

Quality Management as a Tool for Improving the Performance of Healthcare Organizations at Different Levels

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ABSTRACT

Introduction: Healthcare organizations are faced with numerous problems, including a chronic lack of financial resources.

Aim: To determine the difference in familiarity with the standards related to the quality management system between the primary, secondary and tertiary levels of health care, to determine the difference in the implementation of the quality system; determine the connection between the implementation of the quality system and the satisfaction of service users – patient.

Materials and methods: Statistical processing of all data from the survey questionnaire was performed in the SPSS 17.0 package (SPSS Inc.). The level of statistical significance was set at 0.05, and all confidence intervals are given at the 95% level. The normality of the distributions was checked by Shapiro-Wilk tests when the samples were smaller than $n=30$, and by the Kolmogorov-Smirnov test for larger samples. Given that in most cases they indicated statistically significant deviations from normal distributions, the median and interquartile ranges were used as measures of central tendency and dispersion. Mutual comparisons of all three levels of health activity were analyzed with the Mann-Whitney U test, with Bonferroni's correction of the level of statistical significance. The survey questionnaire was sent to the addresses of a total of 110 BiH health institutions at the primary, secondary and tertiary levels of health care. In the period June/July 2024, a total of 86 completed survey questionnaires were collected, which represents 76,18 % of all respondents.

Conclusion: Research on a sample of primary, secondary and tertiary healthcare institutions in Bosnia and Herzegovina showed that the knowledge and application of the quality management system is still insufficient and points to the need to raise awareness of the importance of the application of the quality management system. Clinical hospital centers, as expected, given the application of the highest standard of medicine and the highest level of provision of health services, showed: greater knowledge of the importance of the quality management system and representation of quality assurance requirements of the ISO standard. The research also found that healthcare institutions that use international standards of quality management systems perform systematic monitoring of patient satisfaction with services provided statistically significantly more often ($\chi^2 = 5.134$; $ss = 1$; $P = 0.032$; contingency coef-

ficient = 0.237). 47.1% of them carried out systematic monitoring of patients, compared to 20.3% of institutions that did not implement international norms of the quality management system.

KEYWORDS: quality management, healthcare organizations, service users

SAŽETAK

UPRAVLJANJE KVALITETOM KAO ALAT ZA POBOLJŠANJE UČINKOVITOSTI ZDRAVSTVENIH ORGANIZACIJA NA RAZLIČITIM RAZINAMA

Uvod: Zdravstvene organizacije suočavaju se s brojnim problemima, uključujući kronični nedostatak finansijskih sredstava.

Cilj: Utvrditi razliku u poznavanju standarda vezanih uz sustav upravljanja kvalitetom između primarne, sekundarne i tercijarne razine zdravstvene zaštite, utvrditi razliku u implementaciji sustava kvalitete; utvrditi povezanost između implementacije sustava kvalitete i zadovoljstva korisnika usluga – pacijenta. Materijali i metode: Statistička obrada svih podataka iz anketnog upitnika provedena je u SPSS 17.0 paketu (SPSS Inc.). Razina statističke značajnosti postavljena je na 0,05, a svi intervali pouzdanosti dati su na razini od 95%. Normalnost distribucija provjerena je Shapiro-Wilk testovima kada su uzorci bili manji od $n=30$, a Kolmogorov-Smirnov testom za veće uzorke. S obzirom na to da su u većini slučajeva ukazivale na statistički značajna odstupanja od normalnih distribucija, kao mjere centralne tendencije i disperzije korišteni su medijan i interkvartilni rasponi. Međusobne usporedbe sve tri razine zdravstvene aktivnosti analizirane su Mann-Whitneyjevim U testom, s Bonferronijevom korekcijom razine statističke značajnosti. Anketni upitnik poslan je na adrese ukupno 110 zdravstvenih ustanova u BiH na primarnoj, sekundarnoj i tercijarnoj razini zdravstvene zaštite. U razdoblju lipanj/srpanj 2024. prikupljeno je ukupno 86 ispunjenih anketnih upitnika, što predstavlja 76,18 % svih ispitanika. Rasprava: Istraživanje na uzorku zdravstvenih ustanova primarne, sekundarne i tercijarne zdravstvene zaštite u Bosni i Hercegovini pokazalo je da je poznavanje i primjena sustava upravljanja kvalitetom još uvijek nedovoljno te ukazuje na potrebu podizanja svijesti o važnosti primjene sustava upravljanja kvalitetom. Klinički bolnički centri, očekivano, s obzirom na primjenu najvišeg standarda medicine i najvišu razinu pružanja zdravstvenih usluga, pokazali su: veće poznavanje važnosti sustava upravljanja kvalitetom i zastupljenost zahtjeva osiguranja kvalitete ISO standarda. Istraživanje je također utvrdilo da zdravstvene ustanove koje koriste međunarodne standarde sustava upravljanja kvalitetom statistički značajno češće provode sustavno praćenje zadovoljstva pacijenata pruženim uslugama ($\chi^2 = 5,134$; $ss = 1$; $P = 0,032$; koeficijent kontingencije = 0,237). Njih 47,1% provodilo je sustavno praćenje pacijenata, u usporedbi s 20,3% ustanova koje nisu implementirale međunarodne norme sustava upravljanja kvalitetom.

KLJUČNE RIJEČI: upravljanje kvalitetom, zdravstvene organizacije, korisnici usluga

INTRODUCTION

A good healthcare system provides patients with greater security, which contributes to preserving working ability and increasing productivity [1]. Quality improvements are primarily focused on improving quality of care and other patient service outcomes [2]. Kodate [3] analyzed the national health systems of England, Sweden and Japan and concluded that government requirements, created in response to the needs and expectations of the public, represent the basis for understanding changes in health policy. Furthermore, changes in health policy are influenced by dynamic relations between the public and governing structures. The procedure for establishing the Quality Management System in the organizational system is defined by ten steps shown in the picture. The first and most important requirement is that it should

be the decision of the top management, which is expressed by the realization of the basic task of defining the organization's policy based on the vision and, within it, the quality policy" (standard ISO 9001). Literary data indicate that the establishment of a quality management system in a healthcare institution is defined through:

- evidence-based health care quality improvement;
- patient and healthcare provider safety;
- verification user satisfaction and service provider;
- transparency of work;
- responsible management with rational use of infrastructure, human resources and modern technologies;
- organization continuity of care, etc.

International standard ISO/IWA 1 - *International Workshop Agreement - Quality Management Systems - Guidelines for Process Improvements in Health Service Organizations* provides guidelines for the management of any type of organizational system which deals with the provision of health services. It is fully compliant with ISO 9001 and ISO 9004, and the guidelines have been expanded to take into account the specificity and special requirements of the health service.

Countries around the world are mostly facing the problem of high increase in health care costs. Increasing costs are a reflection of rising technology costs, an aging population, an increase in the number of chronically ill patients, and an increase in the demand for healthcare. An additional difficulty is determining the true value of healthcare services [4].

The most frequently used tool for measuring the quality of the provided service from the perspective of the user is the *SERVQUAL* instrument. The instrument is based on measuring the gap between users' perceptions and expectations with regard to different elements of service quality. It consists of five dimensions. These are: tangible elements, reliability, responsibility, safety, empathy [5]. Implementation of modern models at the level of tertiary health care is particularly popular [6].

RESEARCH RESULTS

The analysis of the application of the quality management system in the Bosnian-Herzegovinian health care system was carried out through a survey using a specially structured survey questionnaire. The target population of the research was managers of health institutions with three levels of health activity.

In relation to the assessment of the state of the quality system in the health care system, it was investigated to what extent international standards for building a quality management system (ISO 9001:2008) or some other quality improvement model are used in health care institutions and to what extent their application affects the level of improvement compared to several dimensions of quality (clinical effectiveness, safety, efficiency, management, patient orientation and staff status), which are the anticipated advantages that the management of BH. health institutions expect the introduction of a quality management system, i.e. what are the anticipated obstacles for its application in the business of health institutions. The research established the fact that 80% (69/86) of healthcare institutions do not apply international standards for building a quality system (ISO 9001:2008). Only 23% (20/86) of the analyzed health institutions apply international norms for the construction of quality management systems.

If we compare the results with the research of health institutions abroad, it is evident that the health care of Bosnia and Herzegovina lags behind significantly. Of the 254 hospitals in South Korea, 33.9% of them have implemented the ISO 9001 norm, and even 60.6% of them apply full quality management [7]. Of the surveyed healthcare institutions that stated that they use the international norm for building a quality system, only 8%

of them use it in the entire institution or in most organizational units, and 19% of them in a few or only one organizational unit. It can be concluded that the management of healthcare institutions does not recognize the importance of applying international quality system standards. The attitude of health management in relation to the advantages brought by the introduction of the quality system is reflected in the following statements: the most common are the reduction of costs, a higher level of service and patient satisfaction (more than 60%), while in relation to transparency, the advantages of the introduction of the quality system are seen by only 18.4 % of respondents.

However, in relation to the benefits that the introduction of the quality system brings to the staff of the health institution, i.e. to the quality of the employees' performance, only 9.1% of them state an increase in staff satisfaction, and 80.1% of respondents do not think that the introduction of the quality system will increase the staff's responsibilities towards patients. Optimism was not expressed or in the assessment of the advantages of the quality system in relation to better control of internal processes, uniformity and systematization of business processes and organization, namely, more than 70% of respondents do not see the advantages of introducing a quality management system for the operation of the institution and the management of the provision of health services. As the greatest potential obstacle for the establishment of a quality management system, the managers in the same proportion (63.5%) pointed out the lack of financial resources considering the high costs of introducing the system and insufficient human resources for the implementation of the quality management system.

In 55% of the submitted answers, insufficient knowledge of the functioning mechanisms of the quality management system is stated as the reason for not applying the quality management system, while the length and complexity of the system introduction procedure is shown as the reason for not applying the quality management system in 25.1% of the received answers. According to the obtained results, it can be concluded that the establishment and application of the quality management system in BH healthcare institutions is insufficiently developed, which is supported by the fact that only 28% of healthcare institutions have completed the certification of the quality management system. The conducted research attempted to examine how much awareness of the importance of quality management and familiarity with the standards related to the quality management system differ between the primary, secondary and tertiary levels of health care. An effort was made to determine at which level of health care the quality management system is mostly applied. In relation to the familiarity with the standards related to the quality management system, a significant difference was determined in the assessment of familiarity with the mechanisms with regard to the three levels of health activity. The average assessment of knowledge of mechanisms was the lowest at the primary level of health care, and the participants rated their knowledge

as superficial, while the participants of secondary and tertiary health care assessed their knowledge of the functioning mechanisms of the quality management system as good. A statistically significant difference was found between primary and secondary types of health care (Mann - Whitney U = 379.5; Z = - 2.927; P = 0.003). The implementation of the quality management system of the health sector is best acquainted with the functioning mechanisms of the quality management system, because at that level the competences of employees are the greatest, as well as the complexity of the activities and processes that take place within the tertiary level.

Table 1: Application of standards in healthcare organizations

Application of standards in health organizations	66%
Internal protocols	54%
Total quality management (TQM)	63%
Periodic patient satisfaction survey	38%
Patterns	56%
Laws and regulations	52,3%
Others	-

Source: Author's research

Table 2: Advantages of introducing quality management standards in healthcare institutions

A higher level of service	43,2%
Greater staff satisfaction	51,8%
Greater hospitality of patients	47,5%
Transparency	52,3%
Greater responsibility of staff towards patients	34,5%
Reducing the risk of medical error	69,2%
Reduce costs	53%
Better control of internal costs	51,7%

Source: Author's research

In relation to the familiarity with the standards related to the quality management system, a significant difference was found in the assessment of the familiarity with the mechanisms with regard to the three levels of healthcare activity. The average assessment of knowledge of mechanisms was the lowest at the primary level of health care, and the participants rated their knowledge as superficial, while the participants of secondary and tertiary health care assessed their knowledge of the functioning mechanisms of the quality management system as good. A statistically significant difference was found between the primary and

secondary types of health activity (Mann - Whitney U = 379.5; Z = - 2.927; P = 0.003), while primary and tertiary, as well as secondary and tertiary types of activity did not differ statistically significantly from each other. It is expected that managers at the tertiary level of health care are best acquainted with the functioning mechanisms of the quality management system, because at that level the competences of the employees are the greatest, as well as the complexity of the activities and processes that take place within the tertiary level.

Table 3 Level of health activity

Level of health activity	N	K-S/S-WP	Median	IQR	P-effect
Primary	33	<0,001	2	2-3	0,007-0.89
Secondary	37	<0,001	3	3-3	
Tertiary	16	0,019	3	2,3-3,8	

Source: Author's research

KS/SW P = Kolmogorov-Smirnov test of normality of distribution for samples greater than 30 or Shapiro - Wilk test of normality of distribution for samples less than 30, level of statistical significance; IQR = interquartile range; P = Kruskal - Wallis test difference between more than two groups on a continuous variable; the level of statistical significance, that is, the probability of type I error (α); effect = standardized effect size measure of the day for statistically significant results, η^2 for Kruskal - Wallis test.

DISCUSSION

Regarding the dimensions of health service quality, previous research has shown that reliability, empathy and tangible elements have the greatest importance [8]. Kumaraswamy [9] concluded that the factors of quality of highly educated service are: physician's behavior, friendly staff, environment and work performance. The most common customer complaints include: long waiting lists, high costs, unfriendly and indifferent staff [10]. Therefore, it is important to identify the parameters of the quality of the health service with regard to the usefulness for the organization, patients and society. Other authors point out that patients cannot distinguish the care of staff (functional performance) from the treatment procedure (technical performance) of healthcare providers [11]. That is why many patients evaluate the quality of service based on functional aspects of technical performance. Furthermore, they state that non-technical interventions influence the evaluation of the overall quality of the health service and that these aspects are more important than technical ones. Therefore, the quality of the health service should not be evaluated solely on the basis of user ratings, i.e. patients. Other approaches to measuring the quality of healthcare services most often include monitoring certain quantitative indicators or examining employee perceptions in order to examine the extent to which certain practices, tools and models are applied in healthcare institutions. Lee [7,12] concluded that quality control (61.8%) and total quality management (60.6%) are most often applied within the healthcare system. The bh. health care system is based on the principles of social insurance and according to the applied health care model, it is closest to the Bismarck financing model. In contrast to some other systems where tax is the basic

financing instrument, this is a model of mandatory social health insurance based on a contribution from wages.

Quality and constant quality improvement are a priority of the national health policy at all levels of health care and are the result of measures taken in accordance with modern needs regarding health procedures that ensure the highest possible favorable outcome of individual diagnosis and treatment procedures. There are two sets of standards in Bosnia and Herzegovina: mandatory quality standards and the manner of their application, and accreditation standards in accordance with which the accreditation procedure for hospital healthcare institutions is carried out. The quality policy should implement a system of continuous improvement of the quality of health care and patient safety in accordance with EU directives and recommendations of the Council of Europe, the establishment of accepted quality standards, a national program of quality indicators (indicators), a risk management system, internal and external quality assessment, strengthening the role of the patient and financing of the quality system with recognition and reward for improvement. Cronin and Taylor criticized the use of gap analysis results in the measuring service quality and concluded that service quality is measured only by the perception of service users sufficient. There are also numerous disagreements as to whether the scale for quality measurement universally apply services between different service activities and whether there is any connection at all between the satisfaction of service users and quality.

This research once again confirmed that the concept of quality of health services is multidimensional and that it is with the application of the SERVQUAL model, it is possible to find out the expectations, needs and wishes of the users of health institutions in a simple and effective way, as well as their attitudes about the services received, and then use them for the purpose of creating a quality offer. The results of this research confirmed that the concept of health services is multidimensional. The needs, requirements and expectations of the users are constantly changing, so it is necessary to carry out continuous measurements in order to know what the users expect and whether the provided service satisfies their needs in every segment needs and expectations.

CONCLUSION

The research confirmed the differences in the understanding and application of the quality management system with regard to different levels of health care. Managers at the primary level of healthcare are the least familiar with and apply quality management systems, while the situation is somewhat better at the secondary and tertiary levels. Regarding the benefits of introducing a quality system for the operation of the institution and the impact on the satisfaction and increased responsibility of health care workers, about 80% of the respondents were of the opinion that there is no significant benefit from it, which can lead to the conclusion that they consider the current quality of health service performance to be satisfactory

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