

PERCEIVED QUALITY OF HEALTHCARE SERVICES, A PARTICULAR CASE - CARDIOLOGY

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ABSTRACT

This study emphasizes the importance of evaluating and managing quality in the field of healthcare services, especially within cardiology services, where service quality is vital. We focused on an important aspect: measuring patients' perception of service quality.

Materials and Methods: For this study, a randomly selected number of 143 patients who visited the cardiology clinic were chosen. The research methodology involved conducting a quantitative study, with data collected using a questionnaire distributed to patients with cardiovascular diseases who visited our unit. The questionnaire comprised 32 questions.

For data analysis, statistical analysis was performed using IBM SPSS Statistics 25 and Microsoft Office Excel/Word 2021. Additionally, 20 articles from international journals were systematically reviewed to identify factors influencing patient satisfaction and healthcare service quality. The results indicated that patients were satisfied with how staff cared for their needs, being treated respectfully and fairly, without discrimination based on various criteria, and patient rights were respected. Qualitative variables were expressed in absolute terms or as percentages.

Conclusions: According to the study results, the majority of patients reported positive experiences during clinic visits, perceiving service quality to be high.

Keywords: healthcare services, perceived quality, cardiology

Introduction

In the field medical services, quality measurement and its management has gained ground and is considered to be one of the most important topics. Due to the complexity of the concept, there are multiple definitions of quality and different methods of quality assessment, used by the parties involved in the healthcare system: patients, service providers (1).

In 1994, the European Committee for Standardization developed a widely accepted definition of quality: "Quality represents the totality of characteristics of an entity that pertains to its ability to satisfy stated or implied needs."

(2). The Institute of Medicine (IOM) proposed in 1990 a definition, now generally accepted, of the quality of medical care as: "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (IOM, 1999). This definition takes into account the complexity of the concept of quality, quality assessment and different perspectives of stakeholders in the system. The definition focuses on outcomes and on the fact that we should have good quality health services (3). There are different perspectives and approaches to healthcare quality that will require different quality measurement and management

methods: the way in which patients perceive the quality of the medical act, the approach from the doctor's point of view, management's approach regarding health care quality.

Currently, more importance is given to consumer opinions, and they are provided with the necessary information to have an accurate perspective on service quality. Thus, the concept of "patient-centered care" has emerged (4). Despite these efforts, patients cannot always fully understand their healthcare needs and cannot adequately assess the technical competence of providers. Healthcare providers must also engage in community education regarding the basics of health services to ensure that care is delivered as efficiently as possible (5).

Health professionals define quality from the point of view of technical excellence with which care is given. The interaction between the patient and the health professionals depends on the technical possibilities and interpersonal excellence (6). The results of medical care should consider physical, emotional and social well-being (7). Improving service quality is part of the management program (8). From a manager's perspective, the most important dimensions of quality are technical competence, efficiency, and effectiveness (5). Healthcare service quality can also be analyzed from a marketing perspective. High-quality healthcare will result in satisfied consumers, as service quality impacts patients' perceived value and their loyalty (9).

However, the determining factor from a marketing perspective, the component that will generate satisfaction, is the consumer's perception of quality, rather than quality itself. Marketing efforts should initially focus on improving consumers' perception of quality and then on the quality of medical care. Therefore, quality should be evaluated and measured from the perspective of healthcare outcomes (3). Patient perception of quality is the overall attitude of clients towards the services provided, summarizing the differences and discrepancies between client expectations and their perception of service performance (10).

Gronroos has been concerned with service quality, and the concept he implemented can be applied both in healthcare services and in the broader field of service marketing (11).

This concept has 2 distinct and interconnected components: outcome quality, technical (clinic) component, meaning how well the service was performed, and delivered or functional (non-clinic) quality, which is perceived by the patient (12).

The patients do not have the necessary technical knowledge to issue a pertinent judgment regarding the quality of the services provided. They can be influenced by the atmosphere, the relationships with the medical staff. Patients, due to lack of technical knowledge, cannot understand details of diagnosis and treatment.

The particularity of healthcare marketing lies in the existence of services and markets, but not a direct monetary equivalent (13). An effective marketing strategy requires an in-depth investigation of patients' needs, uncovering unexpressed needs, and providing new health services that patients have not explicitly requested (14).

In specific fields such as cardiology, the quality of healthcare services is essential. It is well-known that heart diseases are among the leading causes of death worldwide. For this reason, it is necessary to identify, treat, and prevent these conditions, thereby improving the quality of life for patients. Heart diseases can have a significant impact on both patients and their families. Quality medical care in cardiology can offer a high level of care, support, and counseling, thus bringing comfort and peace of mind to both patients and their families.

Materials and methods

The research methodology consists of setting up a cross-sectional observational study, in which the study population was represented by a randomly selected sample of 143 subjects. This research is quantitative in nature and spans approximately 10 months. To collect data, we used a questionnaire distributed to patients with cardiovascular diseases who visited our facility in the last half of 2022 and the beginning of 2023. Patients completed the questionnaire after their medical consultation, before leaving the medical facility. The questionnaire was designed to include 32 questions and served as the primary tool for gathering the necessary information for

the analysis and evaluation of the research.

The questionnaire was administered to a sample of 143 respondents, and the results obtained were statistically analyzed and processed, with each respondent's answer being important for the accuracy of the data.

The questionnaire consisted of several sections, including: the first part contained 6 questions about demographic and socio-economic variables, the next part included 6 questions about the organization's orientation towards the healthcare service consumer, the following 4 questions focused on the quality of services for patients, and 3 questions addressed the organization's social responsibility. The items were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The obtained results were analyzed and processed using IBM SPSS Statistics 25 and Microsoft Office Excel/Word 2021. Quantitative variables were tested for distribution using the Shapiro-Wilk test and were expressed as means with standard deviations or medians with interpercentile ranges. Quantitative independent variables with non-parametric distribution were tested using the Mann-Whitney U or Kruskal-Wallis H test. Correlations between them were tested using Spearman's rho correlation coefficients. Quantitative independent variables with normal distribution were tested using One-Way ANOVA test (along with variance testing using Levene's test). Qualitative variables were expressed in absolute form or as a percentage. Differences between independent qualitative variables were tested using Fisher's Exact tests. Z-tests with Bonferroni correction were used to detail the results obtained in the contingency tables. Dunn-Bonferroni post-hoc tests were performed to detail the results obtained in the comparison of quantitative variables with non-parametric distribution.

Results

From the group of participants in this study, the majority of participants came from the urban environment (62.2%).

Regarding the age of the participants in this study, we found that the average age of the

patients was 61 ± 14.28 years, with a median of 64 years (the interpercentile range being between 52-70 years) and a minimum of 21 years and a maximum of 87 years old.

The distribution of participants by age category was uneven. Most of the participants in the study were older than or equal to 60 years old (64.3%).

It is known that the degree of health education of the population is dependent on the degree of education in general, so on the level of schooling.

Based on the data collected from the questionnaires, we created the distribution of participants according to their education level. Most of the participants had high school education (49.7%) or secondary school education (35%)

Poverty influences both the addressability to health services and the degree of education regarding care for one's own health. We found that most of the participants had a monthly income below 1200 RON (27.3%), between 1600-2000 RON (19.6%) or between 1300-1500 RON (17.5%).

Most of the participants were married at the time of the study (62.9%).

Regarding the distribution of the participants related to the reason for the cardiological consultation, we found that the majority of the participants included in the study came to the cardiologist for routine tests (88.1%). Of the rest, 9.80% came for preoperative consultation, and 2.1% did not want to specify the reason.

Table 1. The demographic characteristics of the sample

Variables		Nr.	Percent %
Residence Area	Urban distribution	89	62.2%
	Rural distribution	54	37.8%
Age category	20-39 years	15	10.5%
	40-59 years	36	25.2%
	≥ 60 years	92	64.3%
Education level	Primary school	50	35%
	Secondary school	71	49.7%
	University	21	14.7%
	Postgraduate studies	1	0.7%
Economic status	< 1200 RON	39	

	1300-1500 RON	25	27.3%
	1600-2000 RON	28	17.5%
	2100-2500 RON	22	19.6%
	2600-3000 RON	15	15.4%
	> 3000 RON	14	10.5%
Marital status	Single	27	18.9%
	Married	90	62.9%
	widow/widower	25	17.5%
	no reply	1	0.7%
Reason for cardiology consultation	Routine analyses	126	88.1%
	Preoperative preparation	14	9.8%
	no reply	3	2.1%

In the questionnaire, we asked some questions about the behavior of the staff employed in the Cardiology medical unit. To one of the questions: “Does the cardiology organization have employees who care about the needs of patients?”, most participants agreed with this aspect partially (53.1%) or totally (43.4%). A small number of patients 0.70% were in total disagreement, expressing their dissatisfaction, and 2.80% did not want to express their opinion.

To the following question: “Does the cardiology organization have employees who treat patients respectfully?” most participants agreed partially (39.2%) or totally (57.3%) with this aspect. A small number of participants 0.70% were in total disagreement, and 2.8% did not want to express their opinion (neither disagree nor agree).

The distribution of participants related to the opinion given to the question “Is the cardiology organization, through the strategies it implements, concerned about its patients?” is: most of the participants partially (49%) or totally (50.3%) agreed with this aspect, 0.70% of patients did not respond.

The distribution of participants related to the opinion offered to the question “Does the cardiology organization treat its patients correctly, without discrimination on various criteria?”. is the following: most participants partially (33.6%) or totally (62.9%) agreed with this aspect.

Then we obtained the distribution of participants related to the opinion given to the

question “Does the cardiology organization take the rights of its patients seriously?”. Most participants partially (33.6%) or totally (62.9%) agreed with this aspect.

To another question from our questionnaire: “Does the cardiology organization seem to care about all its patients without taking into account the amount of money paid for the execution of various services?”. Most participants partially (29.4%) or totally (66.4%) agreed with this aspect. A small number of participants, 4.20%, did not want to express their opinion.

The distribution of participants related to the opinion given to the question “Does the cardiology organization seem to maintain high standards in the way of treating people?”, most participants partially (54.5%) or totally (33.6%) agreed with this aspect, a small number 0.70% expressed their displeasure by totally disagreeing, and 11.29% neither agreed nor disagreed.

To the question regarding the quality of the medical services offered: “Does the cardiology organization offer high quality services?” most of the participants agreed partially (41.3%) or totally (49.7%) regarding this aspect, 70% marked total disagreement, 1.40% disagreed and 7% neither agreed nor disagreed. The distribution of participants related to the opinion offered to the question “Does the cardiology organization offer reliable services?”, most of the participants partially (34.3%) or totally (60.1%) agreed with this aspect.

To the opinion offered to the question “The cardiology organization offers innovative services?”, most of the participants were neutral (23.1%) or partially agreed (58%) regarding this aspect. The distribution of participants related to the opinion offered to the question “Does the cardiology organization offer services that are worth all the money?”, the majority of participants partially (44.1%) or fully (44.1%) agreed with this aspect.

Regarding the distribution of participants’ responses to the question “Does the Cardiology Organization seem to make efforts in creating job opportunities?”, the majority of participants were neutral (46.9%) or partially agreed (34.3%) with this aspect, while 17.5% expressed full agreement.

For the question “Does the Cardiology

Organization seem to be oriented towards environmental protection?”, the majority of participants were neutral (37.8%) or partially agreed (44.1%) with this aspect, while 17.5% fully agreed. The distribution of participants’ responses to the question “Does the Cardiology Organization seem to support social causes?” is as follows: the majority of participants partially agreed (46.9%) or fully agreed (29.4%) with this aspect.

Discussions

After analyzing the internal consistency modeler of the categories of the questions analyzed in the study (reporting Cronbach’s α coefficients), we obtained the following results:

-The questions concerning the quality of services ($\alpha=0.741$) and social responsibility ($\alpha=0.769$) have an acceptable consistency, but the consistency is variable if one of the questions of each item is eliminated (fact also due to the small number of questions of these items).

Due to the favorable results of internal consistency, a score was created to represent the global value of the satisfaction of the study participants regarding each measured item (by the sum of the values from the questions assigned to each item corresponding to the answer variants: 1 point - Total disagreement, 2 – Disagree, 3 – Neither disagree nor agree, 4 – Agree, 5 – Strongly agree).

Table 2. The overall satisfaction score of participants with respect to consumer orientation

Parameter	Average $\pm$ SD	Median (IQR)	Min	Max
Sc-or	27.22 $\pm$ 2.66	28 (25-30)	19	30

The data in Table 2 represent the overall value of participants’ satisfaction regarding consumer orientation. The average value of the score is 27.22 $\pm$ 2.66 points, with a median of 28 points (the interpercentile range being between 25 and 30 points) (signifying a very high value of the participants’ satisfaction regarding this aspect), with a minimum of 19 points and a maximum of 30 points. The conclusions of the study regarding participants’ satisfaction with consumer orientation indicate that the overall satisfaction value of participants regarding

consumer orientation is very high (median score: 28 points).

The analysis of satisfaction regarding consumer orientation (Sc_or) based on the environment of origin, age category, level of education, monthly income level, marital status, and reason for cardiology consultation showed a non-parametric distribution according to the Shapiro-Wilk test ($p < 0.05$) with no significant differences between groups. These results suggest that satisfaction regarding consumer orientation is consistent and independent of these demographic variables.

Table 3. The overall value of participants’ satisfaction with service quality

Parameter	Average $\pm$ SD	Median (IQR)	Min	Max
Sc-calit	17.18 $\pm$ 2.06	18 (16-19)	8	20

The data in Table 3 represent the overall value of participants’ satisfaction with regard to the quality of services. The average value of the score is 17.18 $\pm$ 2.06 points, with a median of 18 points (the interpercentile range being between 16 and 19 points) (signifying a very high value of the participants’ satisfaction regarding this aspect), with a minimum of 8 points and a maximum of 20 points. The conclusions of the study regarding participants’ satisfaction with service quality indicate that the overall satisfaction value of participants regarding service quality is very high (median score: 18 points). The analysis of satisfaction based on the environment of origin, age category, level of education, monthly income level, and marital status showed a non-parametric distribution according to the Shapiro-Wilk test ($p < 0.05$) with no significant differences between groups. The study highlighted a very high level of satisfaction among participants regarding service quality, with no significant differences based on these demographic factors. These results suggest that satisfaction with consumer orientation is consistent and independent of these demographic variables.

Table 4. The comparison of participants' satisfaction with service quality (Sc_calit) relative to the reason for cardiology consultation.

Reason for cardiology consultation	Average $\pm$ SD	Median (IQR)	Average Rank	p*
Routine analysis (p<0.001**)	17.21 $\pm$ 2.01	17.5 (16-19)	72.27	0.020
Preoperative preparation (p=0.053**)	17.71 $\pm$ 1.97	18.5 (15.75-19)	82.75	
No response (p=0.637**)	13.67 $\pm$ 1.52	14 (13-14.5)	10.33	

*Kruskal-Wallis H Test, **Shapiro-Wilk Test

Table 5. Post-hoc comparison of participants' satisfaction with service quality (Sc_calit) relative to the reason for cardiology consultation.

Reason for consultation:	Routine analysis	Preoperative preparation	No response
Routine analysis	-	1.000	0.028
Preoperative preparation	1.000	-	0.016
No response	0.028	0.016	-

*Dunn-Bonferroni Post-Hoc Test

The data from Tables 4 and 5 represent the comparison of participants' satisfaction with service quality (Sc_calit) relative to the reason for cardiology consultation. The distribution of the score is non-parametric in the group of participants who underwent routine analysis according to the Shapiro-Wilk test ($p < 0.001$). The differences in satisfaction between the groups categorized by the reason for cardiology consultation are significant ($p = 0.020$), and post-hoc tests show that individuals who did not provide a reason for the cardiology consultation had a significantly lower level of satisfaction (median = 14 points, IQR = 13-14.5) compared to individuals who underwent routine analysis (median = 17.5 points, IQR = 16-19) ($p = 0.028$) or compared to individuals who underwent preoperative preparation (median = 18.5 points, IQR = 15.75-19) ($p = 0.016$). These results suggest that the reason for cardiology consultation significantly influences the level of satisfaction of participants with the quality of services received, and those who did not provide a reason for consultation were generally less satisfied.

Table 6. The global value of participants' satisfaction with the organization's social responsibility

Parameter	Average $\pm$ SD	Median (IQR)	Min	Max
Sc_resp	11.5 $\pm$ 1.88	12 (10-13)	8	15

The data in Table 6 represent the overall value of participants' satisfaction with the organization's social responsibility. The average value of the score is 11.5 $\pm$ 1.88 points, with a median of 12 points (the interpercentile range being between 10 and 13 points) (signifying a high value of participants' satisfaction with this aspect), with a minimum of 8 points and a maximum of 15 points. The conclusions of the study regarding participants' satisfaction with the social responsibility of the organization indicate that the overall satisfaction value of participants regarding the organization's social responsibility is high (median score: 12 points).

The analysis of satisfaction based on the environment of origin, level of education, monthly income level, marital status, and reason for consultation showed a non-parametric distribution according to the Shapiro-Wilk test ($p < 0.05$) without significant differences between groups. These results suggest that satisfaction with the organization's social responsibility is consistent and independent of these demographic variables.

Table 7. The correlation between age and participants' satisfaction regarding the organization's social responsibility (Sc_resp)

Correlation	p*
Age (p<0.001**) x Sc_resp (p<0.001**)	0.038, R= -0.174

*Spearman's rho Correlation Coefficient, **Shapiro-Wilk Test

The data in Table 7 represent the correlation between age and participants' satisfaction regarding the organization's social responsibility (Sc_resp). Both variables have a non-parametric distribution according to the Shapiro-Wilk test ($p < 0.05$). The observed correlation is significant and negative, with low strength ($p = 0.038$, $R = -0.174$), indicating that participants with older age were significantly more associated with lower satisfaction regarding social responsibility, and vice versa. Study conclusions regarding the correlation between age and participants' satisfaction regarding the organization's social

responsibility: the correlation between age and Sc_{resp} is significant and negative, with low strength. The p-value of 0.038 indicates that there is a significant correlation between age and satisfaction regarding the organization's social responsibility. This value suggests that the results are unlikely to be due to chance, but the statistical significance is at the conventional limit of 0.05. A correlation coefficient of $R = -0.174$ suggests a weak negative correlation between the two variables. This means that as the age of the participants increases, their satisfaction with the organization's social responsibility tends to decrease slightly, and vice versa. However, the correlation strength is weak, indicating that the relationship between the two variables is modest.

This suggests that older participants tend to be slightly less satisfied with the organization's social responsibility compared to younger participants. To address this age-related difference in satisfaction, organizations could conduct further studies to understand the reasons: It is important to explore in detail why older participants are less satisfied with the organization's social responsibility. This may involve qualitative studies or focus groups.

Tailored communication strategies can be developed: Organizations can adapt messages and social responsibility initiatives to better meet the expectations and concerns of different age groups and involve all age groups in social responsibility initiatives. Continuous feedback monitoring is necessary and strategies should be adjusted based on the feedback received. By implementing these recommendations, organizations can improve the perception and satisfaction of all age groups regarding social responsibility, ensuring a more inclusive and equitable approach.

Table 8. The correlation between participants' satisfaction with consumer orientation (Sc_{or}) and participants' satisfaction with service quality (Sc_{calit})

Correlation	p*
Sc _{or} ($p < 0.001^{**}$) x Sc _{calit} ($p < 0.001^{**}$)	< 0.001 , $R = 0.517$

*Spearman's rho Correlation Coefficient, **Shapiro-Wilk Test

The data in Table 8 represent the correlation between participants' satisfaction with consumer orientation (Sc_{or}) and participants' satisfaction with service quality (Sc_{calit}). Both variables

have a non-parametric distribution according to the Shapiro-Wilk test ($p < 0.05$). The observed correlation is significant and positive, with high strength ($p < 0.001$, $R = 0.517$), indicating that participants with higher satisfaction regarding service quality were significantly more associated with higher satisfaction regarding consumer orientation, and vice versa.

Statistical significance: The p-value < 0.001 indicates that there is a significant correlation between satisfaction with consumer orientation and satisfaction with service quality. This result is highly unlikely to be due to chance. A correlation coefficient of $R = 0.517$ suggests a positive correlation of moderate to high strength between the two variables. This means that as satisfaction with service quality increases, satisfaction with consumer orientation tends to increase as well, and vice versa.

Lately, the patient feed-back surveys are seen as a key component of monitoring and improvement of the quality of medical assistance (15). Indeed, it is debatable whether patients are capable of making relevant judgments regarding the quality of healthcare. Some potential issues have been raised, especially concerning patients' evaluation of the technical quality of care (16).

Patient questionnaires cannot be used as the only measure of the quality of clinical practice. There are technical limitations to questionnaires that use a rating scale to assess patients' perceptions of physicians medical knowledge, thorough physical examination, diagnostic, prescribing skills. General practice assessment questionnaires do not attempt to evaluate technically the quality.

Most patients prefer good doctors' communication skills, but also solid, up-to-date technical skills (17). Patients may confuse the two notions, but they are both equally important. The factor that influenced the most trust in doctors were the advice and good treatment with good communication skills (18). Other beneficial factors in the evaluation were the confidentiality of the medical act, compliance, patients dignity and their involvement in deciding the treatment.

Well-designed patient questionnaires can be useful for assessing both competencies as well as interpersonal skills of doctors (19). In order to be able to use these questionnaires in surveys

and have a role in the quality improvement, they should give clear results and should be followed by clear actions. Knowing that, one percent of patients gave a low rating, receiving feedback is much more useful for correction of deficiencies in performance (16).

In some regions of the USA, the utilization of patient feedback in educational programs for healthcare professionals has led to improvements in healthcare performance (20).

Limitations/Implications of the Research

The study proposes a conceptual model that requires empirical validation.

Practical Implications

The study has direct implications for healthcare providers, suggesting the need for constant monitoring of service quality and the implementation of measures to improve them, in order to maintain a high level of patient satisfaction.

Originality/Value

The study combines and analyzes recent findings regarding the quality of healthcare services, providing a comprehensive conceptual model that integrates various aspects influencing patient satisfaction and healthcare service quality. While there are numerous researches on this topic, most focus on a specific type of service; this study focuses on cardiology services.

Conclusions

Conclusions of the study regarding participants' satisfaction with consumer orientation show that the overall satisfaction level of participants is very high (median score: 28 points).

Regarding participants' satisfaction with service quality, the overall satisfaction level of participants is also very high (median score: 18 points).

Conclusions regarding participants' satisfaction with the organization's social responsibility show that the overall satisfaction level of participants is high (median score: 12 points). The analysis of satisfaction based on the origin environment, age category, education level, monthly income level, marital status, and reason for cardiology consultation showed a non-parametric distribution according to the

Shapiro-Wilk test ($p < 0.05$) with non-significant differences between groups. These results suggest that satisfaction is consistent and independent of these demographic variables.

The study results indicate that there is a significant and positive correlation between participants' satisfaction with consumer orientation and their satisfaction with service quality. This correlation suggests that improving the perception of the quality of services offered by the organization is associated with a better perception of its consumer orientation. These findings are important for service improvement strategies and efforts to increase overall customer satisfaction.

To capitalize on this positive correlation, the organization should continuously improve service quality: Focusing on this goal can lead to increased customer satisfaction both in terms of service quality and consumer orientation. Another strategy could be the development of training programs for employees: Training employees to provide high-quality services and understand customer needs can enhance overall satisfaction. Monitoring customer satisfaction by using customer feedback to promptly identify and address issues related to service quality and consumer orientation.

By implementing these recommendations, organizations can improve the customer experience and ensure higher long-term satisfaction.

Overall, the article highlights the importance of measuring and managing quality in healthcare services, especially in cardiology services. It emphasizes the need for a patient-centered approach, continuous quality improvement, and inclusion of patient feedback in healthcare systems. Patient satisfaction is a complex concept, influenced by numerous variables within healthcare services. The quality of these services plays an essential role in determining patient satisfaction, which in turn can lead to positive behaviors such as patient loyalty. Both patient satisfaction and healthcare service quality, although difficult to evaluate, can be measured through an interdisciplinary approach that combines patient feedback with expert assessments.

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