



ASSESSMENT OF THE QUALITY OF PUBLIC HOSPITAL HEALTHCARE SERVICES BY USING SERVQUAL

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SUMMARY – Hospital healthcare service quality measurement represents an important approach for advancing healthcare systems. This paper presents preliminary results of a research on the quality of healthcare services provided by a large, public, university hospital centre in Croatia, based on the Gaps Model of Service Quality and the SERVQUAL instrument. The importance of particular service quality dimensions was analyzed, as well as the gaps between patient perceptions and expectations of healthcare services provided by 18 departments of the university hospital centre. Results revealed the gaps that exist at the level of the university hospital centre as a whole, showing the size variations in different service quality dimensions. The management of the university hospital centre should improve healthcare service quality in all dimensions by paying particular attention to the ‘responsiveness’ and ‘tangibility’, where the largest gap was identified.

Key words: *Service quality, Healthcare, Hospital, SERVQUAL, Transitional country, Developing country, Croatia, Sestre milosrdnice University Hospital Centre*

Introduction

The existing evidence shows that assessment of the healthcare service quality in transitional and developing countries has been traditionally and for a long time based on professional standards¹⁻³. However, over the past two decades, and especially due to the high growth rate of the healthcare industry in these countries in recent years⁴, patient perception of the healthcare services provided has emerged as an important quality indicator and as such represents a valuable approach for measuring and improving healthcare organization performance.

Hospitals are at the top of healthcare systems, their share in healthcare budgets is significant (e.g., in European countries accounting for 50%-70% of the bud-

get), and most often they represent the central part of the healthcare reform processes. Furthermore, hospitals are professionally managed; pharmaceutical and technological advances in their practices, as well as commitment to evidence-based practices, point to a conclusion that services provided by hospitals can significantly affect the health of the population⁵. Therefore, service quality measurement and implementation of safety⁶ principles in hospitals (and other healthcare institutions) represent an essential way for improvement of the overall healthcare systems in the countries that are going through major economic and managerial transformations, such as the Republic of Croatia. Stimulating improvement of the healthcare service quality is one of the strategic goals of the National Strategy for Health Care 2012-2020 in the Republic of Croatia⁷.

Sestre milosrdnice University Hospital Centre in Zagreb (below, SM UHC) is one of the oldest and largest healthcare institutions in the Republic of Croatia, which besides healthcare performs activities of

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medical education and scientific research. SM UHC admits over sixty thousand inpatients and carries out about one million different healthcare services annually. It maintains its reputation and significance for over one hundred and seventy years, nurturing good tradition of the Croatian medicine with patient in the center of all activities and events, but also following the trends of modern medicine and requirements of the social environment. The SM UHC mission is to provide top quality healthcare services to patients along with development of all healthcare activities. The development strategy highlights the quality of healthcare services and its improvement as the foundation of the SM UHC management aimed at meeting the needs of all stakeholders, i.e. patients, staff, citizens, and society as a whole. More specifically, improvement and further development of the quality standards in the SM UHC include humanity, ethics, expertise and professionalism of all employees; patient and his/her family as the central part of the process; development of an environment that promotes culture of quality; development of innovative processes and excellence; development of scientific research in the field of healthcare and use of evidence-based knowledge, as well as the efficiency and effectiveness of all processes.

This paper describes the research based on the methodology of the Gaps Model of Service Quality and SERVQUAL instrument⁸, which was conducted as an initiative directed to improvement of the hospital healthcare service quality in the SM UHC. The objectives were twofold: firstly, to investigate the level of hospital healthcare service quality from the patient perspective and operationalized as a difference between perceived performance and patient expectations; and secondly, the aim was to identify the strengths and weaknesses of the existing level of hospital healthcare service quality in order to identify the areas and elements requiring improvement.

The paper is organized as follows: after the introduction, a brief literature review focusing on service quality measurement and using the Gaps Model of Service Quality and SERVQUAL instrument in a healthcare context is presented. The research methodology is described in the next section; and research results are summarized and analyzed. The main findings, research limitations, implications for theory and practice are presented in the concluding section.

Methods

Approaches and methods for service quality measurement in hospital healthcare

In healthcare services, the relationship between providers (physicians and other healthcare professionals) and customers (patients) is built on shared intimacy and is specific in many ways. In rare cases of other service types, there is such trust in the provider-user relationship as that expressed by most patients towards the physician and medical staff⁹. Contacts between physician, medical staff and patient represent critical service encounters and decisive moments. Healthcare professionals perform very complex activities that also require a high degree of patient involvement in service co-creation and delivery, as well as mutual collaboration among medical staff. Mistakes, irresponsibility, and negligence are not compatible with occupations in healthcare service delivery. The decision to use a healthcare service is transferred directly from patient to physician and medical staff, and since they are in direct and intense contact, the patient refers his/her satisfaction (or dissatisfaction) with the service quality and the system to the medical staff.

As a specific type of healthcare, hospital services fall into the category of the existentially needed, unexpected, unwanted, and unpredictable service. Patient involvement and the degree of contact between him/her, physicians and medical staff are extremely high. The patient is not skilled, does not have the knowledge needed to diagnose and treat. In addition, critical features of these services are a high-perceived risk, extreme trust in the provider, and a high need for safety.

The healthcare sector has become preoccupied with quality issues, which play an important role in determining how patients perceive the level of healthcare services provided. As stated by O'Connor *et al.*¹⁰, the concept of quality of healthcare services is constantly advancing and transforming depending on the interest and the level of involvement of medical staff, patients, financiers and lawmakers. Numerous factors that determine the quality of healthcare services (such as the access and effectiveness, ability and willingness of medical staff, the speed of providing services, the appropriate medical equipment, etc.) are difficult to standardize and measure¹¹. Raposo *et al.*¹² have emphasized the influence of the healthcare service quality dimensions on patient satisfaction and have proved that the

perceived quality, both technical and functional, contribute to the process of patient satisfaction.

The conceptual model that links the context of quality in hospitals with their market orientation and organizational performance was developed and tested by Raju and Lonial¹³; they found the quality and market orientation, through synergetic relationships, to have a significant impact on hospital performance. Carman¹⁴ points to two problems; firstly, the one of understanding the complexity of the relationship between different technical attributes of hospital healthcare services (e.g., nursing care, physician care, outcome of hospitalization) and affective dimensions of hospital stay, which together form patient perception of the overall quality; and secondly, how these two types of attributes or dimensions are combined in patient attitude. A large study conducted by Aiken *et al.*¹⁵ in 12 different countries has revealed how patient safety, satisfaction, and quality of hospital healthcare are linked to the hospital work environment and consequently suggests that improvement of hospital work environment might lead to the improved perception of the hospital healthcare service quality.

Scientific literature from both marketing management and quality management shows that much attention has been devoted to the research of the approaches and methods of service quality measurement. Seth *et al.*¹⁶ examined 19 service quality models, pointing to their characteristics, linkage between them, and the need for further development. In conducting an extensive literature review, Castle *et al.*¹⁷ examined 59 studies providing information on 54 instruments used for researching hospital patient perceptions of healthcare; they have concluded that despite a diversity of research instruments, the salience of use of survey instruments has increased. Although there are research studies (e.g., Shemwell and Yavas¹⁸, Musa-Juroš *et al.*¹⁹) where the authors tried to propose and test a scientifically based model and/or an appropriate scale to measure the specific quality of hospital healthcare services, a unique method and instrument have not yet been developed.

Assessing hospital healthcare service quality using SERVQUAL instrument

The Gaps Model of Service Quality and its SERVQUAL instrument is among the best known and most commonly used multidimensional models for measur-

ing service quality. The model foundation is the definition of service quality as comparison between what is provided and what was expected, and establishing and understanding the gaps occurring in the service delivery process²⁰. SERVQUAL has been applied to measure the quality of various service types, different healthcare services included²¹ for more than 30 years.

Hospital services as a specific type of healthcare services require an extremely high degree of contact between medical staff and patients, as well as a high degree of patient involvement in the process of service delivery. Hospitals are the healthcare institutions that depend almost entirely on the economic welfare and confidence of the community they serve. Considerable research efforts have been dedicated to the quality of healthcare services in hospitals in developed countries²²⁻²⁶. However, evidence and knowledge about patient perceptions of hospital service quality in developing countries are limited. Interestingly, most research was done in the Asian and African countries²⁷⁻³². Research on hospital service quality from the patient perspective in European developing countries, to the best of the authors' knowledge, is scarce. Besides two studies from the settings of Turkish hospitals (public and private) conducted by Taner and Antony³³ and Sahin *et al.*³⁴, and one from Albanian public hospital undertaken by Kalaja *et al.*³⁵, there are no empirical contributions dedicated to the measurement of the hospital healthcare service quality in developing Central and Eastern European, South Eastern European and/or Baltic countries. The existing research on patient perceptions of healthcare service quality in these countries has concentrated on applying SERVQUAL scale in the research of the quality of healthcare services provided by primary healthcare institutions (with special emphasis on public sector healthcare institutions) in Croatia³⁶, state-run student polyclinics in Serbia³⁷, and public gynecologic healthcare services in Romania³⁸. Therefore, researching hospital service quality from the patient perspective in developing countries within the European context presents an actual topic, which has not been researched so far.

Research setting, research instrument, sampling and data collection

In line with the Gaps Model of the Service Quality, the underlying hypothesis of the research was that, despite the high ratings of the perceived quality of

hospital services in SM UHC, there would be different gaps across service quality dimensions at the level of the SM UHC as a whole, and across different departments of the SM UHC.

All necessary approvals from the institutional Ethics Committee of the SM UHC were obtained before the beginning of the field research. Primary data were collected by surveying patients having used hospital services in the SM UHC. The SERVQUAL instrument was applied. The questionnaire was modified by adding two statements to the original 22 ones, regarding food served to patients and physical appearance of the clinical hospital centre. The level of patient agreement with the 24 statements (for both expectations and perceptions) was measured by 5-point Likert scale (1 – totally disagree to 5 – completely agree). Prior to data collection, the instrument was pretested on a convenience sample of 20 patients. Minor changes related to the clarity of three statements were made. The questionnaire consisted of two main sections. In the first one, patients were asked to express the level of their agreement with the 24 statements regarding their expectations from hospital services. In addition, they were asked to divide 100 points among the five quality dimensions of hospital services, according to how important each dimension was to them. At the end of the first section, 4 closed type questions about patient demographics were included. The second section consisted of another group of 24 statements dedicated to patient perceptions of the hospital services provided; they were asked to express the level of their agreement with the perceived hospital service quality.

The population were all patients having utilized hospital services at SM UHC, and sample frame included those hospitalized at SM UHC in the period from October 2016 to April 2017. The intended quota (by departments) sample was used, consisting of 630 patients who were selected based on convenience and availability, and who voluntarily accepted to participate in the research. The questionnaire was properly completed by 564 patients; 66 questionnaires were invalid and therefore excluded from analysis.

In order to collect data from field research, staff members from the Quality Department of SM UHC introduced medical staff in all departments with the nature and goals of the study, before its implementation. Furthermore, they talked to patients, explaining the motives and purpose of the research. Patients who

agreed to participate were over 18 years of age and had to fill-in the questionnaire by themselves, with the exception of the Department of Pediatrics, where parents took part instead of children. In addition, both the staff members from the Quality Department and medical staff in departments assisted the more serious patients who had difficulties with filling-in the questionnaire. Completing the questionnaire was done in two phases, as follows: 1) measuring expectations, the importance given to the individual dimensions of hospital service quality and demographics – upon patient admission to the SM UHC; and 2) measuring perceptions of the hospital services provided – at patient discharge from the SM UHC.

Results

The data collected from 564 questionnaires were analyzed by using the MS Office Excel and SPSS software packages, with the results presented descriptively. Table 1 summarizes the profile of the sample. Most of the respondents were women ($n=312$; 55%). The largest age cohort belonged to the 50–64 age group ($n=174$; 31%). According to the level of education, 321 (57%) respondents had secondary and 190 (33%) college/university education.

The respondents were asked to grade the importance that each of the five dimensions (tangibles, reliability, responsiveness, assurance and empathy) holds for them in the assessment of hospital service quality. The importance/significance of individual service quality dimensions is shown in Table 2.

In their assessments of the quality of hospital services, respondents considered 'assurance' to be the crucial dimension. It includes confidence and discretion, physical safety, as well as freeing the patient from any suspicion or danger. The second most important dimension was 'reliability', involving consistency of execution and the ability of the hospital to perform the promised service reliably and accurately. It also refers to the accurate patient record keeping and service provision in a specific period. The third-ranking dimension was 'responsiveness', which implies that the hospital should have enough medical staff that is competent, ready and willing to provide quick service, and prompt and precise responses to patients. 'Empathy' was the penultimate dimension by importance. It concerns attentiveness to patient requirements, involving

knowing the patient specific needs and requirements and providing individual attention to each patient. The least important dimension were ‘tangibles’, such as the appearance of physical elements – space, equipment and staff. This dimension includes the level of adaptation of hospital infrastructure to patients, and food service in the hospital, too.

Table 1. Demographic profile of the sample (N=564)

Gender	Number of respondents	Percentage
Male	252	45%
Female	312	55%
Age (years)	Number of respondents	Percentage
18-29	54	10%
30-39	92	16%
40-49	89	16%
50-64	174	31%
≥65	155	27%
Educational level	Number of respondents	Percentage
Unfinished elementary school	6	1%
Elementary school	47	9%
Secondary (high) school	321	57%
College/university	190	33%

Source: authors’ calculation

Table 3 shows the unweighted and weighted gap between patient service quality perceptions and expectations according to SERVQUAL dimensions. The weighted gap is calculated from the scores of individual service quality dimensions with the number of points assigned to them according to their relative importance/significance.

Respondent SERVQUAL scores on all dimensions except for empathy were negative, meaning that patient expectations exceeded their perceptions. The perceived service quality was unsatisfactory, i.e. there was a gap (ranging between -0.37 and -0.05) on four service quality dimensions. The largest unweighted and weighted gap was observed on the ‘responsiveness’ dimension. Within that dimension, the gap concerning the statement about the sufficient number of medical staff in hospital was the largest, which is understandable given the current situation in public health service sector in Croatia. Due to the importance paid to that element by patients, the ‘responsiveness’ dimension recorded the largest single weighted gap. Four dimensions with negative gaps showed stability of rankings by gap size, regardless of weighting (Table 4).

It is evident from data in Table 4 that the least unweighted and weighted gap was observed on the ‘assurance’ dimension, meaning that patients felt highly confident and safe in the existing relationship between them and medical staff, which implies how irresponsibility, negligence and/or mistakes were not compatible

Table 2. Importance of individual hospital service quality dimensions to respondents (N=564)

SERVQUAL model dimensions	Reliability	Assurance	Responsiveness	Empathy	Tangibles
Importance of each dimension (%)	23.16	24.25	22.38	15.99	14.22

Source: authors’ research

Table 3. Unweighted and weighted gap between quality perceptions and expectations

SERVQUAL dimension	Unweighted gap				Weighted gap			
	Gap	Min	Max	SD	Gap	Min	Max	SD
Tangibles	-0.34	-0.57	0.10	0.29	-0.05	-0.08	0.01	0.04
Reliability	-0.19	-0.34	0.01	0.13	-0.04	-0.08	0.00	0.03
Responsiveness	-0.37	-1.05	0.02	0.40	-0.08	-0.24	0.00	0.09
Assurance	-0.05	-0.09	0.00	0.04	-0.01	-0.02	0.00	0.01
Empathy	0.10	0.04	0.23	0.07	0.02	0.01	0.04	0.01

N = 564; Min = minimal value; Max = maximal value; SD = standard deviation
Source: authors’ research

Table 4. Comparison of individual service quality rankings by the size of unweighted and weighted gap between quality perceptions and expectations

Gap size	Dimension ranking by negative gap size	
	Unweighted gap	Weighted gap
Minimum gap	Assurance	Assurance
↑ ↓	Reliability	Reliability
	Tangibles	Tangibles
Maximum gap	Responsiveness	Responsiveness

Source: authors' research

with the expectations patients had from the staff of SM UHC.

The only service quality dimension with positive gap (unweighted and weighted) was 'empathy'. The expectations of patients (who, in general, are not experts and do not have the knowledge needed to diagnose and decide about their treatment) were positively outperformed in terms of the perceptions that the medical staff of the SM UHC (who possesses the necessary knowledge and expertise) was willing to listen to patients and decide what was the best for the patient individually, according to their characteristics and specific health situations.

Discussion and Conclusion

The present research revealed that patient expectations were high in all dimensions of the service quality. Furthermore, for most dimensions of the perceived quality of the hospital service, patients gave high rating. Still, patient assessment of four out of five SERVQUAL dimensions was negative, which means that their expectations exceeded the perception of the actual service received. The smallest gap was observed on the assurance dimension, which was at the same time the dimension that was most significant to patients in their service quality assessment. Due to the specific nature of hospital services and high involvement of both patients and medical staff in the service delivery process, elements such as confidentiality, discretion, and physical safety may be assumed to have retained their importance in quality assessment. The research found the patient key dissatisfaction areas to be associated with 'responsiveness' and 'tangibles'. It suggests that patients witnessed deficiency in terms of

an adequate number of professional human resources, i.e. medical staff working at the clinical hospital centre. They were not satisfied with the waiting time for service delivery and provision of the necessary information to them. Patient expectations related to physical appearance of the clinical hospital centre infrastructure (space, equipment, adaptation to patient needs) were higher than their perception of the service received, indicating the existence of a quality gap in the 'tangibles' dimension.

Study results corroborate previous findings²⁶, revealing that although having a situation where the overall satisfaction with the service is high at the level of the university hospital centre as a whole, there are a number of areas where different dimensions of service quality could be improved, at the levels of the university hospital centre and its departments. Furthermore, results confirm that the valuable insights into the scope of necessary improvements can be revealed by monitoring and interpreting the level of the gap scores identified³³.

As in other studies dedicated to service quality measurement in healthcare, hospitals more specifically, conducted by using SERVQUAL instrument²⁴, it may be concluded that SERVQUAL offers a useful approach for recognizing the patterns of patient expectations and perceptions across different hospital departments, which represents an essential input for future managerial decisions. Also, these results point to the fact found in the previously conducted research³⁵, that in order to accomplish the goal of offering high quality hospital services, patients should be taken as the main actors in appraising and evaluating service quality.

Our results can be considered an indicative assessment of the quality of public hospital services. One of the research limitations was related to the type, size and structure of the sample. Consideration should also be given to the positive bias of respondents, as questionnaires were, although self-administered, filled-in in the hospital; and in the case of more severely ill patients, assistance by hospital staff was provided. Therefore, the results are highly indicative but cannot be generalized.

The contribution of the paper stems from the choice and handling of this particular topic, which is still underrepresented in the field of healthcare service research in the context of public hospital healthcare service sector in the European countries faced with

significant economic and managerial transformations. As such, the research is in line with the call of Burgess and Steenkamp³⁹ who advocate more academic research in transitional and developing countries in order to contribute to the advancement of science and practice by theory development, acquisition of meaningful data, and analysis of the data from these countries where more than 80% of the world population, i.e. consumers of different products and services, live⁴⁰. The results of this study complement the existing knowledge with insights from the Croatian public healthcare service sector, and as such enable deepening the understanding of the hospital healthcare service quality.

As for the managerial implications in the context of the hospital clinical performance, it would be of substantial importance to implement an ongoing measurement of the degree of patient satisfaction with the provided service quality. Hospital managers should be by far more interested and receptive to the information provided by patients since this represents an appropriate and effective way to learn about patient expectations and to find consequently ways and approaches how to fulfill them. Open communication with patients, personal attention, and responsiveness to their feedback prove to help gain awareness about what their expectations are, and enable the right choice of the initiatives for service quality improvements, which will result in success. In this way, physicians, other healthcare professionals, administrators, i.e. all hospital employees who come in contact with patients, could also benefit from an in-house service quality orientation training, which would enable them to gain necessary awareness about patient expectations.

Furthermore, managers should also pay more attention to improving all dimensions of service quality, no matter how modest the available resources are. They need to invest continuous efforts to improve hospital conditions in general and especially by focusing on quality dimensions that are found to be highly specific to various hospital departments, in order to enhance service quality perceptions and patient ultimate satisfaction. Therefore, these research results provide information that may serve as a useful foundation and guideline for further activities and as an incentive to conduct longitudinal research of service quality, in order to be continuously aware of the areas requiring improvements. Continuous research would provide an opportunity to

recognize trends in the development of hospital service quality in the public health service sector.

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Sažetak

PROCJENA KVALITETE JAVNO ZDRAVSTVENIH USLUGA
U KLINIČKOJ BOLNICI PRIMJENOM INSTRUMENTA SERVQUAL

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Mjerenje kvalitete bolničke zdravstvene usluge čini važan pristup unaprjeđenju zdravstvenog sustava. U radu se iznose preliminarni rezultati istraživanja o kvaliteti zdravstvenih usluga pruženih u velikom javnom kliničkom bolničkom centru u Hrvatskoj, temeljenom na Modelu jazova u kvaliteti usluge, a uz korištenje mjernog instrumenta SERVQUAL. Analizirana je važnost pojedinačnih dimenzija kvalitete usluge, kao i jazovi između percepcija pacijenata i njihovih očekivanja za zdravstvene usluge pružene u 18 klinika/zavoda. Rezultati pokazuju jazove koji postoje na razini kliničkog bolničkog centra kao cjeline te razlike u veličini jazova po dimenzijama kvalitete usluge. Uprava bolnice treba poboljšati zdravstvene usluge u svim dimenzijama kvalitete, a osobitu pozornost treba pridati dimenzijama odgovornosti i opipljivosti gdje su pronađeni najveći jazovi.

Ključne riječi: *Kvaliteta usluge; Zdravstvo; Bolnica; SERVQUAL; Tranzicijska zemlja; Zemlja u razvoju; Hrvatska; Klinički bolnički centar Sestre milosrdnice*