional and local authorities was not clearly defined. (Chanturidze et al. 2009). Therefore, full decentralization, in the Georgian health sector, has never taken place.

Soon it became clear that the implementation of HSRs was less successful and this process left substantial part of the population without quality health care services. Out-of-pocket payments became main way for paying of health care services. As a result the substantial part of Georgian health expenditure came from the private households' out-of-pocket payments. According to WHO, 80% of total health expenditure in Georgia came from the private households in 1998.

After the "Rose Revolution" in 2003, the new Government led by "National Movement" initiated radical changes in health care system as tried to implement neo-liberal reforms in all sectors of economy including health and social welfare. As a result the role of non-state providers considerably increased in providing and financing health care. More specifically, at the end of 2006 the GoG declared that all hospitals would be privatized and private insurance companies would be contracted to insure people living below the poverty line. For this purpose the database for people living below the poverty line was introduced in 2006. The GoG decisively moved to targeted, means-tested social assistance system meaning that only the poor can get assistance from the state.

Until 2007, only few private insurance companies owned any health insurance schemes and they had little interest to expand this service to general population. About 1% of the Georgian population was privately insured. The GoGs decision to insure the poorest population through private insurance companies have resulted steep increase in their numbers. Unlike many countries worldwide, the poorest and most vulnerable population in Georgia has become the major part of clients of private health insurance companies. At the same time, Georgian pharmaceutical companies have immensely benefited from liberal economic reforms. This statement is particularly true for two of them – PSP and Aversi. Owing to weak state regulation and liberal legislation these companies have substantially expanded their businesses. Importing pharmaceuticals has become just a part of these companies' activities. They have opened pharmaceutical factories, health clinics and even established health insurance companies.

Expanding role of the private for-profit sector has been accompanied by significant reduction of the state regulating functions. Such policy has caused significant deficiencies in quality and patients' safety control. This refers not only pharmaceuticals but also medical services delivered in private health facilities. In spite of some increases in public expenditure on health, it remained low and comprised 1.5% of GDP. This was the lowest indicator not only in the European regions but also in the Commonwealth of Independent States (CIS). Particularly low was public expenditure on public health and disease prevention and it was declined from 8% to 2% as a part public health expenditure during the period of 2001-2007 (WHO, 2009).

In October 1, 2012 parliamentary elections "National Movement" lost the power. Winning political coalition "Georgian Dream" decided to universally cover Georgian population with social and health insurance schemes. The government decided to move to universal health coverage and at the first stage introduced a minimal insurance package which covered about 2,2 million Georgians without any kind of health insurance. This program started at the end of February 2013. It included unlimited visits to family doctor and management of both outpatient and inpatient emergency cases (including some diagnostic tests). The GoG further extended Universal health Program after 1 July 2013. The extended package included not only emergency but also planned outpatient and inpatient services. The number of subsidized diagnostic tests has been increased compared to minimal insurance package as well. The role of non-state providers actually remained unchanged; currently they provide almost all care for non-communicable diseases. The benefit package was further modified and differentiated in 2017 which categorized the beneficiaries according to their income. This change left individuals with yearly income more than 40000 out of the program (MoLHSA, 2017).

Studies on health care behavior and utilization of medical services in Georgia

More than decade ago, health care seeking behavior (with focus on out-of-pocket payments) was studied among Georgian patients in Tbilisi (Gotsadze et al. 2005). The study was based on a household survey carried out in Tbilisi in 2000. By that time, financial accessibility represented major barrier to access to health services. As a result, the great majority of interviewed persons did not seek any kind of treatment or self-treated during the illness. Among 1706 cases that sought some type of treatment, only 32.5% went to a health care provider and 67.5% self-treated. Increased income, age, number of household members and perceived seriousness of the illness were all statistically significant factors growing the probability of seeking care. The survey indicated that in spite of greater necessity patients from oldest age group (66 years and older) and poor household did not seek much medical care compared to children and richer households. Out-of-pocket payments, which were legally allowed in Georgia during 1990ies health sector reforms, have become financial barriers to accessing quality care and have had a substantial impact upon patterns of care seeking.

Unlike to extensive research findings from other settings, education and gender did not reveal any statistically significant influence on health care seeking decision in Tbilisi, Georgia. As it was mentioned above, great number of international studies suggests that literacy plays important role on health care-seeking behaviour among women in developing countries (Lam et al. 2013). Improved literacy closely linked to better health outcomes, as it allows women to access health information and to more effectively navigate health systems (Sreeramareddy et al. 2006; Gorman & Pollitt, 1997; Glewwe, 1999; LeVine et al. 2012; LeVine et al. 2004; LeVine et al. 2001; Rowe et al. 2005).

The study found high rates of using ambulance (emergency) services among poor and patients with chronic diseases. This was coupled with low rates of primary health care utilization. Among those patients who decided to visit to health provider, 52% choose specialists and only 21% primary care (district) physicians. This trend was particularly evident among patients with chronic diseases – only 10% of them visited to district doctors. As authors emphasized "this reflects the total breakdown of the primary care level gate-keeping function, which was operational during the Soviet period. This care-seeking pattern amongst the chronically ill occurred despite the fact that specialists were a significantly more expensive source of care than district doctors or nurses" (Gotsadze et al. 2005). The main explanations of such behavior were financial considerations (specialist was perceived to offer better value for money than district doctors), low trust in professionalism of district doctors and geographical accessibility to providers (Belli et al. 2004).

As mentioned above, GoG introduced new state program – Medical Insurance for Poor (MIP) in 2007. According to various studies the program has positive effect on decreasing of out-of-pocket payments for acute inpatient medical care (Gotsadze et al. 2015; MoLHSA, 2011; Welfare Foundation, 2010). However, it failed to increase utilization of medical services, particularly for outpatient care. This can be explained by high rate of out-of-pocket-payments for outpatient medical services and pharmaceuticals. This trend is particularly visible among patients with chronic illnesses. On average, patients reporting a chronic illnesses 5.5 times less sought formal outpatient care and/or self-treated compared to patients with acute health problem or chronic illness with acute episode (Gotsadze et al. 2015).

Gotsadze et al. further interested in identifying determinants of outpatient services utilization in Georgia. For this purpose, the authors utilized dataset from Household Utilization and Expenditure Survey (HUES) conducted nationally in 2007 and 2010. Andersen behavioral model was employed to identify determinants of outpatient services utilization. The results indicated that a big part of surveyed population did not apply to medical services or self-treated during illnesses. From 10972 participants, who reported either chronic conditions that last longer than one year or reported any acute episodes (including chronic exacerbation) in the past 30 days prior to survey, only 2552 (23%) sought outpatient care. Self-perceived ill health was major individual factor determining health care utilization. Individuals who perceived their health as poor/very poor were significantly more likely to opt for outpatient care as opposed to no care or self-treatment. Both gender and age has significant influence on decision-making. For example, females were 15% more likely to use outpatient services compared to males (OR = 1.15, $P < 0.05$). Similarly, children below 14 years compared to people aged 45–64 were 2.02 and 2.85 times more likely to choose outpatient care over not treating or self-treating, respectively. When faced with a health problem, individuals aged 15–44 were 1.52 times more likely to opt for outpatient care over self-treatment ($P < 0.01$). However, the similar trend was not identified among persons who were 64 years or older. Educational status was another determining factor in seeking outpatient care. For example, people with a college or university degree were 1.27 times more likely ($P < 0.05$) to choose outpatient care over no treatment compared to individuals with less than high school education. At the same time, education had no influence when choosing between outpatient or self-treatment. Marital status did not have any significant influence on deciding treatment options.

An interesting ‘predisposing’ factor was identified during the study implementation. Compared to Georgians Armenians had higher odds (OR = 1.52) of using outpatient care versus no care ($P < 0.01$) and an OR=3.6 of choosing outpatient care over self-treatment ($P < 0.01$). Thus, ethnicity appeared as a strong predictor for outpatient service use as well as for seeking care from formal providers. However, the similar trend was not identified among other ethnic minorities residing in Georgia (e.g. Azeri).

From ‘enabling’ factors, out-of-pocket payments (OOPs) were identified as a major barrier in using outpatient services. According to the study, a one GEL increase in OOPs reduced the odds of seeking outpatient services by 2% ($P < 0.01$) versus no utilisation. At the same time, OOPs did not influence on individual’s decision when choosing between outpatient care and self-treatment. The other enabling factors were household income and age as well as distance from outpatient care facility. The urban-rural location of the household, the supply of physicians, the regular source of care establishment and the type and availability of insurance had no influence on outpatient service utilization when adjusted for all other factors (except of polyclinics, which had a significant and positive influence on outpatient utilisation versus self-treatment (OR = 1.58, $P < 0.05$)).

In addition, the authors compared trends in utilization of outpatient services between 2007 and 2010. It was found out that odds of outpatient utilisation versus no treatment declined (OR = 0.80, $P < 0.05$), For example, compared to 2007 more people decided not to treat when ill in 2010. At the same time, people became 27% more likely to opt for outpatient care versus self-treatment (OR = 1.27, $P < 0.05$). Similar to previous study, significant and negative effect was identified between chronic illness and outpatient service use. The odds of outpatient service utilisation for patients with chronic conditions was 97% less (OR = 0.03, $P < 0.01$) compared to those reporting acute health problems.

The authors concluded that low income, 45-64 year-old males with low educational accomplishments who suffer from chronic illnesses have the lowest probability of using outpatient health services in comparison to other population groups. Expanding benefit package (including outpatient prescription drugs) in order to promote timely and effective utilization of outpatient services is the authors suggestion to policy-makers. For equity objectives, more expanded and comprehensive benefits for the poor is recommended as well (Gotsadze et al. 2017). These findings are good implication for policy-makers to adequately develop and redesign publicly funded health care programs.

Conclusion

There is immense evidence on the significant and growing influence of modern information technology on health seeking behavior. Information technology has potential to promote and positively influence on health care seeking behavior and thus make considerable impact in improving health and well-being of population, alleviate poverty, and increase efficiency and effectiveness of health care system. Currently, in an increasing number of developed countries various online portals offer information to health care consumers for making comparisons among hospitals and sometimes among doctors as well. However, many developing countries are lagged behind in this process. All recent papers on health care seeking behavior in Georgia mainly studied barriers to health care utilization. So far, no study exists that have analyzed the impact of modern information technologies on health seeking behavior of the patients (health care consumers) in Georgia. This is considerable challenge, particularly taking consideration amazing speed of contemporary informational technologies development and its great impact on actually all areas of our lives.

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