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Perceptions of quality and satisfaction with primary healthcare in Ukraine

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LIST OF ABBREVIATIONS

BIHSENA	Bridging Innovations, Health and Societies
CPD	Continuing Professional Development
DiD	A difference-in-difference approach
EC	European Commission
GP	General practitioner
IM	Institute of medicine
JSTOR	Research and teaching platform www.jstor.org
MED	Ukrainian-Swiss Project “Medical Education Development”
NHSU	The National Health Service of Ukraine
PRISMA	Preferred reporting items for systematic reviews and meta- analyses
PROSPERO	International prospective register of systematic reviews
PubMed	The PubMed database
SERVQUAL	A multidimensional research instrument designed to measure service quality

Chapter 1

General introduction

1.1. The importance of quality perceptions and self-reported satisfaction with healthcare

Health systems aim to ensure accessible and affordable healthcare of the highest possible quality. This makes healthcare quality one of the most essential values of the health system. Good quality of healthcare services in terms of healthcare that is effective, safe and patient-centered, that is accessible and affordable for all, are known predictors of population health outcomes (Busse et al., 2019). Quality is a major component of health system performance, and quality improvement is an important aim of health policy (Busse et al., 2019). To ensure this, health policies at all levels (national, regional, and facility) need adequate instruments to measure and maintain healthcare quality.

At the same time, a difference exists between healthcare quality measured through clinical outcomes and other performance measures and healthcare quality as perceived by physicians and patients. The former is defined objectively by means of monitoring service delivery (structure, process and outcomes) and its compliance with the accepted standards. The latter is subjective by nature as it includes subjective views on and experiences of quality. Perceived healthcare quality is important as it has a strong impact on the provision and utilization of healthcare services (Baltussen et al., 2002). Objective and subjective healthcare quality assessments complement each other and constitute the basics for rational decision-making and help to plan service delivery (Beattie et al., 2015). At the same time, the heterogeneity of health systems, their different structural complexity and resources involved, make a universal quality assurance method impossible. That is why a great variety of instruments have been created and tuned to other contexts based on purpose, resources, and other factors.

Several models of healthcare quality assessment have been developed depending on their aim and focus: evaluation of specific treatments (for example, orthopedic surgery), of specific patterns of care (care of patients with diabetes), evaluation of healthcare organizations (hospital), evaluation of health systems (healthcare delivery models). In all these models, patient satisfaction could also be added to provide valuable information next to patients' experience with healthcare quality (Sitzia, 1997; Beattie et al., 2015; Phillips et al., 2016; Davidson et al., 2017).

Patient satisfaction is known to be associated with customer loyalty, provider's reputation (Lonial and Raju, 2015) and overall healthcare expenditures (Fenton et al., 2012). Many studies have underlined its importance for understanding the bonds between healthcare quality and healthcare utilization (Baltussen et al., 2002) and for healthcare decision-making (Crow et al., 2002).

There is a lack of evidence on the quality of healthcare services in Ukraine. This dissertation focuses on obtaining evidence on the tools used to assess general service quality in the health system in Ukraine as well as on the perception of healthcare quality by different stakeholders. In particular, the dissertation adds to our knowledge and insight by describing

and analyzing quality of healthcare in Ukraine from different perspectives. Specifically, it focuses on the perceptions of quality among healthcare managers (who are also medical doctors and nurses) and service users in primary care in Ukraine. This dissertation also looks at patient satisfaction as a complement to the measurement of healthcare quality. However, it does not include other patient-related concepts, like patient experience (PREMs), or measures of health status, like patient-reported outcomes (PROMs).

Before we introduce the aim of the dissertation in more detail, we first discuss what quality in healthcare refers to and describe the background, specifically the peculiarities of the Ukrainian health system.

1.2. Development of concepts of quality and satisfaction in healthcare

The quality movement has its origins in the service and manufacturing sectors. Theories of quality assurance and improvement were first developed by Joseph Moses Juran and William Edwards Deming (Lillrank, 2015). Later, their ideas also spread to healthcare (Rooney et al., 1999; Lillrank, 2015).

Originating from the idea of quality opposing quantity, in the pre-industrial world, quality referred to a combination of functionality and aesthetic characteristics. With mass production in the industrial era, the quality concept gained a new meaning and referred to the absence of deviation from standardized specifications. Subsequently, the idea of quality management emerged. As products grew in number and type, customer choice started to influence their production, and customer satisfaction became a metric (Lillrank, 2015). Regarding services, quality was generally defined as the difference between customer-perceived expectations and service outcomes. At the same time, it turned out to be difficult to measure because of the subjective nature of these perceptions (Lillrank, 2015).

The definition and measurement of quality in healthcare are even more challenging given the healthcare peculiarities, like various sources of uncertainties and asymmetry of information between physicians and patients. Healthcare quality is usually a mixture of clinical (or technical) quality and quality that arises from interpersonal doctor-patient relationships (or service) (Donabedian, 1988). Clinical quality depends on the physician's knowledge and existing technology and can be measured by the achieved health improvement and comparing it with set standards, so-called clinical guidelines. At the same time, an interpersonal relationship with the patient is a two-way tool that gives the physician the necessary information for the diagnosis and preferences of the patient in choosing the methods of care as well as for involving the patient in active collaboration with the physician. Interpersonal relationships can be measured by the goodness of attributes by which the care was provided (Donabedian, 1988).

There have been several attempts to conceptualize quality in healthcare and establish its parameters. The most widely used or so-called "classic" Donabedian's quality model

describes quality by three system elements: structure, process and outcome (Donabedian, 1988). Structure refers to the facilities and their resources, such as personnel, administration and equipment. Process includes performance management, patient records, diagnosis, and treatment plan. And outcome includes patient satisfaction, clinical outcomes, health status, completion of treatment, and retreatment patterns (Gardner and Mazza, 2012). Another model, Lillrank's model, divides quality into three types: clinical decision-making, patient safety and patient experience (Lillrank, 2015). Clinical decision-making refers to education, consultations, professionalism and decision aids. Patient safety includes quality assurance and improvement. And patient experience refers to service culture and values, recruiting (Lillrank, 2015). A hierarchical approach to service quality offered by Brady and Cronin (2001) describes quality through three primary dimensions and three subdimensions to each primary dimension. Specifically, interaction (attitude, behavior, expertise), environment (ambient conditions, design, social factors) and outcome (waiting time, tangibles, valence) (Brady and Cronin, 2001). Subdimensions represent the grouping of the related attributes. And overall quality perception is seen as a "third-order factor to the subdimensions" (Danaher et al., 2007, pp.124). Brady and Cronin (2001) further suggest that each of these subdimensions is perceived through their reliability, responsiveness, and empathy.

There have also been several attempts to operationalize quality in healthcare. The most frequently used operational definition of quality is given by the Institute of Medicine (IOM)[1] and is based on the classic quality model (structure-process-outcome). Its focus is on effectiveness, safety, people-centeredness, timeliness, equity, integration, and efficiency (WHO, 2018). Another widely used definition is provided by the European Commission[2] and focuses on effectiveness, safety, and people-centeredness – the attributes of the process (Busse et al., 2019). IOM's definition of quality focuses on "desired" health outcomes and reflects patient satisfaction and well-being. It also underlines the importance of prevention and health promotion by focusing on individuals and populations in general rather than patients alone. It also emphasizes the continuity of quality and the importance of an evidence-based approach (Busse et al., 2019). The European Commission definition is also important as it creates a list of quality attributes in healthcare like access, timeliness, equity and efficiency (Busse et al., 2019).

As the different conceptualizations and operationalization show, quality is one of the most multi-faceted notions in healthcare service provision (Akalin-Baskaya and Yildirim, 2007). Key parties involved in the process of service provision and consumption focus on different attributes of the quality construct. Healthcare providers frequently define quality in terms of clinical effectiveness, efficiency, accessibility, acceptability, equitability,

1 "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge"

2 "Healthcare that is effective, safe and responds to the needs and preference of patients. Other dimensions of healthcare quality, such as efficiency, access and equity, are seen as being part of a wider debate and are being addressed in other fora."

and safety (WHO, 2006). Patients also value treatment outcomes in terms of perceived treatment effectiveness, e.g. perception of service conditions, provider's attention and responsiveness, waiting time, etc. For policy makers, quality often refers to service efficiency and users' satisfaction (Baltussen et al., 2002). Also, policy makers underline the importance of evaluation and control of quality as well as quality improvement as it is associated with service financing (Mosadeghrad, 2013). Thus, the perception of healthcare quality differs depending on the needs and expectations of different healthcare stakeholders. At the same time, healthcare quality determines satisfaction with healthcare services, the latter being the driving force of decisions and behaviors (Danaher et al., 2007).

The notion of satisfaction has also undergone several attempts of conceptualization since its primary description in the 1980s. Donabedian's theory describes satisfaction as the main outcome of the interpersonal component of care. Interpersonal relationships of the patient with healthcare professionals play a major role in satisfaction with healthcare quality (Gill and White, 2009). Another theory describes satisfaction with healthcare through the difference between the expectations of patients and actual healthcare received. Specifically, Linder-Pelz (1982) describes the influence of personal beliefs and values on satisfaction. Ware et al. (1983) include personal preferences in the notion of satisfaction with healthcare. Fitzpatrick and Hopkins (1983) argue that expectations are influenced by social determinants and satisfaction is the result of how much illness violates a patient's personal self (Gill and White, 2009). Lately, the concept of patient satisfaction, with the meaning of humanity of care such as dignity, respect, privacy, etc. (Black and Jenkinson, 2009), has been mixed with the concept of patient experience, which is the interpretation of events that happened during the episode of care by the patient (Bull, 2021). Patient satisfaction helps to identify how well patient's expectations are met, whereas patient experience shows what the patient thinks happened during the episode of care and how it happened (Bull et al., 2019). Thus, patient satisfaction and patient experience are not the same (Bull, 2021).

Apart from being an element of quality, patient satisfaction is also a self-reported measure used to assess quality. Patient satisfaction measures are an important tool to gain insight into the aspects of healthcare that patients truly value.

Improving patient's perceptions of quality and satisfaction with healthcare may lead to cost savings in healthcare. Specifically, if improving healthcare quality also improves general outcomes in chronic disease management and surgical outcomes, it may lead to fewer complications and shorter hospital stays (Gill and White, 2009). At the same time, improving patient satisfaction may result in better utilization patterns by means of building patient trust and loyalty toward healthcare providers (Anderson et al., 1994; Baltussen et al., 2002; Lonial and Raju, 2015).

1.3. Study context

As indicated earlier, this dissertation focuses on the perception of quality and users' satisfaction in primary healthcare in Ukraine. Ukraine is one of the "transition countries" (Kutzin et al., 2010, p.135) that inherited the Semashko health system after the collapse of the Soviet Union, together with a number of social, financial and political challenges. Specifically, the former Soviet countries had to abruptly integrate into the world economy and make their own decisions after decades of being represented and taken decisions for by the central Soviet government. The newly formed governments were left with a low ability to spend, resulting in an inefficient healthcare organizational structure and a lack of payment transparency. Healthcare was heavily underfinanced. The financial burden was laid on patients who had to pay a substantial part of the cost for treatment out-of-pocket (Kutzin et al., 2010).

Around 2015, Ukraine faced a health crisis. Almost 25 years after the country became independent, life expectancy had dropped significantly and was at least ten years less than in most other European countries (World Bank, 2009). The crisis was mostly driven by the high number and inadequate treatment of non-communicable diseases (Peabody et al., 2014). About 13% of life years lived were spent in poor health. Coronary heart disease, congestive heart failure and chronic obstructive pulmonary disease, along with diabetes and hypertension, negatively affected life expectancy in Ukraine. These poor health outcomes and the general perception of inadequate care were linked to shortcomings in affordability and quality of clinical care. The latter was seen as especially important for the adequate diagnosis and treatment of non-communicable diseases such as cardiovascular and chronic respiratory disease (Peabody et al., 2014).

In 2015, it was recognized that the health system in Ukraine required reforms (Belli et al., 2015). However, reforms were hampered by several barriers. Previous studies and reports of technical assistance projects[3] showed substantial challenges in healthcare resource management in the Ukrainian health system, including a fundamental mismatch between the input-based central norms imposed on healthcare facilities and the allocation of funding[4]. The Semashko model of healthcare provision, which was preserved to a great extent till 2015, predisposed a "top down" highly centralized approach to the funding and management of publicly owned medical facilities. Fixed line-item budgeting specified and restricted all the spending of healthcare facilities. Management lacked flexibility in staffing norms and schedules, the allocation of funds as well as data collection and reporting. The rigidness of the system also revealed itself in highly paternalistic relationships with patients and a lack of understanding of quality and quality management. Also, Ukrainian healthcare facility administrators were not much motivated to embark on structural changes and launching service quality control on the background of poor funding, regulatory, planning and administrative capacities (Belli et al., 2015).

[3] The EU Tacis Bistro project "Introducing European Experience in Financing Health care Services", 2002

[4] 2006 – 2008 World Bank conducted a Public Expenditure Review for Ukraine.

The window of opportunity that opened after the Revolution of Dignity (in 2013-2014) was used to discuss fundamental changes with various stakeholders, to bring new laws to parliament, and to conduct information campaigns to strengthen their implementation. The latter was seen as a differential point in the work of the Ministry of Health (2016-2019) - the campaign aimed at changing attitudes towards health and healthcare services among healthcare professionals and users.

Ukraine initiated the reform of its healthcare financing in 2015 by adopting the National Strategy Health Reform with its key element the strengthening of the primary health system. Thus, the healthcare financing reform in 2017-2020 had the aim of improving people's health and reducing the financial burden for patients and was planned to be implemented in two stages. The first stage predisposed a focus on primary care (2017-2019), and the second stage focused on secondary and tertiary care (2020). The first stage is touched upon in this dissertation. This reform included a change from central line-item budget financing to per-capita financing in primary healthcare (WHO – World Bank Joint Report, 2019), creating managerial autonomy for healthcare providers and free choice of provider for healthcare users. The National Health Service of Ukraine was created as a national payer, and it was enabled to conclude agreements with healthcare providers and to reimburse the treatment of their patients at predefined rates. After the healthcare financing reform, the health system in Ukraine was expected to become more modern, efficient and of higher quality (Romaniuk and Semigina, 2018).

During the time when some of the data for this dissertation were collected, primary healthcare in Ukraine was highly underfinanced, structurally and financially inefficient (Romaniuk and Semigina, 2018). More than a quarter of households were unable to access healthcare in 2001 because of financial difficulties (inability to buy drugs or healthcare services) (Lekhan, 2004). The situation was complicated even more by the so-called "hybrid war" and annexation of Crimea by Russia in 2014 (Romaniuk and Semigina, 2018) when Ukraine lost control over several territorial units (oblasts) in the East of the country and Crimea peninsular in the South.

Primary healthcare has changed dramatically since. Overall, the implementation of the first stage of healthcare financing reform 2016-2019 was perceived to be successful in terms of its influence on the objectives of the reform, such as accessibility, quality, effectiveness of healthcare services, and protection from financial burden (WHO – World Bank Joint Report, 2019). Specifically, the Joint Report of WHO and World Bank concluded that the design of the healthcare reform complied with best practices that improve accessibility, quality and effectiveness of healthcare. One of the reasons why the implementation of the reform was successful was the creation of the most important change implementor, the national healthcare service. Also, at the time of writing this dissertation, the procedures of strategic purchases, agreements with providers and financial incentives have been developed and are being implemented. The new strategy for the development of the health system till 2030 has been drafted by the Ministry of Health of Ukraine and is being publicly discussed in 2023 before its approval by the Government of Ukraine. The strategy predisposes the

continuation of work at the aim set by the reform. At the same time Ukrainian health system has to face challenges that resulted from Russian invasion in 2022. Specifically, mass movements of displaced people, damages to healthcare infrastructure, worsening financial well-being, worsening mental health (Patel and Ericson, 2022). Health system focusing on acute trauma has the potential to influence healthcare quality, for example, by hampering access to care for people with non-communicable diseases (Maystruk et al., 2022).

The first stage of healthcare financing reform also triggered a new wave of discussions around quality. Under the newly introduced competition principle "money follows the patient" (Romaniuk and Semigina, 2018), the attention of healthcare providers was drawn to the concepts of quality perceptions and satisfaction with quality. There also arose the necessity to develop quality assessment procedures, specifically quality indicators and rules for prolonging or revoking agreements between the National Health Service of Ukraine and healthcare providers in case of violations.

1.4. Motivation of the dissertation

The health system reforms in Ukraine and ongoing discussions on healthcare quality outlined above call for evidence on the perceptions of quality by healthcare stakeholders, validity and the reliability of tools for quality assessment as well as satisfaction with quality of medical services, among others. At the system level, such evidence can help to develop policies that make the health system more responsive to the needs and expectations of healthcare users. On the level of facilities, such evidence could be used in customer relations management to create and strengthen the loyalty of patients. Evidence on the perception of healthcare quality might also be beneficial for newly emerging medical associations. Their primary aim is to ensure high quality for patients through the education of their members (Schofferman, 2011). At the same time, evidence on quality perception might also be interesting for countries with similar health systems or with health systems in transition (in the region and elsewhere). These arguments emphasize the policy relevance of the focus of this dissertation.

This dissertation is also of interest from an academic point of view. Studies on healthcare quality perceptions in Ukraine are few. Most often, Ukraine was studied among other post-Soviet countries. Kressens et al. (2004) evaluated primary healthcare quality in 12 countries, including Ukraine. Footman et al. (2013) studied public satisfaction with healthcare as a measure of health system performance in nine former Soviet Union countries (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine). Peabody et al. (2014) studied the quality of healthcare services in Ukraine in 2009 and 2010. Luck et al. (2014) analyzed patient and provider perspectives on quality. Stepurko et al. (2016) measured overall satisfaction with quality of and access to healthcare services in six Central and Eastern European countries, including Ukraine. In general, these studies concluded that the level of satisfaction with quality of healthcare services is low compared

to other countries included in the analysis and healthcare reforms with a focus on quality are necessary.

More recently, in 2019, satisfaction with primary healthcare services in Kyiv was measured by Paryi et al. (2020). This cross-sectional study reported an increase in satisfaction with primary healthcare services from 75.5±0.5 (n1 = 397 (%±SE%) in 2017 to 85.9±0.4 (n2 = 402 (%±SE%). The data were collected using the EUROPEP questionnaire. The parameters were calculated as mean, ± standard deviation (SD) or ± standard error (SE) and percent. Also, in 2019, Ahiyevets et al. (2020) measured primary healthcare quality satisfaction as rated by students in the area of humanities in three countries (Belarus, Poland and Ukraine). This study found that such attributes of quality as politeness and attentiveness of medical doctors were rated highly. Medical confidentiality was rated comparatively low. Several studies have focused on satisfaction with a specific type of care. Hailemeskal et al. (2020) studied the perceived quality of HIV care and concluded that satisfaction with HIV services is perceived as high.

None of these studies, however, described the perception of quality of healthcare managers or examined general satisfaction with primary healthcare services among service users and nonusers before, during and after the start of the healthcare financing reforms in Ukraine.

This dissertation provides a new research perspective on healthcare quality in Ukraine, taking the viewpoint of healthcare providers and users. It also charts opportunities for future research on the Ukrainian health system as well as on other similar health systems where healthcare quality is a key challenge.

1.5. Research aim and methods

A common understanding of quality among healthcare professionals and patients in Ukraine is a first step towards a more service-quality-oriented health system. However, there is a great lack of evidence on the perception of quality both among healthcare managers (primarily physicians and nurses) and healthcare users in Ukraine. Evidence on this is important because understanding the healthcare managers' perceptions helps to shape the objectives of healthcare (Peabody et al., 2014), whereas users' perceptions are helpful in improving quality and increasing utilization of healthcare when needed (Baltussen et al., 2002). Evidence on the perspective on quality in healthcare at the micro- (patients and providers) and meso level (healthcare managers) can provide valuable input for improving the Ukrainian health system (macro level).

Thus, the central aim of this dissertation is to obtain new knowledge on the perception of healthcare quality by different stakeholders as well as insights on self-reported satisfaction with primary healthcare, specifically, on general satisfaction with primary healthcare in Ukraine.

First, the perceptions of healthcare quality are analyzed by eliciting quality attributes important to primary healthcare managers (primarily physicians and nurses) as well as to primary healthcare users. Second, the assessment tools used by managers to assess quality of healthcare services on the level of healthcare are explored. Thirdly, the change in the level of satisfaction by users and nonusers during 2016-2020 - the period of the reform of the health system - is studied, as well as the potential influence of the healthcare reform on general satisfaction with primary healthcare services.

Thus, the central aim of the dissertation is approached through four research questions:

Research question one. What is the available evidence on quality assessment based on the patients' opinions as well as its applicability for policymaking?

The objective here is to systematize the evidence on the validity and reliability of subjective measurements of satisfaction with healthcare services in general based on a systematic literature review. We focus on the psychometric properties and usefulness of the measurement tools applied by healthcare facilities to assess functional quality (service attributes). The method of systematic review is used to collect and analyze data for this research question. We applied directed qualitative content analysis to the publications included in the review. The results of this systematic review provide the basis for further analysis, namely, for the analysis of quality perceptions and quality assessment instruments used in Ukrainian healthcare facilities and satisfaction with primary healthcare services.

Research question two. What are primary healthcare managers' perceptions of healthcare quality and quality assessment instruments used in the everyday practice of Ukrainian primary healthcare settings?

This research question requires exploring perceptions of healthcare quality among primary healthcare managers (primarily physicians and nurses) by asking them to identify quality attributes. These attributes serve as descriptors of quality and help to understand quality assessment used in the everyday practice of Ukrainian primary healthcare settings. An online survey is used as the data collection mode, with a mixture of sampling methods. Descriptive statistics and qualitative data analysis following a "bottom-up" approach are used to analyze the responses of the participants. The results of this analysis help understand if there is a unified understanding of quality on the level of primary healthcare providers as well as their focus of importance and formulate policy recommendations.

Research question three. What are the perceptions of outpatient care quality by healthcare users in Ukraine?

This research question requires exploring perceptions of outpatient care quality by healthcare users in Ukraine by identifying and comparing attributes important to outpatient healthcare users as well as by comparing any changes in importance during a four-year period. Data from the repeated cross-sectional household survey 'Health Index. Ukraine' are used, specifically from four rounds of the survey conducted in 2016 – 2019. A sample

is drawn for each survey round (over 10,000 participants per survey round). A multi-stage sampling technique, random at each stage, is used. The data are collected via face-to-face interviews with trained interviewers who performed field activities in 476 inhabited locations on territories controlled by the government of Ukraine. The binary regression analysis is applied to analyze the outpatient healthcare quality perceptions by healthcare users. The results of this analysis help to understand the focus of importance by outpatient healthcare users as well as compare it with the focus expressed by primary healthcare managers and formulate policy recommendations.

Research question four. How satisfied are users and nonusers with primary healthcare services in general? To what extent is a change in satisfaction with healthcare services among primary healthcare users associated with the healthcare financing reforms in Ukraine (2016-2020)?

The objective is to examine general satisfaction with primary healthcare services among service users and nonusers before and after the start of the healthcare financing reforms in Ukraine. Therefore, quantitative data analysis is applied. The data from the same repeated cross-sectional household survey 'Health Index. Ukraine' are used, specifically from five rounds of the survey conducted in 2016 - 2020. Sample is drawn for each survey round (over 10 000 participants per survey round). The same sampling technique and data collection mode are applied to research question 3. The difference-in-differences analysis of general satisfaction with primary care is applied. The results of this analysis help to see the change in satisfaction in dynamics (2016 – 2020) as well as understand if healthcare reform is among the factors directly influencing general satisfaction.

1.6. Outline of the dissertation

The next chapter in this dissertation, Chapter 2, presents the results of the systematic literature review focused on quality assessment tools and their applicability for policymaking, which is related to research question 1. This is followed by Chapter 3, which presents the results of the qualitative study among primary healthcare managers in Ukraine, given the objectives stated by research question 2. Further, Chapter 4 and 5 focus on the healthcare users. Chapter 4 presents the results of binary regression analysis of outpatient healthcare quality perceptions among healthcare users, which is related to research question 3. Chapter 5 presents the results of the difference-in-differences analysis of general satisfaction with primary care with regard to research question 4. Chapter 6 completes the dissertation by presenting the general discussion, in particular, the interpretation of the dissertation findings to better understand the practices of assuring healthcare quality in Ukraine and to formulate policy recommendations.

Chapter 2

The validity and reliability of self-reported satisfaction with healthcare as a measure of quality

The chapter draws on:

Anufriyeva, V., Pavlova, M., Stepurko, T., & Groot, W. (2021). The validity and reliability of self-reported satisfaction with healthcare as a measure of quality: a systematic literature review. International Journal for Quality in Health Care, 33(1), mzaa152. doi: 10.1093/intqhc/mzaa152

Abstract

Background: The aim of this chapter is to systematize the evidence on the validity and reliability of subjective measurements of satisfaction with healthcare.

Methods: In this qualitative systematic literature review, we searched for relevant publications in PubMed and JSTOR databases. The key inclusion criteria included: (a) original research articles in peer-reviewed journals; (b) year of publication from 2008 onward; (c) English language publications. We applied directed qualitative content analysis to the publications included in the review.

Results: Overall, 1167 publications are found and screened. Of these, 39 publications that focus on the psychometric properties of the measurement of patient satisfaction, are included. The majority of the studies validate already existing instruments adapted to different contexts; the rest describe psychometric properties of self-developed tools. Psychometric properties are assessed by means of reliability and validity assessment. Reliability assessment is performed via Cronbach alpha and test-retest reliability. 94.9% of studies find that the satisfaction measures are reliable. Validation is performed by a variety of different methods among which the most applicable are face validity and factor analysis. 71.8% of studies find that the satisfaction measures are valid.

Conclusions: Because of the complexity of the studies, we cannot make strong recommendations on the application of self-reported satisfaction measures. We recommend the following key strategies: (1) developing a unified standard for satisfaction measurement, and (2) identifying a combination of tools to routinely measure satisfaction. We also suggest further research on the issue of subjectivity reduction.

2.1. Introduction

As stated in the introduction to this dissertation, patient satisfaction is an indicator of healthcare quality (Gill and White, 2009). The measurement of it has emerged together with the increased emphasis on the role of the patient (Sitzia, 1997). In contrast to a physician-centered approach with its paternalistic healthcare provider and passive patient (Parsons, 1975), patient-centered care assumes an active role of the healthcare user (Weston, 2001; Calabretta, 2002). Consequently, the necessity to assess patient satisfaction with services has emerged (Sitzia, 1997), and it now complements clinical outcomes as a subjective measure of healthcare quality.

Typically, patient satisfaction is measured in surveys among patients (Jenkinson et al., 2002) after the service is used. However, exit surveys are biased by so-called "courtesy bias" and "Hawthorn effect" (Gill and White, 2009).

Questions about satisfaction correspond to everyday evaluations that people make about services or products they use (Turner and Krizek, 2006). That is also why consumer satisfaction is widely used in marketing research. It is being associated with customer loyalty, companies' reputation and economic return (Anderson et al., 1994). At the same time, Crow at al. (2002) point out several difficulties in measuring satisfaction and question its validity. First of all, the measurement of satisfaction is highly subjective. Secondly, it may reflect personal expectations rather than quality itself. Thirdly, it is difficult to understand the basic reason for satisfaction or dissatisfaction: it may be related to the process of service delivery or health outcome, or both. In healthcare, patients may also express the degree of satisfaction with the services they used personally and/or with the health system in general (Crow et al., 2002). Framing the questions plays a key role in measuring. With positively framed questions, patient satisfaction tends to be a lot higher than with negatively framed questions (Dunsch et al., 2018). Higher patient satisfaction is associated with greater use of inpatient services, drug prescriptions, overall healthcare expenditures, and mortality risk (Joshua et al., 2012).

As argued in the Introduction to this dissertation, despite the subjective nature of satisfaction, many studies underline its importance for understanding the relation between healthcare quality and healthcare utilization (Baltussen, 2002) and for healthcare decision-making (Crow, 2002). Several systematic literature reviews on patient satisfaction and its measurement have been done (Beattie et al., 2015; Phillips et al., 2016; Davidson et al., 2017). As repeated cross-sectional data on satisfaction are important but are often lacking (Calabro et al., 2018), standardized patient satisfaction surveys have been developed (Mohammed et al., 2016). However, the psychometric properties of the instruments for measuring patient satisfaction are not always clear and have not been properly studied in earlier reviews.

The aim of the systematic review in this chapter is to assess the validity and reliability of self-reported satisfaction with healthcare services in general. We focus on the validity and usefulness of the measurement tools applied by healthcare facilities to assess functional quality (service attributes). Our review does not cover the measurement of patient satisfaction with specific medical treatments. This chapter presents findings from various countries published between 2008 and April 2020 in English in peer-reviewed journals.

2.2. Methods

Data sources

The method of qualitative systematic literature review following the PRISMA statement (Moher, et al., 2009) is used. To select relevant publications, we searched PubMed and JSTOR databases. Three main keywords, i.e. "healthcare", "quality" and "measurement", were used as well as their synonyms. The keywords chain used in PubMed is presented in Figure 2.1. The search in JSTOR was only possible with a narrower option of synonyms (see Figure 2.2). The initial search was conducted in June 2018, and the final search aimed to update the search results was done in April 2020. In PubMed, three key words were added to more precisely describe the keyword "measurement", namely "psychometric properties" OR "validity" OR "reliability" (see Figure 2.3). The search in JSTOR database did not change.

Figure 2.1. ***The keywords chain used in PubMed***

> (("Medical care"[All Fields] OR "treatment"[All Fields] OR "health service"[All Fields] OR "health-service"[All Fields] OR "health care"[All Fields] OR "health-care"[All Fields] OR "healthcare"[All Fields] OR "patient-centered care"[All Fields] OR "patient centered care"[All Fields]) AND ("Quality of healthcare"[All Fields] OR "healthcare quality"[All Fields] OR "self-perceived quality"[All Fields] OR "perception of quality"[All Fields] OR "service quality"[All Fields])) AND (("methods of measure" [All Fields] OR "methods of measuring"[All Fields] OR "measurement"[All Fields] OR "measurements"[All Fields] OR "subjective measurement"[All Fields] OR "patient satisfaction"[All Fields] OR "patient experience"[All Fields] OR "customer satisfaction"[All Fields] OR "user satisfaction"[All Fields] OR "consumer satisfaction"[All Fields] OR "survey"[All Fields] OR "quality survey"[All Fields] OR "satisfaction survey"[All Fields] OR "questionnaire"[All Fields] OR "healthcare quality assessment"[All Fields] OR "patient-reported outcomes"[All Fields] OR "patient feedback"[All Fields])).

Figure 2.2. ***The keywords chain used in JSTOR***

> ("Healthcare" OR "patient centered care") AND ("healthcare quality" OR "perceived quality" OR "service quality") AND ("subjective measurement" OR "patient satisfaction")

Figure 2.3. ***The keywords chain used in PubMed for checking the results of the first search***

> (("Medical care"[All Fields] OR "treatment"[All Fields] OR "health service"[All Fields] OR "health-service"[All Fields] OR "health care"[All Fields] OR "health-care"[All Fields] OR "healthcare"[All Fields] OR "patient-centered care"[All Fields] OR "patient centered care"[All Fields]) AND ("Quality of healthcare"[All Fields] OR "healthcare quality"[All Fields] OR "self-perceived quality"[All Fields] OR "perception of quality"[All Fields] OR "service quality"[All Fields])) AND (("methods of measure" [All Fields] OR "methods of measuring"[All Fields] OR "measurement"[All Fields] OR "measurements"[All Fields] OR "subjective measurement"[All Fields] OR "patient satisfaction"[All Fields] OR "patient experience"[All Fields] OR "customer satisfaction"[All Fields] OR "user satisfaction"[All Fields] OR "consumer satisfaction"[All Fields] OR "survey"[All Fields] OR "quality survey"[All Fields] OR "satisfaction survey"[All Fields] OR "questionnaire"[All Fields] OR "healthcare quality assessment"[All Fields] OR "patient-reported outcomes"[All Fields] OR "patient feedback"[All Fields] AND "psychometric properties" [All Fields] OR "validity" [All Fields] OR "reliability" [All Fields])).

Study selection

In both searches, publications were first screened for relevance based on title and abstract. If a publication was classified as relevant, the full text was obtained and screened. The reference lists of the selected publications were also screened for other relevant studies. The same inclusion and exclusion criteria were applied in all screening steps.

The inclusion criteria included: (a) original research articles in peer-reviewed journals; (b) year of publication from 2008 onward; (c) English language publications. We excluded publications that focused on the development of quality indicators, the development of scales measuring patient involvement in shared decision-making or a safe environment, patient perceptions assessed by medical doctors or nurses, assessment of insurance services, services of drug and alcohol addiction treatment centers, dentistry, assessment of drug intake and community pharmacy. All studies included in the systematic literature review had the aim of studying the psychometric properties (validity and reliability) of the instrument used to measure patient satisfaction with services in general. We did not focus on studies that measured patient satisfaction with a specific medical treatment only (for example, oncology services). Instead, we focused on the measurement tools applied to assess functional quality at the organizational (meso-) level of the health system.

To manage the review, EndNote software was used. Titles and abstracts of studies retrieved in the initial search were screened independently by a second review author. The results were compared and discrepancies were discussed. The review protocol was registered in the International prospective register of systematic reviews PROSPERO (number CRD42020159005).

Data extraction

We applied directed qualitative content analysis to the publications included in the review (Assarroudi et al., 2018; Hsieh and Shannon, 2005). For this purpose, we defined the following key themes: healthcare quality, patient satisfaction, subjective measurement. The full text of the publications was carefully read and information related to the above themes was extracted, synthesized and presented in a narrative manner. Tables were added to illustrate the results.

We checked the research quality of the publications included in the review. Specifically, we developed a checklist based on Quantitative Research Assessment Tool (See Appendix A, Table A.1). The results of the research quality assessment are presented in Appendix A, Table A.2. We also checked the quality of our review based on the PRISMA 2009 checklist (see Appendix A, Table A.3).

2.3. Results

The initial PubMed and JSTORE searches in 2018 yielded 2450 articles. After the duplicates, book chapters and editorials were removed, 1167 titles and abstracts were screened. The full text of 470 articles was assessed for eligibility, out of which 456 were excluded. Additionally, 20 records were identified through cross-references (mostly articles in journals not referenced by PubMed). The updated search in 2020 yielded 5 more articles. Finally, 39 publications that met the inclusion criteria were included in the quantitative synthesis, as presented in Figure 2.4. The complete list of publications is available in Appendix A, Table A.4.

To check the quality of the publications included in the review, three key aspects of every publication were assessed: (a) study details, including aim, population, randomized selection of participants, sample size, response rate, findings and value of the research; (b) measurement, including main variables or concepts, operationalization of concepts, and (c) analysis, including numeric tables, missing data, appropriateness of statistical techniques, omitted variable bias, analysis of main effect variables, ethical criteria. Every aspect was assessed with “1” if the data were fully presented, “0” partially presented, “-1” not presented.

As described in Appendix A, Table A.2, we considered the quality of the study as excellent if the total score was 11 and more (2 articles); good if the total score was 6 to 10 (22 articles) and poor if the total score was 5 and less (15 articles). Poor quality of articles was mostly due to small population size and low response rate, or no description of missing data and ethical considerations.

Table 2.1 contains the general description of the studies included in the review. The articles were distributed over three time periods (a) 2008 – 2010, (b) 2011 – 2014, (c) 2015 – April 2020. The majority of studies were of Asian and European origin, although studies performed in North America, South America and Africa were also included. We did not find relevant studies performed in Australia. Publications described studies of inpatient and outpatient services with more studies on inpatient services. The purpose included monitoring and assessment of quality of services and/or quality improvements.

Figure 2.4. ***PRISMA flowchart***

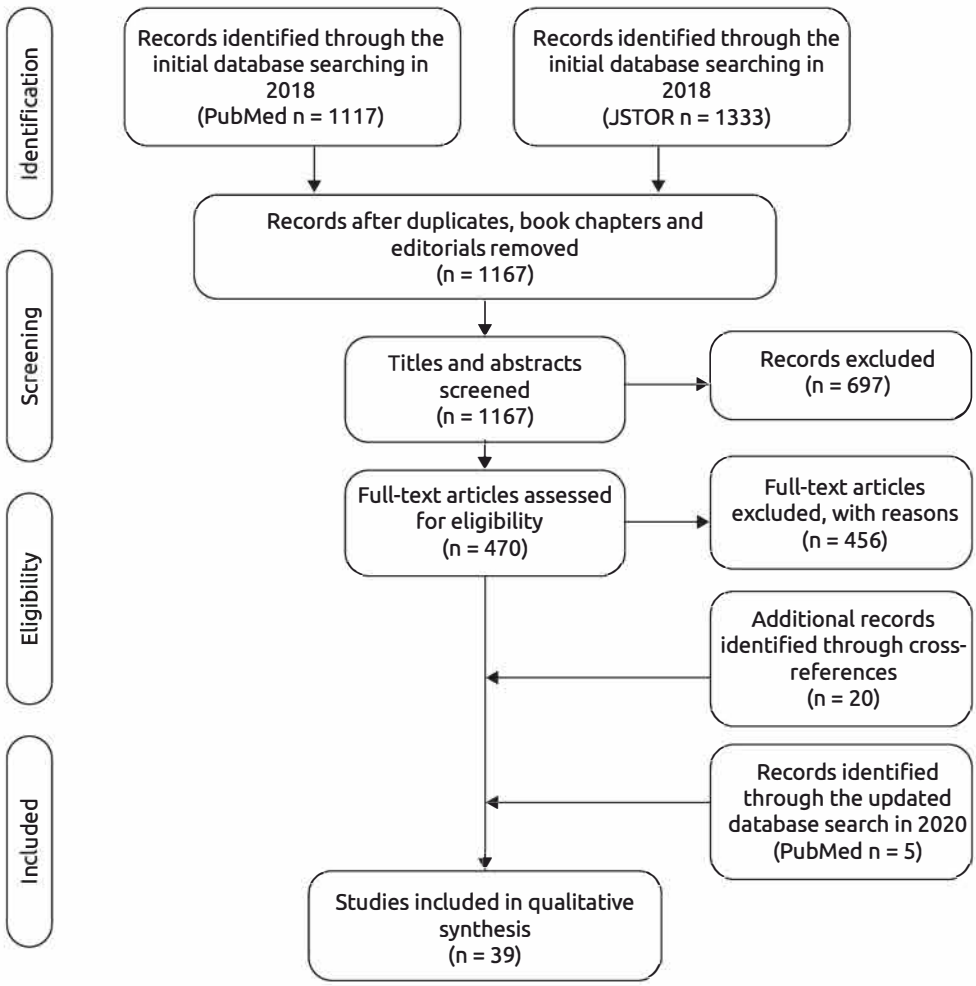


Table 2.1. ***Description of the studies included in the systematic literature review***

Characteristics of the studies	Number (%)	Publication reference number (see Appendix A, Table A.4)
Year of publication 2015 – April 2020	14 (35.9%)	1, 2, 3, 4, 5, 8, 15, 16, 19, 21, 29, 30, 32, 35
2011 – 2014	16 (41%)	7, 9, 12, 13, 18, 20, 22, 23, 24, 25, 26, 27, 28, 31, 33, 36
2008 – 2010	9 (23.1%)	6, 10, 11, 14, 17, 34, 37, 38, 39
Origin of the study Asia (China, Hong Kong, India, Iran, Malaysia, Oman, Philippines, Republic of Cyprus, Saudi Arabia, Taiwan, Turkey)	21 (53.8%)	1, 2, 3, 4, 7, 8, 9, 10, 15, 18, 19, 21, 24, 26, 28, 30, 33, 35, 36, 38, 39
North America (Canada, the USA	4 (10.3%)	11, 12, 20, 37
South America (Brazil, Columbia)	3 (7.7%)	5, 31, 32
Europe (Croatia, France, Greece, the Netherlands, Poland, Romania, Serbia)	7 (17.9%)	6, 16, 22, 23, 25, 27, 29
Africa (Madagascar, Morocco)	4 (10.3%)	13, 14, 17, 34
Type of service measured Inpatient	22 (56.4%)	1, 2, 3, 4, 6, 7, 9, 10, 13, 14, 15, 21, 22, 23, 26, 29, 31, 33, 34, 36, 37, 38
Outpatient	10 (25.7%)	5, 8, 11, 12, 18, 19, 20, 25, 27, 28, 35, 39
Both inpatient and outpatient	1 (2.6%)	24
Not specified	4 (10.3%)	16, 17, 30, 32
Purpose for measurement Quality monitoring and assessment	27 (69.2%)	1, 5, 8, 9, 10, 12, 13, 14, 17, 18, 19, 20, 22, 24, 25, 26, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39
Quality improvement	6 (15.4%)	4, 6, 11, 21, 23, 30
Combination of the above	6 (15.4%)	2, 3, 7, 15, 16, 27

Table 2.2 describes the methods used in the publications reviewed. All studies had a quantitative design and applied quantitative data analysis methods. The following subgroups of respondents were distinguished: patients (29 studies out of 39), and family members (5 out of 39). The sample size was less than 500 respondents in 27 studies, more than 500 but less than 1000 respondents in 7 studies and more than 1000 respondents in 5 studies. The methods of data collection and administration mode included self-

administered questionnaires, interviewer-administered questionnaires and their combination. Data collection was performed either ad hoc or post hoc.

Table 2.3 presents the list of the instruments and the publications where they are described. The majority of the studies (21 out of 39) validated an already existing instrument that was modified or adapted to a different cultural context. In 15 out of 39 studies, a self-developed measurement tool was validated.

As described in Table 2.4, the adaptation of an existing instrument included translation in 16 out of 39 studies. In 3 out of 39 studies, the instrument was adapted and modified but a translation was not needed. The process of development of a self-developed instrument included: (a) item generation, (b) item modifications, (c) pilot testing, and (d) in three cases, translation into other languages.

For initial validation, the studies assessed the reliability (in 38 articles out of 39) and validity (in 32 articles out of 39) of the instruments. The majority of the studies assessed internal consistency reliability (37 out of 39). Some studies assessed test-retest reliability (6 out of 39). Validity assessment was performed via construct validity (30 out of 39), content validity (12 out of 39) and criterion validity (4 out of 39). In addition, one study assessed acceptability.

Table 2.2. ***Study methods employed in the empirical research***

Study methods	Number (%)	Publication reference number (see Appendix A, Table A.4)
Study population Healthcare users (patients)	29 (74.3%)	1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13, 16, 18, 19, 20, 21, 22, 26, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
Healthcare users (family members of patients)	5 (12.8%)	10, 14, 23, 24, 25
Healthcare users (both patients and family members)	3 (7.7%)	8, 15, 28
Both healthcare users and medical staff	1 (2.6%)	29
Not specified	1 (2.6%)	17
Sample size Less than 500 respondents	27 (69.3%)	1, 2, 4, 5, 7, 8, 10, 13, 14, 16, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
500 – 1000 respondents	7 (17.9%)	3, 9, 15, 18, 20, 21, 23
More than 1000 respondents	5 (12.8%)	6, 11, 12, 17, 19

Table 2.2. ***Continued***

Study methods	Number (%)	Publication reference number (see Appendix A, Table A.4)
Method of data collection* Self-administered questionnaire	19 (48.7%)	2, 3, 4, 6, 8, 9, 11, 16, 20, 22, 23, 25, 27, 28, 29, 30, 31, 33, 37
Interviewer-administered questionnaire	17 (43.6%)	1, 5, 7, 10, 12, 15, 17, 18, 19, 21, 24, 26, 32, 34, 36, 38, 39
Combination of methods	3 (7.7%)	13, 14, 35
Methods of administration of the self-administered questionnaire Paper-based	2 (5.2%)	25, 27
Web-based	2 (5.2%)	2, 11
Postal	2 (5.2%)	20, 23
Not specified	16 (41%)	3, 4, 6, 8, 9, 13, 14, 16, 22, 28, 29, 30, 31, 33, 35, 37
Methods of administration of the interviewer-administered questionnaire Face-to-face interview	15 (38.4%)	1, 5, 7, 12, 13, 14, 18, 19, 21, 24, 26, 34, 35, 36, 39
Telephone interview	5 (12.8%)	12, 13, 15, 32, 39
Not specified	3 (7.7%)	10, 17, 38
Time of administration Ad hoc (directly at the doctor's office or before discharge)	16 (41%)	1, 2, 5, 6, 7, 14, 18, 19, 21, 24, 25, 26, 27, 34, 35, 36
Post hoc (some time after the service provision)	4 (10.3%)	15, 20, 23, 31
Combination of the above	4 (10.3%)	12, 13, 17, 39
Unclear	15 (38.4%)	3, 4, 8, 9, 10, 11, 16, 22, 28, 29, 30, 32, 33, 37, 38

* Self-administered, interviewer-administered questionnaires and their combination comprised 100% of the references, where self-administered questionnaires comprised 56.6% and interviewer-administered – 59%

Table 2.3. ***Description of subjective measurements***

Characteristics of the subjective measurements	Number (%)	Publication reference number (see Appendix A, Table A.4)
Type of an instrument* Existing tool modified or adapted in different context	21 (53.9%)	1, 2, 3, 4, 5, 10, 13, 14, 15, 16, 20, 21, 22, 24, 25, 27, 29, 30, 31, 33, 34
Self-developed tool	15 (38.4%)	6, 7, 8, 9, 12, 18, 19, 23, 28, 32, 35, 36, 37, 38, 39
Unclear	3 (7.7%)	11, 17, 26

* names of the tools and publication references are given in Appendix A, Table A.5.

Table 2.4. ***Characteristics of adaptation or development of an instrument and methods and results of validation of a measurement tool***

Characteristics of adaptation or development of an instrument and methods and results of validation of a measurement tool	Number (%)	Publication reference number (see Appendix A, Table A.4)
Process of adaptation of instruments* Adaptation that required translation	16 (41%)	1, 2, 3, 4, 10, 13, 14, 15, 21, 22, 24, 27, 30, 31, 33, 34
Adaptation that required no translation	3 (7.7%)	20, 25, 29
Unclear	2 (5.2%)	5, 16
Methods of validation Reliability	38 (97.4%)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
Validity	32 (82%)	1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39
Acceptability	1 (2.6%)	6
Not described	1 (2.6%)	17
Reliability Internal consistency reliability	37 (94.8%)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
Test-retest reliability	6 (16%)	13, 18, 19, 24, 31, 32
Validity Construct (incl. face, convergent and discriminant)	30 (76.9%)	1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 34, 35, 37, 39
Content	12 (30.7%)	1, 2, 7, 8, 9, 18, 23, 24, 26, 36, 37, 38
Criterion (incl. concurrent and predictive)	4 (10.3%)	11, 20, 22, 27

* percentage of adapted instruments among the references comprises 53.9% (See Table 2.3)

* detailed description of the stages of development and/or adaptation is given in Appendix A, Table A.6

** percentage of self-developed instruments among the references comprises 38.4% (See Table 2.3)

Both reliability and validity were assessed by a number of different psychometric methods (see Appendix A, Table A.7). Reliability was assessed by Cronbach alpha in all cases but one. The threshold for Cronbach alpha 0.8 (Cronbach, 1951) was attained in 27 out of 39 articles. In 8 out of 39 articles, the results of reliability assessment were close to the threshold (0.74, 0.75, 0.79) or within the range 0.70-0.94. In one article, Cronbach alpha was not assessed and in one article, the results of Cronbach alpha assessment were not described.

Validity was assessed in a number of ways: (a) face and content validity performed via consultation groups and interviews both with patients and/or family members and healthcare professionals, (b) construct validity via exploratory and/or confirmatory factor analysis, or extreme group comparison method, or Principal Components Analysis, (c) discriminant validity via Spearman's rank correlation matrix of the subscales, (d) convergent validity via goodness of-fit index and standardized factor loadings, (e) concurrent validity via correlations, (f) criterion-related validity, (g) predictive validity via multiple regression analysis, (h) congruent validity, (i) non-differential validity. Face validity (via pilot testing and expert interviews) and factor analysis were the most applicable ones.

Overall, 71.8% of the studies in the review concluded that a valid instrument was used to measure satisfaction, while 94.9% concluded that the instrument was reliable.

After the assessment of the psychometric properties, recommendations were given for further use of an instrument (8 out of 39), further validation and/or improvement of an instrument (14 out of 39), both validation and use (4 out of 39). In 13 publications, recommendations were either unclear or no recommendations about the instrument were given.

2.4. Discussion

As stated in the Introduction to this dissertation, a lot of different factors influence the choice of a measurement tool, the purpose of measurements being one of the most important. Using measurements for quality monitoring and assessment gives information on the level of quality at the time of measurement. Comparing it with the routinely received data helps to keep track of the loyalty of patients, and quickly react to reputational risks. Measures for quality improvement help to understand the bonds between healthcare quality and the utilization of healthcare services to plan service delivery. Measures for management give data for rational decision-making. That is why a great variety of instruments exist alongside the need or desire to make changes to them on the basis of purpose, context, resources, etc. (Beattie, 2015). Thus, we suggest using a combination of tools and purposes of their application.

The majority of the tools in our review had a form of self-administered questionnaire. It might be explained by the fact that this mode of data collection is a simple and cheap one. Structured interviews are more reliable, but they cost more and are more complex (Glick, 2009) because they require from the healthcare provider additional resources like trained

interviewers. We suggest applying self-administered questionnaires as a part of a routine practice of data collection using more reliable methods like structured interviews once in a while as a cross-checking method.

The prevalence of the adapted subjective measures in our review might be explained by their long-term usage, effectiveness proved by a number of studies, and positive experience of usage of the measurements' results on micro- (organizational) and macro- (national) levels. The longer the tool is in use, the more accurate it may become (Beattie, 2015). For example, in our systematic literature review, SERVQUAL was adapted most frequently (5 out of 39). It has been in use for several decades (first published in 1985), its effectiveness has been proved by a number of studies, it has been translated into several languages and tuned to a number of cultural contexts. Every translation to a new language and every application under a new cultural context requires further tuning of the tool. This also leaves a place for criticism and further searches for the most reliable and valid tool.

The growing number of studies measuring psychometric properties of self-developed patient satisfaction assessment tools show the desire to have as exact instrument as possible applied for the specific domains and specific healthcare facility variables. Self-developed instruments might lessen possible measurement bias in case the adapted tool is used under different conditions than those it was developed for.

In all studies reviewed, the reliability and/or validity of a measurement tool was assessed with a number of different methods. Reliability assessment was performed via Cronbach alpha and test-retest reliability. The threshold for Cronbach alpha 0.8 (Cronbach, 1951) gave the researchers reason to conclude that their instrument was reliable. Validation was performed mostly by face validity and factor analysis. Reliability and validity measurements give us reason to conclude how exact the instrument is for the environment it was created or adapted for. Such a variety of different tools, as well as approaches to their validity, reliability and assessment, can add to the subjectivity of such measures. The development and application of a unified standard might become an answer to the subjectivity issue.

This systematic literature review has several limitations. We took into consideration measurements performed only among healthcare users and did not include in the study measurements among other healthcare stakeholders. While screening for titles and abstracts, we found several relevant abstracts, but the text of the articles was not in English, which made us remove these studies from the final review list (selection bias). We missed data from papers that were not (yet) published or are still under review (publications bias). Publications in journals that are currently not indexed in PubMed or JSTORE databases were found via cross-references but we might still miss the data that were published in not indexed sources. The 39 publications included in the review had methodological limitations reported and discussed. The main being small sample size and survey limitations (eligible population, duplicates removal, clear understanding of instructions, etc.). Another limitation is the diversity and complexity of the studies, which prevent generalizations.

2.5. Conclusion

Though patient satisfaction is highly subjective in nature, it is an important part of health outcome quality. There are a lot of instruments to measure patient satisfaction with healthcare services in general, as shown in this chapter. Taking into consideration differences in cultures and languages, the instruments require calibration or development of new ones to be as exact as possible and assessment of their psychometric properties to establish their reliability and validity. Because of the complexity of the studies, we cannot make strong recommendations on the application of self-reported satisfaction measures. Based on the review study presented in this chapter, we recommend the following key strategies: (1) developing a unified standard for satisfaction measurement to reduce subjectivity, and (2) identifying a combination of tools to routinely measure satisfaction to facilitate more precise clinical and managerial decisions. We also suggest further research on the issue of subjectivity reduction.

Chapter 3

The perception of healthcare quality by primary healthcare managers in Ukraine

The chapter draws on:

Anufriyeva, V., Pavlova, M., Stepurko, T., & Groot, W. (2022). The perception of health care quality by primary health care managers in Ukraine. BMC Health Services Research, 22(1), 1-11. doi: 10.1186/s12913-022-08300-y.

Abstract

Background: Ukraine is reforming its health system to improve healthcare quality. The aim of this chapter is to describe the perception of quality by primary healthcare managers in Ukraine.

Methods: An online survey was conducted as part of the Ukrainian-Swiss project "Medical Educational Development" in April-May 2019 based on the contact list of USAID project "Health Reform Support", and additionally on the database of the National Health Service of Ukraine and other channels. Data were analyzed using descriptive statistics and qualitative data analysis.

Results: In total, 302 healthcare managers took part in the study. The majority of primary healthcare managers perceive quality in healthcare as process quality. They associate quality mostly with compliance with standards. At the same time, primary healthcare managers prefer to assess outcome quality via a system of indicators and feedback. There appears to be a lack of consensus about healthcare quality. This may be due to a lack of awareness of the national strategy for better quality of healthcare service.

Conclusions: This chapter provides new insights into primary care managers' perceptions of healthcare quality in Ukraine. The absence of a clear consensus about quality complicates the discussion about quality and how to measure quality in healthcare. This appears to be one of the obstacles to system-wide quality improvement.

3.1. Introduction

As described in the introduction to this dissertation, in 2015, Ukraine initiated a reform of its healthcare financing. Besides the change in the financing principles and more autonomy for primary healthcare providers, it also included a change in management. Traditionally, only physicians or nurses could be appointed as healthcare managers (e.g., head doctor, head nurse, etc.). Since 2020, healthcare managers with managerial and non-medical background are also allowed to take managerial positions (Ministry of Health of Ukraine, order #1977, 2019).

What is still absent in the system is a national policy on healthcare quality and a national quality strategy for healthcare. Healthcare quality is defined in the Order of the Ministry of Health #752 dated September 28, 2012 as follows: "providing medical assistance and organizing healthcare services according to healthcare standards. Healthcare quality assessment is the compliance of medical assistance provided to formalized healthcare standards". At the same time, healthcare standards are not defined in Ukraine (WHO – World Bank Joint Report, 2019).

As stated in the Introduction to this dissertation, the perception of healthcare quality varies depending on the context and perspective of the different stakeholders (Mosadeghrad, 2013). In particular, different stakeholders use different indicators, so-called quality attributes, to define and assess quality. Healthcare professionals tend to perceive quality through the concordance of clinical results with guidelines (Mosadeghrad, 2013); work environment and job satisfaction (Kim and Han, 2012); physician leadership, infrastructural support, culture of the organization and valid healthcare quality measurement and evaluation (Marjoua and Bozic, 2012); clinical governance and leadership (Gauld and Horsburgh, 2013). For patients, quality depends on good care and treatment, health improvements, a clean and homelike service environment and interactions with the service provider (Mosadeghrad, 2013). Policy makers often believe quality indicators like accessibility, equitability and satisfaction of both healthcare users and providers to be important (Mosadeghrad, 2013). The perception of quality among stakeholders in general and healthcare managers, in particular, is important because it influences the implementation of reforms (Peabody et al., 2014) at a system level as well as the choice of tools for quality management at the level of a facility.

Several studies on healthcare professionals' perceptions of healthcare quality have been conducted (Gauld and Horsburgh, 2013; Cunningham et al., 2014; Farr and Cressey, 2015; Drugus et al., 2015; Leggat et al., 2017; Wei et al., 2019). Some of these studies have focused on primary healthcare (Sbarouni et al., 2012; Syah et al., 2015; Hilts et al., 2013; Papp et al., 2014; Krztoń-Królewiecka et al., 2016; Jung et al., 2002; Shea, 2018). These studies identify organizational aspects that affect the quality of interventions, physicians' performance, team performance, and health system effectiveness. Among the quality attributes, healthcare professionals point to the general practitioner's (GP) role (Sbarouni et al., 2012; Syah et al., 2015), positive work attitudes (Hilts et al., 2013), physicians' mental health

(Sbarouni et al., 2012), nurses' competencies (Papp et al., 2014), organizational quality orientation (Hilts et al., 2013), accessibility (Krztoń-Królewiecka et al., 2016) and clinical leadership (Hilts et al., 2013) as indicators of quality. Whereas patients find doctor-patient relationships (Jung et al., 2002), organization of care (Jung et al., 2002), access to care and adequacy of waiting times to be important (Papp et al., 2014). Studies have also compared patient and physicians' assessments of quality and have concluded that perceptions differ between groups and are often based on a different logic, e.g., physicians are more critical about quality than patients and tend to underestimate the level of positive attitude of their patients (Jung et al., 2002).

As explained in the introduction to this dissertation, there are only a few studies on healthcare quality in Ukraine (Peabody et al., 2014; Luck et al., 2014). In particular, Peabody et al., 2014 studied quality of healthcare services in Ukraine in 2009 and 2010. In that study, quality of clinical care for congestive heart failure and chronic obstructive pulmonary disease was assessed through a vignette analysis of clinical quality. Quantitative data obtained from medical facilities, physicians, patients at the facilities and households showed no significant differences in quality between urban and rural medical facilities, or between facilities of different levels. Quality also did not vary significantly if a physician worked in several facilities or had a higher number of elderly patients. Another study reported on the perspectives on quality and the effectiveness of the health system in Ukraine (Luck et al., 2014). The data were collected in 2009 and 2010 among household representatives (adults), physicians and clinic patients. The participants described quality through physician training, the amount of time spent with patients, and accessibility and affordability of care. The results showed that the health system reforms and the improvement of quality and affordability should become the major goals of the new policies (Luck et al., 2014). The quality indicators of both studies, however, measure process quality and not outcome quality.

We did not find studies on the perception of quality of healthcare managers in Ukraine and in particular, no such studies have been performed after the launch of the reform. It is therefore essential to study how healthcare managers in Ukraine perceive quality because understanding their focus is important for the reforms and to achieve consensus about the objectives in healthcare (Peabody et al., 2014). Many countries with similar health systems undergoing similar changes lack evidence on the impact of the reforms on their health system (Lekhan et al., 2015). Thus, evidence on Ukraine's experience might also be useful for countries with similar health systems in transition.

The aim of this chapter is to describe the perception of quality by primary healthcare managers in Ukraine. We expect to identify the quality attributes identified by the healthcare managers as descriptors of quality and ways of quality assessment used in the everyday practice of Ukrainian healthcare facilities. As we will show, the perception of quality among primary healthcare managers differs widely and includes statements like "one of the ten categories defined by Aristotle" and "something unreachable for rural medicine".

3.2. Methods

We used data from the online survey "Educational opportunities for managers in healthcare of Ukraine" conducted in April–May 2019 by the Ukrainian-Swiss Project "Medical Education Development" (MED). The aim of the survey was to identify the educational needs of primary healthcare managers and their expectations regarding the form and content of lifelong learning.

An online survey was used as the data collection mode. Online surveys are suitable for gathering information about healthcare professionals' attitudes and opinions. Among the main advantages of this mode, there is the possibility of tailoring to the situation, low response bias and low cost as well as flexibility for the participants who are usually pressed for time and are difficult to reach via telephone or face-to-face. Healthcare professionals appear to be 10-13% less likely to participate in surveys than the general population and the rate of participation is constantly decreasing because, among other reasons, they usually have to do it in their personal time, often consider it as irrelevant, suffer from information overload and privacy concerns (Taylor and Scott, 2019).

The questionnaire contained four blocks of both open-ended and closed-ended questions. In particular, the block "Quality management" contained two open-ended and one closed-ended question to clarify the understanding of the notion "quality", and whether there is a quality management system in the facility and how quality is assessed in the healthcare facility (see Appendix B).

Thus, three questions concerning healthcare quality management were used to collect data on the perception of healthcare quality by primary healthcare managers in Ukraine and the way quality is measured at their healthcare facilities: "What does the term 'quality in healthcare mean to you?", "Do you have a quality management system in your healthcare facility?", and "If you have a quality management system in your healthcare facility, please, describe how you assess quality." This chapter focuses on the data gathered through these three survey questions.

Prior to the survey, the questionnaire was validated by experts who read and commented upon it as well as pre-tested. Five healthcare managers (head doctors of primary facilities) were asked to fill in the questionnaire and comment on the questions. The questionnaire was modified based on these comments but the wording of the questions mentioned above stayed the same as no suggestions for change were made.

The sampling units were healthcare managers (chief doctor, deputy chief, head of department, chief nurse) as well as those who were on the "reserve list" for a management position at a primary healthcare facility.

A mixture of sampling methods was used. First, a link to the online survey along with a request to participate was sent to healthcare professionals in the contact list of the USAID project "Health Reform Support". This list contained the contact information of primary

healthcare managers who took part in USAID projects. The risk of bias in the sample selection is a known disadvantage of this method. Our sample also contains a small number of respondents who are not managers.

As the participation rate was low, a total population sampling method was used: a link to the online survey along with the request to participate was sent to healthcare professionals via the database of the National Health Service of Ukraine (NHSU). The database contained contact information of all primary healthcare managers who worked with the NHSU.

In addition, the survey link, along with the invitation to participate, was posted on the Facebook page of the MED project (a convenience sampling method). Two reminder e-mails were sent to healthcare professionals in the contact list of USAID and the NHSU at ten-day intervals. After that, on the eleventh day after the second reminder e-mail, the online survey form was closed.

As we do not have access to the contact lists of the NHSU or the USAID project, it is impossible to determine the response rate.

The answers to the open questions were first coded and then analyzed using descriptive statistics. Regarding the open-ended question "What does the term 'quality in healthcare' mean to you", the responses were given in two ways: enumerating keywords associated with quality or giving a complete sentence. We grouped the answers to this question into three major groups following Donabedian's quality model: quality of structure, quality of process and quality of outcome. One answer could be classified into more than one group. Various attributes and tools were identified in each group based on the participants' understanding of quality. Responses related to the following attributes were classified as quality of structure: integration, efficiency, organization and administration (management), and qualification. Attributes included in the quality of the process were: effectiveness, people-centeredness, safety, timeliness, equity, service and compliance with standards. The quality of outcome included responses related to the following attributes: indicators, such as the morbidity rate, health index, mortality rate, number of treated cases, vaccination rate, etc., absence of complaints, patient satisfaction, and doctor satisfaction.

We also analyzed the responses according to their similarity to three definitions of quality most frequently used in Ukraine:

- The definition of the Institute of Medicine, which includes structure, process and outcome and focuses on effectiveness, safety, people-centeredness, timeliness, equity, integration, and efficiency (WHO, 2018).
- The definition of the European Commission with its focus on effectiveness, safety and people-centeredness – the attributes of the process (Busse et al., 2019).
- The Ukrainian definition, with its focus on attributes of the process quality - compliance with standards (Ministry of Health of Ukraine, order #752, 2012).

Descriptive statistics and qualitative data analysis were also used to analyze the responses to the other two questions: "Do you have a quality management system in your healthcare facility?", and "If you have a quality management system in your healthcare facility, please, describe how you assess quality."

Qualitative data analysis was performed following the "bottom up" approach (Draper, 2004). The data was first sorted into themes. The results of the sorting as well as the discrepancies were discussed by all authors. The data were then coded by means of assigning short phrases to each response. The results of coding as well as the discrepancies were also discussed by the authors. The results of our study are confirmed by another small-scale study.

Ethical considerations. All participants were fully informed about the purpose of the study, how the findings would be used, whether there were any adverse impacts of their participation and who would have access to the findings. This information was presented in the cover e-mail, which introduced the questionnaire as well as in the opening statement of the online questionnaire. At the beginning of the questionnaire, the participants ticked the box (informed consent) to confirm that they were fully aware of the purpose of the study and further usage of the data. Participants were also reminded that they were free to withdraw their participation at any time without any negative impact. No identifying information was made available to any other parties. Ethical approval was not obtained as, according to the Ukrainian regulation, it is not necessary for research of this kind.

3.3. Results

In total, 354 online questionnaires were filled in by healthcare professionals. Twenty eight participants worked at secondary-level hospitals and five at academic hospitals. In this study, we focus on primary healthcare managers and exclude from the further analysis these thirty three hospital managers. Nineteen participants completed the survey twice. For these participants, the first filled-in questionnaire was included. After the duplicates were removed, 302 completed questionnaires were used in the analysis. Out of these, 19 questionnaires had no personal data information (name, gender). One questionnaire contained answers only for the close-ended questions. Two questionnaires contained no answers to the question "What does the term 'quality in healthcare' mean to you?", and three questionnaires had no answer to the question "If you have a quality management system in your healthcare facility, please, describe how you assess quality" even though the participants indicated that a quality management system was present. However, no questionnaire was excluded from the analysis because of missing data.

Table 3.1 contains information about the participants and the healthcare facilities they work at. The majority of the participants (67.9%) were female. The majority of the respondents (50.7%) were more than 45 years old.

The majority of healthcare professionals held managerial positions. The category "doctors" (10.9%) included private practitioners (5 out of 33) and medical doctors from the reserve list waiting to be appointed to a managerial position (5 out of 33). The category "others" (5.3%) included a specialist in communications, an economist, a legal adviser and a human resources officer.

In general, participants were very experienced in clinical work but had much less managerial experience.

Table 3.1. ***Participant characteristics***

Characteristics	Number % n = 302
Gender	
– Male	– 78 (25.8%)
– Female	– 205 (67.9%)
– Not reported	– 19 (6.3%)
Age	
– 25-35	– 60 (19.9%)
– 36-45	– 88 (29.1%)
– More than 45	– 153 (50.7%)
– Not reported	– 1 (0.3%)
Position	
– Director	– 60 (19.9%)
– Deputy director	– 17 (5.6%)
– Chief doctor	– 117 (38.7%)
– Deputy chief doctor	– 39 (12.9%)
– Chief of the department	– 18 (6%)
– Doctor	– 33 (10.9%)
– Nurse – administrator	– 2 (0.6%)
– Other	– 16 (5.3%)
General experience (years)	
– 0	– 0
– 1-5	– 20 (6.6%)
– 6-10	– 28 (9.3%)
– 11-20	– 88 (29.1%)
– More than 20	– 165 (54.6%)
– Not reported	– 1 (0.3%)
Managerial experience (years)	
– 0	– 41 (13.6%)
– 1-5	– 101 (33.4%)
– 6-10	– 73 (24.2%)
– 11-20	– 66 (21.8%)
– More than 20	– 19 (6.3%)
– Not reported	– 2 (0.6%)

As described in Table 3.2, in 4.3% of the cases, the participants' answers regarding the definition of quality could be related to the Institute of Medicine definition with its focus on structure, process and outcome quality. In 30.8%, the answer referred to the Ukrainian definition with its focus on process and in 40.4% to a combination of definitions. Quality aspects defined by the European Commission were only found in combination with the other two definitions in 24.1% of the cases. Elements of the Ukrainian and the Institute of Medicine definitions were most frequently combined (34% and 32.6%, respectively).

Table 3.2 also shows that in most cases (66.9%), the answers were in the form of complete sentences. And in 32.1% of the cases, the participants described quality enumerating keywords. There were two missing answers (0.6%) and one "I don't know" answer (0.3%).

The majority of the answers (97.3%) interpreted quality in healthcare as process quality. Structure and outcome quality attributes were mentioned in 31.1% and 41.7% of the answers, respectively. A group of answers (5.9%) that did not describe any process, structure or outcome quality attributes was included in the category "other". This group included quality attributes such as basic social rights, the creation of a medical services market, reforms, etc.

In 56.9% of the cases, one attribute was mentioned in the response. In the rest of the cases, quality was associated with two or more attributes.

Using the model shown in Figure 3.1, we describe with what attributes primary healthcare managers in Ukraine associate quality in healthcare and how frequently each attribute was mentioned. Tables 3.3-3.5 present quotations of healthcare managers describing quality attributes.

As can be seen from the tables, healthcare managers in Ukraine mostly associate structure quality with management (11.2%) and least of all with integration of care (1.3%). Process quality is strongly associated with compliance to standards (19.9%) and effectiveness (14.9%). It is less strongly associated with timeliness (8.9%) and safety (6.9%). Outcome quality is described by healthcare managers through indicators (15.6%) such as the morbidity rate, health index, mortality rate, number of treated cases, vaccination rate, etc. Outcome quality is also associated with patient satisfaction (14.9%) and doctor satisfaction (5%).

Table 3.2. ***Quality perceptions***

Characteristics	Number % (n = 302)
Answer characteristics	
– Own words (comprehensive)	– 202 (66.9%)
– Key words	– 97 (32.1%)
– I do not know	– 1 (0.3%)
– Missing answer	– 2 (0.6%)
Compliance of the answer to[a]	
– Institute of medicine term (IM)[b]	– 13 (4.3%)
– Ukrainian term (ukr)[c]	– 93 (30.8%)
– European Commission term (EC)[d]	– 0
– Combination of terms	– 122 (40.4%)
– Other	– 71 (23.5%)
Combination of terms[e]	
– Ukr+IM+EC+other	– 19 (6.3%)
– Ukr+IM+EC	– 40 (13.2%)
– Ukr+IM+other	– 8 (2.6%)
– IM+EC+other	– 4 (1.3%)
– Ukr+IM	– 13 (4.3%)
– Ukr+other	– 23 (7.6%)
– IM+EC	– 10 (3.3%)
– IM+other	– 5 (1.7%)
Quality aspects mentioned	
– Structure	– 94 (31.1%)
– Process	– 294 (97.3%)
– Outcome	– 126 (41.7%)
– Other	– 18 (5.9%)
Number of aspects mentioned per one answer[a]	
– 1	– 172 (56.9%)
– 2	– 64 (21.2%)
– 3	– 29 (9.6%)
– 4	– 16 (5.3%)
– 5	– 13 (4.3%)
– 6	– 1 (0.3%)
– 7	– 3 (0.9%)

Note

a. One answer could not be complied with any of the terms under analysis and contained no mention of aspects. "Quality is something unreachable for rural medicine".

b. "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (WHO, 2018).

c. "Providing medical help and organizing healthcare services according to the healthcare standards. Healthcare quality assessment is the compliance of provided medical help to the formalized healthcare standards" (Ministry of Health of Ukraine, order #752, 2012).

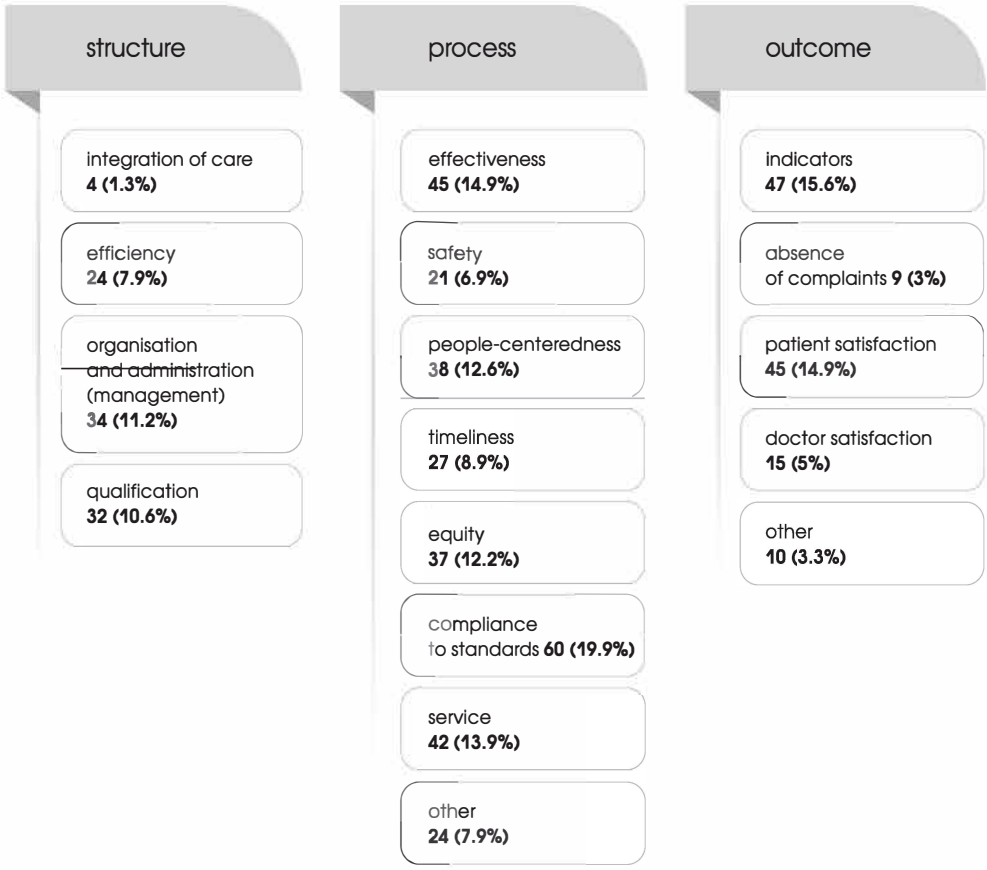
d. "Healthcare that is effective, safe and responds to the needs and preference of patients" (Busse et al., 2019).

e. Combination of terms comprised 40.4% of the general number of answers.

In general, the most frequently mentioned attributes of quality were "compliance with standards" and "indicators", whereas the least mentioned was the "integration of care".

Regarding the "medical service" attribute, the answers did not allow us to determine what understanding of "service" healthcare managers in Ukraine have.

Figure 3.1. ***Aspects of quality in healthcare as understood by participants***



Percentages indicate the share of participants who indicated the given attribute.

Answers like "team work", "preciseness" and "qualitative medical help" were calculated as "process aspects mentioned" (7.9%) and are shown as "other".

The answers like "satisfaction" without specifying patient or doctor, or "quality of life" were calculated as "outcome aspects mentioned" (3.3%) and are shown as "other".

As shown in Table 3.3, structure quality is mostly perceived as "getting the best results quickly and without unnecessary spending". Quality is associated with modern equipment, correct organization of work and high professionalism of the medical employees.

Table 3.4 shows the perception of process quality. Healthcare managers mostly associate process quality with evidence-based treatment, comfortable conditions for patients, safety, patient needs, satisfaction and qualitative services in accordance with the standards.

As shown in Table 3.5, outcome quality is associated by healthcare managers with standardized indicators for different aspects of health related to prevention and treatment, patient satisfaction with services and doctor satisfaction with their job, labor conditions, and payment for work.

Table 3.3. ***Quality aspects mentioned. Structure***

Quality aspect	Quotation
Integration of care	"Integration between the medical facilities"
Efficiency	"Modern medical equipment" "Prevention and treatment without unnecessary expenses" "When the best results of treatment or diagnostics are received with the least resources" "Effective treatment for a shortest time period and with the minimum price"
Organization and administration (management)	"Combination of services and process management which bring the facility to the desired level of quality" "The main target function and criterion of the facility functioning" "Correct organization of employees work" "Control system"
Qualification (professionalism)	"These are professionally ready medical workers with constant development of their knowledge and responsible attitude to their work" "Responsible attitude. Qualified medical assistance to patients. Following ethics and deontology" "High level of specialized knowledge and skills, critical thinking and compliance to moral and ethical norms in treating patients"

Table 3.4. ***Quality aspects mentioned. Process***

Quality aspect	Quotation
Effectiveness	"Evidence-based treatment, precise timely screenings and promotion of prevention" "Creating conditions for providing qualitative medical assistance to patients, patients' comfort, timely diagnostics and treatment according to international and local protocols" "Receiving positive complex result in patient treatment on all the stages of medical service provision"

Table 3.4. ***Continued***

Quality aspect	Quotation
Safety	"Risk management" "Safe medical service" "Safety for patients" "Protection from possible risks and complications"
People-centeredness	"Fulfilment of justified patient needs" "Services that improve public health" "To fulfill patients' needs in recovery and health maintenance"
Timeliness	"Timely primary medical assistance" "Speedy medical service" "Medical assistance for minimum time"
Equity	"Equality and equity" "To organize and support equity of medical services to public" "Access to all the sources of healthcare"
Compliance to standards	"Quality in healthcare is possible only in presence of standards" "Performance in accordance to international standards, approved and understandable actions for everyone" "Compliance to standards that support optimal conditions for services provision"
Service	"Opportunity to provide medical services on guaranteed high-quality level" "Perfect service in accordance to patient surveys" "Qualitative medical services to public"

Table 3.5. ***Quality aspects mentioned. Outcome***

Quality aspect	Quotation
Indicators	"Prevention actions coverage, reduce mortality, improvement of general health of the population" "Timely detection of oncological diseases and tuberculosis, reducing morbidity of heart diseases and other non-inflectional diseases" "Decrease of treatment length and number of days of work incapacity, decrease of number of chronic diseases aggravation" "Unification of standardized indicators for different levels of medical help" "Number of treated cases" "High vaccination coverage, healthy nutrition promotion" "Increase of number of citizens who signed declaration with the family doctor" "Performance indicators fulfillment actually and not statistically" "Percentage of valid diagnosis"

Table 3.5. ***Continued***

Quality aspect	Quotation
Absence of complaints	"Absence of complaints"
Patient satisfaction	"Patient is 100% satisfied with the service" "Satisfied healthy patient" "Patient assessment of the received medical help in a medical facility"
Doctor satisfaction	"Satisfaction of medical personnel with labor conditions" "Financial satisfaction of doctors" "Job satisfaction"

Table 3.6 presents the answers to the question "How do you assess quality in your healthcare facility". This question was asked if a participant indicated that a quality management system was implemented in the healthcare facility, which was the case for half of the responses (52.6%). Structure quality was mentioned as the focus of quality assessment in 6.6% of the cases, process quality - in 12.2% of the cases, and outcome quality – in 21.5% of cases. At the same time, 26.8% of responses did not indicate the focus of the assessment.

As reported by the participants, the following tools were used to assess quality: a system of monitoring and evaluation (34.4%), medical records assessment (3.6%), feedback system, namely surveys, work with complaints (10.6%), expert meetings (4.6%), and audits (2.6%). In 8.3% of the cases, the response did not contain information on the exact assessment tools. Examples of such responses included: "self-control", "we are still working at the system", "in a way as I understood after asking my colleagues". Two of these responses referred to legislative acts in Ukraine, one mentioned ISO certification and one mentioned the position of an employee responsible for quality in the facility. Several responses rated quality in their facility as "good", "not enough", "nine out of ten".

Table 3.6. ***Quality assessment***

Quality assessment characteristics	Number % n = 302
Quality management system is implemented in healthcare facility	
– Yes	– 159 (52.6%)
– No	– 143 (47.3%)
Object for assessment[a]	
– Structure	– 20 (6.6%)
– Process	– 37 (12.2%)
– Outcome	– 65 (21.5%)
– Not clear from the answer	– 81 (26.8%)
– Missing answer	– 16 (5.2%)

Table 3.6. ***Continued***

Quality assessment characteristics	Number % n = 302
Assessment tools used[a]	
– System of monitoring and evaluation	– 104 (34.4%)
– Medical records assessment	– 11 (3.6%)
– Feedback (satisfaction surveys both patient and medical staff, work with complaints)	– 32 (10.6%)
– Expert meetings (morning conferences, treatment committees, pathological anatomical committees)	– 14 (4.6%)
– Audits (both internal and external)	– 8 (2.6%)
– Unclear from the answer	– 25 (8.3%)
– Participant does not know	– 1 (0.3%)
– Missing answer	– 16 (5.3%)

Note

a. out of 53% those who had quality management system implemented in the healthcare facility. One answer could contain several objects for assessment and/or several assessment tools indication.

3.4. Discussion

This chapter investigated how primary healthcare managers in Ukraine perceive healthcare quality. Without consensus and reliable information about quality, it is impossible to differentiate between adequate and poor-quality healthcare services. At the system level, the purpose of measuring quality lies in the need for external accountability and verification. Whereas on the local level, the focus is on quality improvement (Busse et al., 2019). Thus, knowing the perceptions of quality by different stakeholders (e.g. healthcare managers) adds to our understanding of quality and is a first step to assess and improve quality. Also, managers' understanding of quality influences patients and medical doctors as well.

This chapter focused on perceptions of quality by primary healthcare managers in Ukraine. During medical training in Ukraine, quality and management are not addressed adequately (still, this aspect is underreported and understudied). Most of the healthcare managers have been trained as medical doctors and professional development for them is considered as clinical training. Healthcare managers get acquainted with definitions of quality and approaches to its assessment during their further education. After medical doctors are appointed as managers, they are expected to increase their skills in management within the framework of the Continuing Professional Development (CPD) programs. In Ukraine, medical doctors frequently do not speak or read English (Anufriyeva et al., 2019), which means that international sources are largely inapplicable. This limitation in language skills combined with outdated CPD programs (Anufriyeva et al., 2019) makes it difficult for healthcare managers to search for information to update their knowledge about quality, try different strategies and formulate a definition of quality of their own. To address the need for more up-to-date training for healthcare managers (Anufriyeva et al., 2019), the Ukrainian-Swiss project "Medical Education Development" developed online courses, among which there is

also a "Quality Management in Healthcare" course. More information about the course can be found at the MED project's website (https://mededu.org.ua/en/news, 2022).

The role of primary care lies in the management of the health of the population through a range of healthcare services like diagnostics, chronic illness management and further referral to medical specialists, drug prescription and health promotion (Vallejo-Torres and Morris, 2018). All this makes primary care process-oriented. A limitation of a focus on process is that it ignores quality attributes like tangibles (structure) or patient satisfaction (outcome).

As explained in the Introduction to this dissertation, Ukraine has a long history of a top-down culture under which all the managerial decisions were taken by the Ministry of Health and the healthcare managers were to follow them. Also, the quality of Ukrainian healthcare providers is evaluated by an accreditation committee. Accreditation mainly focuses on procedures and is done by checking documental proofs of compliance to standards, constant professional development, etc. An accreditation certificate is valid for three years. As the study of the World Bank (Belli et al., 2015) on healthcare facility management of 2013 indicates, healthcare providers report to the State Medical Statistics Center of the Ministry of Health of Ukraine against the list of indicators. Between accreditations, other state bodies have the right to perform routine inspections of healthcare providers, such as the Fire Inspection, the State Tax Service, the Social Insurance Fund, and the Ecological Control Service. At the same time, patient complaints are used for snap inspections and punishment actions by dedicated government agencies. Because of this top-down organization, Ukrainian healthcare managers are not enthusiastic about structural reforms and the introduction of service quality control (Belli et al., 2015).

Healthcare facilities are traditionally closed communities. The informal "rules of the game" within the healthcare facility are created by the chief doctor. The interrelations between levels are not clear. Referral of a patient to another level or another facility depends on the personal contacts of the doctor (Belli et al., 2015). The problem here lies in the coping strategies of patients, such as self-referral to specialists and out-of-pocket payments, which result in a low utilization of primary healthcare services and a low level of trust.

Thus, our results indicate that a clear and uniform notion of quality is absent among primary healthcare managers in Ukraine. They tend to associate quality with one attribute only. The associations are, however, quite diverse, as shown by our study. The primary healthcare managers in our study are mostly focused on process quality. The frequency of mentioning the "compliance to standards" and "indicators" attributes confirms the traditional focus of the Ukrainian approach to quality and shows the lack of association of quality with integrated care.

A high number of unclear descriptions of measurement tools and answers like "quality is good/satisfactory" to the question of how quality is assessed could have two major explanations. The participants did not distinguish between quality assessment (as a process) and the quality level in their facilities. Or the formulation of the question was unclear for the

participants. Thus, the question of routine application of measurement tools in healthcare management practice requires further study.

The gaps in continuous professional development for managers, the lack of open dialogue and discussion on the priorities and challenges of service provision (in addition to the limited evidence available and published results on the perception of quality in healthcare) seem to be regional peculiarities. One recent study (Kuhlmann et al., 2019) describes the lack of horizontal exchanges and the almost absent learning culture to prevent mistakes in the neighboring countries to happen in Ukraine as well. However, we observe that there is attention to the perception of quality among healthcare managers, and healthcare professionals (and evidence that confirm the developed quality management systems) in other contexts (Cunningham et al., 2014; Shea et al., 2018).

The study presented in this chapter has some limitations that need to be acknowledged. We focused on primary healthcare only, which left the understanding of quality in the Ukrainian hospital sector unexplored. The link used to distribute the online questionnaire was sent to potential participants by others. Thus, we had no access to the contact information, making it impossible to determine the response rate. A lack of generalizability is the known disadvantage of the convenience sampling method. We compare the results of our study with the results of a similar study to analyze the robustness of our results. In addition, we were unable to obtain details regarding the perception of quality among Ukrainian healthcare managers. For example, many participants (13.9%) named "service" as a quality attribute without providing an additional explanation. The perception of service by healthcare managers requires further research.

3.5. Conclusions

In conclusion, this chapter provides new insights into primary care managers' perceptions of healthcare quality in Ukraine. Overall, our findings provide evidence for the existence of little consensus about quality among Ukrainian healthcare managers. We identified fifteen groups of quality attributes and still the meaning of some of them requires further clarification. Furthermore, most Ukrainian primary healthcare managers who took part in our survey do not recognize the multidimensionality of quality as more than half of the participants associate quality with one attribute only. This needs to be considered in future healthcare reforms.

Although some improvements have been made in healthcare financing reform, the health system still lacks a national policy and dialog on quality and a national quality strategy for healthcare. The development and promotion of a national policy on quality and a national quality strategy for healthcare should become one of the priorities of the healthcare sector. Moreover, there is a need to revise the quality assessment practices both on a system level and on a facility level. How this should be done and organized is a topic that requires further study.

Chapter 4

The perception of outpatient care quality by healthcare users in Ukraine

The chapter draws on:

Anufriyeva, V., Pavlova, M., Stepurko, T., & Groot, W. (2022). The perception of outpatient care quality by healthcare users in Ukraine. International Journal of Healthcare Management, 1-7. doi.org/10.1080/20479700.2022.2141685

Abstract

Background: Ukraine has been improving healthcare quality by reforming the health system. Evidence on healthcare users' perceptions of quality is important for future system changes. The aim of this chapter is to analyze the aspects of quality that outpatient care users find most important.

Methods: Data from a repeated cross-sectional household survey 'Health Index. Ukraine' in 2016-2019 were used. The survey had a sample size of over 10,000 participants per wave. Data were analyzed using descriptive statistics as well as binary regression analysis.

Results: Our results showed the importance of quality attributes as "effectiveness of treatment" and "qualification of medical personnel" as well as changes in the perception of quality attributes connected with payment policies and general management of the facility (like working hours, setting and hygiene ensuring by medical personnel).

Conclusions: This chapter provides new insights into the importance of healthcare quality attributes for outpatient healthcare users in Ukraine, showing the need to develop a national policy on quality and a national quality strategy for healthcare that incorporates quality aspects important to patients to make the health system more responsive to the needs and expectations of healthcare users.

4.1. Introduction

As explained in the Introduction to this dissertation, Ukraine has been reforming its healthcare financing. As a result of these reforms, patients can choose their family doctor of any form of ownership (public or private) and regardless of the place they live. Patients also need a referral from their family doctor to visit a medical specialist. Medical facilities changed their legal entity from state-owned (direct subordination to the Ministry of Health, managerial decisions taken at a central level) to community-owned (subordination to the local government, the managerial decision taken at the local level) as a result of a decentralization process. This enabled agreements with the national payer National Health Service of Ukraine, which purchases care at predefined rates.

As presented in the Introduction to this dissertation, competition between healthcare providers and free choice of provider by patients can contribute to the improvement of healthcare quality. The perception of quality among healthcare users is important here as it influences the choice of provider (Gage et al., 2018). In the stage of interaction between the provider and the patient, interpersonal relationships matter. And after the service has been used, assessment of the results is also important (Budiwan, 2016). The difference between expected quality and perception of the services used constitutes patient satisfaction. Thus, the perception of quality predisposes patient satisfaction and creates loyalty to the provider (Lonial and Raju, 2015), creating the need to integrate patients' understanding of quality into the service design and provision policies.

Quality is often defined and assessed by attributes depending on the context, the type of healthcare (preventive, acute, chronic or palliative care), and the stakeholder involved (medical professional, patient, policy maker) (Busse et al., 2019). For primary healthcare patients, the most important attributes appear to be a short waiting time, respectful providers who respond to patients' needs (Dunsch et al., 2018), the appearance of personnel, a peaceful atmosphere, honesty, behavioral attitudes and communication skills of both medical doctors and support staff (Dunsch et al., 2018), availability of services, availability and quality of drugs and medical equipment (Gage et al., 2018). Whereas for hospital care, quality attributes also include food, nursing care, room characteristics, hospital costs (Naidu, 2009), hospital atmosphere (Narang et al., 2015), the so-called "servicescape" (Sag et al., 2018).

Another issue is that socio-demographic characteristics such as marital status, socioeconomic circumstances, and cultural background predispose the perception of quality (Naidu, 2009; Bagchi, 2012). Nevertheless, assessing the satisfaction of healthcare users and identifying their needs are the most significant steps in quality improvement (Izadi, 2017).

As mentioned in the Introduction to this dissertation, studies on patient perception of healthcare quality services in Ukraine are rare. Besides the study by Luck et al. (2014) described in Chapter 3, in the early 2000s, Kressens et al. (2004) performed a series of

patient evaluations of the health system responsiveness through the Quote (Quality of care Through patients' Eyes) instrument in 12 countries, including Ukraine. Patients gave importance and performance ratings on 10 items about their general practitioners' respect for persons and client orientation. Ukraine's health system was found to be the least responsive among the 12 countries (Italy, Norway, Portugal, Greece, the Netherlands, the United Kingdom, Ireland, Israel, Finland, Denmark, Belarus) included in the study.

In addition, Stepurko et al. (2016) studied the level of satisfaction of healthcare users and access to services in six Central and Eastern European countries, including Ukraine. Nationally representative data were collected in 2010 through uniform surveys and became the subject of multi-country analysis. The most important attribute of quality was found to be the reputation and skills of a doctor (physician and surgeon). The relatively least important attributes were the travel time and waiting time both for inpatient and outpatient services.

Ahiyevets et al. (2020) measured satisfaction with primary healthcare quality in May 2019 via face-to-face interviews. Satisfaction with family doctor was rated by Humanities students in three countries (Belarus, Poland and Ukraine). Among the quality attributes, politeness and attentiveness of medical doctors were rated highly, whereas medical confidentiality was rated comparatively low.

A cross-sectional study by Paryi et al. (2020) reported an increase in satisfaction with primary healthcare services in Kyiv from 75.5±0.5 in 2017 to 85.9±0.4 in 2019. The data were collected among 402 respondents using EUROPEP questionnaire in 2019.

We also found studies focusing on satisfaction with a specific type of care. For example, the study of perceived quality of HIV care (Hailemeskal et al., 2020) showed a high level of satisfaction with HIV services. The lack of evidence on the perception of healthcare quality means that less account is being taken of the views of healthcare users on the quality of the health system (Kressens et al., 2004). The aim of this chapter is to examine the perception of outpatient care quality by healthcare users in Ukraine. Our analysis adds to the literature by identifying and comparing attributes important to outpatient healthcare users as well as by comparing any changes in importance during a four-year period. We are thus able to identify changes in the importance of quality attributes that might have been provoked by the reform.

4.2. Methods

We used data from the household survey "Health Index. Ukraine". Data collection has been supported by the International Renaissance Foundation since 2016. The objective of the survey was to identify and examine people's satisfaction with healthcare, attitudes toward healthcare reforms, health behaviors and experiences in seeking health services, and health expenditures.

The survey is repeated cross-sectional. The first wave of the survey was conducted in May-June 2016, the second – in May-June 2017, the third - in June-July 2018 and the fourth in June-July 2019. The survey has a large sample size (over 10,000 participants per wave) and is representative for the country. A multi-stage sampling technique, random at each stage, is used. First, in each oblast (administrative-territorial unit), inhabited locations are chosen proportionally to oblast's population size. Then, areas, streets, buildings and apartments are chosen using the random route method. As the last stage, one individual from a household is interviewed. If a respondent could not be reached twice, this information is included in the field report and another respondent is chosen following the same approach. More information can be found at the "Health Index. Ukraine" webpage (Health Index - Ukraine, 2022).

Household representative surveys by means of individual interviews are used because of their maximum representation of all population strata, which is not possible in Ukraine in the case of telephone or online surveys. It also has the benefit of tracking spontaneous respondents' feedback and their attitude towards the problem and question asked, more prolonged communication as compared to other methods and more outspokenness of respondents when talking directly to a survey person.

The EuroHealthConsumerIndex (https://healthpowerhouse.com, 2022) and access to the health data provided by the Government of Canada (https://www.canada.ca, 2022) with similar surveys were used by the researchers of "Health Index. Ukraine" to design the questionnaire. The study survey was validated by expert discussions and approved by the International Scientific Board developed for the purpose of "Health Index. Ukraine".

The questionnaire is pretested annually by surveying 25 respondents (24 in 2016) from Kyiv city and Oblast. In 2017, the following question was added "What does quality of care mean for you as a patient or a relative of a patient? You can choose two answers, starting with the most important" (for the detailed wording, see Appendix C). These questions provided the main source of data for this study (see Appendix C).

In 2018, the questionnaire was modified and in 2019, it was shortened considerably (130 questions out of 200 were left). However, the wording of the questions chosen as the data source in this study stayed the same (for the exact wording, see Appendix C).

The data were collected via face-to-face interviews by 238 – 303 trained interviewers (303 in 2016, 253 in 2017 and 238 both in 2018 and 2019). Depending on their personal experience, the respondents were asked up to 200 closed questions about the importance of different aspects of medical care, satisfaction, assessments of healthcare problems, behaviors in case of illness and assessments of some lifestyle features, and experience in seeking outpatient and inpatient care. Several questions about respondents' diagnoses were open-ended.

Overall, more than 10,000 respondents were surveyed in each wave. There were 10,178 interviews in 2016 (response rate 47.1%), 10,184 in 2017 (response rate 49%), 10,194 in

2018 (response rate 41%), and 10,222 (response rate 45.2%) interviews in 2019. The response rate significantly differed between Oblasts, from 28–30% in the city of Kyiv and Sumy Oblast and up to 92% in Ternopil Oblast in 2017. Field activities were performed in 476 inhabited locations in Ukraine (on territories controlled by the government of Ukraine) in each wave.

Ethical considerations: Ukraine has no obligatory requirement to obtain ethical approval before data collection for non-clinical research. At the time when the first data collection took place, ethical committees were not common and had no well-defined requirements. Thus, the International Scientific Board of the household survey "Health Index. Ukraine" decided not to obtain ethical approval. Participants were free to withdraw their participation at any time without a negative impact on their involvement in future studies or professional relationships. All data were kept confidential. No identifying information was shared with other third parties.

In the analysis, we identified the aspects of quality that healthcare users find most important. At the same time, we also used attributes of outpatient care quality available in the survey.

In the analysis, we also identified the aspects of quality that the subgroup of outpatient medical assistance users finds most important. We compared changes in importance during a four-year period. We also analyzed the relationship between the most important aspects (dependent variables) and socio-demographic characteristics. For the above analysis, we applied descriptive statistics as well as logistic regression analysis for binary dependent variables.

The list of dependent variables for analysis included: treatment effectiveness, courteous communications, free-of-charge drugs, explanations clarity, hygienic state, hygienic procedures, modern equipment availability, qualified personnel, respect, close stay and quality influence (for the detailed wording, see Appendix C). Each respondent was asked to choose up to two items from this list, depending on the quality criteria they found most important.

In the binary regression, the dependent variable is binary and indicates whether a given attribute is chosen by the respondent. It is coded as "1" if the given attribute was chosen by the respondent, and "0" if it was not chosen by the respondent. The socio-demographic characteristics (including gender, age, education, occupation, income, type of settlement, health status and household size) are used in the regression analysis as independent variables.

The significance of the model was checked using the Chi-square test. The predictive power was checked using Cox and Snell R square and Nagelkerke R square.

4.3. Results

As shown in Table 4.1, the socio-demographic characteristics of respondents across the four years are similar. The mean age of the participants was 47-48 years old. Overall, 45.1-45.2% of men and 54.8-54.9% of women took part in the survey. Participants from urban areas prevailed. The majority of respondents had specialized secondary education and were employed. The average number of people in the household was about 3. The majority of participants refused to answer the question about their income. Among those who gave an answer, the average income was low or middle (where low means up to 5000 UAH, middle means 5001 – 10 000 UAH, and high means more than 10 000 UAH. According to the official website of the Ministry of Finance of Ukraine (https://index.minfin.com.ua, 2022), the exchange rate in December 2015 was 26.2 UAH for 1 EUR, in December 2016 – 28.4 UAH for 1 EUR, in 2017 – 33/33.8 UAH for 1 EUR, in 2018 – 31.7UAH for 1 EUR and in December 2019 – 26.3/27.5UAH for 1 EUR). Also, the majority of the respondents considered their health to be good or average with the exception of 2016 when the majority of the respondents self-reported their health as bad.

During the first wave (in 2016), the respondents were asked the following question: "What does healthcare reform mean to you?" From the set number of suggestions, 42.6% chose "Improved quality of healthcare" as the first choice. The team of researchers added the question about the perceptions of quality in the next wave (in 2017) to find out the meaning of healthcare quality for the respondents. Based on the qualitative data of the previous research, the answering categories were provided (for detailed wording, see Table 4.2).

Respondents could choose the two most important aspects. As can be seen from Table 4.2, the majority of respondents indicated that the most important aspect of quality was "the effectiveness of treatment (the correct diagnosis, adequate treatment)" (78.3%) and "qualified medical personnel using modern and safe treatment methods" (35.2%). The category "other" (0.5%) included: patients' life expectancy, trust in the doctor, accessible and affordable drugs, timeliness.

Table 4.1. ***Socio-demographic characteristics of respondents***

Characteristics	Value range		2016	2017	2018	2019
Age	Years	Median	46.00	46.00	46.00	47.00
		Mean	47.24	47.5	47.24	48.27
		(SD)	17.446	17.633	17.420	17.429
		Valid N	10178	10184	10194	10222
Gender	'0' male	N (%)	45.2	45.2	45.1	45.2
	'1' female	N (%)	54.8	54.8	54.9	54.8
		Valid N	10178	10184	10194	10222
Education	'1' school	N (%)	24.6	23.7	22.6	22.0
	'2' Specialized education	N (%)	47.9	48.3	49.7	47.5
	'3' Higher education	N (%)	26.6	27.8	27.4	30.2
	'4' Scientific degree (PhD, DSc)	N (%)	0.9	0.1	0.3	0.4
		Valid N	10151	10174	10180	10188
Occupation	'0' unemployed	N (%)	54.7	50.0	48.0	48.4
	'1' employed	N (%)	45.3	50.0	52.0	51.6
		Valid N	10177	10160	10165	10161
Income	'1' low	N (%)	81.2	48.1	33.3	100
	'2' middle	N (%)	16.7	33.9	34.3	
	'3' high	N (%)	2.1	18.0	32.4	
		Valid N	7677	1772	1929	3010
Type of settlement	'0' Rural	N (%)	31.1	31.1%	30.5%	30.3%
	'1' Urban	N (%)	68.9%	68.9%	69.5%	69.7%
		Valid N	10178	10184	10194	10222
Self-reported health status	'1' bad	N (%)	89.8	14.6	10.7	12.1
	'2' average, not good, not bad	N (%)	8.2	38.8	40.8	37.9
	'3' good	N (%)	2.0	46.6	48.4	50.0
		Valid N	10111	10123	10138	10136
Persons in the household	Number of persons	Median	3.00	3.00	3.00	3.00
		Mean	2.94	2.93	2.88	2.92
		(SD)	1.484	1.486	1.443	1.504
		Valid N	10162	10155	10137	10095

Table 4.2. ***Descriptive statistics – perception of healthcare quality***

Variable	Selected as first choice (%)	Selected as second choice (%)	Overall	
Total n = 10184	**Valid n 10112**	**Valid n 10065**	**Not chosen**	**Chosen**
'1' The effectiveness of the treatment (the correct diagnosis, adequate treatment)	63%	15.9%	21.7%	78.3%
'2' Courteous medical doctors communicate with patients and their families	2.9%	6.9%	90.2%	9.8%
'3' Free-of-charge drugs	10.1%	16.6%	73.5%	26.5%
'4' Clarity of medical doctor's explanations to patients	1.7%	4.2%	94.2%	5.8%
'5' A satisfactory hygienic state medical facility	1.6%	4.4%	94.0%	6.0%
'6' Assuring hygienic procedures such as washing hands before the consultation by medical personnel	2.0%	4.5%	93.6%	6.4%
'7' The availability of modern equipment	4.2%	12.8%	83.2%	16.8%
'8' Qualified medical personnel using modern and safe treatment methods	9.6%	25.9%	64.8%	35.2%
'9' Respect, trust and empathy to the patient	1.1%	3.2%	95.7%	4.3%
'10' The possibility to stay close to family members of patients	0.4%	1.0%	98.6%	1.4%
'11' The possibility to influence the quality of care by patients	3.1%	4.3%	92.7%	7.3%
'12' Other (specify)	0.3%	0.3%	99.5%	0.5%

Table 4.3 shows the results of the binary regression analysis performed on the perception of healthcare quality.

The model is significant for all the attributes but for "equipment" (sig. 0.138), "respect" (sig. 0.137) and "close stay" (sig. 0.481). The total accuracy of the model varied from 81.5 to 98.4 for all the dependent variables, but for "effectiveness of the treatment" (75.8), "free of charge drugs" (77.6), "qualified medical personnel" (65.0). We find a statistically significant association ($p<0.05$) with age, gender, education, occupation, income, type of settlement, health status and household size.

Female respondents, respondents with low income and respondents with good self-reported health status are inclined to define quality more as "treatment effectiveness".

”Courteous communication” is less important to the respondents with low income. “Free-of-charge drugs” is a less important aspect for respondents with specialized education, low income, and to those who live in cities but more important for people over 50 years old. “Explanations clarity” is less important for female respondents. It is also more important for a household with two and three people compared to single-person households. “Hygienic state” is more important for female respondents and respondents with low and middle income. “Hygienic procedures” are more important for employed respondents and urban citizens, and less important for respondents with a low income. “Equipment” is less important for respondents with a low income. “Qualified personnel” is more important for respondents with specialized education and low income. The “respect” aspect is less important for urban inhabitants. The “quality influence” aspect is less important for female respondents and respondents with average self-reported health status. It is also more important for employed urban inhabitants.

We observed no statistical significance in the relationship between “the possibility to stay close to family members of patients” and the socio-demographic variables.

Next, we present results on the importance of quality of outpatient care for outpatient medical assistance users only. The subgroup comprised of 35.8% of all the respondents in 2016, 36.6% in 2017, 35.6% in 2018 and 43.2% in 2019, respectively. Table 4.4 shows the descriptive statistics of the importance of outpatient medical assistance aspects. We observe an increase in the importance of each aspect over time.

Table 4.3. ***Results of the binary logit regression analysis for choice of healthcare quality attribute***

Independent variables	'1' Treatment effectiveness '0' not chosen (n 423) '1' chosen (n 1327)			'2' Courteous communications '0' not chosen (n 1581) '1' chosen (n 168)			'3' Free-of-charge drugs '0' not chosen (n 1362) '1' chosen (n 387)			'4' Explanations clarity '0' not chosen (n 1641) '1' chosen (n 109)		
	Total n 10184											
	Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)	
		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Gender '0' male '1' female	**1.486**	**1.178**	**1.873**	0.797	0.571	1.113	0.868	0.680	1.108	**0.622**	**0.410**	**0.942**
Age	1.005	0.997	1.014	1.003	0.991	1.014	**1.009**	**1.000**	**1.018**	0.986	0.970	1.001
Education '1' school '2' Specialized education '3' Higher education '4' Scientific degree (PhD, DSc)	1.036	0.874	1.229	0.902	0.708	1.148	**0.765**	**0.640**	**0.915**	0.979	0.725	1.323
Occupation '0' unemployed '1' employed	0.961	0.747	1.237	0.719	0.502	1.030	0.872	0.669	1.136	1.335	0.852	2.092
Income '1' low '2' middle '3' high	**1.395**	**1.171**	**1.662**	**0.732**	**0.564**	**0.951**	**0.619**	**0.508**	**0.755**	0.750	0.555	1.015
Type of settlement '0' Rural '1' Urban	0.999	0.773	1.292	0.948	0.659	1.365	**0.712**	**0.549**	**0.924**	0.810	0.524	1.254
Health status '1' bad '2' average, not good, not bad '3' good	**1.286**	**1.054**	**1.568**	1.132	0.850	1.507	0.884	0.722	1.083	0.777	0.543	1.111
Household size	0.964	0.891	1.044	0.991	0.883	1.112	0.917	0.840	1.000	**1.201**	**1.061**	**1.359**
Constant	0.682			0.208			1.866			0.245		
Nagelkerke R Square	0.30			0.23			0.105			0.039		

Table 4.3. ***Continued***

Independent variables	'5' Hygienic state '0' not chosen (n 1625) '1' chosen (n 125)			'6' Hygienic procedures '0' not chosen (n 1652) '1' chosen (n 98)			'7' Equipment '0' not chosen (n 1427) '1' chosen (n 323)			'8' Qualified personnel '0' not chosen (n 1091) '1' chosen (n 658)		
	Total n 10184											
	Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)	
		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Gender '0' male '1' female	**1.485**	**1.007**	**2.189**	0.783	0.509	1.204	1.025	0.796	1.320	1.217	0.990	1.498
Age	0.998	0.985	1.012	0.991	0.976	1.007	1.006	0.996	1.015	0.993	0.986	1.000
Education '1' school '2' Specialized education '3' Higher education '4' Scientific degree (PhD, DSc)	1.031	0.774	1.372	0.938	0.684	1.288	1.026	0.850	1.238	**1.402**	**1.201**	**1.636**
Occupation '0' unemployed '1' employed	0.957	0.628	1.456	**1.668**	**1.035**	**2.689**	1.181	0.894	1.559	0.904	0.720	1.133
Income '1' low '2' middle '3' high	**1.517**	**1.157**	**1.988**	**0.534**	**0.381**	**0.749**	**0.827**	**0.684**	**0.999**	**1.393**	**1.199**	**1.617**
Type of settlement '0' Rural '1' Urban	1.079	0.683	1.704	**1.725**	**1.037**	**2.872**	0.840	0.636	1.109	1.138	0.896	1.446
Health status '1' bad '2' average, not good, not bad '3' good	0.980	0.697	1.378	0.828	0.572	1.200	0.973	0.782	1.210	1.022	0.850	1.228
Household size	0.992	0.867	1.135	1.079	0.937	1.244	1.086	0.998	1.182	0.965	0.897	1.038
Constant	0.031			0.181			0.188			0.204		
Nagelkerke R Square	0.023			0.038			0.011			0.061		

Table 4.3. ***Continued***

Independent variables	'9' Respect '0' not chosen (n 1675) '1' chosen (n 74)			'10' Close stay '0' not chosen (n 1721) '1' chosen (n 28)			'11' Quality influence '0' not chosen (n 1591) '1' chosen (n 159)		
	Total n 10184								
	Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)		Exp(B)	95% C.I. for Exp(B)	
		Lower	Upper		Lower	Upper		Lower	Upper
Gender '0' male '1' female	0.911	0.561	1.480	1.279	0.583	2.810	**0.625**	**0.438**	**0.892**
Age	1.011	0.994	1.029	0.997	0.970	1.026	**0.984**	**0.971**	**0.997**
Education '1' school '2' Specialized education '3' Higher education '4' Scientific degree (PhD, DSc)	0.944	0.660	1.349	1.570	0.867	2.845	0.848	0.655	1.098
Occupation '0' unemployed '1' employed	1.058	0.621	1.802	0.779	0.345	1.759	**1.582**	**1.057**	**2.368**
Income '1' low '2' middle '3' high	0.923	0.640	1.333	0.612	0.340	1.101	1.224	0.961	1.559
Type of settlement '0' Rural '1' Urban	**0.531**	**0.320**	**0.883**	1.038	0.431	2.500	**3.692**	**2.136**	**6.382**
Health status '1' bad '2' average, not good, not bad '3' good	1.311	0.853	2.013	1.457	0.698	3.040	**0.714**	**0.524**	**0.973**
Household size	1.105	0.948	1.288	1.115	0.868	1.432	1.056	0.938	1.189
Constant	0.020			0.004			0.119		
Nagelkerke R Square	0.022			0.028			0.082		

Table 4.4. ***Descriptive statistics: importance of aspects of outpatient care for outpatient medical assistance users***

Variables	Value range	2016	2017	2018	2019
Treatment efficiency	'0' not important	78%	67.2%	70.1%	25.6%
	'1' important	22%	32.8%	29.9%	74.4%
The opportunity to undergo the necessary diagnostic tests, lab tests, and treatment procedures free of charge	'0' not important	94.5%	83.2%	83.6%	55.7%
	'1' important	5.5%	16.8%	16.4%	44.3%
Convenient location of the healthcare facility where your doctor works	'0' not important	94.8%	93.2%	91.7%	82.7%
	'1' important	5.2%	6.8%	8.3%	17.3%
Straightforward and transparent policies of payment for care (including the absence of informal payments)	'0' not important	93.8%	94.1%	95.1%	84.2%
	'1' important	6.2%	5.9%	4.9%	15.8%
Courtesy of doctors towards patients and their families	'0' not important	95.7%	92.8%	92.5%	78.8%
	'1' important	4.3%	7.2%	7.5%	21.2%
Clarity of medical explanations to patients	'0' not important	97.3%	94.5%	93.7%	79.8%
	'1' important	2.7%	5.5%	6.3%	20.2%
The setting of healthcare provision (renovation, clean rooms, including toilets)	'0' not important	81.8%	93.8	93.3%	81.3%
	'1' important	18.2%	6.2%	6.7%	18.7%
Are medical personnel ensuring hygiene during examination and procedures, such as putting on disposable gloves in your presence, washing hands before exam, cleaning tubes and sticks?	'0' not important	94.1%	96.1%	95.9%	87.1%
	'1' important	5.9%	3.9%	4.1%	12.9%
Availability of the essential equipment	'0' not important		94.0%	96.1%	88.6%
	'1' important	-	6.0%	3.9%	11.4%
Work hours	'0' not important	96.4%	98.2%	98.0%	93.4%
	'1' important	3.6%	1.8%	2.0%	6.6%
NONE OF ABOVE OPTIONS	'0' not important	99.9%	100%	100%	99.6%
	'1' important	0.1%	0%	0%	0.4%
Difficult to answer	'0' not important	95.6%	99.9%	99.9%	99.0%
	'1' important	4.4%	0.1%	0.1%	1%
Refused to answer	'0' not important	100%	99.8%	100%	99.9%
	'1' important	0%	0.2%	0%	0.1%

4.4. Discussion

This chapter investigated the perception of quality by healthcare users in Ukraine. In particular, the study identified and compared the importance of attributes of quality in healthcare in general to healthcare users as well as in outpatient care to outpatient medical assistance users.

The perception of quality by healthcare users is important for differentiation between good and poor quality (Busse et al., 2019). Our findings show that healthcare quality in Ukraine is mostly associated by users with "effectiveness of treatment (the correct diagnosis, adequate treatment)" and "qualified medical personnel using modern and safe treatment methods". Both aspects are predisposed by socio-demographic characteristics. The "effectiveness of treatment (the correct diagnosis, adequate treatment)" aspect is predisposed by gender (more important for female respondents), low income and good self-reported health status. And "qualified medical personnel using modern and safe treatment methods" is predisposed by specialized education and low income. At the same time, quality is least associated with such aspects of quality as "the possibility to stay close to family members of patients" and "respect, trust and empathy to the patient". Whereas the "the possibility to stay close to family members of patients" aspect is not predisposed by socio-demographic characteristics included in the analysis and "respect, trust and empathy to the patient" is predisposed by gender, health status, occupation and type of settlement (less important to female respondents and respondents with average self-reported health status but more important for employed and urban inhabitants).

The lack of association of "the possibility to stay close to family members of patients" and "respect, trust and empathy to the patient", as well as the high importance attached to the "qualification" aspect, might be explained by the history of paternalistic doctor-patient relationships (Vilchyk and Sokolova, 2019). At the same time, the importance of "treatment effectiveness" indicates the more active role of healthcare users. The doctor-patient relationship is a known predictor of patient-perceived healthcare quality (Crow et al., 2002). Thus, it is important to be considered at a system level while improving responsiveness. The doctor-patient relationship can also impact health outcomes (Präg et al., 2017). Thus, on a facility level, it can help to improve outcome quality.

This change from a paternalistic to a more egalitarian model is confirmed by the comparison of the level of satisfaction with quality of outpatient services in Ukraine. From 70% satisfaction with the general practitioner in 2016 to 73% in 2017, 76% in 2018, and 73.1% in 2019 (Health Index - Ukraine, 2022). It is also reflected by the fact that in 2016, the majority of the respondents self-perceived their health as bad, whereas in 2017, 2018 and 2019, as good or average.

Our results also show that perceptions of outpatient care users about attributes connected with payment policies and general management of the facility have changed over time. We observe first a reduction (in 2017, 2018) and then and increase (in 2019) in the importance of such attributes as working hours, setting and hygiene ensured by medical personnel. Moreover, we compared data collected during a four-year period (2016, 2017, 2018, 2019). Our analysis showed an increase in the importance (it more than doubled) of all the quality attributes in 2019 in comparison with other years. This might be the result of increased competition after medical facilities became more autonomous and free choice of provider for healthcare users was introduced. Increasing competition stimulates healthcare facilities to develop and implement strategies for effective and better healthcare quality provision

(Mosadeghrad, 2013). Healthcare facilities became autonomous in their expenditures. Financial and general management of the facilities improved and as a result, the state of the settings also improved (renovations were made, etc.). Healthcare users became more aware of the payment policies of the national payer, and that they were free to choose their service provider. These changes stimulate healthcare users to define more clearly the important attributes of the service they seek. Thus, helping service providers to design healthcare processes according to the needs of healthcare users (Plsek, 1997; Haron et al., 2012).

Our study also has some limitations that should be mentioned. The importance of quality attributes was measured in two subsets of in- and outpatient medical assistance users. This study focuses on outpatient care only, which leaves the perceptions of inpatient medical assistance users out of the analysis. The subset of outpatient medical assistance users comprised only 35.8% of all the respondents in 2016, 36.6% in 2017, 35.6% in 2018 and 43.2% in 2019, respectively. The importance of attributes of quality was evaluated by the general sample only in 2017. Thus, there is no opportunity to study its dynamics. In addition, a multi-stage sampling technique, random at each stage, was used in the data collection. It is known as an efficient method for selecting a representative sample in the country. At the same time, its known disadvantage is its subjectivity as the chosen groups might not be optimal. Thus, the study is expected to be representative for each oblast (administrative-territorial unit).

The results of the analysis in this chapter could help policy makers to analyze the importance of quality attributes for healthcare users to implement necessary changes, making the health system more responsive to their needs and expectations. At the same time, our results might be used on the level of facilities in customer relations management to create or strengthen the loyalty of the patients. Our analysis might also be interesting for countries in the region with similar health systems or those whose health systems are being transformed at the moment.

4.5. Conclusion

In conclusion, this chapter provides new insights into healthcare users' perceptions of healthcare quality in Ukraine, more specifically on the importance that healthcare users attach to quality attributes. Overall, we identified eleven aspects that were most frequently associated with healthcare quality by healthcare users, as well as ten aspects of outpatient healthcare quality that were most important for the subgroup of outpatient care users. Our findings provide evidence that "effectiveness of treatment" is the most important aspect of quality for healthcare users, whereas "respect, trust and empathy" appears to be relatively less important for healthcare users. The ongoing reform of healthcare financing is changing many aspects of healthcare delivery in Ukraine. In particular, the doctor-patient relationship is changing from a paternalistic to a more egalitarian relation. It also provokes changes in

the perception of quality by healthcare users that need to be considered both at the system level and at the level of the facility. At the same time, studies on quality perceptions are rare. Thus, our analysis may provide a baseline for future research on this topic as well as for decision makers and healthcare managers.

Although some improvements were introduced by the healthcare financing reform, no systematic work on national quality policy has been done. Patients' perception of quality is not recorded in a consistent manner. There are no developed indicators in the Ukrainian health system on aspects of quality important for patients. This makes it difficult to assess the responsiveness of the health system and to evaluate the impact of the reforms.

There is a need to develop a national policy on quality and a national quality strategy for healthcare that incorporates quality aspects important to patients, as indicated in this chapter. Moreover, the quality assessment practices in healthcare in Ukraine should include indicators that show the responsiveness of the health system, such as patient quality perceptions and attitudes. This will help to further analyze the changes in perceptions of quality, and these should be used for the implementation of necessary changes in order to make the health system more responsive to the needs and expectations of healthcare users.

Chapter 5

Satisfaction with primary healthcare in Ukraine in 2016-2020

The chapter draws on:

Anufriyeva, V., Pavlova, M., Chernysh, T., & Groot, W. (2023). Satisfaction with primary health care in Ukraine in 2016–2020: A difference-in-differences analysis on repeated cross-sectional data. Health Policy, 137, 104916. doi.org/10.1016/j.healthpol.2023.104916

Abstract

Background: The aim of this chapter is to examine the general satisfaction with primary healthcare services in Ukraine among service users and nonusers before and after the implementation of the capitation reform in 2017-2020.

Methods: Data from a repeated cross-sectional household survey "Health Index. Ukraine" in 2016-2020 were used. The survey had a sample size of over 10,000 participants per survey round. Effects were estimated using difference-in-differences methods based on matched samples.

Results: Our findings show that in general, respondents are "rather satisfied" with the services of district/family doctors and pediatricians. Satisfaction with family doctors comprised 72.1% (users) and 69.2% (nonusers) in 2016; and 75.3% and 71.9% in 2020. For pediatrician services, these shares were 73.6% (users) and 71.1% (nonusers) in 2016; 74.7% and 70.2% in 2020. Our study also revealed an increase in satisfaction with the district/family doctor over time. However, this does not seem to be due to the reform. The results for pediatrician services were mixed.

Conclusions: Why satisfaction with primary care is fairly high and slightly increasing over time is unclear. However, we offer several possible explanations, such as low expectations of primary healthcare, subjective perception of healthcare quality, improved access and affordability, and general improvements in primary healthcare settings not directly linked to the reform.

5.1. Introduction

As explained in the Introduction to this dissertation, Ukraine has been changing its health system during the period 2017-2020. The changes are expected to influence satisfaction as increased competition between the providers will trigger a change in managerial and clinical practices, making the health services more responsive to the needs and expectations of users. However, this expectation has not been investigated and is therefore the focus of this chapter.

Before or after the reform, not many studies have been conducted in Ukraine on satisfaction with healthcare. Footman et al. (2013) revealed in a multi-country study that in Ukraine, the level of satisfaction with healthcare increased from 12.3% in 2001 to 17% in 2010. Another cross-country study (Stepurko et al., 2016) reported 41.4-45.9% respondents' satisfaction with quality of and access to healthcare services used in Ukraine, which was low, for example, compared to Hungary where 67.3–70.3 % satisfaction level was observed. Also, the study of Luck et al. (2014) underlined that only 33% of the household respondents in Ukraine were satisfied with the current health system and 79% stated that it needed reforms with a focus on quality. So far, reports on satisfaction with healthcare after the reform have not been identified.

The aim of this chapter is to examine the general satisfaction with primary healthcare services among service users and nonusers before and after the implementation of the first stage of the primary healthcare financing reform in Ukraine, i.e., before and after the capitation-based payment, creation of managerial autonomy for providers and free choice of provider for patients. Managerial autonomy gives freedom to the provider to allocate funds in compliance with the needs of patients, becoming more responsive. The free choice of the provider enables patients to choose their own doctor and is intended to create competition to attract patients between providers at the level of quality of the services. Capitation-based payment is expected to trigger the application of up-to-date managerial and clinical practices to sustain the satisfaction and loyalty of the patients. Thus, we expect that the first stage of the reform in primary care triggered positive changes in the service provision, increasing satisfaction with primary healthcare services. We investigate this expectation in this chapter.

5.2 Methods

The same dataset described in Chapter 4 was used. Details about the data collection can be found in Chapter 4 (ibid. pp. 58-60).

Five rounds of the "Health Index. Ukraine" survey were conducted in May-June 2016, in May-June 2017, in June-July 2018, in June-July 2019 and in August-October 2020. A new sample was drawn for each survey round. The sampling is also described in Chapter 4 as well as the designing, validation and pretest of the questionnaire.

To capture the effect of the first stage of the reform in primary care, we used the data on general satisfaction with services of district/family doctors and general satisfaction with services of pediatricians (primary healthcare) before and after the healthcare financing reforms.

As explained in the Introduction to this dissertation, the first stage of the reform was implemented in primary healthcare from July 2018 to February 2019. Data for 2018 that we used, were collected before this reform period and data for 2019 were collected shortly after this reform period (June-July 2019). At the time of the survey in 2019, 26 million patients out of 42 million people in Ukraine were registered with a family doctor (According to the official website of the Ministry of Finances of Ukraine, the population of Ukraine was 42 122.7 on 01.02.20219).

Given the above explanation, the data for 2016, 2017 (year of legislation) and 2018 refer to the period before the first stage of primary care reform, data for 2019 refer to the period of implementation (during), and data for 2020 refer to the period after the reform. Respondents who had used primary healthcare in the period of 12 months before being interviewed, were coded as "users" and respondents who had not used primary healthcare in the preceding 12 months before the interview were coded as "nonusers".

We first performed a descriptive analysis based on summary statistics for all variables included in the study. We also applied two-sample t-test to continuous variables as well as Wilcoxon rank-sum (Mann-Whitney) test to binary variables to assess whether the differences in socio-demographic characteristics between the group of users (treatment group directly exposed to changes in health services resulting from the healthcare reform) and the group of nonusers (control group not directly exposed to changes) were statistically significant.

We included the following socio-demographic variables: age, gender, education, type of settlement, self-reported health status, and the number of persons in the household. Age, education, and health status are the socio-demographic factors known to have an effect on satisfaction with healthcare (Naidu, 2009). Gender and social class have an unclear influence on satisfaction with healthcare services (Naidu, 2009). Women are found to be more satisfied with healthcare services than men, whereas men are found to be more satisfied with nursing care, comfort and cleanliness than women (Batbaatar et al., 2017). We also included indicators for *oblasts* (administrative-territorial units) because previous analysis showed its significance (Health Index - Ukraine, 2022).

Next, we applied a difference-in-differences (DiD) approach by means of ordered logistic regression. The DiD approach is a quasi-experimental technique that was developed to measure the "effect of the treatment on the treated" based on before and after comparison between the treatment and control group in the case of panel data (Blundell et al., 2000). We performed four regressions where satisfaction with services of district/family doctors was the dependent (outcome) variable using data for 2016 and 2020, 2017 and 2020, 2018

and 2020, and 2019 and 2020, respectively (as mentioned above, 2019 was the year of reform implementation). We also performed the same four regressions where satisfaction with services of pediatricians was the dependent variable using data for the same years. All 8 outcome variables were ordinal variables ranging from 1 = completely dissatisfied to 4 = completely satisfied. In all regressions, the following three dummy variables were added as explanatory variables: an indicator of the treatment group (users = 1; nonusers = 0), and an indicator of the period (before/during the reforms = 0; after the reforms = 1), as well as the interaction between these two indicators (DiD effect). We first performed all 8 regressions without and then with the socio-demographic variables (covariates) mentioned above.

The repeated cross-sectional nature of the data implies that not only individual characteristics of the respondents are not similar between users and nonusers, but also there might be time variation within these two groups. In this case, propensity score matching can make the groups more comparable. Difference-in-differences analysis on matched data is widely used with panel data, whereas its application for repeated cross-sectional data analysis is rare (Binci et al., 2018). Thus, this study examines satisfaction with primary healthcare services and reports on the application of difference-in-differences after matching repeated cross-sectional data.

Since we applied the DiD approach to repeated cross-sectional data, we also had to control for time-invariant imbalances (Binci et al., 2018). Therefore, we did matching across the years within the treatment group and within the control group. Matching between the treatment and control groups was also performed in order to make the DiD analysis more robust (Fredriksson and Oliveria, 2019). For the matching, we used the abovementioned covariates except for *oblast*, and we performed matching using the nearest neighbors method (command *psmatch2* in the software package Stata 15). The *Oblast* covariate was not included in the matching because including a lot of covariates made the matching difficult (Stuart, 2010). We then re-run the above eight regressions on the matched data with and without covariates.

To check the robustness of the DiD analysis, we run the DiD analysis using different matching techniques. Therefore, we also used the command *diff* in the software package Stata 15 (Villa, 2016), which performs the three matching steps using kernel propensity score matching followed by the DiD analysis. For the illustration of DiD analysis, see the flowchart (see Appendix D, Figure D.1).

5.3. Results

There were 10,178 interviews in 2016 (response rate 47.1%), 10,184 in 2017 (response rate 49%), 10,194 in 2018 (response rate 41%), 10,222 (response rate 45.2%) in 2019 and 9,995 interviews (response rate 44.2%) in 2020 (Health Index - Ukraine, 2022). Theoretically, the sampling error was 1.0% in each survey round. The response rate differed significantly

between the *oblasts*, from 28–30% in the city of Kyiv and Sumskaya *Oblast* and up to 92% in Ternopilska *Oblast* in 2017.

As outcome variables, we used the answers to questions about satisfaction with the different parts of the health system: "*From your own experience of consuming private or public healthcare, or from the experience of other people, please state how satisfied or dissatisfied you are with the way each part of the health system is functioning*". The response was measured using the scale "completely satisfied", "rather satisfied", "rather dissatisfied", "completely dissatisfied". This means that we studied general satisfaction with services and not satisfaction with specific services used. The questions were asked to respondents, irrespective of whether they had used healthcare during this period. The respondents rated services of district/family doctors, pediatricians, dentists, as well as maternity care, emergency care, hospitalization and outpatient services (details are provided in Appendix C).

As can be seen from Table 5.1, the respondents are mostly "rather satisfied" with the services of district/family doctors and pediatricians.

Table 5.2 presents the summary statistics for the socio-demographic characteristics of respondents used in the analysis. These characteristics are similar across 2016-2020. The mean age of the participants was 50.5 years old. Women comprised 65.7% of all respondents. Participants with good or average self-reported health from urban areas with specialized secondary education prevailed. The average number of people in the household was 3.

The results of the two-sample t-test with equal variances and the Wilcoxon rank-sum (Mann-Whitney) test on the unmatched data shown in Table 5.2 indicate statistically significant differences in the variables gender, education, type of settlement, self-reported health status, number of persons in the households and oblasts between the user-nonuser groups.

The results of the DiD analysis using ordered logistic regression, with and without covariates, before matching are shown in Table 5.3. All regression models have a good fit (Prob > chi2 between 0.0000 to 0.0232). Users slightly more often state that they are satisfied with services of district/family doctors than nonusers, and the level of satisfaction increased over time in both groups. The results for satisfaction with pediatrician services are mixed. The reform effect (DiD coefficient) is statistically significant only for the satisfaction with pediatricians in 2017-2020 and 2018-2020. The coefficient indicates that after the reform, satisfaction with services of pediatricians had increased among users more relative to nonusers.

Table 5.4 shows the results of the three matching steps based on the nearest neighbors matching, namely matching across years within the treatment and control group, respectively, and between the treatment and control groups. Figures 5.2-5.9 compare the data before and after matching. The results show that matching has improved the comparability of the groups' data.

The results of the DiD analysis using ordered logistical regression on the matched data are shown in Table 5.5. Overall, these results confirm the results of DiD analysis on the unmatched data (see Table 5.3.). Specifically, the coefficient of the before-after variables and the user-nonusers variable is statistically significant only for the satisfaction with pediatricians (without covariates) in 2017-2020 and 2018-2020.

To check the robustness of the DiD analysis, we run the DiD analysis using different matching kernel propensity score matching for repeated cross-sectional data. The results are presented in Table 5.6. Again, the results confirm previous results (see Table 5.3 and Table 5.5.). Specifically, the DiD coefficient is statistically significant only for the satisfaction with pediatricians in 2017-2020 and 2018-2020.

Table 5.1. ***General satisfaction with primary healthcare: descriptive statistics***

	Year 2016 **N = 8744** missing = 57		**Year 2017** **N = 8737** missing = 333		**Year 2018** **N = 8885** missing = 302		**Year 2019** **N = 8557** missing = 533		**Year 2020** **N = 8692** missing = 408	
Satisfaction with district doctors / family doctors	**nonusers** n = 5085	**users** n = 3602	**nonusers** n = 4789	**users** n = 3615	**nonusers** n = 5331	**users** n = 3252	**nonusers** n = 4423	**users** n = 3601	**nonusers** n = 5229	**users** n = 3055
- Completely dissatisfied	377 (7.4%)	223 (6.2%)	395 (8.2%)	275 (7.6%)	366 (6.9%)	192 (5.9%)	412 (9.3%)	264 (7.3%)	483 (9,2%)	254 (8.3%)
- Rather dissatisfied	1187 (23.3%)	782 (21.7%)	923 (19.3%)	704 (19.5%)	1005 (18.8%)	578 (17.8%)	720 (16.3%)	552 (15.3%)	985 (18.8%)	499 (16.3%)
- Rather satisfied	2740 (53.9%)	1937 (53.8%)	2578 (53.8%)	1848 (51.1%)	2970 (55.7%)	1801 (55.4%)	2177 (49.2%)	1634 (45.4%)	2457 (47%)	1415 (46.3%)
- Completely satisfied	781 (15.3%)	660 (18.3%)	893 (18.6%)	788 (21.8%)	990 (18.6%)	681 (20.9%)	1114 (25.2%)	1151 (32%)	1304 (24.9%)	887 (29%)
	Year 2016 **N = 5412** missing = 30		**Year 2017** **N = 5170** missing = 173		**Year 2018** **N = 4897** missing = 163		**Year 2019** **N = 4888** missing = 359		**Year 2020** **N = 5000** missing = 281	
Satisfaction with pediatricians	**nonusers** n = 3317	**users** n = 2065	**nonusers** n = 3033	**users** n = 1964	**nonusers** n = 3188	**users** n = 1546	**nonusers** n = 2719	**users** n = 1810	**nonusers** n = 3157	**users** n = 1562
- Completely dissatisfied	234 (7%)	136 (6.6%)	249 (8.2%)	145 (7.4%)	177 (5.5%)	81 (5.2%)	243 (8.9%)	144 (7.9%)	295 (9.3%)	128 (8.2%)
- Rather dissatisfied	722 (21.8%)	407 (19.7%)	496 (16.3%)	352 (17.9%)	578 (18.1%)	270 (17.5%)	390 (14.3%)	253 (14%)	645 (20.4%)	266 (17%)
- Rather satisfied	1888 (56.9%)	1179 (57%)	1710 (56.4%)	1073 (54.6%)	1832 (57.5%)	914 (59.1%)	1362 (50.1%)	874 (48.3%)	1512 (47.9%)	788 (50.4%)
- Completely satisfied	473 (14.2%)	343 (16.6%)	578 (19%)	394 (20%)	601 (18.8%)	281 (18.2%)	724 (26.6%)	539 (29.8%)	705 (22.3%)	380 (24.3%)

Table 5.2. ***Socio-demographic variables: descriptive statistics and results of the comparative test for the unmatched data. Two-sample t test for continuous variables and Wilcoxon rank-sum (Mann-Whitney) test for categorical variables***

	Year 2016 N = 10229**		Year 2017 N = 10229**		Year 2018 N = 10229**		Year 2019 N = 10229**		Year 2020 N = 10229**	
	nonusers	users	nonusers	users	nonusers	users	nonusers	users	nonusers	users
Age [years] Mean (St. dev)	48.933 (0.218)	52.120 (0.276)	49.536 (0.222)	53.115 (0.278)	49.629 (0.211)	52.994 (0.285)	49.285 (0.226)	52.498 (0.284)	48.924 (0.214)	52.368 (0.311)
Persons in the household [number of persons] Mean (St. dev)	2.933 (0.019)	**2.916 (0.025)***	2.950 (0.020)	2.799 (0.024)	2.919 (0.019)	2.775 (0.025)	2.939 (0.020)	**2.887 (0.025)***	2.766 (0.017)	**2.720 (0.025)***
Gender										
'0' male	2438 (24.1%)	**1015 (10%)***	2247 (22.9%)	**1032 (10.5%)***	2376 (24%)	**912 (9.2%)***	2272 (23.6%)	**1014 (10.5%)***	2623 (26.8%)	**888 (9.1%)***
'1' female	3798 (37.5%)	**2863 (28.3%)***	3681 (37.6%)	**2827 (28.9%)***	3982 (40.4%)	**2595 (26.3%)***	3451 (35.9%)	**2872 (29.9%)***	3906 (40%)	**2349 (24%)***
Education										
'1' school	1729 (17.1%)	**1015 (10.1%)***	1570 (16%)	**955 (9.8%)***	1665 (16.9%)	900 (9.1%)	1450 (15.1%)	**947 (9.9%)***	1509 (15.4%)	758 (7.8%)
'2' specialized	2960 (29.4%)	**1791 (17.8%)***	2959 (30.3%)	**1869 (19.1%)***	3143 (31.9%)	1685 (17.1%)	2733 (28.5%)	**1811 (18.9%)***	3269 (33.5%)	1571 (16%)
'3' higher	1484 (14.7%)	**1032 (10.2%)***	1389 (14.2%)	**1021 (10.4%)***	1523 (15.5%)	910 (9.2%)	1517 (15.8%)	**1108 (11.6%)***	1740 (17.8%)	905 (9.3%)
'4' scientific degree (PhD, DSc)	40 (0.4%)	**30 (0.3%)***	7 (0.07%)	**7 (0.07%)***	13 (0.1%)	9 (0.09%)	9 (0.09%)	**11 (0.1%)***	11 (0.1%)	3 (0.03%)
Type of settlement										
'0' Urban	3808 (37.6%)	**2475 (24.5%)***	3611 (36.9%)	**2475 (25.3%)***	3811 (38.6%)	2134 (21.6%)	3370 (35%)	**2424 (25.2%)***	4026 (41.2%)	2024 (20.7%)
'1' Rural	2428 (24%)	**1403 (13.9%)***	2317 (23.7%)	**1384 (14.1%)***	2547 (25.8%)	1373 (13.9%)	2353 (24.5%)	**1462 (15.2%)***	2503 (25.6%)	1213 (12.4%)
Self-reported health status										
'1' bad	5567 (55.4%)	**3544 (35.2%)***	734 (7.5%)	**1017 (10.4%)***	523 (5.3%)	**787 (8%)***	533 (5.6%)	**856 (9%)***	519 (5.3%)	**567 (5.8%)***
'2'not good, not bad	512 (5.1%)	**264 (2.6%)***	2319 (23.8%)	**1842 (18.9%)***	2670 (27.2%)	**1762 (18%)***	2045 (21.4%)	**1732 (18.1%)***	2257 (23.3%)	**1497 (15.4%)***
'3' good	116 (1.1%)	**50 (0.5%)***	2845 (29.2%)	**978 (10%)***	3115 (31.8%)	**939 (9.6%)***	3109 (32.5%)	**1277 (13.4%)***	3711 (38.2%)	**1151 (11.9%)***

Table 5.2. ***Continued***

	Year 2016 N = 10229**		Year 2017 N = 10229**		Year 2018 N = 10229**		Year 2019 N = 10229**		Year 2020 N = 10229**	
	nonusers	users	nonusers	users	nonusers	users	nonusers	users	nonusers	users
Oblast***										
'1'	291 (2.9%)	**110 (1.1%)***	186 (1.9%)	**220 (2.2%)***	324 (3.3%)	**82 (0.8%)***	193 (2%)	160 (1.7%)	320 (3.3%)	**58 (0.6%)***
'2'	216 (2.1%)	**191 (1.9%)***	209 (2.1%)	**185 (1.9%)***	234 (2.4%)	147 (1.5%)	199 (2.1%)	150 (1.6%)	207 (2.1%)	**190 (1.9%)***
'3'	209 (2.1%)	**198 (2%*)**	234 (2.4%)	158 (1.6%)	209 (2.1%)	**171 (1.7%)***	205 (2.1%)	**191 (2%)***	199 (2%)	**183 (1.9%)***
'4'	270 (2.7%)	**136 (1.3%)***	309 (3.2)%	**85 (0.9%)***	355 (3.6%)	**51 (0,5%)***	188 (2%)	**212 (2.2%)***	255 (2.6%)	149 (1.5%)
'5'	219 (2.2%)	**186 (1.8%)***	214 (2.2%)	147 (1.5%)	197 (2%)	**178 (1.8%)***	194 (2%)	**177 (1.8%)***	275 (2.8%)	119 (1.2%)
'6'	269 (2.7%)	139 (1.4%)	276 (2.8%)	**114 (1.2%)***	272 (2.8)%	125 (1.3%)	228 (2.4%)	172 (1.8%)	283 (2.9%)	116 (1.2%)
'7'	236 (2.3%)	172 (1.7%)	185 (1.9%)	**218 (2.2%)***	231 (2.3%)	**170 (1.7%)***	193 (2%)	**188 (1.9%)***	253 (2.6%)	146 (1.5%)
'8'	263 (2.6%)	145 (1.4%)	262 (2.7%)	**113 (1.2%)***	258 (2.6%)	123 (1.2%)	287 (3%)	**111 (1.2%)***	311 (3.2%)	**93 (1%)***
'9'	214 (2.1%)	**194 (1.9%)***	246 (2.5%)	159 (1.6%)	249 (2.5%)	157 (1.6%)	194 (2%)	**206 (2.1%)***	248 (2.5%)	144 (1.5%)
'10'	228 (2.3%)	161 (1.6%)	218 (2.2%)	170 (1.7%)	205 (2.1%)	**176 (1.8%)***	200 (2.1%)	**172 (1.8%)***	209 (2.1%)	122 (1.2%)
'11'	296 (2.9%)	**112 (1.1%)***	264 (2.7%)	**136 (1.4%)***	214 (2.2%)	**185 (1.9%)***	330 (3.4%)	**71 (0.7%)***	334 (3.4%)	**72 (0.7%)***
'12'	304 (3%)	**99 (1%)***	263 (2.7%)	**129 (1.3%)***	264 (2.7%)	137 (1.4%)	250 (2.6%)	141 (1.5%)	248 (2.5%)	**155 (1.6%)***
'13'	255 (2.5%)	142 (1.4%)	229 (2.3%)	173 (1.8%)	235 (2.4%)	**169 (1.7%)***	247 (2.6%)	150 (1.6%)	257 (2.6%)	138 (1.4%)
'14'	254 (2.5%)	152 (1.5%)	233 (2.4%)	151 (1.5%)	271 (2.7%)	**99 (1%)***	207 (2.1%	155 (1.6%)	279 (2.9%)	**110 (1.1%)***
'15'	269 (2.7%)	**136 (1.3%)***	254 (2.6%)	146 (1.5%)	269 (2.7%)	**118 (1.2%)***	199 (2.1%)	150 (1.6%)	282 (2.9%)	**101 (1%)***
'16'	172 (1.7%)	**231 (2.3%)***	223 (2.3%)	136 (1.4%)	195 (2%)	**195 (2%)***	240 (2.5%)	148 (1.5%)	244 (2.5%)	145 (1.5%)
'17'	202 (2%)	**205 (2%)***	155 (1.6%)	**211 (2.1%)***	211 (2.1%)	**189 (1.9%)***	217 (2.3%)	169 (1.8%)	241 (2.5%)	**152 (1.6%)***
'18'	277 (2.7%)	**126 (1.2%)***	290 (3%)	**102 (1%)***	268 (2.7%)	136 (1.4%)	291 (3%)	**94 (1%)***	351 (3.6%)	**39 (0.4%)***
'19'	319 (3.1%	**85 (0.8%)***	263 (2.7%)	143 (1.5%)	338 (3.4%)	**65 (0.7)%***	310 (3.2%)	**99 (1%)***	309 (3.2%)	**99 (1%)***
'20'	252 (2.5%)	154 (1.5%)	279 (2.9)%	**124 (1.3%)***	316 (3.2%)	**79 (0.8%)***	244 (2.5%)	147 (1.5%)	263 (2.7%)	**100 (1%)***
'21'	240 (2.4%)	166 (1.6%)	221 (2.3)%	**177 (1.8%)***	205 (2.1%)	**200 (2%)***	205 (2.1%)	**170 (1.8%)***	199 (2%)	**204 (2.1%)***
'22'	282 (2.8%)	**120 (1.2%)***	276 (2.8%)	**91 (0.9%)***	307 (3.1%)	**79 (0.8%)***	199 (2.1%)	156 (1.6%)	228 (2.3%)	**149 (1.5%)***
'23'	215 (2.1%)	**189 (1.9%)***	206 (2.1%)	**198 (2%)***	232 (2.3%	**169 (1.7%)***	223 (2.3%)	179 (1.9%)	234 (2.4%)	**170 (1.7%)***
'24'	239 (2.4%)	167 (1.7%)	216 (2.2%)	**186 (1.9%***	246 (2.5%)	160 (1.6%)	210 (2.2%)	**181 (1.9%)***	182 (1.9%)	**195 (2%)***
'25'	245 (2.4%)	162 (1.6%)	214 (2.2%)	**187 (1.9%)***	253 (2.6%)	147 (1.5%)	270 (2.8%)	**137 (1.4%)***	318 (3.3%)	**88 (0.9%)***

*p = < 0.05
** Descriptive statistics are estimated excluding missing values
*** Oblast = administrative territorial unit
'1' Kyiv city (Kyiv city is a separate administrative territorial unit), '2' Kyivska, '3' Vinnytska, '4' Volynska, '5' Dnipropetrovska
'6' Donetska, '7' Zhytomyrska, '8' Zakarpatska, '9' Zhaporizka, '10' Ivano-Frankiv ska
'11' Kirovogradska, '12' Luganska, '13' Lvivska, '14' Mykolayivska, '15' Odeska
'16' Poltavska, '17' Rivnenska, '18' Sumska, '19' Ternopilska, '20' Kharkivska
'21' Khersonska, '22' Khmelnytska, '23' Cherkaska, '24' Chernivetska, '25' Chernigivska

Table 5.3. ***Difference-in-differences analysis by means of ordered regression on unmatched data***

	Before = year 2016 After = year 2020	Before = year 2017 After = year 2020		Before = year 2019 After = year 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with district doctors/ family doctors; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.152 (0.040)***	**0.093 (0.041)***	**0.117 (0.041)***	**0.258 (0.042)***
Period ('0' before; '1' after)	**0.286 (0.037)***	**0.134 (0.037)***	**0.083 (0.037)***	-0.061 (0.038)
DID	0.057 (0.059)	0.109 (0.059)	0.092 (0.060)	-0.069 (0.059)
N of observations**	16971	16688	16867	16308
n before	8744	8737	8885	8557
n after	8692	8692	8692	8692
LR chi2 (3)	144.82	60.91	46.88	71.44
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0036	0.0015	0.0012	0.0018
Satisfaction with district doctors / family doctors; with covariates ***				
User-nonuser ('0' nonuser; '1' user)	**0.190 (0.041)***	**0.203 (0.042)***	**0.318 (0.043)***	**0.329 (0.044)***
Period ('0' before; '1' after)	-0.105 (0.056)	**0.107 (0.038)***	**0.120 (0.037)***	-0.069 (0.038)
DID	0.050 (0.061)	0.045 (0.060)	-0.086 (0.061)	-0.106 (0.060)
N of observations **	16849	16579	16716	16149
n before	8744	8737	8885	8557
n after	8692	8692	8692	8692
LR chi2 (33)	1022.66	1234.01	1365.94	1189.64
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0253	0.0308	0.0345	0.0302
Satisfaction with pediatrician; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.127 (0.052)***	0.015 (0.054)	0.009 (0.058)	**0.124 (0.057)***
Period ('0' before; '1' after)	**0.157 (0.047)***	-0.057 (0.048)	**-0.103 (0.048)***	**-0.265 (0.049)***
DID	0.063 (0.079)	**0.166 (0.080)***	**0.179 (0.083)***	0.042 (0.081)
N of observations **	10101	9716	9453	9248
n before	5412	5170	4897	4888
n after	5000	5000	5000	5000
LR chi2 (3)	36.51	9.51	11.24	57.25
Prob > chi2	0.0000	0.0232	0.0105	0.0000
Pseudo R^2	0.0015	0.0004	0.0005	0.0026
Satisfaction with pediatrician; with covariates ***				
User-nonuser ('0' nonuser; '1' user)	**0.138 (0.054)***	0.067 (0.057)	**0.118 (0.061)***	**0.150 (0.060)***
Period ('0' before; '1' after)	-0.142 (0.077)	-0.051 (0.049)	-0.059 (0.049)	**-0.260 (0.050)***
DID	-0.009 (0.081)	0.058 (0.082)	0.021 (0.085)	-0.013 (0.083)
N of observations **	10031	9665	9366	9165
n before	5412	5170	4897	4888
n after	5000	5000	5000	5000
LR chi2 (33)	792.94	946.29	1132.33	1144.25
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0337	0.0414	0.0520	0.0516

*p = < 0.05
** N is given, excluding missing
*** For detailed information on covariates, see Appendix D, Table D.1

Table 5.4. ***Differences after matching (k-nearest neighbors matching, stepwise matching across years per user/nonuser group and across groups)***

	Difference 2016 - 2020	Difference 2017 - 2020	Difference 2018 - 2020	Difference 2019 - 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with district doctors / family doctors				
Age	0.006 (0.0007)	**-0.001 (0.0007)***	-0.002 (0.0007)	**-0.001 (0.0007)***
Gender	0.285 (0.021)	0.223 (0.022)	0.240 (0.022)	0.273 (0.022)
Education	0.050 (0.014)	0.097 (0.015)	0.088 (0.015)	0.080 (0.015)
Type of settlement	0.062 (0.021)	0.071 (0.021)	0.043 (0.021)	0.097 (0.021)
Health status	-0.173 (0.012)	-0.455 (0.017)	-0.479 (0.017)	-0.464 (0.018)
Number of persons in household	0.019 (0.007)	**0.007 (0.007)***	**0.007 (0.008)***	0.028 (0.008)
N of observations **	16849	16579	16716	16149
n before	10238	9962	10458	9565
n after	6611	6617	6258	6584
LR chi2 (6)	593.36	1112.66	1135.97	1132.04
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0263	0.0499	0.0514	0.0518
Satisfaction with pediatricians				
Age	0.004 (0.0009)	-0.003 (0.001)	-0.004 (0.001)	**-0.004 (0.001)***
Gender	0.323 (0.029)	0.253 (0.030)	0.268 (0.031)	**0.287 (0.030)***
Education	0.045 (0.018)	0.108 (0.120)	0.084 (0.020)	**0.063 (0.020)***
Type of settlement	**-0.004 (0.027)***	**0.020 (0.028)***	**-0.019 (0.028)***	0.015 (0.029)
Health status	-0.150 (0.015)	-0.482 (0.023)	-0.443 (0.025)	**-0.438 (0.025)***
Number of persons in household	0.028 (0.009)	**0.006 (0.009)***	0.024 (0.010)	**0.013 (0.009)***
N of observations **	10031	9665	9366	9165
n before	6427	6160	6280	5832
n after	3604	9665	3086	3333
LR chi2 (6)	281.59	601.36	452.60	462.77
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0215	0.0475	0.0381	0.0385

*p = < 0.05
** N is given, excluding missing

Figures 5.2-5.9. ***Before and after matching (k-nearest neighbors matching, stepwise matching across years per user/nonuser group and across groups)***

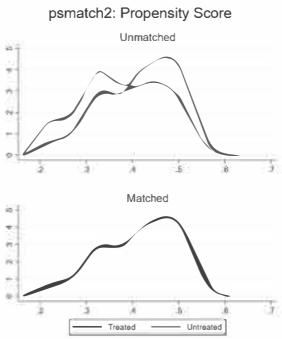


Figure 5.2. ***Satisfaction with family doctor 2016***

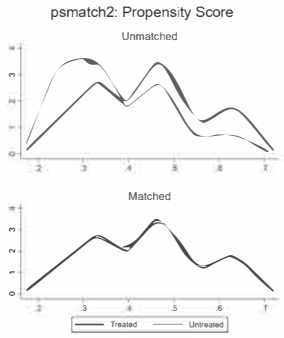


Figure 5.3. ***Satisfaction with family doctor 2017***

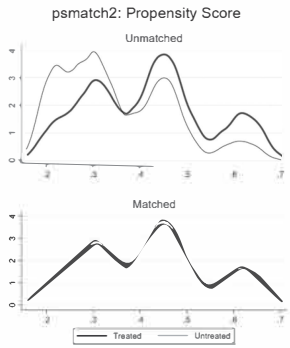


Figure 5.4. ***Satisfaction with family doctor 2018***

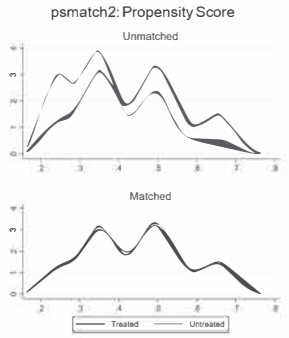


Figure 5.5. ***Satisfaction with family doctor 2019***

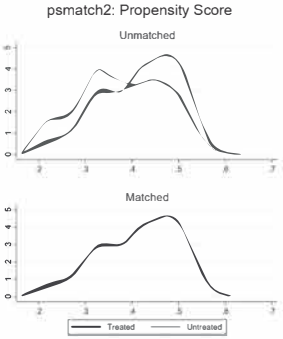


Figure 5.6. ***Satisfaction with pediatrician 2016***

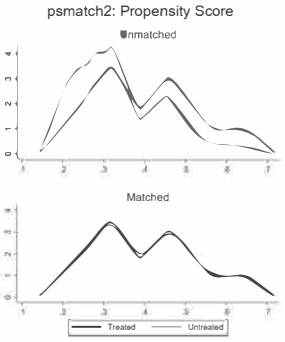


Figure 5.7. ***Satisfaction with pediatrician 2017***

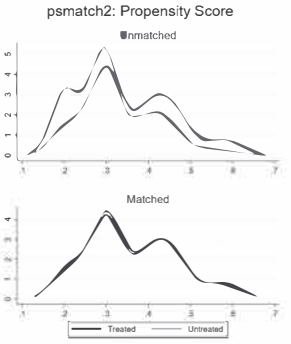


Figure 5.8. ***Satisfaction with pediatrician 2018***

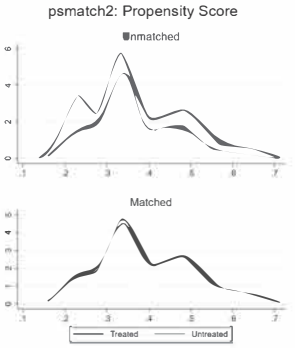


Figure 5.9. ***Satisfaction with pediatrician 2019***

Table 5.5. ***Difference-in-differences analysis by means of ordered regression on matched data***

	Before = year 2016 After = year 2020	Before = year 2017 After = year 2020	Before = year 2018 After = year 2020	Before = year 2019 After = year 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with district doctors / family doctors; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.156 (0.040)***	**0.099 (0.041)***	**0.117 (0.0414)***	**0.261 (0.042)***
Period ('0' before; '1' after)	**0.293 (0.037)***	**0.144 (0.037)***	**0.089 (0.037)***	-0.052 (0.038)
DID	0.046 (0.059)	0.096 (0.060)	0.085 (0.060)	-0.078 (0.060)
N of observations**	16849	16579	16716	16149
n before	10238	9962	10458	9565
n after	6611	6617	6258	6584
LR chi2 (3)	144.09	61.39	45.72	68.85
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0036	0.0015	0.0012	0.0017
Satisfaction with district doctors / family doctors; with covariates ***				
User-nonuser ('0' nonuser; '1' user)	**0.190 (0.041)***	**0.203 (0.042)***	**0.318 (0.043)***	**0.329 (0.044)***
Period ('0' before; '1' after)	-0.105 (0.056)	**0.107 (0.038)***	**0.120 (0.037)***	-0.069 (0.038)
DID	0.050 (0.061)	0.045 (0.060)	-0.086 (0.061)	-0.106 (0.060)
N of observations **	16849	16579	16716	16149
n before	10238	9962	10458	9565
n after	6611	6617	6258	6584
LR chi2 (33)	022.66	1234.01	1365.94	1189.64
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0253	0.0308	0.0345	0.0302
Satisfaction with pediatricians; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.128 (0.052)***	0.019 (0.054)	0.020 (0.058)	**0.134 (0.057)***
Period ('0' before; '1' after)	**0.159 (0.047)***	-0.052 (0.048)	-0.093 (0.048)	**-0.259 (0.049)***
DID	0.058 (0.080)	**0.158 (0.080)***	**0.164 (0.083)***	0.029 (0.081)
N of observations **	10031	9665	9366	9165
n before	6427	6160	6280	5832
n after	3604	9665	3086	3333
LR chi2 (3)	35.80	9.08	10.56	56.84
Prob > chi2	0.0000	0.0282	0.0144	0.000
Pseudo R^2	0.0015	0.0004	0.0005	0.0026
Satisfaction with pediatricians; with covariates ***				
User-nonuser ('0' nonuser; '1' user)	**0.138 (0.054)***	0.067 (0.057)	0.117 (0.061)	**0.150 (0.060)***
Period ('0' before; '1' after)	-0.142 (0.077)	-0.051 (0.049)	-0.059 (0.049)	**-0.260 (0.050)***
DID	-0.009 (0.0815)	0.058 (0.082)	0.021 (0.085)	-0.013 (0.083)
N of observations **	10031	9665	9366	9165
n before	6427	6160	6280	5832
n after	3604	9665	3086	3333
LR chi2 (33)	792.94	946.29	1132.33	1144.25
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0337	0.0414	0.0520	0.0516

*p = < 0.05
** N is given, excluding missing
*** For detailed information on covariates, see Appendix D, Table D.3

Table 5.6. ***Difference-in-differences analysis for repeated cross-sectional data with Kernel propensity score matching based on linear regression***

Variable	Before = year 2016 After = year 2020			Before = year 2017 After = year 2020			Before = year 2018 After = year 2020			Before = year 2019 After = year 2020		
	nonusers	users	difference (st. err)	nonusers	users	difference (st. err)	nonusers	users	difference (st. err)	nonusers	users	difference (st. err)
Satisfaction with district doctors / family doctors												
Before	2.772	2.842	**0.070 (0.017)*** **	2.829	2.871	**0.042 (0.018)** **	2.860	2.914	**0.054 (0.018)*** **	2.903	3.020	**0.117 (0.019)*** **
After	2.876	2.961	**0.084 (0.019)*** **	2.876	2.961	**0.084 (0.020)*** **	2.876	2.961	**0.084 (0.019)** **	2.876	2.961	**0.084 (0.020)*** **
DID			0.014 (0.026)			0.042 (0.027)			0.031 (0.026)			-0.032 (0.028)
N of observations			16971			16688			16867			16308
n before			8687			8404			8583			8024
n after			8284			8284			8284			8284
R^2			0.01			0.00			0.00			0.00
Satisfaction with pediatricians												
Before	2784	2.837	**0.053 (0.022)** **	2.863	2.874	0.011 (0.023)	2.896	2.902	0.006 (0.024)	2.944	2.999	**0.055 (0.025)** **
After	2.832	2.909	**0.077 (0.025)*** **	2.832	2.909	**0.077 (0.026)** **	2.832	2.909	**0.077 (0.024)*** **	2.832	2.909	**0.077 (0.027)*** **
DID			0.024 (0.033)			**0.066 (0.034)***			**0.071 (0.033)** **			0.022 (0.036)
N of observations			10101			9716			9453			9248
n before			5382			4997			4734			4529
n after			4719			4719			4719			4719
R^2			0.00			0.00			0.00			0.00

Inference: * p<0.1; ** p<0.05; *** p<0.01
Number of observations is given, excluding missing
Covariates: age, gender, education, type of settlement, self-reported health status, number of persons in household

5.4. Discussion

The main findings indicated an increase in satisfaction with the district/family doctor over time among both users and nonusers of primary care. However, this increase does not seem to be due to the reform. The results for pediatrician services were mixed. The reason why satisfaction with primary care is fairly high and slightly increasing over time seems unrelated to the reform of primary care is unclear. However, there could be other possible explanations based on previous literature.

First, our findings show that in general, respondents (both users and nonusers) are "rather satisfied" with their district/family doctors and pediatricians. Patient satisfaction is related to the difference between patient expectations and perception of the services used (Naidu, 2009). Ukraine was found to have the lowest expectations about the health system among 12 countries included in the study of Kressens et al. (2004). Thus, general satisfaction with primary healthcare might be partly explained by the low expectations that people have of primary healthcare. Because of the rigidness of the health system, patients often use self-coping strategies in seeking directly specialized care and avoiding using family doctor services (Luck et al., 2014).

Second, the general satisfaction with primary healthcare might also be explained by the subjective perception of quality of healthcare services by individuals. Despite the dissatisfaction with the conditions of service provision like accessibility (Stepurko et al., 2016), patients were generally satisfied with the qualifications of their doctors and treatment results (Ahiyevets et al., 2020). Thus, patients may perceive quality as high because they were treated by a qualified medical doctor and the treatment was effective for them, irrespective of other quality aspects. This is confirmed by a study showing that outpatient care quality, qualification of medical personnel and effectiveness of treatment were most important for healthcare users in Ukraine (Chapter 4).

Users of primary healthcare in our study rated satisfaction with family doctor and satisfaction with pediatricians higher than nonusers. They had access to reimbursed medicines once patients enrolled in the program "Affordable medicines" and could obtain pharmaceuticals prescribed electronically by the family doctor. Affordability and access are important determinants of healthcare services utilization (Baltussen et al., 2002), which could explain higher satisfaction of the users. At the same time, users evaluated their own experience of the services used. Whereas nonusers based their evaluation on those of other users, like family members. Thus, nonusers might focus more on satisfaction with the health system in general. Satisfaction with the services used tends to be evaluated higher than satisfaction with the health system in general, as the respondents might mix satisfaction with governance and satisfaction with the health system (Footman et al., 2013). Our study also revealed an increase in satisfaction with the district/family doctor. As the DiD effect is not statistically significant, this increase appears not to be influenced by the reform. Over the years, other improvements have taken place in primary healthcare in Ukraine. For example, renovations have been made, equipment has been procured, the qualification of doctors

has improved also by means of training in management, etc. Healthcare users also became more aware of payment policies (WHO – World Bank Joint Report, 2019). Specifically, the physical environment (including flexible payment mechanisms) is positively associated with patient satisfaction (Batbaatar et al., 2017).

The results on satisfaction with pediatrician care were mixed. We found a statistically significant increase in satisfaction with the pediatrician in 2017-2020 and 2018-2020. These results, however, should be treated with the appropriate caution as pediatricians in Ukraine are only vaguely defined. Pediatricians are employed both in primary healthcare (where they perform the family doctor functions for children) and in secondary care (inpatient care in children's hospitals). Patients do not always clearly distinguish between the two. Thus, we cannot clearly assign the level of satisfaction found in our study to primary care pediatricians. This statistically significant increase in satisfaction with the pediatrician might be explained by the slight shift of functions of the family doctors. Family doctors before the reform were seeing only adults whereas pediatricians – only children. Now, patients can choose the family doctor who would combine these functions and also see the child. The quicker access and easier use for parents might be the reasons for increased satisfaction with pediatric services (Fishbane and Starfield, 1981). Furthermore, the change to a per capita financing model enhanced provider competition, and may have provoked better clinical practices along with better managerial and communication practices.

There is a general consensus among the population that the health system of Ukraine requires reforms (Belli et al., 2015), and expectations among the population about the outcomes of the reforms were high. However, the overall absence of the effect of reform on satisfaction might be explained by the fact that the frequent changes of governments in Ukraine, including in the Ministry of Health during the pre-transition period (from March 2010 till August 2016, Ukraine had 9 Ministers of Health), have neither facilitated consistency in goals and practices in the health system nor helped to maintain trust of the population in the health system.

The absence of a direct effect of the healthcare financing reform in Ukraine on satisfaction with primary healthcare services in our study, is similar to results reported in the review by Kutzin et al. (2010), who compared the experience of post-Soviet and some European countries in healthcare financing reforms (including Albania, Georgia, Czech Republic, Estonia, Kyrgyzstan, Moldova, Slovenia, Russian Federation, Tajikistan, etc., including Ukraine). This review showed that quality improvement was limited if based only on financial reforms. The financial reforms should be combined with the medical education development (e.g. efficiency in the delivery of services is promoted) and quality improvement at the provider level (e.g. internal quality improvement processes and accreditation are the preconditions for contracting) to have an impact on patients (Kutzin et al., 2010). This seems to be the regional peculiarity as other studies in low- and middle-income countries found correlations between patient satisfaction and changes in healthcare driven by policy interventions (Peters et al., 2004; Grytten et al., 2004;

Lundberg et al., 2008). The results of our analysis could help to develop policies that further the implementation of necessary changes that make the system more responsive to the needs and expectations of healthcare users.

Other confounding variables included in our analysis, such as age, gender, education, type of settlement, self-reported health status, and the number of persons in the household also showed an influence on satisfaction in users. However, only gender and self-reported health status had statistical significance over the years (2016-2020). Whereas age showed no statistical significance and other variables were statistically significant three years out of five included in the analysis. Thus, the results of our analysis confirm the results of previous analyses described in the literature (Naidu, 2009). At the same time, the reason why some of the variables showed influence in certain years is unclear.

Our study in this chapter has certain limitations that should be mentioned. The reform of healthcare financing (capitation-based payment, managerial autonomy and free choice of the provider) in Ukraine was planned to be realized in two stages: first stage focused on primary care, which was completed in 2019 and second stage focused on the secondary and tertiary care, which started in 2020. Thus, in this chapter we only analyzed the impact of the first stage focused on primary care. As mentioned in the Introduction to this dissertation, the first stage was completed in February 2019 and on the moment of data collection in 2019, 26 million patients were registered with a family doctor (WHO – World Bank Joint Report, 2019). The registration does not mean that the primary healthcare services were actually used. Thus, the results for 2019 need to be interpreted with caution. The definition of primary healthcare services is not clear in Ukraine, especially in the case of pediatrician services. There are also limitations connected with the data used in the analysis. We had access to repeated cross-section data. These may not be able to capture changes in individual characteristics over time. For this, longitudinal data are needed for the identification of the control group. In our analysis, we used nonusers as a control group. Nonusers may not be the best control group because of their statistical dissimilarity from the group of users. In addition, a repeated cross-sectional design has limitations in capturing individual-level changes over time. Thus, we applied matching techniques to make relevant observable characteristics similar in order to facilitate a comparison between them. At the same time, nonusers referred not to their own experience but based their stated satisfaction on the experience of others, for example, family members who used the services in question. The interpretation of our results, specifically the explanation of high satisfaction levels in the absence of a direct influence of the reform, was based on previous literature. In addition, we applied only quantitative measures of satisfaction for our analysis. Supplementing the quantitative data with qualitative research methods could provide deeper insights into the drivers of satisfaction and could help assess the impact of healthcare financing reforms on the quality and accessibility of primary care.

5.5. Conclusions

This chapter provides new insights into the general satisfaction with primary healthcare services among users and nonusers as well as into the impact of the first stage of healthcare financing reform on satisfaction with primary healthcare in Ukraine. Overall, we did not find evidence for a direct influence of this part of the reform on satisfaction with primary healthcare services, even though that was our expectation, as indicated in the introduction to this chapter. At the same time, satisfaction with the primary healthcare services increased over time in both groups: users and nonusers. In the discussion in this chapter, we offer several possible explanations, such as low expectations of primary healthcare, subjective perception of healthcare quality, improved access and affordability, changes in healthcare management and general improvements in healthcare, including more transparent payment policies. Therefore, we recommend further study to investigate the underlying factors for these findings. Specifically, the analysis of factors influencing the increase in patient satisfaction in Ukraine and the reason for mixed results in pediatric services are needed to provide policy makers and primary healthcare services providers with evidence that can be used for further quality improvement.

Our analysis might be interesting for countries with either similar health systems or with health systems in transition, undergoing the same change of the Semashko system through capitation reform. Our results suggest that payment reform may not lead to higher satisfaction with the health system.

Chapter 6

General discussion

6.1. Introduction

The central aim of this dissertation was to obtain new knowledge on the perception of healthcare quality by different stakeholders and insights on self-reported satisfaction with primary healthcare, specifically, on general satisfaction with primary healthcare in Ukraine. As explained in Chapter 1, more insight into quality perceptions as well as self-reported satisfaction with healthcare is needed because knowing the perceptions of quality by different stakeholders adds to our understanding of quality and facilitates a better choice of tools for quality assessment and improvement. At the same time, consensus and reliable information on quality make it possible to differentiate between poor and good quality healthcare services in the country, while recent evidence on this issue for Ukraine is absent.

In Chapter 2, we explored self-reported satisfaction with healthcare as a measure of quality. We identified tools to measure quality, which were adapted to different contexts and self-developed and we systematized evidence on their psychometric properties, specifically, on their validity and reliability. Further, the dissertation included empirical investigations on the perceptions of healthcare quality in Ukraine at different levels of the health system, taking the viewpoint of healthcare providers (mezzo level) and users (micro level) as well as the effect of healthcare financing reform on satisfaction with service quality (macro level). Specifically, in Chapter 3, we identified fifteen groups of quality attributes important to primary healthcare managers and also investigated quality assessment practices used by primary healthcare managers. Chapters 4 and 5 focused on healthcare users. In Chapter 4, we investigated the importance of eleven quality attributes for outpatient services users, and in Chapter 5, we investigated the general satisfaction among users and nonusers of primary healthcare services. Moreover, in Chapter 5, we studied the effect of healthcare financing reform on satisfaction with healthcare services among users and nonusers over five years.

This final chapter outlines and discusses the main findings presented in the dissertation. Concluding remarks are given at the end of the chapter.

6.2. Main findings

The main findings of the studies included in this dissertation are given in the form of five statements. Each statement is discussed and followed by policy recommendations as well as suggestions for further research.

Statement 1: Satisfaction with healthcare measures aspects of quality that are not measured by clinical quality measurement tools.

As explained in Chapter 1, the concept of satisfaction is multidimensional. Its importance for the development of service improvement strategies (Gill and White, 2009) as well as for

decision-making is well accepted (Crow, 2002) as it goes beyond clinical quality, showing aspects important for patients. Despite the subjective nature of satisfaction – they are determined by objective factors like expectations, patient characteristics (social and marital status, gender), and psychological determinants (sensitivity to Hawthorne effect) (Sitzia, 1997). Measuring satisfaction is relevant and satisfaction tools are widely used to evaluate patient experiences.

The results of our systematic literature review in Chapter 2 showed the variety of satisfaction measurement tools used for quality monitoring and assessment. As argued in Chapter 2, the choice of measurement tool depends on many factors. Purpose of measurement, context and available resources are among the most important. The satisfaction measures might take the form of an assessment of the provider and the attributes of care (for example, waiting time) and ratings that reflect users' expectations and the reality of the service received (Sitzia, 1997). Standardized patient satisfaction surveys have been developed and widely used (Mohammed et al., 2016) as repeated cross-sectional data on satisfaction are often lacking (Calabro et al., 2018). The growing number of studies measuring psychometric properties of self-developed patient satisfaction assessment tools shown in our review in Chapter 2 indicate the continuous search for a valid and reliable instrument applicable to specific domains and healthcare setting variables. The majority of studies included in our review reported the use of self-administered questionnaires. This might be explained by the low costs of the method and also shows the search for balance between the importance of gaining patient satisfaction data and sensible resources application.

As found in Chapter 3, almost 15% of healthcare managers in Ukraine who took part in our survey associate healthcare quality with "patient satisfaction". And 10.6% of them use "feedback (satisfaction surveys both patient and medical staff, work with complaints)" as a quality measurement tool. These results also show that despite the importance of user satisfaction in optimizing healthcare delivery, little attention has been paid to this indicator in Ukraine. For comparison, 34.4% of healthcare managers in the survey described in Chapter 3, use a system of monitoring and evaluation as a quality measurement tool. A long history of paternalistic doctor-patient relationships did not leave space for patients' perceptions or satisfaction. In such a model, the patient is rather passive, whereas the medical doctor's authority and expertise are absolute (Präg et al., 2017). It is therefore not surprising that quality assurance in the health system in Ukraine has mostly focused on indicators on the supply side.

One of the most common instruments of quality control in Ukraine is the perpetual licensure of healthcare. The Ministry of Health of Ukraine checks whether the applicant (healthcare provider) conforms to a set of licensure requirements (mostly towards the setting, equipment, personnel and organizational scheme), and if so, issues the license and conducts license audits. Accreditation and certification are also present in the Ukrainian health system. However, quality assessment procedures are somewhat formal and chaotic, suitable enforcement mechanisms are absent (Lekhan et al., 2015), and a national quality policy and strategy do not exist. Consequently, licensure and accreditation set the minimum

requirements for basic-level quality but do not have a real impact on quality improvement (Lekhan et al., 2015).

In addition, clinical indicators are described in clinical guidelines. Information on performance is collected at the level of medical setting through the range of forms developed by the Ministry of Health, and this information is consolidated in the Center for Medical Statistics. Statistical data on some contagious diseases (TB, HIV/AIDS, dermato-venerological) and cancer are collected separately. Apart from the forms mentioned above, the Ministry of Health also establishes strict guidelines for the completion and processing of the forms. The data collection and processing is well standardized and organized on a level of healthcare settings (Belli et al., 2015). The use of clinical indicators is prevalent in quality assessment. This is also confirmed by our findings in Chapter 3. The "system of monitoring and evaluation" mentioned earlier consists mostly of "unification of standardized indicators for different levels of medical help" (Chapter 3).

However, as described in Chapters 4 and 5, the recent healthcare financing reform created, among other things, conditions for increased competitiveness between healthcare providers. This changed the role of patients in the healthcare delivery model in Ukraine. Patients are no longer attached to the family doctor based on the territorial principle (medical doctor sees patients who live on the territory under his/her supervision) and can easily choose or change their provider. Healthcare organizations became more open to patients' requirements and started using patient surveys and other quality assessment tools in their daily practice. This change opens new opportunities for policymaking. Specifically, to gather new insights on aspects of quality that are not measured by clinical quality measurement tools.

In conclusion, this dissertation supports the importance of valid and reliable self-reported satisfaction with healthcare as a measure of quality. As mentioned in Chapters 2 and 3, including satisfaction into quality measures helps to measure the aspects of healthcare that healthcare users truly value.

Policy and research implications

Patient satisfaction is an indicator of healthcare quality (Gill and White, 2009). The desire to have more precise measurements makes healthcare providers self-develop assessment tools as well as adapt and finetune the ones that have proved their reliability over time. However, as indicated in Chapter 3, little attention to patient satisfaction and analysis of repeated cross-sectional data on satisfaction is observed in Ukraine, along with the unclear understanding of measurement tools among healthcare managers. At the research level, the routine application of measurement tools in healthcare management practice requires further study. At the policy level, there is a need to revise quality assessment practices on the levels of the system and facility.

Statement 2: The healthcare financing reform of 2017-2020 has changed the discussion on the quality and satisfaction with healthcare in Ukraine.

When we planned this dissertation, primary healthcare in Ukraine experienced painful trials to change its financing. The first steps of the reform were difficult mostly because of the rigid views of healthcare professionals that urgently needed to be changed. As discussed in Chapter 3, healthcare remained a closed community. Quality definitions set by the Ministry of Health were followed exactly, whereas patient's views on quality were ignored. Furthermore, the previous Semashko type of health system that dominated the Ukrainian healthcare sector before the reforms was known for its lack of incentives. The healthcare financing reform 2017-2020 was not the first try to change Ukrainian healthcare. Healthcare reforms started in Ukraine as early as 1992. Frequent changes of Ministers resulted in a high number of legislative acts that were inconsistent and sometimes contradicting. That did not create grounds for a systemic and fundamental restructuring of healthcare (Lekhan et al., 2015). Moreover, they created a lack of internal motivation in healthcare professionals (Belli et al., 2015). Still, as described in Chapter 3, only half of healthcare managers who took part in our survey (52.6%) stated that they have a quality management system implemented in their healthcare facility.

Fundamental restructure became possible with the start of healthcare financing reform in 2015, as described in Chapter 1 of this dissertation. As part of the decentralization, a number of administrative functions were delegated to regional and local levels (Lekhan et al., 2015). Further on, the automatization process started, giving the healthcare providers certain managerial freedom described in Chapter 3.

The top-down culture of governance built in the Semashko health system has developed a habit in healthcare professionals to follow the orders issued by the Ministry of Health, no questions asked. The necessary notions were included in the explanatory part of the ministry orders and did not require the healthcare professionals to have their own views (Lekhan et al., 2015). The findings in Chapter 3 show that in describing quality, 30.8% of healthcare managers in our survey use the term from Order of the Ministry of Health of Ukraine #752 "About the procedure of quality control of medical help"[5]. And 34% use a combination of terms, in which the citing of the term given in Order # 752 is also present. While formulating the new notions in healthcare, policy makers used the same procedures developed by the international organizations as a basis without their tuning according to the perceptions of the stakeholders within the country. Thus, there existed a gap between having internationally accepted notions describing quality in healthcare at a system level along with a lack of clear interpretation of messages from policy makers and a lack of internal motivation to maintain quality or use quality as a tool in competition by providers. The findings of Chapter 3 show the lack of clear consensus about quality among healthcare managers.

[5] "Providing medical help and organizing healthcare services according to the healthcare standards. Healthcare quality assessment is the compliance of provided medical help to the formalized healthcare standards"

The healthcare financing reform of 2017-2020 has changed the perspective. A more transparent communication policy of the Ministry of Health team (2016-2019) created grounds for more open perceptions and experiences exchange between policy makers and healthcare providers. With the creation of the national payer (National Health Service of Ukraine), which developed requirements and concluded agreements with healthcare providers, the discussion around quality became more focused on the choice of key point indicators that would include not only clinical indicators but also financial indicators, indicators of effectiveness and quality. Thus, the question arose of who should be responsible for quality; whether healthcare providers should keep legal responsibility for treatment outcomes or medical doctors should share this responsibility by means of licensing, and who would develop procedures for assessing medical professionals. As a result, several legal acts were developed and opened for public discussion. Specifically, the «Concept of professional licensing of medical doctors» in 2018, the law projects self-governance of medical doctors in 2021 and self-governance in healthcare in March 2023. The discussions among healthcare professionals still continue.

Our study of users' perceptions of quality in primary care, in Chapter 4, also showed the change in the importance attached to quality attributes. It doubled in 2019 in comparison with previous years (2016-2018). As a result of the widespread communication campaign held by the reformers, healthcare users became more aware of the payment policies of the national payer, and received the option to choose their service provider freely, which stimulated them to define more clearly the essential attributes of the service they seek. At the same time, we saw that such quality attributes as "respect, trust and empathy to the patient", "the possibility to stay close to family members of patients", "the possibility to influence the quality of care by patients" - that were not popular under the highly paternalistic health system – now are gaining growing importance among users.

In conclusion, with the healthcare financing reform 2017-2020, Ukraine experienced dramatic change not only in financing principle and managerial freedom but, more importantly, in views and perceptions of healthcare professionals and users on the health system in general and on quality in particular.

Policy and research implications

Healthcare financing reform in Ukraine opens a unique opportunity for policy makers to develop quality policy and quality strategy for the country. A more open policy of the Ministry of Health of Ukraine and inclusion into the discussion of such stakeholders as healthcare managers, medical doctors and nurses as well as patients create the basics for the quality policy to be as clear and applicable as possible. At the research level, it is important to collect and analyze repeated cross-sectional data on the views and satisfaction of healthcare stakeholders – policy makers, healthcare providers and healthcare users – on quality. At the policy level, it is important to maintain the dialogue between the stakeholders, take into consideration their views and expectations and develop a working quality strategy.

Statement 3: Primary healthcare managers and patients in Ukraine perceive quality mostly as process quality. The attention to outcome quality is limited.

The widely used Donabedian's quality model describes quality in healthcare as a combination of structure, process and outcome (Donabedian, 1988). Structure is seen in recourses management, including personnel and setting. Process is described by performance management, including diagnostics and treatment plan. Whereas outcome includes health status, recall pattern and patient satisfaction (Gardner and Mazza, 2012).

At the same time, as described in Chapter 1, quality is often perceived by healthcare stakeholders through the most important for them attributes. Healthcare professionals focus, among others, on compliance of clinical results with clinical guidelines (Mosadeghrad, 2013), clinical governance and leadership (Gauld and Horsburgh, 2013). Healthcare user's focus lies on the service environment and communication with healthcare providers (Mosadeghrad, 2013). In contrast, policy makers perceive quality via system elements: accessibility, equitability, etc. (Mosadeghrad, 2013). Understanding the focus of attention is important as it defines quality and predisposes the choice of its assessment methods and management tools.

The findings of Chapter 3 show that in Ukraine, primary healthcare managers perceive quality as the most important attribute of the process. Specifically, "compliance to standards" and "indicators". As discussed in Chapter 3 and in previous statement, such focus on the process comes from following the orders of the Ministry of health of Ukraine. Set in Order #752, the term describes quality with a focus on process. Chapter 3 also argues that traditionally (before changes in 2015), healthcare managers were appointed from the pool of medical doctors and nurses after they took short-term management training within CPD framework. Thus, the perception of quality among healthcare managers in Ukraine also describes the perceptions of medical doctors. At the same time, primary care is process-oriented in its core as its role lies in the management of population's health performed by such services as diagnostics, chronic illness management, referral to other specialists and health promotion (Vallejo-Torres and Morris, 2018).

As described in Chapter 3, healthcare users in Ukraine perceive quality as process quality via such important to them attributes as "effectiveness of treatment" in the meaning of "the correct diagnosis, adequate treatment" and "qualified medical personnel using modern and safe treatment methods". The doctor-patient relationship is a known predictor of patient-perceived healthcare quality (Crow et al., 2002) and the focus on treatment effectiveness also shows active patient's role.

In conclusion, both healthcare professionals (managers, medical doctors and nurses) and healthcare users in Ukraine perceive quality mostly as process quality. At the same time, attention to outcome is limited. This also explains the lack of attention to patient satisfaction (attribute of outcome) described in Chapter 3 and argued in Statement 1.

Policy and research implications

Health system responsiveness includes patient-oriented aspects. Specifically, service quality, quality of the facility, as well as dignity and confidentiality (Kressens et al., 2004). As indicated in Chapter 4, in the study by Kressens et al. (2004) among patients who were rating primary healthcare performance, the Ukrainian health system was found to be the least responsive among the 12 countries (Italy, Norway, Portugal, Greece, the Netherlands, the United Kingdom, Ireland, Israel, Finland, Denmark, Belarus) included in the study.

At the policy level, health system responsiveness should be improved by raising awareness of important attributes of structure (like tangibles) or outcome (patient satisfaction) among healthcare professionals and users. At the research level, we did not find other studies of healthcare managers' perceptions of quality in Ukraine. We perceive the findings of Chapter 3 to be the baseline of such kind. Thus, healthcare managers' perceptions of quality in Ukraine require further study. Also, system responsiveness studies are rare in Ukraine and require further elaboration.

Statement 4: A clear consensus about quality assessment and how to measure it is needed in Ukraine.

The results of our study of quality perceptions among healthcare managers described in Chapter 3 showed the absence of a clear understanding of healthcare quality as well as little consensus about quality assessment.

As argued in Chapter 3, quality is not adequately addressed during medical training. The terms "quality" and quality assurance tools are explained in the orders of the Ministry of Health of Ukraine (specifically in defined in the Order of the Ministry of Health #752 dated September 28, 2012)[6]. Medical doctors and nurses who have become acquainted with quality notions are informed about the contents of the orders during internal healthcare organization meetings. Often, medical doctors are left to interpret the provisions of the orders by themselves as Ministry interpretations are rare and given only as a result of the long procedure of applying official requests.

The participants in our study (Chapter 3) are mostly focused on process quality and do not recognize the multidimensionality of quality. Findings of Chapter 3 show that more than half of healthcare managers (who are also medical doctors and nurses) associate quality with one attribute only. Medical doctors also become acquainted with quality and management during their managerial training if they become or plan to become healthcare managers (head doctor, chief of the department, nurse-administrator, etc.). At the same time, continuous professional development programs are often outdated and healthcare professionals lack knowledge of English (Anufriyeva et al., 2019). Thus, access

[6] "Providing medical help and organizing healthcare services according to the healthcare standards. Healthcare quality assessment is the compliance of provided medical help to the formalized healthcare standards"

to international sources is limited. In Chapter 3 we identified fifteen groups of quality attributes and still, the meaning of some of them requires further clarification.

At the same time, the participants of our study (Chapter 3) gave unclear descriptions of measurement tools and answers about the routine application of measurement tools in healthcare management practice. As stated in the introduction to this dissertation, perpetual licensure of healthcare, as well as accreditation and certification, are present in Ukraine. In contrast, assessment procedures are formal and chaotic. The participants of our study (Chapter 3) either did not distinguish between quality assessment (as a process) and the quality level in their facilities, or the formulation of the question was unclear for them.

In conclusion, education and clear messages on quality in healthcare from the Ministry of Health of Ukraine are important in developing a clear consensus about quality assessment and how to measure it.

Policy and research implications

Healthcare managers in Ukraine are mostly medical doctors and nurses. This makes our study of their quality perceptions described in Chapter 3 unique. We believe it to be the first study in Ukraine exploring the views of healthcare managers (we did not find other studies on the issue). At the same time, our findings describe the views of two stakeholders at once – healthcare managers and medical professionals. Their views were found to be unclear.

At the policy level, the development and promotion of a national policy on quality and a national quality strategy for healthcare should become one of the priorities of the healthcare sector. Up-to-date quality education should be a part of clinical training as well as continuous professional development programs for medical doctors and nurses. At the research level, the perception of healthcare quality among healthcare managers, medical doctors and nurses, as well as the routine application of measurement tools in healthcare management practice, require further study.

Statement 5: Paradoxically in Ukraine, satisfaction with primary care is high, although the health system does not perform well.

As stated in Chapter 1 of this dissertation, healthcare users tend to perceive quality through its attributes. As shown in Chapter 4, healthcare users in Ukraine find most important “the effectiveness of the treatment (the correct diagnosis, adequate treatment)” and “qualified medical personnel using modern and safe treatment methods”. At the same time, the results of our study on the satisfaction with primary healthcare in Ukraine in Chapter 5 show high and increasing satisfaction over time with their district/family doctors and pediatricians. As argued in Chapter 2, satisfaction is a highly subjective measure of quality. As shown by Groot (2000) subjective well-being measures like satisfaction are affected by

adaptation bias and scale of reference bias. It is furthermore difficult to differentiate the reason behind satisfaction or dissatisfaction. It may refer to the process of care delivery, health outcomes, or both (Crow et al., 2002). At the same time, satisfaction with the service might be expressed as satisfaction with the health system (Crow et al., 2002). Healthcare users in our study (Chapter 5) might be satisfied with their treatment results and the medical doctor (attributes), which might increase their satisfaction with the health system in general. At the same time, nonusers do not have their own experience with the services but build their perception on their satisfied or dissatisfied relatives and friends who actually used the services.

With frequent policy changes during several decades before the healthcare financing reform 2017-2020, patients have low expectations and little understanding of health system functioning. Low expectations also add to high satisfaction.

As was already mentioned in the previous statements and argued in Chapters 4 and 5, some improvements have been made lately. Specifically, affordability has improved. For example, the state program "Affordable medicines" guarantees reimbursement for medicines once a patient is enrolled. As well as accessibility improved. General improvements in healthcare settings have been made, like renovations of buildings and better equipment. Patients became more aware of payment policies. Though these changes are introduced within the healthcare reform framework, they have no direct influence on satisfaction and might be perceived separately through the visit to a family doctor.

In conclusion, healthcare users in Ukraine tend to have low expectations and relocate their satisfaction with primary healthcare services to the health system in general.

Policy and research implications

Most Central and Eastern European countries that reformed their health system chose to focus on primary healthcare and on strengthening the gate-keeping role of the general practitioner (GP). This became one of the reasons for patient dissatisfaction, in particular with access to healthcare (Stepurko et al., 2016). For example, in the study by Stepurko et al. (2016), 16.4% of respondents in Lithuania are reported to be dissatisfied with the access to outpatient acre and only 6.1-8.5% - with other aspects of care. In this dissertation, we observe paradoxically high satisfaction with primary healthcare.

At the policy level, the principles of health system functioning should be well communicated to healthcare users. Healthcare reforms should be strengthened by quality improvements in healthcare settings. At the research level, further research is needed to fully understand the drivers of satisfaction, the extent to which responses are affected by adaptation bias and scale of reference bias, and to assess the impact of healthcare financing reforms on the quality and accessibility of primary care.

6.3. Methodological considerations

This dissertation is unique in exploring the perceptions of several groups of health system stakeholders in Ukraine. Specifically, we analyzed the responses of healthcare managers who are also medical doctors and nurse administrators. At the same time, we did not include medical doctors and nurses who do not have managerial positions. Therefore, we cannot be certain that all views of healthcare professionals were sufficiently studied in this dissertation. We also analyzed the responses of primary care users and nonusers but did not include policy makers in our analysis. We focused on primary healthcare only, which left the understanding of quality in the Ukrainian hospital sector unexplored.

Data from the repeated cross-sectional household survey "Health Index. Ukraine" (2016-2020) were used. The survey had a large sample size (over 10,000 participants per wave) and was representative of the country. Thus, we had an opportunity to study the change in users' quality perceptions as well as satisfaction with primary care dynamics. At the same time, there is a lack of qualitative exploration of the topic. Specifically, we did not look at the clinical outcomes as a measure of quality. Therefore, the outcomes of this dissertation should be seen as a base for future more elaborated exploration of the perception of healthcare quality and satisfaction with healthcare in Ukraine.

6.4. Concluding remarks

Effective healthcare services are co-produced by the healthcare provider and the patient (Gill and White, 2009). With the change of the role of the Ukrainian patient into a more active one, there also emerged the necessity to understand patient perceptions of quality and to add patients' views into quality assessment. Patient satisfaction is one of the most relevant quality indicators (Gill and White, 2009). This implies that the health system of Ukraine could benefit from including satisfaction measures in quality assessment practices that would measure the importance of healthcare aspects for patients. They will help to improve the responsiveness of the health system also improve population health outcomes with it.

This dissertation provides new insights into different stakeholders' perceptions of healthcare quality in Ukraine. Specifically, into perceptions of primary healthcare managers who, at the same time, in most cases, are also practicing medical doctors and nurses. As well as into perceptions of users. Overall, we identified fifteen groups of attributes important for healthcare managers and eleven groups of attributes important for users. Our findings show little consensus about quality among healthcare managers. Both groups of respondents (managers and users) find process quality to be most important for them. At the same time, the focus of quality perception is different. Healthcare managers perceive quality through "compliance to standards" and "indicators" attributes. Whereas healthcare users' perception focuses on "the effectiveness of the treatment (the correct diagnosis,

adequate treatment)". This implies the need for further discussion on healthcare quality in Ukraine as well as on access to up-to-date views and notions of quality for healthcare professionals.

This dissertation also provides new insights into the general satisfaction with primary healthcare services among users and nonusers of primary healthcare in Ukraine. Overall, we found paradoxically high and increasing satisfaction with primary healthcare services in Ukraine though the health system, in general, does not perform well. Although we offer several explanations based on the literature, the reason why satisfaction with primary care is fairly high and slightly increasing over time remains unclear and requires further research. This implies the necessity to understand the drivers of satisfaction in primary healthcare users in Ukraine.

Although some improvements were made on a system level (free choice of provider for patients, managerial autonomy for providers, transparent payment mechanisms, etc.) and on a level of the setting (renovations, better managerial practices), there is still no quality policy and quality strategy in Ukraine. Healthcare managers and patient perceptions of quality should be taken into consideration by policy makers. It is also important to record stakeholders' perceptions in a consistent manner for planning and development strategies for the improvement of health system responsiveness.

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APPENDICIES

Appendices A

Appendices B

Appendices C

Appendices D

Appendix A. Supplementary material for Chapter 2

Table A.1. ***Study Assessment Tool***

The check list is based on Quantitative Research Assessment Tool. Available at: https://www.mdpi.com. Accessed December 3, 2018.
I. Study details
1. Aim.
[1] Aim of the study is stated clearly
[0] Aim of the study is unclear
[-1] No description of aim
2. Population.
[1] Eligible population includes entire population of interest or a substantial portion of it
[0] Population represents a limited, atypical, or selective subgroup of the population of interest
[-1] No description of the population
3. Randomized Selection of Participants.
[1] Random selection
[0] Nonrandom selection
[-1] No description of the sample selection procedure
4. Sample Size.
[1] Sample size larger than 1000 respondents
[0] Sample size is 500 – 1000 respondents
[-1] Sample size less than 500 respondents
5. Response Rate.
[1] High response or participation rate (over 65% response rate, over 90% participated in follow-up studies)
[0] Moderate to low response rate (response rates of less than 65%)
[-1] No information on response rate or participation rate
6. Findings.
[1] Findings are described clearly
[0] Findings of the study are unclear
[-1] No description of findings
7. Value of the research.
[1] Value is described clearly
[0] Value of the study is unclear
[-1] No description of value
II. Measurement
8. Main Variables or Concepts.
[1] Accurately described and can be matched
[0] Vague definition or cannot be matched
[-1] No definition of main variables or concepts

Table A.1. ***Continued***

The check list is based on Quantitative Research Assessment Tool. Available at: https://www.mdpi.com. Accessed December 3, 2018.
9. Operationalization of Concepts.
[1] Key concepts are measured with variables that make sense. Or, variables have either been previously used in research or are improvements over previous measures.
[0] Key concepts are measured with variables that do not make sense, and variables have not been used in previous research studies
[-1] Variable operationalization is not discussed
III. Analysis
10. Numeric Tables.
[1] Means and standard deviations/standard errors presented
[0] Means, but no standard deviations/standard errors presented
[-1] Neither means nor standard deviations/standard errors presented
11. Missing Data.
[1] Number of cases with missing data are specified and the strategy for handling missing data is described
[0] Number of cases with missing data specified, but these cases are removed from the analysis
[-1] Missing data issues not discussed
12. Appropriateness of Statistical Techniques.
[1] Statistical techniques, reasons for choosing technique, and caveats are fully explained
[0] Statistical technique is explained, but the reasons for choosing technique or the caveats are not included
[-1] Statistical technique, reasons for choosing technique, and caveats are not explained
13. Omitted Variable Bias.
[1] All important explanations are included in the analysis
[0] Important explanations are omitted from the analysis
[-1] Variables and concepts included in the analysis are not described in sufficient detail to determine whether key alternative explanations have been omitted
14. Analysis of Main Effect Variables.
[1] Model coefficients and standard errors or hypothesis tests for the main effects variables are presented
[0] Either model coefficients or hypothesis tests for the main effects variables are presented
[-1] Neither estimated coefficients or standard errors for the main effects variables are presented
15. Ethical criteria.
[1] Statements according to ethical criteria are appropriate presented by, i.e. statements on written consent of participants/parents, ethical approval of Universities Review Board, confidentiality of participants' identities
[0] Statements according to ethical criteria or an ethical approval are incomplete
[-1] No statements according to ethical criteria or an ethical approval are presented

Table A.2. ***Results of the quality assessment of the studies included in the systematic literature review***

	Characteristics of the studies according to Quantitative Research Assessment Tool (see Appendix A, Table A.1)															
Number in reference list (see Appendix A, Table A.4)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total score
1	1	0	0	-1	1	1	1	1	1	1	-1	0	1	-1	1	6
2	1	0	0	-1	-1	1	1	1	1	1	0	0	1	1	1	7
3	1	1	1	0	1	1	1	1	1	1	-1	0	1	1	-1	9
4	1	0	0	0	1	1	1	1	1	1	0	0	1	0	1	9
5	1	0	1	-1	0	1	1	1	1	1	-1	0	1	-1	1	6
6	1	1	-1	1	1	1	1	1	1	1	0	0	1	-1	0	8
7	1	0	1	-1	1	1	1	1	1	-1	-1	1	1	0	1	7
8	1	0	-1	-1	-1	1	1	1	1	1	1	0	0	-1	1	4
9	1	0	0	0	-1	1	1	1	1	-1	1	0	0	-1	1	4
10	1	0	-1	-1	-1	1	1	1	1	1	1	0	1	-1	-1	3
11	1	1	0	1	-1	1	1	1	1	1	1	1	1	1	-1	10
12	1	1	1	1	1	1	1	1	1	1	1	0	1	1	-1	12
13	1	0	-1	0	0	1	1	1	1	1	0	0	1	1	1	8
14	1	0	0	-1	1	1	1	1	1	1	0	0	1	-1	1	7
15	1	0	1	0	1	1	1	1	1	-1	-1	0	1	1	-1	6
16	1	0	0	-1	1	1	1	1	1	0	-1	0	1	0	-1	4
17	1	1	1	1	-1	1	1	1	1	-1	-1	0	1	-1	-1	4
18	1	0	-1	1	1	1	1	1	1	-1	1	0	1	-1	1	7
19	1	1	1	1	1	1	1	1	1	1	0	0	1	-1	1	11
20	1	1	1	0	0	1	1	1	1	1	0	0	1	0	1	10
21	1	0	0	0	1	1	1	1	1	1	-1	0	1	-1	1	7
22	1	0	1	-1	1	1	1	1	1	1	-1	0	1	0	1	8
23	1	0	-1	1	0	1	1	1	1	1	0	0	1	-1	1	7
24	1	0	0	-1	1	1	1	1	1	-1	0	0	1	-1	1	5
25	1	0	1	-1	1	1	1	1	1	1	0	0	1	0	1	9
26	1	0	1	-1	-1	1	1	1	1	1	-1	0	1	-1	1	5
27	1	0	1	-1	1	1	1	1	1	1	-1	0	1	-1	1	7
28	1	0	0	-1	-1	1	1	1	1	1	-1	0	1	-1	-1	2
29	0	0	0	-1	-1	1	1	1	1	1	-1	0	1	-1	1	3
30	1	0	0	-1	-1	1	1	1	1	-1	0	0	1	1	1	5
31	1	0	0	-1	-1	1	1	1	1	1	-1	0	1	-1	1	4
32	1	0	-1	-1	-1	1	1	1	1	1	-1	0	1	-1	-1	1
33	1	0	0	-1	-1	1	1	1	1	1	-1	0	1	-1	1	4
34	1	0	0	-1	-1	1	1	1	1	1	-1	0	1	1	1	6
35	1	0	-1	-1	-1	1	1	1	1	-1	0	0	1	1	1	4
36	1	0	0	-1	1	1	1	1	1	1	-1	0	1	1	1	8
37	1	0	-1	-1	1	1	1	1	1	1	0	0	1	-1	1	6
38	1	0	0	-1	-1	1	1	1	1	1	1	0	1	-1	1	6
39	1	0	0	-1	-1	1	1	1	1	1	-1	0	1	-1	1	4

Table A.3. ***PRISMA Checklist***

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	24
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	24
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	25-26
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	n/a
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	27
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	27-29
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	27-29
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	26-27
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	29
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	n/a
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	n/a
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	n/a
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	n/a
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	n/a

Table A.3. ***Continued***

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	35
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	n/a
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	27-29
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	n/a
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	n/a
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	n/a
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	n/a
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	35
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	n/a
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	34-35
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	35
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	34-35
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	n/a

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. DOI:10.1371/journal.pmed1000097 For more information, visit: www.prisma-statement.org

Table A.4. ***Index of publications included in the review***

1.	Alasad, J., Tabar, N. A., & AbuRuz, M. E. (2015). Patient satisfaction with nursing care. *The Journal of nursing administration*, *45*(11), 563-568.
2.	Albashayreh, A., Al-Rawajfah, O. M., Huda, A. A., Karkada, S., & Al Sabei, S. D. (2019). Psychometric properties of an Arabic version of the patient satisfaction with nursing care quality questionnaire. *The Journal of Nursing Research*, *27*(1), 1.
3.	Al-Borie, H. M., & Sheikh Damanhouri, A. M. (2013). Patients' satisfaction of service quality in Saudi hospitals: a SERVQUAL analysis. *International journal of health care quality assurance*, *26*(1), 20-30.
4.	Alsaqri, S. (2016). Patient satisfaction with quality of nursing care at governmental hospitals, Ha'il City, Saudi Arabia. *Journal of Biology, Agriculture and Healthcare*, *6*(10), 128-142.
5.	Andrade, L. A. F. D., Salazar, P. E. L., Leopoldino, K. D. M., & Montenegro, C. B. (2019). Primary health care quality assessment according to the level of satisfaction of elderly users. *Revista Gaúcha de Enfermagem*, *40*.
6.	Antoniotti, S., Baumstarck-Barrau, K., Siméoni, M. C., Sapin, C., Labarère, J., Gerbaud, L., ... & Auquier, P. (2009). Validation of a French hospitalized patients' satisfaction questionnaire: the QSH-45. *International Journal for Quality in Health Care*, *21*(4), 243-252.
7.	Arab, M., Rashidian, A., Pourreza, A., Tajvar, M., Khabiri Nemati, R., Akbari Sari, A., & Rahimi Forooshani, A. (2014). Developing a Persian inpatient satisfaction questionnaire. *International journal of health care quality assurance*, *27*(1), 4-14.
8.	Atari, M., & Atari, M. (2015). Brief Emergency Department Patient Satisfaction Scale (BEPSS); development of a new practical instrument. *Emergency*, *3*(3), 103.
9.	Atari, M., Akbari Zardkhaneh, S., Atari, M., & Naderi-far, N. (2014). Development and validation of the preliminary version of Brief Inpatient Satisfaction Scale (BISS). *International Journal of Hospital Research*, *3*(1), 43-48.
10.	Brown, A., & Hijazi, M. (2008). Arabic translation and adaptation of critical care family satisfaction survey. *International Journal for Quality in Health Care*, *20*(4), 291-296.
11.	Camacho, F. T., Feldman, S. R., Balkrishnan, R., Kong, M. C., & Anderson, R. T. (2009). Validation and reliability of 2 specialty care satisfaction scales. *American Journal of Medical Quality*, *24*(1), 12-18.
12.	Camacho, F. T., Weisman, C. S., Anderson, R. T., Hillemeier, M. M., Schaefer, E. W., & Paul, I. M. (2012). Development and validation of a scale measuring satisfaction with maternal and newborn health care following childbirth. *Maternal and child health journal*, *16*, 997-1007.
13.	Damghi, N., Belayachi, J., Armel, B., Zekraoui, A., Madani, N., Abidi, K., ... & Abouqal, R. (2013). Patient satisfaction in a Moroccan emergency department. *International archives of medicine*, *6*(1), 1-8.
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Table A.5. ***Description of subjective measurements***

Characteristics of the subjective measurements	Number (%)	Publication reference number (see Appendix A, Table A.4)
Existing tool modified or adapted in different context		
– New Castle Satisfaction with Nursing Care Scale	1 (2.6%)	1
– Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ)	5 (12.8%)	2, 4, 21, 22, 27
– Service Quality (SERVQUAL)	5 (12.8%)	3, 5, 16, 29, 31
– Critical Care Family Satisfaction Survey (CCFSS)	1 (2.6%)	10
– Emergency Department Quality Survey (EDQS)	1 (2.6%)	13
– Society of Critical Care Medicine's Family Needs Assessment questionnaire (SCCMFNA)	1 (2.6%)	14
– Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)	1 (2.6%)	15
– Adult Primary Care Questionnaire	1 (2.6%)	20
– Pediatric Quality Of Life Inventory™ (PedsQL™) healthcare satisfaction generic module (version 3.0)	1 (2.6%)	24
– Service Performance (SERVPERF)	1 (2.6%)	25
– Press Ganey Questionnaire (PGQ Bahasa Melayu version)	1 (2.6%)	30
– Self-report Nursing Care Scale (SNCS)	1 (2.6%)	33
– Health Service Quality Scale (EQS-H)	1 (2.6%)	34
Self-developed tool		
– French hospitalized patients' satisfaction questionnaire: the QSH-45	1 (2.6%)	6
– Persian-language in-patient satisfaction questionnaire	1 (2.6%)	7
– Brief Emergency Department Patient Satisfaction Scale (BEPSS)	1 (2.6%)	8
– Brief Inpatient Satisfaction Scale (BISS)	1 (2.6%)	9
– Satisfaction with Maternal and Newborn Healthcare Following Childbirth	1 (2.6%)	12
– North India Outpatient Department Satisfaction Scale (NOPDSS)	1 (2.6%)	18
– EMpowerment of PArents in THe Intensive Care (EMPATHIC) questionnaire	1 (2.6%)	23
– Scale for Evaluation of Hemodialysis Patient's Satisfaction with Service provided at a Chronic Kidney Disease Unit (ESUR-HD), its acronym in Spanish (SDIALOR)	1 (2.6%)	32
– Chinese patients' satisfaction scale (C-PSS)	1 (2.6%)	35
– Patient Satisfaction with Nursing Care Scale (PSNCS)	1 (2.6%)	36
– UP-Philippine General Hospital Patient Satisfaction with Nursing Care Questionnaire (UP-PGH PSNC)	1 (2.6%)	38
– the Nine-Item Chinese Patient Satisfaction Questionnaire (ChPSQ-9)	1 (2.6%)	39
– No name	3 (7.7%)	19, 28, 37

Table A.6. ***Characteristics of adaptation or development of an instrument***

Characteristics of adaptation or development of an instrument and methods and results of validation of a measurement tool	Number (%)	Publication reference number (See Appendix A, Table A.4)
Process of adaptation of an instrument that requires translation (stages)		
Development of an instrument in another research	2 (5.2%)	1, 27
Literature review and modifications of any kind to the instrument	1 (2.6%)	3
Translation	16 (41%)	1, 2, 3, 4, 10, 13, 14, 15, 21, 22, 24, 27, 30, 31, 33, 34
Backward translation	12 (30.7%)	1, 2, 10, 13, 14, 15, 21, 22, 24, 27, 31, 34
Discussion of discrepancies by translators	6 (15.4%)	2, 10, 14, 22, 27, 34
Another forward/back translation of the revised questionnaire	2 (5.2%)	10, 15
Expert assessment/review	8 (20.5%)	1, 2, 3, 13, 14, 21, 27, 31
Cognitive interview/face verification/pre-test/pilot test	9 (23.1%)	2, 4, 13, 14, 15, 21, 22, 24, 31
Process of adaptation of an instrument that doesn't require translation (stages)		
Literature review and/or modifications to the instrument	3 (7.7%)	20, 25, 29
Consultation groups/interviews with patients/family/face verification	1 (2.6%)	25
Interviews with healthcare professionals (medical professionals, managers)	1 (2.6%)	25
Process of development (stages)		
Item generation	15 (38.4%)	6, 7, 8, 9, 12, 18, 19, 23, 28, 32, 35, 36, 37, 38, 39
Item modification	4 (10.3%)	6, 9, 18, 37
Piloting	8 (20.5%)	18, 19, 28, 32, 35, 36, 37, 38
Translation	3 (7.7%)	23, 36, 38

Table A.7. ***Comparison of validity and reliability assessment outcomes***

Psychometric tests to assess the validity	Cronbach alpha	Validation results (recommendations)	Publication reference number (see Appendix A, Table A.4 for the reference list)
Face and content validity	0.92	Instrument is found to be valid and reliable in previous studies (Unclear recommendations or no recommendations about the tool)	1
Content an construct validity via exploratory factor analysis, confirmatory factor analysis	0.96	Instrument is found to be valid and reliable (Recommended for combination of use and further validation/improvement)	2
Not assessed	0.97	Instrument is found to be valid and reliable (Recommended for use)	3
Not assessed	0.81 – 0.99	Instrument is found to be reliable (Unclear recommendations or no recommendations about the tool)	4
Not assessed	0.95 and 0.93 (for two subscales)	Instrument is found to be reliable (Recommended for further validation and/or improvement)	5
Construct validity via component factor analysis with Varimax rotation, item discriminant validity, external validity, discriminant validity, acceptability	0.76 – 0.96	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	6
Face validity, content validity, construct validity via exploratory factor analysis with Varimax rotation	0.8 for each dimension but one (0.66)	Instrument is found to be valid and reliable (Recommended for use)	7
Face validity, content validity, construct validity via exploratory factor analysis	0.94	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	8
Content validity, construct validity via correlation analysis	0.91	Instrument is found to be reliable. Validity may not be adequate. (Recommended for combination of use and further validation/ improvement)	9
Discriminant validity via Spearman's rank correlation matrix of the subscales	0.88	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	10
Convergent validity via goodness of-fit index and standardized factor loadings	0.99 and 0.94 (two scales)	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	11
Construct validity via exploratory and confirmatory factor analysis, extreme group comparison method, convergent validity	0.96	Instrument is found to be valid and acceptably reliable (Recommended for further validation and/or improvement)	12

Table A.7. ***Continued***

Psychometric tests to assess the validity	Cronbach alpha	Validation results (recommendations)	Publication reference number (see Appendix A, Table A.4 for the reference list)
Construct validity	Was not assessed	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	13
Construct validity	0.74	Instrument is found to be valid and satisfactory reliable (Unclear recommendations or no recommendations about the tool)	14
Not assessed	0.52 – 0.85	Instrument is found to be valid and reliable (Recommended for use)	15
Factor analysis	0.82	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	16
Not described	Not described	Validity and reliability are not described (Unclear recommendations or no recommendations about the tool)	17
Content validity, construct validity via principal components analysis with Varimax rotation, convergent and discriminant validity	0.72 – 0.93	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	18
Construct validity via exploratory factor analysis	0.75	Instrument is found to be acceptably valid and reliable (Unclear recommendations or no recommendations about the tool)	19
Construct validity via exploratory factor analysis, criterion-related validity, concurrent validity	0.98	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	20
Construct via expert feedback	0.98	Instrument is found to be reliable (Recommended for use)	21
Construct validity via exploratory factor analysis and predictive validity via multiple regression analysis	0.96	Instrument is found to be satisfactory valid and reliable (Recommended for combination of use and further validation/ improvement)	22
Construct validity via confirmatory factor analysis, content and face validity, congruent validity, non-differential validity	0.73 – 0.93	Instrument is found to be adequately valid and reliable (Recommended for use)	23
Content validity via Spearman's rank correlation, construct validity via confirmatory factor analysis	0.94	Instrument is found to be adequately valid and reliable (Recommended for further validation and/or improvement)	24
Construct validity via factor analysis	0.70 – 0.94	Instrument is found to be satisfactory valid and reliable (Recommended for further validation and/or improvement)	25

Table A.7. ***Continued***

Psychometric tests to assess the validity	Cronbach alpha	Validation results (recommendations)	Publication reference number (see Appendix A, Table A.4 for the reference list)
Content validity, construct validity via exploratory factor analysis	0.86 – 0.90	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	26
Construct validity, predictive validity	0.94	Instrument is found to be valid and reliable (Recommended for use)	27
Not assessed	0.96	Instrument is found to be reliable (Unclear recommendations or no recommendations about the tool)	28
Construct validity via factor analysis	0.96	Instrument is found to be reliable (Recommended for further validation and/or improvement)	29
Construct validity via exploratory and confirmatory factor analysis	Composite reliability 0.966	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	30
Validity via Pearson's correlation	0.98	Instrument is found to be valid and reliable (Recommended for combination of use and further validation/improvement)	31
Construct validity via exploratory and confirmatory factor analysis, convergent validity via estimating correlation coefficients	0.96	Instrument is found to be adequately valid and reliable (Recommended for further validation and/or improvement)	32
Not assessed	0.90	Instrument is found to be reliable (Recommended for further validation and/or improvement)	33
Construct validity via factor analysis	0.91 and 0.89	Instrument is found to be valid and reliable (Unclear recommendations or no recommendations about the tool)	34
Face validity	0.93 – 0.96	Instrument is found to be reliable (Recommended for use)	35
Content validity	0.85	Instrument is found to be reliable (Unclear recommendations or no recommendations about the tool)	36
Face and content validity	0.79 – 0.88	Instrument is found to be valid and reliable (Recommended for further validation and/or improvement)	37
Content validity	0.79	No conclusion about validity and reliability is made (Recommended for further validation and/or improvement)	38
Construct validity via factor analysis	0.93	Instrument is found to be valid and reliable (Recommended for use)	39

Appendix B. Survey questions for Chapter 3

The survey "Educational opportunities for healthcare managers in Ukraine" (extract)

Dear healthcare managers,

We ask managers of the medical facilities, centers, outpatient clinics, feldsher-midwife stations as well as doctors who are in the reserve list for managerial positions to fill in the online survey "Educational opportunities for healthcare managers in Ukraine".

In 2018, the Swiss Tropical and Public Health Institute (Swiss TPH) under the funding of the Swiss Agency for Development and Cooperation (SDC) launched the Medical Education Development project in Ukraine (MED).

The project covers all levels of medical education - undergraduate, graduate (internatura), post-graduate and continuous professional development - for family doctors and chiefs of primary healthcare facilities.

Since we are also developing educational products for healthcare managers, we would appreciate if you fill in the questionnaire on your experience and expectations. We need to understand:

- What are the sources you receive your knowledge and skills from? How interesting these sources are for you? What would you like to change in educational products you use now? What forms and regimen of studying is comfortable for you?
- What kinds of internal education you have in your healthcare facilities? How important they are for you? What would you change?
- What skills you have at the moment? What skills you feel you lack?

We ask you to fill in this survey which will take about 25 minutes from your side.
Within the project we will create educational modules for managers in healthcare. We will invite those who participated in this survey to take part in one of the planned online seminars.
Thank you for your time and answers.

3. The block "Quality management in healthcare"
3.1. What does the term 'quality in healthcare' mean to you? _____
3.2. Do you have quality management system in your healthcare facility?
Yes
No
3.3. If you have quality management system in your healthcare facility, please, describe how you assess quality. _____

5. The block "Information about survey participant"
5.1. How old are you? _____
5.2. Indicate your post in healthcare facility _____
5.3. Are you in in the "reserve list" for management position at the moment?
Yes
No
5.4. Years of medical experience _____
5.5. Years of management experience _____
5.6. To what level does your facility belong to:
Primary
Secondary
Tertiary

Appendix C. Survey questions for Chapter 4 and Chapter 5

The survey "Health index. Ukraine" (extract from 2017 version)

SECTION A. HEALTHCARE SYSTEM AND SERVICE SATISFACTION, PERCEPTION

A1. From your own experience of consuming private or public healthcare, or from experience of other people, please say how satisfied or dissatisfied you are with the way each part of the healthcare system is functioning (CARD A1)
PARTS – CARD A1:

- District doctors / family doctors
- Pediatricians
- Dentists
- Hospitalization
- Specialist at a policlinics or ambulatory
- Emergency care
- Maternity care

Answer options:

- Completely satisfied
- Rather satisfied
- Rather dissatisfied
- Completely dissatisfied
- Difficult to answer (DA)
- Refuse to respond (R)

A13.What does quality of care means for you as patient or relative of patient? You can choose two answers, starting with the most important.
CARD A13.One answer option in each column

- The effectiveness of the treatment (the correct diagnosis, adequate treatment)
- Courteous medical doctors communicate with patients and their families
- Free-of-charge drugs
- Clarity of medical doctor's explanations to patients
- A satisfactory hygienic state medical facility
- Assuring hygienic procedures such as washing hands before the consultation by medical personnel
- The availability of modern equipment
- Qualified medical personnel using modern and safe treatment methods
- Respect, trust and empathy to the patient
- The possibility to stay close to family members of patients
- The possibility to influence the quality of care by patients
- Other (specify)
- DA / RR

SECTION B2. EXPERIENCE OF CONSUMPTION OF OUTPATIENT (AMBULATORY) MEDICAL ASSISTANCE

B2.1. Now we talk about ambulatory care.
Please do not include here ambulance call, dental services, medical or professional checkups, refer for health certificate or sick leave, refer to homeopaths, healers, who are not physicians, passing only through diagnostic procedures or analyses, as well as assistance provided to your child or another family member. Asking about ambulatory care, we do not mean a going through series of the procedures, day patient facility and so on.
So, how many times did you use ambulatory medical assistance during the past 12 months?
_____ times

B2.23. How do you asses following aspects of outpatient medical assistance?
CARDB2.24. read and choose an answer in each row in table below.

B2.24. Now look at card B2.24. Here are listed all aspects that I have just read to you. Please, say, which of these are more important for you. You can choose up to three.
CARDB2.24. not more than 3 answers in column.
Answer options:

- Very good
- Good
- Normal
- Bad
- Very bad

CARDB2.24:

- Treatment effectiveness
- Courtesy of doctors in interaction with patients and their families
- Clarity of medical explanations to patients
- How conveniently is the healthcare institution employing your doctor located
- The setting of healthcare provision (e.g, renovation, clean rooms, including toilets)
- Work hours
- The opportunity to get the necessary diagnostic workup, laboratory tests and treatment procedures free of charge
- Straightforward and transparent policies of payment for care (including the absence of informal payments)
- Is medical personnel ensuring hygiene during examination and procedures, such as putting on disposable gloves in your presence, washing hands before exam, cleaning tubes and sticks?
- Availability of the essential equipment– In general, how do you assess the outpatient medical care?
- NONE OF ABOVE OPTIONS
- DA / R

PART C. SELF ASSESSMENT OF HEALTH STATUS AND LIFESTYLE

C6. How do you assess your health status on a 5-point scale?
CARD C6.

- Very good
- Good
- Average, not good, not bad
- Bad
- Very bad

PART D. SOCIO-DEMOGRAPHIC PROFILE OF RESPONDENT

D1. Record sex as observed:

- Male
- Female

D2. How old are you? _____ years

D3. What is your education? CARD D3. one answer

- Primary or secondary Basic higher education (Bachelor)
- High school completed University degree (Specialist, Master)
- Vocational (PTU, lyceum) Scientific degree (PhD, DSci)
- Specialized secondary education (college, Junior Specialist)

D4. What is your main occupation? CARDD4.one answer

- Employed
- Self-employment
- Working pensioner
- Temporarily unemployed; seeking for a job
- Non-working and not seeking for a job (incl. housewife, maternity leave etc.)
- Student
- Non-working pensioner
- Disability (handicap)
- Other (specify)

D6. How many persons, adults and children (including you) live with you a common household?
_____people

D10. Please look at this card D10. Tell me, which of these categories corresponds to the net average income of your household per month (that is income after tax discharges) - taking into account all household members, and all sources - wages, social benefits, pensions, rents, honorariums etc.? One answer

- Less than 1000 UAH
- From 1001 to 1500 UAH
- From 1501 to 2000 UAH
- From 2001 to 2500 UAH
- From 2501 to 3000 UAH
- From 3001 to 3500 UAH
- From 3501 to 4000 UAH
- From 4001 to 4500 UAH
- From 4501 to 5000 UAH
- From 5001 to 6000 UAH
- From 6001 to 7000 UAH
- From 7001 to 8000 UAH
- From 8 001 to 9 000 UAH
- From 9 001 to 10 000 UAH
- More than10 000 UAH

Appendix D. Supplementary material for Chapter 5

Figure D.1. ***The flowchart of the Difference-in-differences analysis***

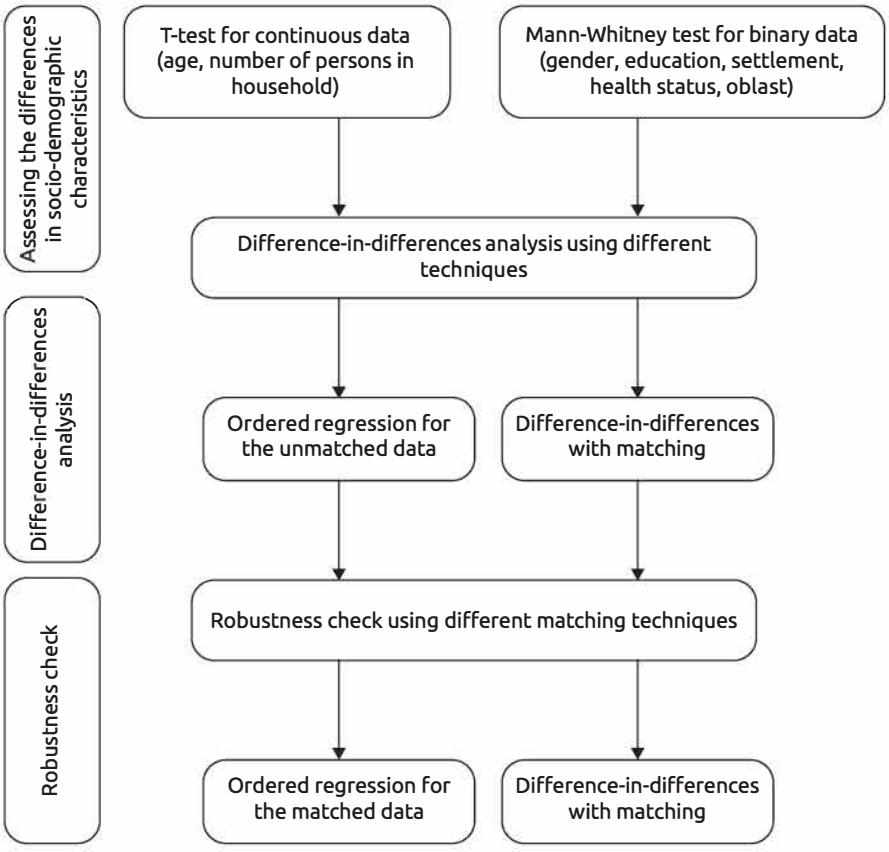

Table D.1. ***Difference-in-differences analysis by means of ordered regression on unmatched data***

	Before = year 2016 After = year 2020	Before = year 2017 After = year 2020	Before = year 2018 After = year 2020	Before = year 2019 After = year 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with district doctors/ family doctors; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.152 (0.040)***	**0.093 (0.041)***	**0.117 (0.041)***	**0.258 (0.042)***
Period ('0' before; '1' after)	**0.286 (0.037)***	**0.134 (0.037)***	**0.083 (0.037)***	-0.061 (0.038)
DID	0.057 (0.059)	0.109 (0.059)	0.092 (0.060)	-0.069 (0.059)
N of observations**	16971	16688	16867	16308
n before	8744	8737	8885	8557
n after	8692	8692	8692	8692
LR chi2 (3)	144.82	60.91	46.88	71.44
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0036	0.0015	0.0012	0.0018
Satisfaction with district doctors / family doctors; with covariates				
Age	-0.0002 (0.001)	**0.003 (0.001)***	**0.004 (0.001)***	**0.004 (0.001)***
Gender	**0.194 (0.031)***	**0.192 (0.032)***	**0.221 (0.032)***	**0.199 (0.0318)***
Education	**-0.055 (0.021)***	**-0.046 (0.022)***	**-0.063 (0.022)***	**-0.043 (0.022)***
Type of settlement	-0.023 (0.032)	**-0.103 (0.032)***	-0.020 (0.032)	**0.156 (0.032)***
Self-reported health status	**0.317 (0.030)***	**0.303 (0.026)***	**0.381 (0.0268)***	**0.371 (0.027)***
Number of persons in household	**0.023 (0.011)***	0.019 (0.011)	**0.026 (0.011)***	**0.045 (0.011)***
'2' Kyivska	0.072 (0.112)	-0.100 (0.106)	-0.085 (0.105)	0.157 (0.114)
'3' Vinnytska	0.111 (0.110)	0.0009 (0.109)	-0.073 (0.107)	**0.439 (0.113)***
'4' Volynska	**0.379 (0.108)***	**0.669 (0.105)***	**1.008 (0.106)***	**0.695 (0.110)***
'5' Dnipropetrovska	-0.042 (0.110)	0.156 (0.109)	**0.229 (0.107)***	0.158 (0.112)
'6' Donetska	**0.314 (0.112)***	**0.765 (0.114)***	**0.736 (0.111)***	**1.013 (0.122)***
'7' Zhytomyrska	**0.324 (0.108)***	**0.261 (0.104)***	**0.458 (0.105)***	**0.625 (0.111)***
'8' Zakarpatska	-0.125 (0.109)	-0.195 (0.106)	**-0.230 (0.106)***	-0.038 (0.111)
'9' Zhaporizka	**-0.256 (0.110)***	**-0.667 (0.105)***	**-0.448 (0.106)***	**-0.296 (0.111)***
'10' Ivano-Frankivska	0.111 (0.114)	0.012 (0.110)	0.137 (0.111)	**0.488 (0.116)***
'11' Kirovogradska	**-1.078 (0.114)***	**-0.666 (0.111)***	**-0.977 (0.111)***	**-0.829 (0.119)***
'12' Luganska	**0.700 (0.111)***	**1.019 (0.110)***	**0.804 (0.106)***	**1.022 (0.113)***
'13' Lvivska	0.216 (0.110)	0.167 (0.105)	**0.340 (0.105)***	**0.398 (0.110)***
'14' Mykolayivska	0.169 (0.110)	0.076 (0.109)	0.178 (0.110)	0.229 (0.119)
'15' Odeska	0.081 (0.109)	-0.096 (0.107)	0.024 (0.107)	**0.458 (0.116)***
'16' Poltavska	**-0.266 (0.108)***	-0.091 (0.106)	-0.149 (0.106)	-0.045 (0.113)
'17' Rivnenska	**0.193 (0.109)***	0.154 (0.108)	**0.245 (0.108)***	**0.631 (0.113)***
'18' Sumska	**-0.434 (0.107)***	**-0.516 (0.103)***	**-0.819 (0.102)***	0.216 (0.110)
'19' Ternopilska	**1.063 (0.113)***	**0.981 (0.109)***	**0.929 (0.109)***	**1.332 (0.116)***
'20' Kharkivska	**0.335 (0.110)***	**1.032 (0.108)***	**0.661 (0.105)***	0.141 (0.112)
'21' Khersonska	**0.218 (0.108)***	-0.020 (0.105)	**0.368 (0.104)***	**0.468 (0.111)***
'22' Khmelnytska	**0.278 (0.110)***	-0.018 (0.107)	-0.020 (0.109)	**0.522 (0.113)***
'23' Cherkaska	0.142 (0.117)	-0.084 (0.114)	**0.318 (0.110)***	**0.474 (0.120)***
'24' Chernivetska	**0.588 (0.113)***	**0.434 (0.108)***	**0.478 (0.109)***	**0.803 (0.115)***
'25' Chernigivska	**0.331 (0.112)***	**0.272 (0.108)***	**0.320 (0.109)***	**0.448 (0.115)***
User-nonuser ('0' nonuser; '1' user)	**0.190 (0.041)***	**0.203 (0.042)***	**0.318 (0.043)***	**0.329 (0.044)***
Period ('0' before; '1' after)	-0.105 (0.056)	**0.107 (0.038)***	**0.120 (0.037)***	-0.069 (0.038)
DID	0.050 (0.061)	0.045 (0.060)	-0.086 (0.061)	-0.106 (0.060)

Table D.1. ***Continued***

	Before = year 2016 After = year 2020	Before = year 2017 After = year 2020	Before = year 2018 After = year 2020	Before = year 2019 After = year 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
N of observations	16849	16579	16716	16149
n before	8744	8737	8885	8557
n after	8692	8692	8692	8692
LR chi2 (33)	1022.66	1234.01	1365.94	1189.64
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0253	0.0308	0.0345	0.0302
Satisfaction with pediatrician; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.127 (0.052)***	0.015 (0.054)	0.009 (0.058)	**0.124 (0.057)***
Period ('0' before; '1' after)	**0.157 (0.047)***	-0.057 (0.048)	**-0.103 (0.048)***	**-0.265 (0.049)***
DID	0.063 (0.079)	**0.166 (0.080)***	**0.179 (0.083)***	0.042 (0.081)
N of observations	10101	9716	9453	9248
n before	5412	5170	4897	4888
n after	5000	5000	5000	5000
LR chi2 (3)	36.51	9.51	11.24	57.25
Prob > chi2	0.0000	**0.0232**	**0.0105**	0.0000
Pseudo R^2	0.0015	0.0004	0.0005	0.0026
Satisfaction with pediatrician; with covariates				
Age	**-0.009 (0.001)***	**-0.005 (0.001)***	**-0.007 (0.001)***	**-0.006 (0.001)***
Gender	**0.361 (0.042)***	**0.394 (0.043)***	**0.378 (0.044)***	**0.383 (0.043)***
Education	-0.035 (0.028)	0.001 (0.029)	0.008 (0.029)	0.004 (0.0292)
Type of settlement	**0.132 (0.042)***	**0.136 (0.043)***	**0.150 (0.044)***	**0.282 (0.044)***
Self-reported health status	**0.254 (0.041)***	**0.308 (0.036)***	**0.310 (0.038)***	**0.402 (0.037)***
Number of persons in household	**0.094 (0.014)***	**0.104 (0.014)***	**0.118 (0.015)***	**0.128 (0.015)***
'2' Kyivska	0.152 (0.150)	0.084 (0.132)	-0.151 (0.139)	**0.382 (0.158)***
'3' Vinnytska	-0.179 (0.142)	-0.096 (0.130)	**-0.667 (0.132)***	0.135 (0.150)
'4' Volynska	**0.521 (0.142)***	**0.810 (0.130)***	**0.725 (0.133)***	**0.760 (0.150)***
'5' Dnipropetrovska	-0.128 (0.146)	**0.323 (0.141)***	-0.189 (0.144)	0.195 (0.161)
'6' Donetska	0.254 (0.160)	**0.999 (0.154)***	**0.718 (0.162)***	**1.268 (0.177)***
'7' Zhytomyrska	0.174 (0.143)	**0.394 (0.127)***	0.258 (0.134)	**0.652 (0.153)***
'8' Zakarpatska	-0.219 (0.137)	**-0.305 (0.126)***	**-0.365 (0.130)***	-0.039 (0.147)
'9' Zhaporizka	**-0.363 (0.147)***	**-0.586 (0.132)***	**-0.664 (0.136)***	-0.167 (0.154)
'10' Ivano-Frankivska	0.214 (0.148)	**0.264 (0.131)***	0.178 (0.136)	**0.665 (0.154)***
'11' Kirovogradska	**-0.642 (0.152)***	-0.189 (0.134)	**-0.878 (0.154)***	**-0.533 (0.159)***
'12' Luganska	-0.217 (0.161)	-0.002 (0.160)	**-0.505 (0.156)***	-0.138 (0.171)
'13' Lvivska	0.248 (0.149)	**0.343 (0.136)***	0.151 (0.142)	**0.316 (0.157)***
'14' Mykolayivska	**0.422 (0.145)***	**0.597 (0.153)***	0.027 (0.143)	**0.929 (0.170)***
'15' Odeska	0.056 (0.144)	-0.166 (0.135)	-0.033 (0.142)	**0.400 (0.164)***
'16' Poltavska	-0.229 (0.139)	0.213 (0.135)	**-0.340 (0.138)***	0.071 (0.154)
'17' Rivnenska	0.157 (0.140)	**0.392 (0.128)***	0.127 (0.132)	**0.629 (0.150)***
'18' Sumska	**-0.633 (0.134)***	**-0.599 (0.121)***	**-1.066 (0.120)***	0.144 (0.144)
'19' Ternopilska	**1.077 (0.147)***	**0.895 (0.133)***	**0.914 (0.149)***	**1.598 (0.163)***
'20' Kharkivska	0.138 (0.148)	**0.947 (0.152)***	**0.323 (0.142)***	**-0.482 (0.161)***
'21' Khersonska	**0.407 (0.140)***	**0.399 (0.134)***	**0.408 (0.138)***	**0.816 (0.156)***
'22' Khmelnytska	-0.109 (0.138)	**-0.278 (0.129)***	**-0.530 (0.132)***	0.235 (0.153)
'23' Cherkaska	**0.359 (0.164)***	0.251 (0.153)	0.225 (0.151)	**0.953 (0.175)***
'24' Chernivetska	**0.468 (0.143)***	**0.731 (0.126)***	**0.374 (0.137)***	**0.885 (0.156)***
'25' Chernigivska	**0.496 (0.148)***	**0.575 (0.137)***	**0.594 (0.141)***	**0.815 (0.159)***

Table D.1. ***Continued***

	Before = year 2016 After = year 2020	Before = year 2017 After = year 2020	Before = year 2018 After = year 2020	Before = year 2019 After = year 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
User-nonuser ('0' nonuser; '1' user)	**0.138 (0.054)***	0.067 (0.057)	**0.118 (0.061)***	**0.150 (0.060)***
Period ('0' before; '1' after)	-0.142 (0.077)	-0.051 (0.049)	-0.059 (0.049)	**-0.260 (0.050)***
DID	-0.009 (0.081)	0.058 (0.082)	0.021 (0.085)	-0.013 (0.083)
N of observations	10031	9665	9366	9165
n before	5412	5170	4897	4888
n after	5000	5000	5000	5000
LR chi2 (33)	792.94	946.29	1132.33	1144.25
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0337	0.0414	0.0520	0.0516

*p = < 0.05

** N is given excluding missing

Table D.2. ***Results of propensity score test for both matched and unmatched data***

	Before = year 2016 After = year 2020			Before = year 2017 After = year 2020			Before = year 2018 After = year 2020			Before = year 2019 After = year 2020		
	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio
Satisfaction with district doctors / family doctors												
Age												
- Unmatched	48.645	52.245	1.04	48.946	52.716	1.05*	49.109	52.727	1.04	48.84	52.466	1.08*
- Matched	51.668	52.245	1.03	52.813	52.716	1.01	53.173	52.727	1.02	52.69	52.466	1.00
Gender												
- Unmatched	0.63108	0.74119		0.63441	0.73553		0.63559	0.74241		0.62467	0.74134	
- Matched	0.74497	0.74119		0.75835	0.73553		0.76047	0.74241		0.76321	0.74134	
Education												
- Unmatched	2.0279	2.0278	1.03	2.0266	2.0343	1.03	2.028	2.0264	1.02	2.0451	2.0451	1.04
- Matched	2.0236	2.0278	1.08*	2.0323	2.0343	1.04	2.0283	2.0264	1.04	2.0468	2.0451	1.01
Type of settlement												
- Unmatched	0.60949	0.63137		0.60199	0.6305		0.60413	0.61761		0.58923	0.62303	
- Matched	0.65421	0.63137		0.6376	0.6305		0.63615	0.61761		0.64535	0.62303	
Health status												
- Unmatched	1.8164	1.5916	0.78*	2.4209	2.076	1.16*	2.4482	2.1082	1.22*	2.4714	2.1378	1.25*
- Matched	1.5783	1.5916	0.98	2.0861	2.076	1.00	2.1157	2.1082	1.01	2.1499	2.1378	1.01
Number of persons in household												
- Unmatched	2.9045	2.8357	1.03	2.9145	2.7766	0.98	2.8891	2.7574	0.95*	2.9017	2.8224	1.05*
- Matched	2.7814	2.8357	1.13*	2.6838	2.7766	1.10*	2.6317	2.7574	1.21*	2.7382	2.8224	1.16*

Table D.2. ***Continued***

	Before = year 2016 After = year 2020			Before = year 2017 After = year 2020			Before = year 2018 After = year 2020			Before = year 2019 After = year 2020		
	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio
N	16849			16579			16716			16149		
n (before)	10238			9962			10458			9565		
n (after)	6611			6617			6258			6584		
Sample variance												
- Unmatched	25			50			50			75		
- Matched	50			25			25			25		
Pseudo R^2												
- Unmatched	0.026			0.050			0.051			0.052		
- Matched	0.001			0.002			0.002			0.002		
LR chi2												
- Unmatched	593.36			1112.66			1135.97			1132.04		
- Matched	24.72			27.82			38.42			28.19		
Prob > chi2												
- Unmatched	0.000			0.000			0.000			0.000		
- Matched	0.000			0.000			0.000			0.000		
Satisfaction with pediatrician												
Age												
- Unmatched	43.896	45.853	1.11**	43.64	45.922	1.16**	43.734	44.741	1.10**	43.332	44.645	1.12*
- Matched	45.44	45.853	1.06	45.151	45.922	1.10**	43.864	44.741	1.07	43.839	44.645	1.06
Gender												
- Unmatched	0.65583	0.76776		0.66542	0.76434		0.67357	0.77479		0.65655	0.76508	
- Matched	0.77775	0.76776		0.7766	0.76434		0.80395	0.77479		0.77528	0.76508	
Education												
- Unmatched	2.098	2.1065	1.06	2.0932	2.1295	1.03	2.0981	2.1186	1.05	2.1241	2.1368	1.06
- Matched	2.1262	2.1065	1.09**	2.123	2.1295	1.07	2.138	2.1186	1.08**	2.1632	2.1368	1.04
Type of settlement												
- Unmatched	0.62518	0.62014		0.60925	0.61912		0.61497	0.6011		0.59722	0.60036	
- Matched	0.66426	0.62014		0.63481	0.61912		0.6267	0.6011		0.60486	0.60036	

Table D.2. ***Continued***

	Before = year 2016 After = year 2020			Before = year 2017 After = year 2020			Before = year 2018 After = year 2020			Before = year 2019 After = year 2020		
	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio	Before (mean)	After (mean)	Variance ratio
Health status												
- Unmatched	1.8555	1.657	0.84**	2.5524	2.2476	1.34**	2.5635	2.3166	1.34**	2.5965	2.3498	1.37*
- Matched	1.6587	1.657	0.97	2.2582	2.2476	1.00	2.3438	2.3166	1.05	2.3642	23	1.00
Number of persons in household												
- Unmatched	3.3019	3.3527	1.10**	3.3685	3.3087	1.02	3.3384	3.3801	0.96	3.3846	3.435	1.12*
- Matched	3.2825	3.3527	1.09**	3.2693	3.3087	1.12**	3.3461	3.3801	1.03	3.3786	3.435	1.15*
N	10031			9665			9366			9165		
n (before)	6427			6160			6280			5832		
n (after)	3604			9665			3086			3333		
Sample variance												
- Unmatched	75			50			50			75		
- Matched	50			50			25			25		
Pseudo R^2												
- Unmatched	0.021			0.048			0.038			0.039		
- Matched	0.002			0.001			0.002			0.001		
LR chi2												
- Unmatched	281.59			601.36			452.60			462.77		
- Matched	20.74			11.82			20.02			12.38		
Prob > chi2												
- Unmatched	0.000			0.000			0.000			0.000		
- Matched	0.002			0.066			0.003			0.054		

* if variance ratio outside [0.95; 1.05] for Unmatched and [0.95; 1.05] for Matched
** if variance ratio outside [0.94; 1.07] for Unmatched and [0.94; 1.07] for Matched

Table D.3. ***Difference-in-differences analysis by means of ordered regression on matched data***

	Before = 2016 After = 2020	Before = 2017 After = 2020	Before = 2018 After = 2020	Before = 2019 After = 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with district doctors / family doctors; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.156 (0.040)***	**0.099 (0.041)***	**0.117 (0.0414)***	**0.261 (0.042)***
Period ('0' before; '1' after)	**0.293 (0.037)***	**0.144 (0.037)***	**0.089 (0.037)***	-0.052 (0.038)
DID	0.046 (0.059)	0.096 (0.060)	0.085 (0.060)	-0.078 (0.060)
N of observations**	16849	16579	16716	16149
n before	10238	9962	10458	9565
n after	6611	6617	6258	6584
LR chi2 (3)	144.09	61.39	45.72	68.85
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0036	0.0015	0.0012	0.0017
Satisfaction with district doctors / family doctors; with covariates				
Age	-0.0002 (0.0009)	**0.003 (0.001)***	**0.004 (0.001)***	**0.004 (0.001)***
Gender	**0.194 (0.031)***	**0.192 (0.032)***	**0.221 (0.032)***	**0.199 (0.032)***
Education	**-0.055 (0.021)***	**-0.046 (0.022)***	**-0.063 (0.022)***	**-0.043 (0.022)***
Type of settlement	-0.023 (0.032)	**-0.103 (0.032)***	-0.020 (0.032)	**0.156 (0.032)***
Self-reported health status	**0.317 (0.030)***	**0.303 (0.026)***	**0.381 (0.027)***	**0.371 (0.027)***
Number of persons in household	**0.023 (0.011)***	0.019 (0.011)	**0.026 (0.011)***	**0.045 (0.011)***
'2' Kyivska	0.072 (0.112)	-0.100 (0.106)	-0.085 (0.105)	0.157 (0.114)
'3' Vinnytska	0.111 (0.110)	0.0009 (0.109)	-0.073 (0.107)	**0.440 (0.113)***
'4' Volynska	**0.379 (0.108)***	**0.669 (0.105)***	**1.008 (0.106)***	**0.695 (0.110)***
'5' Dnipropetrovska	-0.042 (0.110)	0.156 (0.109)	**0.229 (0.107)***	0.158 (0.112)
'6' Donetska	0.314 (0.112)	**0.765 (0.114)***	**0.736 (0.111)***	**1.013 (0.122)***
'7' Zhytomyrska	**0.324 (0.108)***	**0.261 (0.104)***	**0.458 (0.105)***	**0.625 (0.111)***
'8' Zakarpatska	-0.125 (0.109)	-0.195 (0.106)	**-0.231 (0.106)***	-1.038 (0.111)
'9' Zhaporizka	**-0.256 (0.110)***	**-0.667 (0.105)***	**-0.448 (0.106)***	**-0.296 (0.111)***
'10' Ivano-Frankivska	0.111 (0.114)	0.012 (0.110)	0.137 (0.111)	**0.488 (0.116)***
'11' Kirovogradska	**-1.078 (0.114)***	**-0.666 (0.111)***	**-0.977 (0.111)***	**-0.829 (0.119)***
'12' Luganska	**0.700 (0.111)***	**1.019 (0.110)***	**0.804 (0.106)***	**1.023 (0.113)***
'13' Lvivska	0.216 (0.110)	0.167 (0.105)	**0.340 (0.105)***	**0.398 (0.110)***
'14' Mykolayivska	0.169 (0.110)	0.076 (0.109)	0.178 (0.110)	0.229 (0.119)
'15' Odeska	0.081 (0.109)	-0.096 (0.107)	0.024 (0.107)	**0.458 (0.116)***
'16' Poltavska	**-0.266 (0.108)***	-0.091 (0.106)	-0.149 (0.106)	-0.045 (0.113)
'17' Rivnenska	0.193 (0.109)	0.154 (0.108)	**0.245 (0.108)***	**0.631 (0.113)***
'18' Sumska	**-0.434 (0.107)***	**-0.516 (0.103)***	**-0.819 (0.102)***	0.216 (0.110)
'19' Ternopilska	**1.063 (0.113)***	**0.981 (0.109)***	**0.929 (0.109)***	**1.332 (0.116)***
'20' Kharkivska	**0.335 (0.110)***	**1.032 (0.108)***	**0.661 (0.105)***	0.141 (0.112)
'21' Khersonska	**0.218 (0.108)***	-0.020 (0.105)	**0.368 (0.104)***	**0.468 (0.111)***
'22' Khmelnytska	**0.278 (0.110)***	-0.018 (0.107)	-0.020 (0.109)	**0.522 (0.113)***
'23' Cherkaska	0.142 (0.117)	-0.084 (0.114)	**0.318 (0.110)***	**0.474 (0.120)***
'24' Chernivetska	**0.588 (0.113)***	**0.434 (0.108)***	**0.478 (0.109)***	**0.803 (0.115)***
'25' Chernigivska	**0.331 (0.112)***	**0.272 (0.108)***	**0.320 (0.109)***	**0.448 (0.115)***
User-nonuser ('0' nonuser; '1' user)	**0.190 (0.041)***	**0.203 (0.042)***	**0.318 (0.043)***	**0.329 (0.044)***
Period ('0' before; '1' after)	-0.105 (0.056)	**0.107 (0.038)***	**0.120 (0.037)***	-0.069 (0.038)
DID	0.050 (0.061)	0.045 (0.060)	-0.086 (0.061)	-0.106 (0.060)
N of observations**	16849	16579	16716	16149
n before	10238	9962	10458	9565
n after	6611	6617	6258	6584
LR chi2 (33)	022.66	1234.01	1365.94	1189.64
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0253	0.0308	0.0345	0.0302

Table D.3. ***Continued***

	Before = 2016 After = 2020	Before = 2017 After = 2020	Before = 2018 After = 2020	Before = 2019 After = 2020
	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)	Coefficient (Standard error)
Satisfaction with pediatricians; without covariates				
User-nonuser ('0' nonuser; '1' user)	**0.128 (0.052)***	0.019 (0.054)	0.020 (0.058)	**0.134 (0.057)***
Period ('0' before; '1' after)	**0.159 (0.047)***	-0.052 (0.048)	-0.093 (0.048)	**-0.259 (0.049)***
DID	0.058 (0.080)	**0.158 (0.080)***	**0.164 (0.083)***	0.029 (0.081)
N of observations**	10031	9665	9366	9165
n before	6427	6160	6280	5832
n after	3604	9665	3086	3333
LR chi2 (3)	35.80	9.08	10.56	56.84
Prob > chi2	0.0000	0.0282	0.0144	0.000
Pseudo R^2	0.0015	0.0004	0.0005	0.0026
Satisfaction with pediatricians; with covariates				
Age	**-0.009 (0.001)***	**-0.005 (0.001)***	**-0.007 (0.001)***	**-0.006 (0.001)***
Gender	**0.361 (0.042)***	**0.394 (0.043)***	**0.378 (0.044)***	**0.383 (0.043)***
Education	-0.035 (0.028)	0.001 (0.029)	0.008 (0.029)	0.004 (0.030)
Type of settlement	**0.132 (0.042)***	**0.136 (0.043)***	**0.150 (0.044)***	**0.282 (0.044)***
Self-reported health status	**0.254 (0.041)***	**0.308 (0.036)***	**0.310 (0.038)***	**0.402 (0.037)***
Number of persons in household	**0.094 (0.014)***	**0.104 (0.014)***	**0.118 (0.015)***	**0.128 (0.015)***
'2' Kyivska	0.152 (0.150)	0.084 (0.132)	-0.151 (0.139)	**0.382 (0.158)***
'3' Vinnytska	-0.179 (0.142)	-0.096 (0.130)	**-0.667 (0.132)***	0.135 (0.150)
'4' Volynska	**0.521 (0.142)***	**0.810 (0.130)***	**0.725 (0.133)***	**0.760 (0.149)***
'5' Dnipropetrovska	-0.128 (0.146)	**0.323 (0.141)***	-0.188 (0.144)	0.195 (0.161)
'6' Donetska	0.254 (0.160)	**0.999 (0.154)***	**0.718 (0.162)***	**1.268 (0.177)***
'7' Zhytomyrska	0.174 (0.143)	**0.394 (0.127)***	0.258 (0.134)	**0.652 (0.153)***
'8' Zakarpatska	-0.219 (0.137)	**-0.305 (0.126)***	**-0.365 (0.130)***	-0.039 (0.147)
'9' Zhaporizka	**-0.363 (0.147)***	**-0.586 (0.132)***	**-0.664 (0.136)***	-0.167 (0.154)
'10' Ivano-Frankivska	0.214 (0.148)	**0.264 (0.131)***	0.178 (0.136)	**0.665 (0.154)***
'11' Kirovogradska	**-0.642 (0.152)***	-0.189 (0.134)	**-0.878 (0.154)***	**-0.533 (0.159)***
'12' Luganska	-0.217 (0.161)	-0.002 (0.160)	**-0.505 (0.156)***	-0.138 (0.171)
'13' Lvivska	0.248 (0.149)	**0.343 (0.136)***	0.151 (0.142)	**0.316 (0.157)***
'14' Mykolayivska	**0.422 (0.145)***	**0.597 (0.153)***	0.027 (0.143)	**0.929 (0.170)***
'15' Odeska	0.056 (0.144)	-0.166 (0.135)	-0.033 (0.142)	**0.400 (0.164)***
'16' Poltavska	-0.229 (0.140)	0.213 (0.135)	**-0.340 (0.138)***	0.071 (0.154)
'17' Rivnenska	0.157 (0.140)	**0.392 (0.128)***	0.127 (0.132)	**0.629 (0.150)***
'18' Sumska	**-0.633 (0.134)***	**-0.599 (0.121)***	-1.066 (0.120)	0.144 (0.144)
'19' Ternopilska	**1.077 (0.147)***	**0.895 (0.133)***	**0.914 (0.149)***	**1.598 (0.163)***
'20' Kharkivska	0.138 (0.148)	**0.947 (0.152)***	**0.323 (0.142)***	**-0.482 (0.161)***
'21' Khersonska	**0.407 (0.140)***	**0.399 (0.134)***	**0.408 (0.138)***	**0.816 (0.156)***
'22' Khmelnytska	-0.109 (0.138)	**-0.278 (0.129)***	**-0.530 (0.132)***	0.235 (0.153)
'23' Cherkaska	**0.359 (0.164)***	0.251 (0.153)	0.225 (0.151)	**0.953 (0.175)***
'24' Chernivetska	**0.468 (0.143)***	**0.731 (0.126)***	**0.374 (0.137)***	**0.885 (0.156)***
'25' Chernigivska	**0.496 (0.148)***	**0.575 (0.137)***	**0.594 (0.141)***	**0.815 (0.159)***
User-nonuser ('0' nonuser; '1' user)	**0.138 (0.054)***	0.067 (0.057)	0.117 (0.061)	**0.150 (0.060)***
Period ('0' before; '1' after)	-0.142 (0.077)	-0.051 (0.049)	-0.059 (0.049)	**-0.260 (0.050)***
DID	-0.009 (0.0815)	0.058 (0.082)	0.021 (0.085)	-0.013 (0.083)
N of observations**	10031	9665	9366	9165
n before	6427	6160	6280	5832
n after	3604	9665	3086	3333
LR chi2 (33)	792.94	946.29	1132.33	1144.25
Prob > chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0337	0.0414	0.0520	0.0516

*p = < 0.05
** N is given, excluding missing

SUMMARY

This dissertation focuses on the perceptions of healthcare quality in primary care in Ukraine. Healthcare services in Ukraine, as in other countries, aim to ensure accessible and affordable healthcare of the highest possible quality. This makes quality of healthcare one of the most essential values of the health system. Good quality of healthcare services in terms of healthcare that is effective, safe and patient-centered, and that is accessible and affordable for all, is a known predictor of population health. Quality is a major component of health system performance and quality improvement is an important aim of health policy. To ensure this, health policies at all levels (national, regional, and facility) need adequate instruments to measure, maintain and improve healthcare quality.

Chapter 1 of this dissertation describes the concepts of healthcare quality and satisfaction as well as gives the aim and objectives of the studies included in the dissertation. As explained in the chapter, healthcare quality determines satisfaction with healthcare services, the latter being the driving force of decisions and behaviors as well as a known predictor of healthcare utilization and an influencing factor of health outcomes. Apart from being an element of quality, patient-satisfaction measures are an important tool to gain insight into the aspects of healthcare that patients truly value.

There is little evidence on the perception of healthcare quality in Ukraine. Quality assurance procedures, though legally well-developed, are somewhat chaotic and formal. At the same time, Ukraine is experiencing a transition from central budgeting to capitation financing, from the Semashko model of healthcare organization to more managerial autonomy and free choice of healthcare provider.

Therefore, the central aim of this dissertation is to obtain new knowledge on the perception of healthcare quality by different stakeholders as well as insights on self-reported satisfaction with primary healthcare, specifically, on general satisfaction with primary healthcare in Ukraine.

In **Chapter 2**, the method of systematic literature review is used to study the psychometric properties of self-reported satisfaction with healthcare as a measure of quality. The aim of this chapter is to systematize the evidence on the validity and reliability of subjective measurements of satisfaction with healthcare. In this systematic literature review, we searched for relevant publications in PubMed and JSTOR databases. The key inclusion criteria were: (a) original research articles in peer-reviewed journals; (b) year of publication from 2008 onward; (c) English language publications. We applied directed qualitative content analysis to the publications included in the review.

Overall, 1167 publications are found and screened. Of these, 39 publications that focus on the psychometric properties of the measurement of patient satisfaction, are included. The majority of the studies validate already existing instruments adapted to different contexts;

the rest describe psychometric properties of self-developed tools. Psychometric properties are assessed by means of reliability and validity assessment. Reliability assessment is performed via Cronbach alpha and test-retest reliability. In total, 94.9% of studies find that the satisfaction measures are reliable. Validation is performed by a variety of different methods, among which the most applicable are face validity and factor analysis. Overall, 71.8% of studies find that the satisfaction measures are valid.

Thus, we identified tools to measure quality, which were adapted to different contexts and self-developed, and we systematized evidence on their psychometric properties, specifically, on their validity and reliability. We find that quality measurement tools exist in a great variety depending on their purpose, context, resources, and others. Adaptive subjective measures prevail, which might be explained by their long-term usage, effectiveness as shown by the number of studies, as well as positive experience of usage of the measurements' results on micro- (organizational) and macro- (national) levels. At the same time, the growing number of studies measuring psychometric properties of self-developed patient satisfaction assessment tools shows the desire to have as exact an instrument as possible for the specific domains and specific healthcare facilities.

Because of the complexity of the studies, we could not make strong recommendations on the application of self-reported satisfaction measures. We recommended the following key strategies: (1) developing a unified standard for satisfaction measurement; and (2) identifying a combination of tools to routinely measure satisfaction. We also suggested further research on the issue of subjectivity reduction.

In **Chapter 3**, a combination of qualitative and quantitative data analysis is presented. This chapter provides new insights into primary care managers' perceptions of healthcare quality in Ukraine. Ukraine is reforming its health system to improve healthcare quality. Insight into how primary healthcare managers perceive quality is important for the ongoing reform as well as for the improvement of medical services.

Data were gathered in an online survey, which was conducted as part of the Ukrainian-Swiss project "Medical Educational Development" in April-May 2019. A mixture of sampling methods was used: a total population sampling method and a convenience sampling method. The sampling was based on the contact list of USAID project "Health Reform Support", and additionally on the database of the National Health Service of Ukraine and other channels. Data were analyzed using descriptive statistics and qualitative data analysis.

In total, 302 healthcare managers took part in the study. We identified fifteen groups of quality attributes important to primary healthcare managers. We also investigated quality assessment practices used by primary healthcare managers. The majority of primary healthcare managers perceive quality in healthcare as process quality. The frequency of mentioning the "compliance to standards" and "indicators" attributes confirms the traditional focus of the Ukrainian approach to quality and shows the lack of association of quality with integrated care.

Primary healthcare managers prefer to assess outcome quality via a system of indicators and feedback. We find a high number of unclear descriptions of measurement tools given by the participants of our survey. This may have two major explanations. Primary healthcare managers do not distinguish between quality assessment (as a process) and the quality level in their facilities. Or the formulation of the question was unclear for the participants.

There appears to be a lack of consensus about healthcare quality. Furthermore, most Ukrainian primary healthcare managers who took part in our survey do not recognize the multidimensionality of quality. This may be due to a lack of awareness of the national strategy for better quality of healthcare service.

The absence of a clear consensus about quality complicates the discussion about quality and how to measure quality in healthcare. This appears to be one of the obstacles to system-wide quality improvement.

The data used in the studies described in **Chapter 4 and Chapter 5** were collected by means of repeated cross-section household surveys via face-to-face interviews by trained interviewers. The survey had a sample size of over 10,000 participants per wave.

Based on these data in **Chapter 4,** we explored perceptions of outpatient care quality among healthcare users in Ukraine by identifying and comparing attributes important to outpatient healthcare users as well as by comparing any changes in their importance over a four-year period (2016 – 2019). We also explored changes in the importance of quality attributes that might have been provoked by the reform, which started in 2017. Evidence on healthcare users' perceptions of quality is important for future system changes. Data were analyzed using descriptive statistics as well as binary regression analysis.

Healthcare quality in Ukraine is mostly associated by users with "effectiveness of treatment (the correct diagnosis, adequate treatment)" and "qualified medical personnel using modern and safe treatment methods". Both aspects are predisposed by socio-demographic characteristics. The "effectiveness of treatment (the correct diagnosis, adequate treatment)" aspect is predisposed by gender (more important for female respondents), low income and good self-reported health status. And "qualified medical personnel using modern and safe treatment methods" is predisposed by specialized education and low income. The perceptions of outpatient care users about attributes connected with payment policies and general management of the facility have changed over time. At the same time, quality is least associated with such aspects of quality as "the possibility to stay close to family members of patients" and "respect, trust and empathy to the patient". Whereas the "the possibility to stay close to family members of patients" aspect is not predisposed by socio-demographic characteristics included in the analysis and "respect, trust and empathy to the patient" is predisposed by gender, health status, occupation and type of settlement (less important to female respondents and respondents with average self-reported health status but more important for employed and urban inhabitants). Our analysis showed an increase in the importance (it more than doubled) of all the quality attributes in 2019 in comparison with other years. The reason behind this increase require further investigation.

This chapter provides new insights into the importance of healthcare quality attributes for outpatient healthcare users in Ukraine, showing the need to develop a national policy on quality and a national quality strategy for healthcare that incorporates quality aspects important to patients. This will help to make the health system more responsive to the needs and expectations of healthcare users.

Based on the same data in **Chapter 5,** we examined the general satisfaction with primary healthcare services in Ukraine among service users and nonusers before and after the implementation of the capitation reform in 2017-2020. We compared primary care users and non-users over a five-year period before and after the reform. Effects were estimated using difference-in-differences methods based on matched samples.

Our findings show that in general, respondents are "rather satisfied" with the services of district/family doctors and pediatricians. Users of primary healthcare in our study rated their satisfaction with the family doctor and satisfaction with pediatrician higher than nonusers. In total, 72.1% (users) and 69.2% (nonusers) were satisfied with their family doctor in 2016. This was 75.3% and 71.9% in 2020. For pediatrician services, these shares were 73.6% (users) and 71.1% (nonusers) in 2016; and 74.7% and 70.2% in 2020, respectively. The study in this chapter also revealed an increase in satisfaction with the district/family doctor over time. However, this does not seem to be due to the reform. The results for pediatrician services were mixed. Why satisfaction with primary care is fairly high and slightly increasing over time is unclear. However, we offer several possible explanations, such as low expectations of primary healthcare, subjective perception of healthcare quality, improved access and affordability, and general improvements in primary healthcare settings not directly linked to the reform.

Other confounding variables included in our analysis, such as age, gender, education, type of settlement, self-reported health status, and the number of persons in the household, also showed an influence on satisfaction among users. However, only gender and self-reported health status had statistical significance over the years (2016-2020). Whereas age showed no statistical significance, and other variables were statistically significant three years out of five included in the analysis. Thus, the results of our analysis confirm the results of previous analyses described in the literature. At the same time, the reason why some of the variables had an effect in certain years could not be identified in the study.

The final **Chapter 6** outlines and discusses the main findings presented in the dissertation. The main findings of the studies included in this dissertation are presented in the form of five statements.

Statement 1: Satisfaction with healthcare measures aspects of quality that are not measured by clinical quality measurement tools. This dissertation supports the importance of valid and reliable self-reported satisfaction with healthcare as a measure of quality. Including satisfaction in quality measures helps to measure the aspects of healthcare that healthcare users truly value.

The discussion of this statement reveals a vague understanding of quality assessment tools and practices among healthcare managers in Ukraine. Thus, at the research level, there is a need to further study the routine application of measurement tools in healthcare management practice in Ukraine. At the policy level, there is a need to revise quality assessment practices on the levels of the system and facility.

Statement 2: The healthcare financing reform of 2017-2020 has changed the discussion on the quality and satisfaction with healthcare in Ukraine. With the healthcare financing reform 2017-2020, Ukraine experienced dramatic change not only in financing principle and managerial freedom but more importantly in views and perceptions of healthcare professionals and users on the health system in general and on quality in particular.

The discussion of this statement revealed a long history of top-down practices as well as paternalistic views on healthcare, leaving no place for providers' and patients' views on quality. Rapid health system changes and lack of data on quality perceptions lead to the recommendation that at the research level, it is important to collect and analyze repeated cross-sectional data on views and satisfaction of healthcare stakeholders (policy makers, healthcare providers and healthcare users) on quality. At the policy level, it is important to maintain the dialogue between the stakeholders, take into consideration their views and expectations, and to develop a working quality strategy.

Statement 3: Primary healthcare managers and patients in Ukraine perceive quality mostly as process quality. The attention to outcome quality is limited. The discussion of this statement shows that both healthcare professionals (managers, medical doctors and nurses) and healthcare users in Ukraine perceive quality mostly as process quality. At the same time, attention to outcome is limited. This also explains the lack of attention to patient satisfaction.

This means that at the policy level, health system responsiveness should be improved by raising awareness of important attributes of structure (like tangibles) or outcome (patient satisfaction) among healthcare professionals and users. At the research level, we did not find other studies of healthcare managers' perceptions of quality in Ukraine. We perceive the findings of Chapter 3 to be the baseline of such kind. Thus, healthcare managers' perceptions of quality in Ukraine require further study. Also, system responsiveness studies are rare in Ukraine and require further elaboration.

Statement 4: A clear consensus about quality assessment and how to measure it is needed in Ukraine. The discussion of this statement shows little consensus about quality among Ukrainian healthcare managers as well as an unclear understanding of quality assessment. Education and clear messages on quality in healthcare from the Ministry of Health of Ukraine are important in developing a clear consensus about quality assessment and how to measure it.

To achieve this at the policy level, the development and promotion of a national policy on quality and a national quality strategy for healthcare should become one of the priorities

of the healthcare sector. Up-to-date quality education should be a part of clinical training as well as continuous professional development programs for medical doctors and nurses. At the research level, the perception of healthcare quality among healthcare managers, medical doctors, and nurses, as well as the routine application of measurement tools in healthcare management practice, require further study.

Statement 5: Paradoxically in Ukraine, satisfaction with primary care is high, although the health system does not perform well. The discussion of this statement reveals that the reasons behind high and increasing over time satisfaction are unclear and seem not to be directly linked to the reform. Healthcare users in Ukraine tend to express satisfaction with the services received on a facility level and relocate their satisfaction with primary healthcare services onto the health system in general.

This implies that at the policy level, healthcare reforms should be strengthened by quality improvements in healthcare settings. At the same time, the principles of health system functioning should be well communicated to healthcare users. At the research level, further research is needed to fully understand the drivers of satisfaction, the extent to which responses are affected by adaptation bias and scale of reference bias, and to assess the impact of healthcare financing reforms on the quality and accessibility of primary care.

During the work on this dissertation, the Ukrainian health system was rapidly changing. Healthcare financing reforms launched changes in managerial and educational practices, triggering different healthcare discussions. In general, healthcare stakeholders became more open and willing to be a part of discussions that had the ability to reshape the health system. Thus, quality perceptions and satisfaction with healthcare services gained more importance. The findings of the studies included in this dissertation will be relevant to policy makers, who could use our analysis to improve health system performance. Our analysis will also be beneficial for healthcare providers, who can use it to improve their quality assessment practices and strengthen the loyalty of their patients. Our findings will also be interesting to the countries with similar health system, experiencing similar transition.

SAMENVATTING

Dit proefschrift richt zich op de percepties van de kwaliteit van de gezondheidszorg in de eerstelijnszorg in Oekraïne. Net als in andere landen streeft de gezondheidszorg in Oekraïne naar toegankelijke en betaalbare gezondheidszorg van de hoogst mogelijke kwaliteit. Dit maakt kwaliteit van gezondheidszorg tot een van de meest essentiële waarden van het gezondheidszorgsysteem. Een goede kwaliteit van gezondheidszorgdiensten - dat wil zeggen effectieve, veilige en patiëntgerichte gezondheidszorg die voor iedereen toegankelijk en betaalbaar is – is een bekende determinant van de gezondheid van de bevolking. Kwaliteit is een belangrijke component van de prestaties van het gezondheidszorgstelsel en kwaliteitsverbetering is een belangrijk doel van het gezondheidsbeleid. Om dit te waarborgen heeft het gezondheidsbeleid op alle niveaus (nationaal, regionaal en facilitair) adequate instrumenten nodig om de kwaliteit van de gezondheidszorg te meten, te handhaven en te verbeteren.

Hoofdstuk 1 van dit proefschrift beschrijft de concepten van kwaliteit en tevredenheid van de gezondheidszorg en legt het doel en de doelstellingen van de studies in het proefschrift uit. Zoals weergegeven in het hoofdstuk, bepaalt de kwaliteit van de gezondheidszorg de tevredenheid met de gezondheidszorgdiensten, waarbij de tevredenheid de drijvende kracht is achter beslissingen en gedrag en een voorspeller is van zorggebruik en een beïnvloedende factor van gezondheidsuitkomsten. Naast de kwaliteit, zijn patiënttevredenheidsmetingen een belangrijk instrument om inzicht te krijgen in de aspecten van de gezondheidszorg die patiënten waarderen.

Er is weinig onderzoek gedaan naar de perceptie van de kwaliteit van de gezondheidszorg in Oekraïne. Hoewel de procedures voor kwaliteitsborging wettelijk goed zijn ontwikkeld, zijn ze enigszins chaotisch en formeel. Tegelijkertijd maakt Oekraïne een overgang door van centrale budgettering naar een financieringssysteem met bekostiging per capita en van het Semashko-model van gezondheidszorgorganisatie naar meer bestuurlijke autonomie en vrije keuze van zorgverlener.

Het centrale doel van dit proefschrift is daarom het verkrijgen van nieuwe kennis in inzichten over de perceptie van de kwaliteit van de gezondheidszorg door verschillende belanghebbenden, evenals inzichten in de zelfgerapporteerde tevredenheid met de eerstelijnsgezondheidszorg, specifiek over de algemene tevredenheid met de eerstelijnsgezondheidszorg in Oekraïne.

In Hoofdstuk 2 wordt de methode van systematisch literatuuronderzoek gebruikt om de psychometrische eigenschappen van zelfgerapporteerde tevredenheid met de gezondheidszorg als maat voor kwaliteit te bestuderen. Het doel van dit hoofdstuk is om de evidentie over de validiteit en betrouwbaarheid van subjectieve metingen van tevredenheid met gezondheidszorg te systematisch in kaart te brengen. In dit systematische literatuuronderzoek zochten we naar relevante publicaties in de databases PubMed en

JSTOR. De belangrijkste criteria waren: (a) originele onderzoeksartikelen in peer-reviewed tijdschriften; (b) jaar van publicatie vanaf 2008; (c) Engelstalige publicaties. We pasten gerichte kwalitatieve inhoudsanalyse toe op de publicaties die in de review werden opgenomen.

In totaal werden 1167 publicaties gevonden en gescreend. Hiervan zijn 39 publicaties opgenomen die zich richten op de psychometrische eigenschappen van de meting van patiënttevredenheid. De meerderheid van de studies valideert reeds bestaande instrumenten die aangepast zijn aan verschillende contexten; de rest beschrijft psychometrische eigenschappen van zelfontwikkelde instrumenten. Psychometrische eigenschappen worden beoordeeld door middel van betrouwbaarheids- en validiteitsbeoordeling. Betrouwbaarheidsbeoordeling wordt uitgevoerd via Cronbach's Alpha en test-hertest betrouwbaarheid. In totaal vinden 94,9% van de studies dat de tevredenheidsmetingen betrouwbaar zijn. Validatie wordt uitgevoerd door middel van verschillende methoden, waarvan de meest toepasbare indruksvaliditeit en factoranalyse zijn. In totaal vindt 71,8% van de studies dat de tevredenheidsmetingen valide zijn.

We hebben dus instrumenten geïdentificeerd om kwaliteit te meten, die aangepast zijn aan verschillende contexten en zelf ontwikkeld zijn, en we hebben het bewijsmateriaal over hun psychometrische eigenschappen gesystematiseerd, in het bijzonder over hun validiteit en betrouwbaarheid. We stellen vast dat er een grote reeks aan instrumenten bestaat om kwaliteit te meten, afhankelijk van het doel, de context, de middelen en andere factoren. Adaptieve subjectieve metingen overheersen, wat kan worden verklaard door hun langdurig gebruik, ze zijn effectief zoals blijkt uit het aantal studies, evenals positieve ervaringen met het gebruik van de meetresultaten op micro- (organisatorisch) en macro- (nationaal) niveau. Tegelijkertijd toont het groeiende aantal studies die psychometrische eigenschappen meten van zelfontwikkelde beoordelingsinstrumenten voor patiënttevredenheid aan dat wordt gestreeefd naar een zo exact mogelijk instrument voor de specifieke domeinen en specifieke zorginstellingen.

Vanwege de complexiteit van de studies, konden we geen sterke aanbevelingen doen over de toepassing van zelfgerapporteerde tevredenheidsmetingen. We hebben de volgende belangrijke strategieën aanbevolen: (1) het ontwikkelen van een uniforme standaard voor tevredenheidsmeting; en (2) het identificeren van een combinatie van instrumenten om routinematig tevredenheid te meten. We stelden ook voor om verder onderzoek te doen naar subjectiviteitsreductie.

In Hoofdstuk 3 wordt een combinatie van kwalitatieve en kwantitatieve data-analyse gepresenteerd. Dit hoofdstuk biedt nieuwe inzichten in de percepties van managers in de eerstelijnsgezondheidszorg over de kwaliteit van de gezondheidszorg in Oekraïne. Het Oekraïense gezondheidszorgsysteem wordt hervormd om de kwaliteit van de gezondheidszorg te verbeteren. Inzicht in hoe managers in de eerstelijnsgezondheidszorg tegen kwaliteit aankijken is belangrijk voor de lopende hervorming en voor de verbetering van medische diensten. De gegevens werden verzameld in een online enquête, die werd

uitgevoerd als onderdeel van het Oekraïens-Zwitserse project «Medical Educational Development» in april-mei 2019. Er werd een mix van steekproefmethoden gebruikt: een aselecte steekproefmethode en een 'convenience' steekproefmethode. De steekproef was gebaseerd op de contactlijst van het USAID-project «Health Reform Support», en daarnaast op de database van de Nationale Gezondheidsdienst van Oekraïne en andere bronnen. De gegevens werden geanalyseerd met behulp van beschrijvende statistieken en kwalitatieve gegevensanalyse.

In totaal namen 302 managers in de gezondheidszorg deel aan het onderzoek. We identificeerden vijftien groepen van kwaliteitsattributen die belangrijk zijn voor managers in de eerstelijnsgezondheidszorg. We onderzochten ook de kwaliteitsbeoordelingspra ktijken die managers in de eerstelijnsgezondheidszorg gebruiken. De meerderheid van de managers in de eerstelijnsgezondheidszorg ziet kwaliteit in de gezondheidszorg als proceskwaliteit. De frequentie van het noemen van de kenmerken «naleving van normen» en «indicatoren» bevestigt de traditionele focus van de Oekraïense benadering van kwaliteit en toont het gebrek aan associatie van kwaliteit met geïntegreerde zorg.

Managers in de eerstelijnsgezondheidszorg geven er de voorkeur aan om de uitkomstkwaliteit te beoordelen via een systeem van indicatoren en feedback. We vinden een groot aantal onduidelijke beschrijvingen van meetinstrumenten door de deelnemers aan onze enquête. Dit kan twee verklaringen hebben. Managers in de eerstelijnsgezondheidszorg maken geen onderscheid tussen kwaliteitsbeoordeling (als proces) en het kwaliteitsniveau in hun voorzieningen. Of de formulering van de vraag was onduidelijk voor de deelnemers.

Er lijkt een gebrek aan consensus te zijn over de kwaliteit van de gezondheidszorg. Bovendien erkennen de meeste Oekraïense managers in de eerstelijnsgezondheidszorg die deelnamen aan ons onderzoek de multidimensionaliteit van kwaliteit niet. Dit kan te wijten zijn aan een gebrek aan bewustzijn van de nationale strategie voor een betere kwaliteit van de gezondheidszorg.

Het ontbreken van een duidelijke consensus over kwaliteit bemoeilijkt de discussie over kwaliteit en het meten van kwaliteit in de gezondheidszorg. Dit lijkt een van de obstakels te zijn voor systeembrede kwaliteitsverbetering.

De data die zijn gebruikt in de onderzoeken die zijn beschreven in **Hoofdstuk 4 en Hoofdstuk 5** zijn verzameld door middel van herhaalde transversale enquêtes onder huishoudens via persoonlijke interviews door getrainde interviewers. Het onderzoek had een steekproefgrootte van meer dan 10.000 deelnemers per ronde.

Op basis van deze gegevens is in **Hoofdstuk 4** onderzocht wat de perceptie van de kwaliteit van poliklinische zorg onder gebruikers van gezondheidszorg in Oekraïne is. Dit is gebeurd door kenmerken te identificeren en te vergelijken die belangrijk zijn voor gebruikers van poliklinische gezondheidszorg en door veranderingen in hun belang over een periode van vier jaar (2016 - 2019) te vergelijken. We onderzochten ook veranderingen in het belang van kwaliteitsattributen die mogelijk van invloed waren op de kwaliteit van de zorg veroorzaakt

door de hervorming, die in 2017 van start ging. Gegevens over de kwaliteitsperceptie van zorggebruikers zijn belangrijk voor toekomstige systeemveranderingen. De gegevens werden geanalyseerd met behulp van beschrijvende statistieken en binaire regressieanalyse.

De kwaliteit van de gezondheidszorg in Oekraïne wordt door gebruikers vooral geassocieerd met «effectiviteit van de behandeling (de juiste diagnose, adequate behandeling)» en «gekwalificeerd medisch personeel dat moderne en veilige behandelingsmethoden gebruikt». Beide aspecten worden beïnvloed door socio-demografische kenmerken. Het aspect «effectiviteit van de behandeling (de juiste diagnose, adequate behandeling)» wordt beïnvloed door geslacht (belangrijker voor vrouwelijke respondenten), een laag inkomen en een goede zelfgerapporteerde gezondheidsstatus. En «gekwalificeerd medisch personeel dat moderne en veilige behandelingsmethoden gebruikt» wordt beïnvloed door gespecialiseerd onderwijs en een laag inkomen. De percepties van gebruikers van ambulante zorg over kenmerken die verband houden met het betalingsbeleid en het algemene management van de instelling zijn in de loop der tijd veranderd. Tegelijkertijd wordt kwaliteit het minst geassocieerd met kwaliteitsaspecten als «de mogelijkheid om dicht bij familieleden van patiënten te verblijven» en «respect, vertrouwen en empathie voor de patiënt». Terwijl het aspect «de mogelijkheid om dicht bij familieleden van patiënten te verblijven» niet wordt beïnvloed door socio-demografische kenmerken die in de analyse zijn opgenomen en «respect, vertrouwen en empathie voor de patiënt» wordt beïnvloed door geslacht, gezondheidstoestand, beroep en type woonplaats (minder belangrijk voor vrouwelijke respondenten en respondenten met een gemiddelde zelfgerapporteerde gezondheidstoestand, maar belangrijker voor werkenden en stedelingen). Onze analyse toonde een toename in het belang (het is meer dan verdubbeld) van alle kwaliteitsattributen in 2019 in vergelijking met andere jaren. De reden voor deze toename vereist verder onderzoek.

Dit hoofdstuk biedt nieuwe inzichten in het belang van kwaliteitsattributen in de gezondheidszorg voor ambulante zorggebruikers in Oekraïne, en toont de noodzaak aan om een nationaal kwaliteitsbeleid en een nationale kwaliteitsstrategie voor de gezondheidszorg te ontwikkelen waarin kwaliteitsaspecten zijn opgenomen die belangrijk zijn voor patiënten. Dit zal helpen om het gezondheidszorgsysteem beter te laten inspelen op de behoeften en verwachtingen van zorggebruikers.

Op basis van dezelfde gegevens is in **Hoofdstuk 5** onderzocht wat de algemene tevredenheid met de eerstelijnsgezondheidszorg in Oekraïne onder gebruikers en niet-gebruikers voor en na de invoering van de hervorming in 2017-2020 is. We vergeleken gebruikers en niet-gebruikers van eerstelijnsgezondheidszorg over een periode van vijf jaar voor en na de hervorming. De effecten werden geschat met behulp van difference-in-differences methoden op basis van gematchte steekproeven.

Onze bevindingen laten zien dat respondenten over het algemeen «tamelijk tevreden» zijn met de diensten van wijk-/gezinsartsen en kinderartsen. Gebruikers van eerstelijnsgezondheidszorg in ons onderzoek beoordeelden hun tevredenheid met de

huisarts en tevredenheid met de kinderarts hoger dan niet-gebruikers. In totaal was 72,1% (gebruikers) en 69,2% (niet-gebruikers) tevreden over hun huisarts in 2016. In 2020 was dit 75,3% en 71,9%. Voor de diensten van kinderartsen waren deze aandelen respectievelijk 73,6% (gebruikers) en 71,1% (niet-gebruikers) in 2016; en 74,7% en 70,2% in 2020. Uit het onderzoek in dit hoofdstuk blijkt ook dat de tevredenheid over de huisarts in de loop van de tijd toeneemt. Dit lijkt echter niet het gevolg te zijn van de hervorming. De resultaten voor de diensten van kinderartsen waren gemengd. Waarom de tevredenheid over de eerstelijnszorg vrij hoog is en licht stijgt in de loop van de tijd is onduidelijk. We bieden echter verschillende mogelijke verklaringen, zoals lage verwachtingen van eerstelijnsgezondheidszorg, subjectieve perceptie van de kwaliteit van de gezondheidszorg, verbeterde toegang en betaalbaarheid, en algemene verbeteringen in de eerstelijnsgezondheidszorg die niet direct verband houden met de hervorming.

Andere variabelen die in onze analyse werden opgenomen, zoals leeftijd, geslacht, opleiding, type van vestiging, zelfgerapporteerde gezondheidstoestand en het aantal personen in het huishouden, bleken ook een invloed te hebben op de tevredenheid van de gebruikers. Alleen geslacht en zelfgerapporteerde gezondheidsstatus hadden waren echter statistisch significant gedurende de jaren (2016-2020). Leeftijd was niet statistisch significant en andere variabelen waren statistisch significant in drie van de vijf jaren die in de analyse zijn opgenomen. De resultaten van onze analyse bevestigen dus de resultaten van eerdere analyses die in de literatuur zijn beschreven. Tegelijkertijd kon in het onderzoek niet worden vastgesteld waarom sommige variabelen in bepaalde jaren een effect hadden.

In het laatste **Hoofdstuk 6** worden de belangrijkste bevindingen uit het proefschrift beschreven en besproken. De belangrijkste bevindingen van de studies in dit proefschrift worden gepresenteerd in de vorm van vijf stellingen.

Stelling 1: **Tevredenheid met de gezondheidszorg meet aspecten van kwaliteit die niet gemeten worden door klinische kwaliteitsmeetinstrumenten**. Dit proefschrift ondersteunt het belang van valide en betrouwbare zelfgerapporteerde tevredenheid met de gezondheidszorg als maat voor kwaliteit. Het opnemen van tevredenheid in kwaliteitsmetingen helpt om de aspecten van de gezondheidszorg te meten die zorggebruikers echt waarderen.

De bespreking van deze stelling onthult een vaag begrip van instrumenten en praktijken voor kwaliteitsbeoordeling onder managers in de gezondheidszorg in Oekraïne. Op onderzoeksniveau is er dus behoefte aan verder onderzoek naar de routinematige toepassing van meetinstrumenten in de managementpraktijk van de gezondheidszorg in Oekraïne. Op beleidsniveau is er behoefte aan een herziening van de praktijken voor kwaliteitsbeoordeling op het niveau van het systeem en de instelling.

Stelling 2: **De hervorming van de financiering van de gezondheidszorg van 2017-2020 heeft de discussie over de kwaliteit van en tevredenheid over de gezondheidszorg in Oekraïne veranderd**. Met de hervorming van de financiering van de gezondheidszorg

2017-2020 onderging Oekraïne een drastische verandering, niet alleen wat betreft het financieringsprincipe en de vrijheid van bestuur, maar vooral ook wat betreft de opvattingen en percepties van zorgverleners en zorggebruikers over het zorgstelsel in het algemeen en over kwaliteit in het bijzonder.

De bespreking van deze verklaring bracht een lange geschiedenis van top-down praktijken en paternalistische opvattingen over gezondheidszorg aan het licht, waarin geen plaats was voor de opvattingen van zorgverleners en patiënten over kwaliteit. Snelle veranderingen in het zorgstelsel en een gebrek aan gegevens over kwaliteitspercepties leiden tot de aanbeveling dat het op onderzoeksniveau belangrijk is om herhaalde transversale gegevens over de meningen en tevredenheid van belanghebbenden in de gezondheidszorg (beleidsmakers, zorgverleners en zorggebruikers) over kwaliteit te verzamelen en te analyseren. Op beleidsniveau is het belangrijk om de dialoog tussen de belanghebbenden in stand te houden, rekening te houden met hun meningen en verwachtingen en een werkende kwaliteitsstrategie te ontwikkelen.

Stelling 3: Managers en patiënten in de eerstelijnsgezondheidszorg in Oekraïne zien kwaliteit vooral als proceskwaliteit. De aandacht voor uitkomstkwaliteit is beperkt. Uit de bespreking van deze stelling blijkt dat zowel zorgprofessionals (managers, artsen en verpleegkundigen) als zorggebruikers in Oekraïne kwaliteit vooral zien als proceskwaliteit. Tegelijkertijd is de aandacht voor uitkomsten beperkt. Dit verklaart ook het gebrek aan aandacht voor patiënttevredenheid.

Dit betekent dat op beleidsniveau het reactievermogen van het gezondheidszorgsysteem moet worden verbeterd door zorgverleners en gebruikers bewuster te maken van belangrijke kenmerken van structuur (zoals tastbare zaken) of resultaat (patiënttevredenheid). Op onderzoeksniveau hebben we geen andere studies gevonden naar de kwaliteitsperceptie van managers in de gezondheidszorg in Oekraïne. We beschouwen de bevindingen in hoofdstuk 3 als de basis van een dergelijk onderzoek. De kwaliteitsperceptie van managers in de gezondheidszorg in Oekraïne moet dus verder worden bestudeerd. Ook studies naar systeemresponsiviteit zijn zeldzaam in Oekraïne en moeten verder worden uitgewerkt.

Stelling 4: Er is behoefte aan een duidelijke consensus over kwaliteitsbeoordeling en hoe deze te meten in Oekraïne. Uit de bespreking van deze stelling blijkt dat er weinig consensus is over kwaliteit onder managers in de Oekraïense gezondheidszorg, evenals een onduidelijk begrip van kwaliteitsbeoordeling. Onderwijs en duidelijke boodschappen over kwaliteit in de gezondheidszorg van het ministerie van Volksgezondheid van Oekraïne zijn belangrijk voor het ontwikkelen van een duidelijke consensus over kwaliteitsbeoordeling en hoe deze te meten. Om dit op beleidsniveau te bereiken moet de ontwikkeling en bevordering van een nationaal kwaliteitsbeleid en een nationale kwaliteitsstrategie voor de gezondheidszorg een van de prioriteiten van de gezondheidszorgsector worden. Up-to-date kwaliteitsonderwijs moet deel uitmaken van klinische opleidingen en programma's voor continue professionele ontwikkeling voor artsen en verpleegkundigen. Op het niveau

van onderzoek moet de perceptie van de kwaliteit van de gezondheidszorg onder managers in de gezondheidszorg, artsen en verpleegkundigen verder worden bestudeerd, evenals de routinematige toepassing van meetinstrumenten in de managementpraktijk van de gezondheidszorg.

Stelling 5: Paradoxaal genoeg is de tevredenheid over de eerstelijnsgezondheidszorg in Oekraïne hoog, hoewel het gezondheidszorgsysteem niet goed presteert. Uit de bespreking van deze stelling blijkt dat de redenen voor de hoge en in de loop van de tijd toenemende tevredenheid onduidelijk zijn en niet rechtstreeks verband lijken te houden met de hervorming. Gebruikers van gezondheidszorg in Oekraïne zijn geneigd om hun tevredenheid over de ontvangen diensten op facilitair niveau uit te drukken en hun tevredenheid over de eerstelijnsgezondheidszorg te verplaatsen naar het gezondheidssysteem in het algemeen.

Dit impliceert dat hervormingen in de gezondheidszorg op beleidsniveau moeten worden versterkt door kwaliteitsverbeteringen in zorginstellingen. Tegelijkertijd moeten de beginselen van het functioneren van het gezondheidszorgsysteem goed worden gecommuniceerd naar de gebruikers van de gezondheidszorg. Op onderzoeksniveau is verder onderzoek nodig om de drijfveren van tevredenheid volledig te begrijpen, de mate waarin antwoorden worden beïnvloed door een adaptation bias en scale of reference bias, en om de invloed van hervormingen in de financiering van de gezondheidszorg op de kwaliteit en toegankelijkheid van eerstelijnszorg te beoordelen.

Tijdens het werk aan dit proefschrift was het Oekraïense gezondheidszorgsysteem snel aan het veranderen. Hervormingen in de financiering van de gezondheidszorg brachten veranderingen in management- en onderwijspraktijken op gang, wat verschillende discussies over gezondheidszorg op gang bracht. Over het algemeen werden belanghebbenden in de gezondheidszorg meer open en bereid om deel te nemen aan discussies die het gezondheidssysteem opnieuw vorm konden geven. Zo wonnen kwaliteitspercepties en tevredenheid met de gezondheidszorg aan belang. De bevindingen van de studies in dit proefschrift zijn relevant voor beleidsmakers, die onze analyse kunnen gebruiken om de prestaties van het gezondheidszorgsysteem te verbeteren. Onze analyse zijn ook nuttig voor zorgverleners, die het kunnen gebruiken om hun kwaliteitsbeoordelingspraktijken te verbeteren en de loyaliteit van hun patiënten te versterken. Onze bevindingen zijn ook interessant voor landen met een vergelijkbaar gezondheidssysteem, die een vergelijkbare transitie doormaken.

IMPACT STATEMENT

Health policies at all levels (national, regional, and facility) need adequate instruments to measure and maintain healthcare quality based on the fact that quality is a major component of health system performance, and quality improvement is an important aim of health policy.

Ukraine is experiencing a transition from central budgeting to capitation financing, from the Semashko model of healthcare organization to managerial autonomy and free choice of healthcare provider. At the same time, there is a lack of evidence on healthcare quality perceptions by different stakeholders. Quality assurance procedures, though legally well-developed, are somewhat chaotic and lack focus on patients.

This dissertation provides evidence on perceptions of quality and satisfaction with primary healthcare in Ukraine. Insight into how primary healthcare managers perceive quality is important for the ongoing reform as well as for the improvement of medical services. At the same time, evidence on healthcare users' perceptions of quality is important for future system changes. This dissertation focuses on quality perceptions in Ukraine. However, the analysis of our results and their implications is also applicable in the broader contexts: to the countries with similar health systems experiencing similar transitions.

Contribution relevant to healthcare providers

As argued in this dissertation, knowing users' perceptions of healthcare quality helps to tailor the services, forming the satisfaction and loyalty of the users to the facility, and as a result, financial success.

Our results show the need to revise the quality assessment practices at the facility level. Our results also encourage the inclusion of satisfaction into quality measures as it helps to measure the aspects of healthcare that healthcare users truly value.

Furthermore, quality management at the facility level influences health system responsiveness, among other factors. Healthcare users tend to extrapolate their satisfaction and dissatisfaction with quality of services received in a facility to the health system in general.

Contribution relevant to policy makers

As argued in this dissertation, a clear consensus about quality assessment and how to measure it is needed in Ukraine. Education and clear messages on the quality of healthcare from the Ministry of Health of Ukraine are important in developing this consensus. What is still absent from the system is a national policy on healthcare quality and a national quality strategy for healthcare.

The healthcare financial reform (2017-2020) in Ukraine triggered discussions about quality. It also cleared the weak points in medical training and Continuing Professional Development concerning quality management. Firstly, quality and management are not adequately addressed in medical training programs. Secondly, before 2015, only medical doctors were appointed as medical managers. Thus, they had to take the managerial disciplines within their Continuing Professional Development (CPD) framework. Thirdly, the CPD programs are mostly outdated as well as suffer from a lack of English language skills among the participants. Thus, it is difficult for healthcare managers to update their knowledge about quality as the international sources are largely inapplicable.

The studies for this dissertation were performed in close collaboration with the Ukrainian-Swiss Project "Medical Education Development". To address the need for more up-to-date training for healthcare managers, the Ukrainian-Swiss project "Medical Education Development" developed online courses, among which there is also a "Quality Management in Healthcare" course. The course made use of and disseminated the results of the studies included in this dissertation. The "Quality Management in Healthcare" course was also developed for the Master's program on healthcare management at the Ukrainian Catholic University (Lviv, Ukraine) as well as at the National University "Kyiv Mohyla Academy" (Kyiv, Ukraine).

Although some improvements have been made in healthcare financing reform, the health system still lacks a national policy and dialog on quality and a national quality strategy for healthcare. The development and promotion of a national policy on quality and a national quality strategy for healthcare should become one of the priorities of the healthcare sector. Moreover, there is a need to develop a national policy on quality and a national quality strategy for healthcare that incorporates quality aspects important to patients to make the health system more responsive to the needs and expectations of healthcare users.

Contribution to society

The societal impact of this dissertation lies in showing healthcare users the importance of the active role of a patient, also expressed in the form of participation in satisfaction surveys.

As argued in this dissertation, a long history of paternalistic doctor-patient relationships in Ukrainian healthcare did not leave space for patients' perceptions or satisfaction. In such a model, the patient is rather passive, whereas the medical doctor's authority and expertise are absolute. The ongoing reform of healthcare financing is changing many aspects of healthcare delivery in Ukraine. In particular, the doctor-patient relationship is changing from a paternalistic to a more egalitarian relation. Under such conditions, healthcare users also learn to express their satisfaction.

The results of satisfaction surveys used to tailor the services on a facility level and to show the importance of patients' issues to policy makers have the potential to influence the health system in general, making it more responsive.

At the same time, the online course "Quality Management in Healthcare" became popular among healthcare providers. Thus, introducing the quality management instruments learned during the course might improve quality in healthcare facilities, leading to patient satisfaction with the services received in these facilities.

Contribution to research

This dissertation is unique in exploring the perceptions of several groups of health system stakeholders in Ukraine. Specifically, we analyzed the responses of primary healthcare managers who are also medical doctors and nurse administrators, as well as primary care users. The scientific impact of this dissertation also lies in the contribution to the existing knowledge about quality perceptions and important quality attributes for healthcare managers and users in the country, changing the focus of its health system, as well as the possible impact of healthcare financial reforms on general satisfaction with healthcare quality.

This dissertation is based on the combination of qualitative and quantitative research methods following the systematic literature review. The scientific impact of this dissertation also lies in reporting on the application of the difference-in-differences method to repeated cross-sectional data analysis after matching. This technique has recently been developed, and applications to different contexts are important to demonstrate its usefulness.

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I met Tetiana when I was invited to give a guest lecture on quality management in National University "Kyiv-Mohyla" Academy by our mutual friend. He showed me the faculty room where behind piles of books and papers (literally) there was a young teacher working. Our friend introduced us and congratulated her with "another article published". Little have I known than about the power of those words but looking at Tetiana's face lit by a happy smile I could guess that they meant something really important (now I know they do!). I am grateful to Tetiana for her gift of reading people. I don't know how she guessed my long-suppressed desire to be a researcher (it was my dream once, berried under the reality of other obligations). Anyway, it was Tetiana who eventually introduced me to Wim and Milena, reminded me of the beauty of research and showed me the dignity of thesis defense in Masstricht.

Wim, I was really scared of you! Before our first meeting I have heard so much about you. I saw your profile on Google Scholar and the number of articles there, as well as other numbers (if you know what I mean) were impressive! I have heard your lectures during Winter and Summer Schools in Ukraine, and I was afraid to say something stupid before you and loose your good attitude forever. But this fear evaporated after first couple of meetings. It is so valuable to feel your support and your confidence in the result. I am also grateful for your sense of humor which made the fear itself look ridiculous and thus, gifting me confidence in myself, comfort and pleasure in work at the articles.

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CURRICULUM VITAE

Valentyna Anufriyeva was born on June 30, 1984 in Khartsyzsk (Ukraine). She has a specialist degree (equivalent to a Master's degree) in Teaching of the English, German languages and Foreign Literature (2001-2006) and in Jurisprudence (2006-2009).

Since 2006, she has been working in the field of healthcare management. First as a medical translator and then as a quality manager and quality management consultant. In 2014, she started teaching. She developed and delivered courses on "Quality Assurance in Healthcare", "Organizational Diagnostics", "Audits in Healthcare" and "Leadership in Healthcare" for the Master Program at the School of Public Health of National University Kyiv-Mohyla Academy, Ukraine (2014-2018). In 2016-2018, she also developed and delivered a course on "Quality management in healthcare" for Vinnitsa National Medical University, Ukraine (within the Bridging Innovations, Health and Societies Project co-funded by the Erasmus+ Programme of the European Union). In 2019, she was a trainer on quality management for the USAID project "Healthcare Reform Support". In 2020, she developed the online course "Quality Management in Healthcare" for the Ukrainian-Swiss Project "Medical Education Development". In 2022, she became a consultant for the Project "Technical Support for Strengthening the Practices of Primary Healthcare in Ukraine" (by NGO "Academy of Family Medicine" and WHO Office in Ukraine) and co-authored the conceptual note "Clinical Audit for Quality Improvement of Primary Healthcare Services".

In 2018, Valentyna Anufriyeva found herself in research. She became a PhD researcher at the Department of Health Services Research, Faculty of Health, Medicine and Life Sciences, Maastricht University (Netherlands). Her research focuses on healthcare quality, namely quality perceptions among patients and healthcare professionals. During her Ph.D. trajectory, she published several research papers on quality perceptions and satisfaction with primary healthcare in international journals.

In the same year, 2018, Valentyna Anufriyeva also found herself writing and publishing books for children. Parallel to research papers, she also published fairy tales and children detective stories.

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