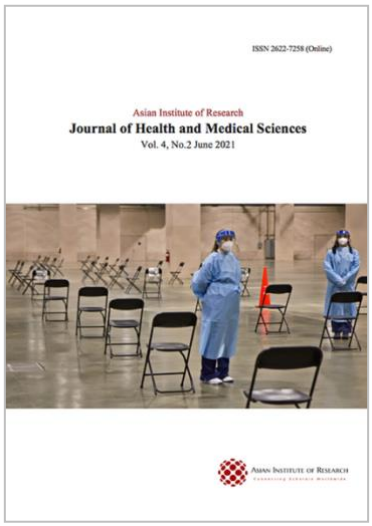

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Patients Characteristics as Determinants of Patient Satisfaction: Modelling Satisfaction in a Transitional Economy

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Abstract
Introduction: This paper examines the factors and approaches the question of patients' satisfaction in the health care delivery system in North Macedonia. Aim: The study aims to assess how key service quality dimensions relate to an important measure of performance patient satisfaction and to find the elements that are valued by patients and the reasons behind patient satisfaction or dissatisfaction. Materials and method: In this research study, the factor analysis was used to group 12 questions measuring patient satisfaction under certain extent with Promax oblique rotation using the satisfaction responses gauged by importance. We have performed a structural equation model (SEM) to determine the relationships between one or more independent variables (IVs). Results: All component measures were greater than .702 which shows strong internal reliability among components. The reliability levels for the three components were .842 for the hospital environment, .835 for admin and .702 for interaction with health care professionals. Cronbach's Alpha test of the whole instrument was .903. Conclusions: The explanatory factor analysis (EFA) analysis identified three distinct components or factors of patient satisfaction: (i) hospital environment, (ii) medical administration and (iii) interactions with professionals or staff behaviour. These three factors obtained after exploratory factor analysis have a significant impact on patient satisfaction. This path estimates for our model provide insights into relationships among various constructs.

Keywords: Patients' Satisfaction, Service Quality, Care Delivery System, North Macedonia

1. Introduction

Patient satisfaction is considered as a subset of the customer satisfaction concept (Chakraborty, 2011). With global competition, health care became one of the fastest-growing sectors in the provision of health care services (Andaleeb, 2001). During the times this sector has improved tremendously in each segment. As a result, the competition among hospitals in delivering the best services is high which persuades the patients to choose the best option. For these reasons patients' perceptions of using health care services are an important part of the assessment of the quality of delivered services or care.

The research on patients' perceptions, their expectations about health care services satisfaction has been prevalent in the last decade especially among healthcare providers and purchasers of healthcare because patients or the consumers are increasingly becoming better educated about healthcare (Messner et all., 2005). Their expectations about the health services provided change as well. Various instruments to gauge the service quality in health care institutions on each level have been applied based on the cross-cultural context. For instance, the methodological issue in regards to definition, reliability, validity, factors pertained to satisfaction have been extensively used in numerous studies (Yi, 1990). However, the concentration is devoted to healthcare quality, empirical research on assessing an overall model is limited (Zineldin, 2006) and there is a lack of studies that examine and test comprehensive models for capturing causality between various constructs in patients satisfaction (Badri et al., 2008). This shows that health care is a very complex system consisted of interacting elements which are in the process of constant interruptions (Runcinam et al. l, 2007).

In previous decades, healthcare services are one of the rare topics in the studies in developing countries like North Macedonia. While it has received extensive academic attention, the need for improvement in healthcare services has grown, which challenges the health care service provider (medical and health administration staff). In general, the research indicated that there are two forms of service providers that are working in developing countries in both the private and public sector hospitals. Selecting the right health care centre and skilled physician is imperative to fulfill the aim of patient satisfaction as it suggestively influences the treatment of the patient (Shabbir, 2016). The public sector hospitals work under government policies because the received funds from the State, while the private sector organizations are established as business organizations that could provide more effective care and services to their clients.

Still, the quality problems in health care are evident in Balkan countries (Macedonia, Serbia and Bulgaria), the government investments and loans by the World Bank to health care like in Macedonia counts more than 20 mil USD since 1992 (Lazarevik and Kasapinov, 2015). Besides, private health care has also been encouraged since 2005, leading to the establishment of several private hospitals and primary health care organizations in the country.

Unfortunately, the quality of public health care services in North Macedonia has been often severely criticized and the patient's opinion gets very little attention if any. The latest webmail survey on 3 countries (Macedonia, Bulgaria and Serbia) by Lazarevik and Kasapinov (2015), showed that top three indicators of patients' satisfaction are trust and overall satisfaction with the attention of the doctors, as well as satisfaction with the outcome of the treatment. Long waiting time and huge administrative procedures are determined as a common predictor for lower patients' satisfaction across these Balkan countries. Patients' privacy protection is an issue for concern in all three countries.

2. Theoretical underpinnings

The literature has identified five key theories about patient satisfaction in health care studies. These theories conceptualized in two models using either an expectancy-value model or a congruency model (Fox & Storms, 1981; Strasser, Aharony, &Greenberger, 1993; Copeland &Scholle, 2001).

First theoretical attempt toward patient satisfaction research was embarked by Linder-Pelz (1982). In the work by Linder-Pelz, it is argued that satisfaction is mediated by patients' beliefs, experiences and values and their expectations of the health care performance. For this model, a second important finding is that patient's social network, friends or a family member have an effect on expectations about satisfaction. However, her definition of patient satisfaction originated from Ajzen and Fishbein's (1991) Theory of reasoned action (TRA) and from job satisfaction research, where an attitude is general evaluation or feeling of something such an object being positively evaluated. In the same year, Linder-Pelz has tested the Fishbein and Ajzen's theory that attitudes are constructed by the interaction of beliefs (expectations) and values regarding patient (attitude) satisfaction (expectations). Linder-Pelz found no correlation between general satisfaction factor and expectations value ratings. Consequently, many researchers have supported the Lindes-Pelz model definition in satisfaction, whereas few scholars used it as a theoretical base for building next testing instruments, which were mostly,

focused on the measurement of values of patients, not their expectations/satisfaction. Next remarkable shift in the theoretical foundation was noticed in consumer research. They are linked with theories of quality assurance and control applied in good controls sector in the 1980s (Parasurman et al. 1985). The quality approach was applied in the health sector (e.g. Babakus and Mangod, 1992; Kerssens and van Yperen, 1996) and this approach considered the measurement of patient perspectives as a method of an ongoing quality improvement instead of paying any attention to the research object itself stated by Ovretveit (1992).

The research in patient satisfaction showed that the model elaborated by Fox and Storms (1981) about socio-demographic variables is with contradictory findings, proposed model to test the social identity theory. This model is described as a congruency, which is focused on the first instance on discrepancies that are occurred, which might help in explaining which practice arrangements best satisfy particular subgroups. Fox and Storms used two sets of variables like orientation towards care and conditions of care. The orientation of care means what people want and what people expect from the health care encounter as people have different perceptions and beliefs about diseases and how they respond to illness. Whereas, conditions of care include various factors of care (i.e., metaphysics, chiropractic, allopathic, etc.), the situation of care (cost, speed, location) and the end outcomes of care. For instance, if orientations and conditions are congruent, people are satisfied, if not, they are not satisfied. The exploratory study by Fox and Storms concluded that age and sex as variables are the strongest variables as predictors in health care satisfaction.

The next theory of the expectancy-value model of Ware et al. (1983) advocates that patient satisfaction levels are determined by patients' personal preferences and expectation as far as health care is concerned. Together with other scholars, Ware developed a paradigm for monitoring the results of medical care named a Medical Outcome Study consisted of 3 parts: 1. Structural characteristics of medical care, such as system, provider and patients characteristics; 2. Process of care, which are included variables related to technical and interpersonal forms; and outcome variables, such as clinical endpoints, functional status, well-being, and care satisfaction. MOS evaluations are concentrated on outcome measures of disease-specific clinical results usually measured by the clinicians, then, generic measures of functional status, well-being and satisfaction from patients' perspectives.

Manifold models theory of Fitzpatrick and Hopkins (1983) argued that patients' expectations in health care are influenced by their social environment, primarily, which later could have a personal reflection on their satisfaction about health care services. The view of satisfaction as an attitude has been evident and supported within health care more often occurs in younger age groups or among middle-class respondents. The empirical studies are run in neurological outpatient settings and still, their models provide only partial and not very clear insights about patient's satisfaction. However, this model enables more sensitive assessment of health care from the patient's perspective.

To understand patient satisfaction many scholars used Donabedian (1980) theory, model. This theory is characterized by its multiple models comprised by structure, process and outcomes (SPO). In this trilogy, the interpersonal aspect of care has a key role in the expression of satisfaction or dissatisfaction by the patients. A patient to be satisfied in every sense within health care delivery he/she should have a positive judgment about the quality of care delivered especially as it is related to an interpersonal part of health care. Accepting the Donabedian quality assurance model Donabedian(1980,1988) still important segments of care in any health care context can be classified if they are linked with the structure (facilities, personnel), process (technical process, interpersonal process) or outcome process (somatic, psychosocial, and financial) of care. Apart from all these dimensions the overall measure of satisfaction is usually exploited from patient and consumer research studies mostly using Likert Scale questions. The relationships between structure, process and outcome are linear. Later, Donabedian(2005) explains that the structure influences the process of care so that its quality is diminished or enhanced, and both, in turn, influence the effectiveness of care on patient health status and functioning.

Structure describes the environment in which care is delivered, including hospital buildings, staff, financing, equipment, and human resources, as well as organizational characteristics such as staff training and payment methods. These factors control how service providers and clients in healthcare service delivery act and measures

of the average quality of care within a facility or system. The structure of an institution is often easy to observe and measure and it may be the upstream cause of problems identified in the process.

Process refers to the transactions between clients and service providers throughout the delivery of healthcare. These transactions most often include diagnosis, treatment, preventive care and patient education but may be expanded to include actions taken by the clients or their families. According to Donabedian, the measuring process is nearly equivalent to the measurement of quality of care because the process contains all acts of service delivery. Information about the process can be obtained from medical records, interview with clients and service providers, or direct observations of healthcare visits.

Outcome refers to the effects of healthcare on the health status of clients and population. These include the changes to health status, behaviour of both service providers and clients, or knowledge as well as client satisfaction health-related quality of life. Most times outcomes are seen as the most important indicators of quality because improving clients' health status is the primary goal of healthcare. However, having to accurately measure outcomes that can be attributed exclusively to healthcare is difficult. Drawing connections between process and outcomes often require large sample populations, adjustment by case mix, and long-term follow-ups as outcomes may take considerable time to become observable.

Lastly, in the last decade, the Primary Provider Theory was elaborated by Aragon et al. (2006), which states similarly that patient satisfaction interacts between the primary provider and patient expectations, and further this primary provider directly influences on the patient satisfaction outcome. Additionally, Aragon claims that it is operationalized by patients' measures, where only patients can judge the quality of service and all other judgments are immaterial. According to the theory, it reflects the provider's desire to communicate with and inform the patient about the whole process, in favour of encouraging their participation in the decision-making process.

To gain a deeper understanding of the patient's satisfaction in North Macedonia, we conducted a cross-sectional survey in nature and map perceptions of Macedonian healthcare customers regarding the quality of experience offered by private and state healthcare institutions in whole country. The main interest was to understand the overall patient satisfaction in health care services and is considered as an outcome from the received service as an indicator of quality. To address research objectives, the research model outlines 5 quality dimensions: tangibility, responsiveness, empathy, assurance and reliability and investigates how each of those characteristics affects patient satisfaction.

The study involved not only seeing whether these factors measure satisfaction from medical services but also showing the importance of non-medical services in shaping satisfaction, through utilising Donabedian Model. This model proposes additional variables and offers a deeper understanding of patients experiences with health care professionals which has a strong impact on patient satisfaction. As the study by Badri et al., (2009) suggests that exploratory factor analysis implies correlated dimensions, while previous research reveals several interrelationships between healthcare quality and patient satisfaction.

2.1. Conceptual research model

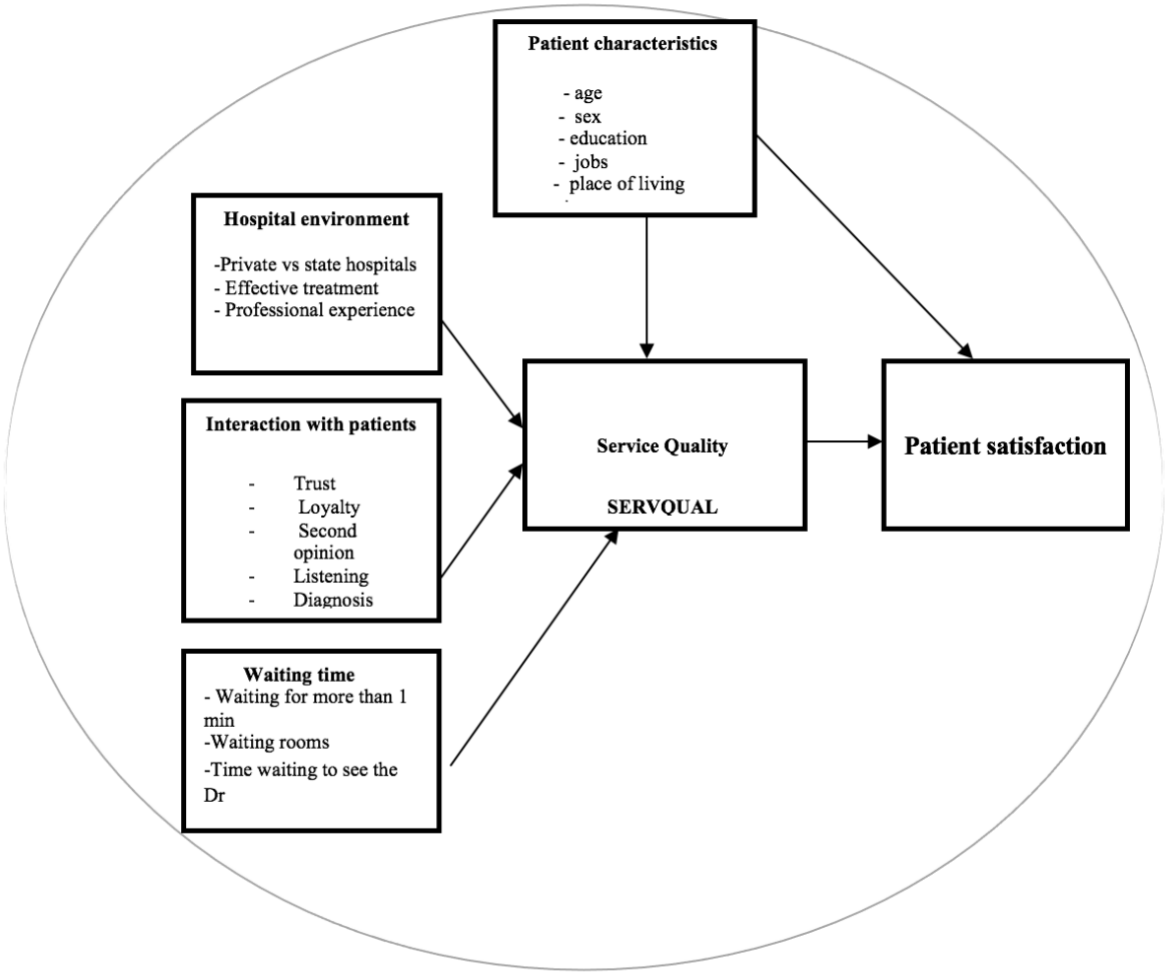

Figure 1: Research model

3. Literature review

3.1. Patient characteristics (Socio-demographic factors)

Patient characteristics that have been consistently identified as important influences on patient satisfaction and more often studied including age, education, gender, jobs, place of living, insurance, and prior experiences with the healthcare system. There is a plethora of studies indicating that have utilized the patients characteristics as control variables which are associated with patient satisfaction (Mummalaneni and Gopalakrishna, 1996; Gordo,2006; Chisick, 1997; Lewis, 1994; Tucker, 2002) and very difficult to understand and interpret later (Hall et al. l, 1990). Gordo (2006) examined data from the German Socio-Economic Panel, which revealed in his study that there is a strong association between long-term unemployment and patient satisfaction, while a weak association is documented for the short-term unemployment and patient satisfaction depending on the gender. It is worth noting that handful studies have related the variables like age, education, utilization and health with patients satisfaction (Mummalaneni and Gopalakrishna, 1996; Gordo,2006; Chisick, 1997; Lewis, 1994; Hall and Press 1996; Butler et al., 1996). Butler et al. (1996) revealed that gender and age significantly are related to patients' quality perceptions, but only to health care facilities. Females valued this dimension more than males. Whereas, the perceived facility-related quality was found to be better for older than younger respondents (Butler et al., 1996). Earlier studies showed satisfaction differences between health service users and observers (Strasser et al., 1995). However, Tucker (2002) states that unclear, contradictory relationships exist between satisfaction and gender, race, marital status and social class.

3.2. Service quality variables

3.3. Health care treatment

Treatment in health care is a construct of patient satisfaction consisted of problems in health care treatment, where are mostly used health care services – private or state health care centres, what are major problems, effective treatment and professional experience.

Hospital environment includes private and state hospitals access to services. This part of the construct is relevant and it is linked that patients report satisfaction in private hospitals, reasons for choosing private rather than a state health care hospitals.

The health care premises in which services are delivered have been found to influence customer patients' satisfaction (Bitner, 1990, 1992; Parasuraman et al., 1985, 1988). Swan et al.'s (2003) study showed that room appearance affects patient perceptions and satisfaction. This study compared patients' evaluations of hospital rooms that ranged the quality. The study results showed that healthcare dimensions affected by room appearance are: physician skill and expertise, physician and nurse courtesy (answering questions, listening to concerns) food (overall satisfaction, receiving what was ordered, temperature); general hospital evaluations, intentions to use the hospital again and recommending the hospital to others. Silvestro (2005) examined patient perceptions in one NHS breast cancer screening unit and found that screened and diagnosed patient perceptions differed. Screened patients' ratings were slightly lower than diagnosed patients' evaluations, which reflected the diagnosed patients' increased sensitivity to service levels.

3.4. Interaction with patients-communication with professionals

Because patient satisfaction is affected by many factors within the context of the whole environment, we included interaction with patients as an integral part of the conceptual model. It includes trust, loyalty, empathy, second opinion, listening, and explanation about the diagnosis.

Patient loyalty is relevant in the health care industry too. Asnawi (cited 2019 Engiz 2007, p. 914) in the study has described the patient loyalty as "the situation that the patient continues the relationship with the hospital and recommends the services of the hospital to the potential patients." Patient's loyalty is both an attitude and a 'shopping behaviour' (Dick and Basu, 1994). The study by Naidu (2008) found nurse empathy, assurance and tangibles affected loyalty positively. Security's impact on loyalty was, however, found to be negative. Other studies show that good health care professional-patient communication reinforces confidence (Chen et al., 2008; Mehra, 2016), aids information recall, fosters compliance and provides satisfying outcomes. Robin DiMatteo, et al. revealed that patients expect good relationships and polite communication from the health care staff. It also affects the patients' decision making to remain committed to their physicians. In general, the greater the friendliness, good communication and empathy excelled by the health care professionals, results in positive correlation with the patient. The literature showed that studies regarding the physician's behaviour, communication skills are limited and lacking.

3.5. Waiting time

In general, waiting time is defined as time spent by the patient to consult a doctor for a specific problem but it can also include patients under observation, followed by those patients who waited for routine diagnostic tests and lastly, those who waited for discharge (Tiwari et al., 2014). Studies from the developed countries v.s. developing countries showed that waiting time is correlated with patient satisfaction. Managing waiting time is important for costs and retaining clientele (Bleustein, et al., 2014). In this study, was examined the relationships between reported wait times and various measures of satisfaction across the ambulatory centres in the USA. On average, respondents in this study waited about 23 minutes in the waiting room and 15 minutes in the exam room. In various health care centres in the USA patients reported high dissatisfaction about extended waiting time to see a doctor that compliance was poor with low rates (Cuevas and Joseph, 2012). A British study conducted in 1992 concluded that patient satisfaction is directly associated with clinic waiting times (Maitra and Chikhani, 1992) and that long wait times are perceived as a health care barrier argued by Kurata et al., (1992).

With particular interest is an Indian study on waiting time, communication skills and satisfaction in a public hospital, Kolkata, reports that the median waiting time was about 30 minutes (patient expectation was about 13 minutes) and that only 57% were seen within 15 minutes of their arrival in the waiting room.

3.6. Service quality and satisfaction

Preceding studies show a positive correlation between service quality and customer satisfaction (Loveman, 1998; Heskett et al., 1997, pp. 236-257). In the healthcare industry, the latest research on patient satisfaction shows that has a strong link between service quality and satisfaction.

Delivering good service quality can be used as a relevant strategy for achievement in business and sustain in the competitive environment. (Lim and Tang, 2000; Masood et al., 2009; Andronikidis et al., 2009). In the literature review by Kitapci et al., (2014) shows several examples that empathy and assurance dimensions, which mainly represent word-of-mouth communication (WOM), social environment links had a strong influence on patient's perceptions to come back to the hospital which is related to the cognitive construct (e.g., Choi et al., 2004; Oliver, 1997; Brady and Robertson, 2001). In the research by (Gronroos, 2000) service quality described two main features): (1) a technical dimension or core service); and (2) a process/functional dimension or how the service is provided.

The most exploited SERVQUAL instrument in the Western countries health care industry indicates that while all three dimensions are somewhat influential on patient satisfaction, however, in public hospitals tangibles dimension seems to have no significant influence on satisfaction (Yeşilada, F. and Direktör E., 2010).

Patient satisfaction scale is measured through 16 items measuring satisfaction on a 5-point scale ranging from "poor" to "excellent. Sample times include the time waiting, possibility to make an appointment with the doctor, administrative procedures, hygiene in the hospitals, experience with the health care professionals, communication, diagnosis reporting, modern medical equipment.

4. Methods

The study is a cross-sectional which mapping perceptions of Macedonian healthcare customers regarding the health care quality experience offered by private and state healthcare settings in spring semester of 2019. The study was carried out using convenient sampling targeting all participants in the country from 18 – 75 ages which are using medical and non medical services from public medical services in the country using secondary data sets with SERVQUAL scale model. This method of sampling enabled us to describe the views of participants from different demographic structure. The patients from different age, gender or education have different experiences regarding patients satisfaction.

Keeping abreast with previously conducted studies in healthcare settings, a sample size of 453 respondents was analyzed. Thus, this sample is considered as a good theoretical part because participants come from different backgrounds and comprise various age groups, different experience and different working cultural Mohamed 2015 (cited in Leong et al., 2013).

In this research study, the factor analysis was used to group 12 questions measuring patient satisfaction under certain extent with Promax oblique rotation using the satisfaction responses gauged by importance. Data cleaning was employed with the entire data set. Cases with missing values have been removed i.e., list-wise deletion was employed in the analysis, whereas with the continuous variables the compute method was applied to replace it with median value. The reliability of the questionnaire was evaluated using Cronbach's Alpha coefficient. Then, a structural equation measurement model was built to confirm the validity of the satisfaction instrument. In the analysis framework, we have performed a structural equation model (SEM) to determine the relationships between one or more independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), or in our study more precisely to see the influence of patient characteristics to patient satisfaction. The SEM model uses two kinds of models: a measurement model and a structural model. A measurement model is one that specifies some number of latent, unmeasured variables or factors, each with a

specified number of measured indicators or variables. A structural model includes a set of hypothesized relationships among the constructs or variables (Ogbeibu, Senadjki, & Gaskin, 2018).

The assessment of the model fitted well and several indices were applied (GFI, NLI, TLI and CFI). In general, GFI, NLI and TLI with a value close or to above 0.90 indicates a good model fit. The Comparative Fit Index (CFI) was used to measure the overall fit with an expected value of 1.0 when the estimated model is true and values of 0.95 or higher indicate close to fit (Hu and Bentler, 1999). We also used the Root Mean Squared Error of Approximation (RMSEA) is a measure of the average explained variances and covariances in the model. The accepted value of RMSEA is 0.05.

We present the measurement model in Figure. 2 and the structural model is demonstrated in Figure. 3. The oval circles correspond to unobserved, latent variables, and the squares represent the observed variables. Other latent variables are the residual factors (measurement errors of observed variables) from e_1 to e _12 for patient satisfaction. The variables labelled as patient characteristics (age, gender/sex, educations, jobs, nationality and insurance) are exogenous variables showed later in the structural model. All analyses were conducted by using the SPSS.26 for Windows computer package and Amos 26.

5. Results

Amongst the respondents, 19 percent were males and 78 percent were females. About 13 per cent were aged between 18-25 years; 31 percent aged between 26 to 35 years; 32 percent aged between 36 to 45 years, and 14 ppercentaged between 46 to 55 years. The sample comprised a good mixture of different generational cohorts and can be assumed as a representative sample of the population. The complete demographic profile of the participants is given in Table 1.

Table 1: Demographic profile of participants (n=453)

Gender	N0	%
Female	360	78.8
Male	91	19.9
Age		
18-25 years old	60	13.1
26-35 years old	146	31.9
36-45 years old	152	33.2
46-55 years old	66	14.4
56-years and above	25	5.9
Education		
High education/Faculty	278	60.8
Master degree	79	17.2
Secondary education	91	19.9
Other	1	0.2
Occupation		
Employed in private sector	215	47
Employed in state sector	114	24.9
Employed in private and state sector as a second job	8	1.7
Not employed	91	19.9
Other	8	1.7

Explanatory Factor analysis (EFA) reduced the data file from 12 satisfaction variables to three components using Maximum Likelihood extraction. The Kaiser Meyer Olkin (KMO) sampling adequacy measure was 0.902 and Bartlett's measure was significant ($p<0.001$). These indices inferred that the matrix was well fitted for the factor analysis. The factor loads showed in Table 2, explained 66.2 percent of total variance after using Promax

rotation and produced three main factors. Assessment loaded items on each component showed a high degree of individual item reliability, as all items have loadings of greater than 0.50 on each component. Table 2 is demonstrated that the three main components of the EFA including, hospital environment, admin and interaction with health care professionals.

The reliability measure for each component was tested with Cronbach's Alpha (α). All component measures were greater than .702 as it is indicated in Table 2, which shows strong internal reliability among components. The reliability levels for the three components were .842 for the hospital environment, .835 for admin and .702 for interaction with health care professionals. Cronbach's Alpha test of the whole instrument was .903.

Table 3 shows the correlations between patient and patients' characteristics. As shown in Table 3, not many of the demographic (patients' characteristics) variables were highly correlated except the age (0.03).

Table 2: EFA (Factor Analysis)

Factors	**1**	**2**	**3**
Cronbach's Alpha (α)	**.842**	**.835**	**.702**
Quality of Rooms	1.020		
Parking	.801		
Waiting Rooms	.768		
Lab	.387		
Time of Scheduled Appointment		.891	
Admin		.744	
Time to see the Dr		.664	
Check up		.654	
Diagnosis			.846
Experienced profess.			.680
Available specialists			.528

Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

5.1. Measurement model

The measurement model manifests only the measured variables reviewing the latent construct or endogenous variables and errors of measurement. It shows how well the observed variables jointly correlate for measuring the latent variables.

The statistic values of the measurement model show that the model is with a good fit (Chi-square(df) = 51; p=0.000. The measure fit indices indicate a fairly good fit of this model data (NFI=.936; CFI=.956; TLI=.943; RMSEA = .070), based on the recommended standards values to assess the overall fit of the model.

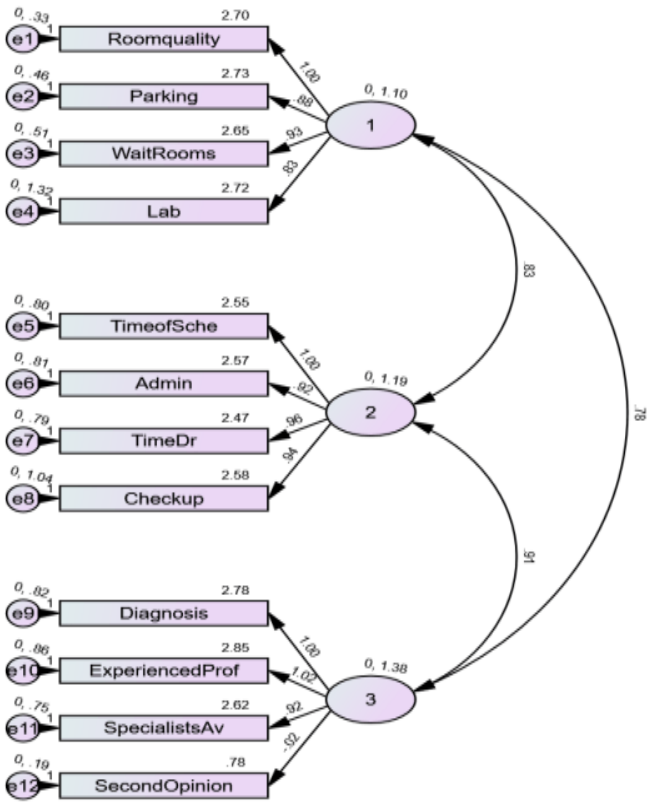

Figure 2: Initial measurement model

5.2. Correlations between patients' characteristics and patient satisfaction

Table 3: Results of Correlation Model

	Gender	Age	Education	Jobs	Satisfaction
Gender		.975	.003	.873	.369
Age	.975		.803	.000	**.003**
Education	.003	.803		.810	.092
Jobs	.873	.000	.810		.178
Satisfaction	.369	.003	.092	.178	

**. Correlation is significant at the 0.01 level.

The initial model with patients characteristics as exogenous variables is presented in Figure 4. We have tested this structural model by adding five more constructs. The model and results are shown below which can indicate that education is one of the significant constructs in the path model with the second factor. The coefficient of determination for the initial model is 0.13. In other words, the initial model explained about 13 percent total variance in patient satisfaction. However, the goodness-of-fit values for the initial structural model are very close to fit (Chi-square = 190.530, Degrees of freedom = 106, Probability level = .000; with the recommended values of indices for NFI =.092, TLI=.949, CFI=.965, RMSEA =0.44. Within those values of indices, the RMSEA is a higher than accepted value of 0.05.

Because the previous structural model indices indicate certain variations we have built-in a third structural model where we have removed part of the variables from the patient characteristics as it demonstrated no significant effect. We have retained only the education variable in the revised model. The model and the result values are showed in Figure 4. The model fit statistics show the degree to which the third
model improved as compared

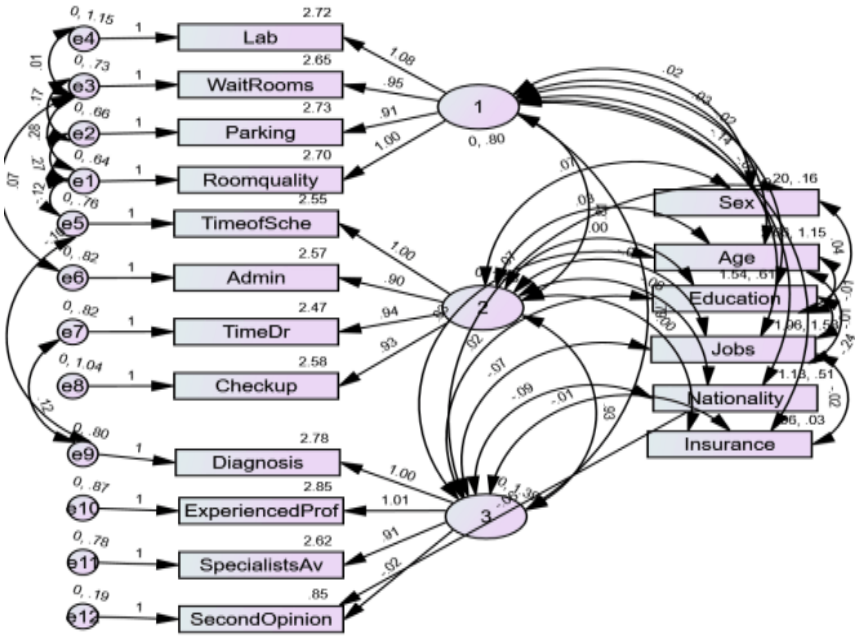

Figure 3. Structural model

to the initial model. The Chi-square dropped to 117.353(df=52), NFI=.952, TLI-958 and CFI=.972 which shows a good model of fit and RMSEA value has improved to .055. This model shows an acceptable fit where only education exogenous variable explained patient satisfaction at a certain extent however, not at high effect.

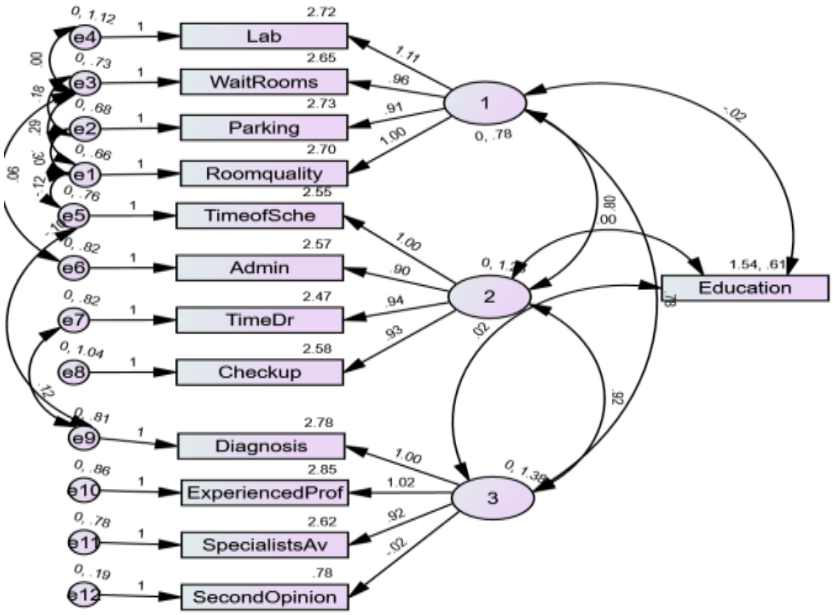

Figure 4: Revised structural model

6. Discussion

The first part of this research study described the 16- item scale that can be used to measure patient satisfaction for both outpatients and in-patients in North Macedonia. The (EFA) analysis identified three distinct components or factors of patient satisfaction: (i) hospital environment, (ii) medical administration and (iii) interactions with professionals or staff behaviour. These components provide information on the 'structure' and

'process' of care explained by Donabedian(2005) which reflects well with the conceptual model of this research study. These three factors obtained after exploratory factor analysis have a significant impact on patient satisfaction. This path estimates for our model provide insights into relationships among various constructs. We have assessed the reliability and validity of the satisfaction scale in various ways, and the scale was found to have good reliability and validity across different patient characteristics and hospital environment. These findings go along with the findings of Braunsberger and Gates (2002) and comply with our expectations the results with other research studies. The regression results and the structural models provide further insights and guidance about which aspects of patient satisfaction could have a great impact on overall patient satisfaction. Our finding showed that education of patients plays important role in assessing patient satisfaction. However, other exogenous variables such as age, gender and jobs, insurance demonstrated to be statistically insignificant. Similar findings are found in the studies in Turkey (Sahin et. all., 2007) compared with numerous other studies that patients characteristics influence patient satisfaction in general. Conversely, Tucker (2002) states that are unclear, contradictory relationships exist between satisfaction and gender, race, marital status and social class.

This study is a first of its kind in North Macedonia which could fill the gap in the research public health literature. The study has several limitations. The data collection was carried out through an online distributed survey which manifests perceptions on patients' satisfaction during their life course or some patients might respond to their last visit experience. The time of data collection was limited.

7. Implication for practice of the research study

We have presented a model that measures healthcare quality and patient satisfaction in different health care settings in North Macedonia which encompasses patients demographic characteristics and service quality variables. The research study's theoretical implication shows an association with education and age in relation to patient satisfaction. The results indicated that patient satisfaction have indirect effect on service quality and using non-medical services in an overall level. Thus, these results can be used by health care establishments in designing and improving their health strategies. Our findings suggest a model for health care providers to which will guide in quality improvement aspects. It is very important to take into consideration patients perceptions in evaluating service quality dimensions in public health care environments in North Macedonia.

References

A. Naidu. (2008), ''Factors affecting patient satisfaction and healthcare quality'', International Journal of Health Care Quality Assurance. Vol. 22 No. 4, 2009 pp. 366-381.

Ajzen, I. (1991), ''The theory of planned behavior''. Organizational Behavior and Human Decision Processes, 50, 179–211.

Andaleeb, S. (2001), ''Service quality perceptions and patient satisfaction: a study of hospitals in a developing country.''Social Science and Medicine. Vol. 52, pp. 1359-70.

Andronikidis, A., Georgiou, A. C., Gotzamani, K., & Kamvysi, K. (2009), ''The application of quality function deployment in service quality management'' . The TQM Journal, 21(4), 319–333.

Aragon, Stephen J.; Flack, Sylvia A.; Holland, Cecil A.; Ingram, Racquel R.; and Clements, Michael L. (2007), ''The Influence of Patient-Centeredness on Minority and Socioeconomically-Disadvantaged Patients Trust in their Physicians: An Evidence-Based Structural Equation Modeling Investigation'', *Journal of Health Disparities Research and Practice*, Vol. 1 : Iss. 1 , Article 5.

Asnawi, A., Awang, Z., Afthanorhan, A., Mohamad, M & Karim, F.. (2019), ''The influence of hospital image and ervice quality on patients' satisfaction and loyalty .Management'' Science Letters, 9(6), 911-920. https://doi.org /10.5267/j.msl.2019.2.011

Babakus, E., & Mangold, W. G. (1992), ''Adapting the SERVQUAL scale to hospital services: an empirical investigation''. Health services research, 26(6), pp. 767–786.

Badri MA, Attia S, Ustadi AM. (2009), ''Healthcare quality and moderators of patient satisfaction: testing for causality'', Int J Health Care Qual Assur, ;22(4):382-410. doi: https:/doi.org/10.1108/09526860910964843

Badri, M., Attia, S. and Ustadi, A. (2008), ''Testing the not so obvious models in healthcare quality", International Journal for Quality in Healthcare, Vol. 21 No. 2, pp. 159-74.

Bitner M. and Hubbert. (1994), Encounter satisfaction versus overall satisfaction versus quality. CA: SAGE.

Bleustein, C., Rothschild, D., Valen, A., Valaitis, E., Schweitzer, L. and Jones R.. (2014), ''Wait times, patient satisfaction scores, and the perception of care'', American Journal of Managed Care, Vol.20 No. 5, pp.

393-400.
Braunsberger, K. & Gates, R.H. (2002), ''Patient/enrollee satisfaction with healthcare and health plan''. Journal of Consumer Marketing, 19, 575– 590. doi: https://doi.org/10.1108/07363760210451401
Chakraborty R, Majumdar A. (2011), '' Measuring consumer satisfaction in the healthcare sector: the applicability of SERVQUAL''. Res World, 4(3):149–60.
Chen, Z.X., Shi, Y. and Dong, D. (2008), ''An empirical study of relationship quality in a service setting: a Chinese case,'' Marketing Intelligence & Planning, Vol.26 No.1, pp.11-25.
Cheng Lim, P. and Tang, N.K.H. (2000). ''A study of patients' expectations and satisfaction in Singapore hospitals", International Journal of Health Care Quality Assurance, Vol. 13 No. 7, pp. 290-299. https://doi.org/10.1108/09526860010378735
Cohen, D. Methods in cultural psychology. In Kitayama, S., Cohen, D. (Eds.), (2007), Handbook of cultural psychology, New York, Guilford. pp. 196–236.
Cuevas, E. and Joseph, A. (2012). Improving Process Turnaround Time in an Outpatient Clinic, available at: http://www.isixsigma.com/industries/healthcare/improving-processturnaround-time-outpatient-clinic/ (accessed 25.12.2020)
Dick, A.S., Basu, K. (1994), ''Customer loyalty: Toward an integrated conceptual framework''. JAMS, 22, 99–113, doi.org/10.1177/0092070394222001.
Donabedian, A. (2005), ''Evaluating the Quality of Medical Care'. The Milbank Quarterly, 83: 691-729. doi: https://doi.org/10.1111/j.1468-0009.2005.00397.x
Donabedian, A. (1980), ''The definition of quality and approaches to its assessment''. Explorations in Quality Assessment and Monitoring, Vol. 1, Health Administration Press, Ann Arbor, MI.
Faezipoura M. and Ferreiraa S. (2013), ''A system dynamics perspective of patient satisfaction in healthcare''. Procedia Computer Science 16 148 – 156. doi: https:// doi.org /10.1016/j.procs.2013.01.016
Fitzpatrick, R. and Hopkins, A. (1983), ''Problems in the conceptual framework of patient satisfaction research: an empirical exploration'', Sociology of Health & Illness, Vol. 5 No. 3, pp. 297-311.
Fox, J.G. and Storms, D.M. (1981), ''A different approach to sociodemographic predictors of satisfaction with health care'', Social Science & Medicine.Part A: Medical Sociology, Vol. 15 No. 5, pp. 557-64.
Gordo LR. (2006), 'Effects of short- and long-term unemployment on health satisfaction: evidence from German data''. Appl Econ, 38(20):2335–50.
Gronroos, C. (2000), ''Service Management and Marketing – A Customer Relationship Management Approach''. John Wiley and Sons, Chichester.
Hall M. (1995), ''Patient satisfaction or acquiescence? Comparing mail and telephone survey results''. J Health Care Marketing, 15:54–61.
Heskett JL, Sasser WE Jr, Schlesinger LA. (1997), The Service Profit Chain. New York: The Free Press.
Hu, L. and Bentler, P. (1997), ''Cut-off criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives'', Structural Equation Modelling, Vol. 6, pp. 1-55.
Kerssens, J. J., & van Yperen, E. M. (*1996), ''*Patient's evaluation of dietetic care: Testing a cognitive-attitude approach'', *Patient Education and Counseling. 27*(3), 217–226. https://doi.org/10.1016/0738-3991(95)00815-2
Kitapci O., Dortyol T.I., Yaman Z., Gulmez M. (2013), ''The paths from service quality dimensions to customer loyalty'', Management Research Review.; 36(3), 239-255. doi:10.1108/01409171311306391
Kurata, J.H., Nogawa A., Phillips D.M., Hoffman S., and Werblum M.N. (1992), ''Patient and provider satisfaction with medical care'', Journal of Family Practice, 35 (2); 176 – 179.
Lazarevik V. and Kasapinov B. (2015), ''Medical Doctors' Attitudes towards Pay-For-Reporting in Macedonia: A Web-Based CrossSectional Survey'', Maced J Med Sci, 5(4):437-443.
Lewis, K.E. , & Woodside, R.E. (1992), ''Patient satisfaction with care in the emergency department'', Journal of Advanced Nursing, 17(8), 959–964.
Linder-Pelz, S. (1982), ''Toward a theory of patient satisfaction'', Social Science & Medicine, Vol. 16 No. 5, pp. 577-82.
Loveman, G.W. (1998), ''Employee satisfaction, customer loyalty and financial performance: an empirical examination of the service profit chain in retail banking'', Journal of Service Research, Vol. 1 No. 1, pp. 18-31.
Maitra A, Chikhani C. (1992), ''Patient satisfaction in an urban accident and emergency department''. The British Journal of Clinical Practice, 46(3):182-184.
Masood A. Badri Samaa Attia Abdulla M. Ustadi (2009), ''Healthcare quality and moderators of patient satisfaction: testing for causality", International Journal of Health Care Quality Assurance, Vol. 22 Iss 4 pp. 382 – 410.
Messner, E. R.,(2005), '' Quality of care and patient satisfaction the improvement efforts of one emergency department '', Top Emerg. Med., ;27(2):132–141.

Mohamed B, Azizan NA. (2015), Perceived service quality's effect on patient satisfaction and behavioural compliance. Int J Health Care Qual Assur, ;28(3):300-14. doi: 10.1108/IJHCQA-06-2014-0074. PMID: 25860926.

Mummalaneni V, Gopalakrishna P. (1995), ‘’Mediators vs. Moderators of patient satisfaction’’, J Health Care Mark, 15(4):16–22.

Ogbeibu, S., Senadjki, A., & Gaskin, J. (2018), ‘’The moderating effect of benevolence on the impact of organisational culture on employee creativity’’, Journal of Business Research, 90, 334–346. https://doi.org/10.1016/j.jbusres.2018.05.032

Øvretveit J., Gustafson D. (2003), ‘’ Using research to inform quality programmes’’ BMJ, 326 :759. https://doi.org/10.1136/bmj.326.7392.759

Parasuraman, A. Zeithaml, VA. and Berry, LL. (1991), ‘’Refinement and reassessment of the SERVQUAL scale’’, Journal of Retailing, Vol.67, Iss:4, pp. 420-50.

Pascoe, G.C. (1983), ‘’ Patient satisfaction in primary health care: a literature review and analysis’’, Evaluation and Program Planning, Vol. 6 Nos 3-4, pp. 185-210.

Payal M. (2016), ‘’ Outpatient clinic waiting time, provider communication styles and satisfaction with healthcare in India’’, International Journal of Health Care Quality Assurance, Vol. 29 Iss 7. doi.org/10.1108/IJHCQA-02-2016-0017

Robin DiMatteo, M.; Prince, L.M. Taranta, A.(1979), ‘’Patients’ perceptions of physicians’ behaviour’’, J. Community Health, 4, 280–290.

Runciman W, Hibbert P, Thomson R, Van Der Schaaf T, Sherman H, Lewalle P. (2009), ‘’Towards an International Classification for Patient Safety: key concepts and term’’, Int J Qual Health Care, 21:18-26. doi.org/10.1093/intqhc/mzn057

Sahin, B., Yilmaz, F. & Lee, K. (2007), ‘’Factors Affecting Inpatient Satisfaction: Structural Equation Modeling’’, J Med Syst., 31, 9–16. https://doi.org/10.1007/s10916-006-9038-8

Shabbir, A.; Malik, S.A.; Malik, S.A. (2016), ‘’Measuring patients’ healthcare service quality perceptions, satisfaction, and loyalty in public and private sector hospitals in Pakistan’’, Int. J. Qual. Reliab. Manag, 33, 538–557. https://doi.org/10.1108/IJQRM-06-2014-0074

Strasser, S., Aharony, L. and Greenberger, D. (1993), ‘’The patient satisfaction process: moving toward a comprehensive model’’, Medical Care Review,bVol. 50 No. 2, pp. 219-45.

Swan, J.E., Richardson, L.D. and Hutton, J.D. (2003), ‘’Do appealing hospital rooms increase patient evaluations of physicians, nurses, and hospital services?’’, Health Care Management Review. 2003, 28 No. 3, pp. 254-64.

Tiwari, Y, Goel, S and Singh, A. (2014), ‘’Arrival time pattern and waiting for time distribution of patients in the emergency outpatient department of a tertiary level health care institution of north India', Emergency Trauma Shock. 2014, Vol. 7 No. 3, pp.160–165. https:// doi.org /10.4103/0974-2700.136855

Tucker, J.L. (2002), ‘’The moderators of patient satisfaction’’, Journal of Management in Medicine, 16, pp. 48–66.

Ware, J.E. Jr and Snyder, M.K. (1975), ‘’Dimensions of patient attitudes regarding doctors and medical care services’’, Medical Care, Vol. 13 No. 8, pp. 669-82.

Yeşilada, F. and Direktör E. (2010), ‘’Health care service quality: A comparison of public and private hospitals’’, African Journal of Business Management, Vol. 4, Iss:6, pp. 962-971.

Yi, Y. (1990), “A Critical Review of Consumer Satisfaction,” in Review of Marketing, Zeithaml, Valarie A. , ed. Chicago: American Marketing Association, 68–123.

Zineldin, M. (2006), ‘’The quality of health care and patient satisfaction: an exploratory investigation of the 5Q model at some Egyptian and Jordanian medical clinics’’, International Journal of Health Care Quality Assurance, 2006; Vol. 19 No. 1, pp. 60-92.