









A Quality Gap Analysis of Educational Services among Iranian Medical Students Using the SERVQUAL Method

Mohammad Amiri¹ , Elham Sadeghi² , Hajar Shahsavari³ , Horieh Heidari⁴ , Atefeh Alemohammad⁴ , Mohammad Reza Gharepour⁴ and Ahmad Khosravi^{5,*} 

¹Health Services Management, Department of Public Health, School of Public Health, Shahroud University of Medical Sciences, Shahroud, Iran

²Biomedical Engineering, Vice-chancellery of Food and Drug, Shahroud University of Medical Sciences, Shahroud, Iran

³Public Health, School of Public Health, Shahroud University of Medical Sciences, Shahroud, Iran

⁴Public Health, Student Research Committee, School of Public Health, Shahroud University of Medical Sciences, Shahroud, Iran

⁵Epidemiology, Center for Health Related social and Behavioral Sciences Research, Shahroud University of Medical Sciences, Shahroud, Iran

Abstract:

Introduction: The quality gap in educational services among the students of Shahroud University of Medical Sciences in the year 2023 was evaluated using the SERVQUAL method.

Methods: In this cross-sectional study, 334 participants were selected through a multi-stage random sampling method, and 316 responded to the standard SERVQUAL questionnaire.

Results: The majority, 181 students (57.03%) had a strong interest in their field of study. The mean scores for the current status (perceptions) and the optimal status (expectations) of educational service quality were 3.27 ± 0.66 and 4.41 ± 0.63 , respectively. There was a significant difference between the current and optimal status across all SERVQUAL dimensions. The largest gaps were in the dimensions of Responsiveness, Empathy, and Tangibles, followed by Assurance and Reliability. The comparison of mean scores for the educational service quality gap across variables, such as gender, academic semester, and interest in the field of study, indicated significant differences among these groups.

Conclusion: By assessing the status of educational services from the student's perspective, this study aims to provide valuable information to policymakers and university senior management to enhance the educational service system. Educational and incentive strategies, along with careful monitoring and planning according to different dimensions of service quality, can be effective in improving the system.

Keywords : Quality, Educational services, SERVQUAL, Assurance, Reliability, Empathy, Responsiveness, Tangibles.

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*Address correspondence to this author at the Epidemiology, Center for Health Related social and Behavioral Sciences Research, Shahroud University of Medical Sciences, Shahroud, Iran; E-mail: khosravi2000us@yahoo.com

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1. INTRODUCTION

Attention to service quality is crucial for the success and survival of any organization, including the higher education system. The sustainable development of this system requires balanced growth of both quantitative and qualitative dimensions [1-4]. In the current era, universities, as competitive and international entities, strive to surpass their competitors by focusing on quality and ensuring the quality of services [5, 6].

The higher education system has a crucial responsibility in training skilled human resources both quantitatively and qualitatively [7]. Focusing solely on quantitative growth while neglecting qualitative growth can lead to adverse outcomes, such as academic failure, scientific dependency on other countries, lack of creativity and entrepreneurship, brain drain, and insufficient scientific output.

Students, staff, faculty members, society, and industries are the primary stakeholders of higher education institutions, with students being the most important customers and beneficiaries. Their feedback can significantly enhance the quality of educational services [8-10]. The first essential step to improving service quality in universities and higher education institutions is to understand the expectations and perceptions of their customers regarding service quality, identify the gaps between expected and perceived services, and then adopt strategies to bridge these gaps and meet students' expectations [11-13].

As previously mentioned, the judgment of perceived service quality excellence is based on the expectations of those who use the services [14]. Thus, the quality of educational services is determined by examining the gap between students' expectations (ideal status) and the educational services provided (current status). One of the globally recognized models used for measuring service quality is the SERVQUAL model [11, 15]. Conceptualized by Parasuraman and *et al.*, SERVQUAL is a well-established model for measuring service quality and is widely used for evaluating the quality of services in higher education [16-18].

The identification of weaknesses and shortcomings of educational services can provide a foundation for planning and improving these services. Quality gap analysis was done in several academic settings in Iran. For example, at Lorestan University (west of Iran), a negative gap was observed between students' perceptions and expectations toward educational service quality [19]. Some other studies revealed that there were gaps between the perceived and expected quality of services in all dimensions of services [20, 21]. The results of Iranian studies revealed a relative satisfaction in the view of students [22, 23]. Assessments show that the Iranian educational system is not ideal in terms of quality and requires improvement [22]. As higher education institutions globally face increasing pressure to balance both quantitative and qualitative growth in service delivery, particularly in medical education, therefore

assessing the quality of their services is essential. Thus, this study aims to evaluate and analyze the quality gap in educational services among Shahroud Medical Sciences students using the SERVQUAL method.

2. METHODS

In this cross-sectional study, 316 students from various fields at Shahroud University of Medical Sciences were selected using a multi-stage random sampling method in 2023. A proportional-to-size random cluster sampling was done for each faculty. In the next step, the list of courses offered by each faculty, including the field, semester, and the number of students in each field, was specified. Then, based on the number of samples specified for each faculty and the average number of students in each class, 18 classes were randomly selected as clusters. Then, the interviewers delivered the questionnaires to 334 students and explained the objectives of the study. Finally, 316 responded to the standard SERVQUAL questionnaire (Medicine = 105, Paramedicine = 79, Nursing-Midwifery = 65, and Public Health = 67).

2.1. Measurement Tools

In this study, the SERVQUAL questionnaire was utilized. Demographic variables, including age, gender, field of study, educational level, place of residence, and economic status, were collected at the beginning of the questionnaire, along with an explanation of the study's purpose and instructions. The standard SERVQUAL questionnaire consists of 27 pairs of questions designed to assess service quality across five dimensions: "assurance," "responsiveness," "empathy," "reliability," and "tangibles," using a five-point Likert scale. For evaluating the current status, responses ranged from very bad [1] to very good [5], and for the expected status, responses ranged from not at all important [1] to very important [5]. The service quality gap was determined by comparing students' scores for their perceptions of the current quality of educational services with their expectations for the ideal quality. A positive score indicated that the provided services exceeded students' expectations, whereas a negative score indicated that the services did not meet students' expectations, signifying a quality gap. In this study, the reliability of the instrument was recalculated using Cronbach's alpha, resulting in coefficients of 0.947 for the current status questions and 0.967 for the expected status questions. All interviewers received training in questioning techniques, data gathering, and communication from the study supervisor.

2.2. Ethical Considerations

Before distributing the questionnaires, trained interviewers provided explanations to the students regarding the objectives of the study, their voluntary participation, and the confidentiality of their responses and opinions. A short written informed consent was obtained from the participants. The study protocol was reviewed and approved by the Research Ethics Committee of Shahroud University of Medical Sciences (IR.SHMU.REC.1402.038).

The data were analyzed using paired t-tests and analysis of variance (ANOVA). A significance level of 0.05 was used for all tests.

3. RESULTS

The average age of the participants was 22.1±3.2 years. Most students, 181 individuals (57.3%), were very interested in their field of study. Additionally, 57 students (18%) were engaged in economic activities alongside their studies.

As shown in Table 1, the mean score for the current status of the quality of educational services, based on the SERVQUAL method, is 3.27±0.66. There is a gap in service quality across all dimensions. The comparison between the current and expected scores in all SERVQUAL dimensions revealed a significant difference, indicating that the educational services provided did not meet students' expectations and that a quality gap exists. The largest gaps were observed in the dimensions of responsiveness, empathy, and tangibles, followed by assurance and reliability.

Table 1. The mean and standard deviation of the quality of educational services and its dimensions in Shahroud University of Medical Sciences.

Dimensions	Current State (Perception Score) Mean±SD	Expected Status (Expectation Score) Mean±SD	Mean Gap Mean±SD	t- test (P value)
Total quality of education	3.27±0.66	4.41±0.63	-1.15±0.77	26.58(<0.001)
Tangibles	3.21 ±0.78	4.42±0.70	-1.21±0.92	-23.52 (<0.001)
Responsiveness	3.10±0.84	4.40±0.69	-1.29±0.99	-23.31 (0.001)
Empathy	3.21±0.78	4.42±0.68	-1.22±0.94	-23.09 (0.001)
Reliability	3.40±0.71	4.41±0.68	-1.01±0.79	-19.97 (<0.001)
Assurance	3.37±0.77	4.41±0.73	-1.04±0.92	-22.77 (<0.001)

Table 2. Comparison of the mean scores of the quality gap in educational services across the variables of sociodemographic variables.

Variables		Perception Score	Expectation Score	Gap Score
		mean± SD	mean± SD	mean± SD
Gender		-	-	-
-	Male	3.15±0.72	4.46±0.57	-1.31±0.08
-	Female	3.31±0.63	4.40±0.65	-1.08±0.074
t-test (P value)		0.87(0.04)	0.82(0.41)	-2.43 (0.02)
Age		-	-	-
-	<25	3.19±0.66	4.43±0.59	-1.24±0.81
-	≥25	3.28±0.66	4.41±0.64	-1.13±0.76
t-test (P value)		-0.72(0.47)	0.16(0.87)	-0.75 (0.45)
Marital status		-	-	-
-	Single	3.27±0.65	4.40±0.64	-1.13±0.77
-	Married	3.21±0.78	4.56±0.55	-1.35±0.72
t-test (P value)		0.47(0.64)	-1.24(0.22)	1.42 (0.15)
Semester		-	-	-
-	1-4	3.42±0.61	4.43±0.60	-1.01±0.67
-	5 and higher	3.09±0.67	4.39±0.67	-1.31±0.84
t-test (P value)		-4.54(0.001)	-0.48(0.63)	-3.38 (0.001)
Student's current place of residence		-	-	-
-	Non Dormitory	3.40±0.37	4.21±0.73	-0.81±0.76
-	Dormitory	3.26±0.67	4.43±0.62	-1.17±0.76
t-test (P value)		0.87(0.39)	-1.41(0.16)	1.92 (0.06)
Economic status (\$)		-	-	-
-	<400	3.24±0.68	4.44±0.63	-1.19±0.79
-	>400	3.31±0.63	4.37±0.64	-1.06±0.71
t-test (P value)		-0.86(0.39)	0.83(0.41)	-1.44 (0.15)
Father's job		-	-	-
-	Governmental	3.23±0.62	4.45±0.60	-1.22±0.77
-	Non-governmental	3.31±0.71	4.37±0.66	-1.05±0.75

(Table 2) contd.....

Variables		Perception Score	Expectation Score	Gap Score
		mean± SD	mean± SD	mean± SD
t-test (P value)		-1.11(0.27)	1.17(0.24)	-1.93 (0.06)
Interest in the field of study		-	-	-
-	High	3.38±0.64	4.42±0.66	-1.04±0.74
-	Low	3.12±0.67	4.40±0.59	-1.28±0.78
t-test (P value)		3.43(0.001)	0.27(0.79)	2.72 (0.007)
Level of education		-	-	-
-	Associate-Bachelor's	3.37±0.63	4.47±0.56	-1.09±0.69
-	Medicine	2.96±0.61	4.23±0.77	-1.28±0.89
-	Master's and higher	3.61±0.72	4.67±0.42	-1.07±0.70
F test (P value)		18.07(0.000)	6.77(0.001)	2.04 (0.13)

A comparison of the mean scores of the current status of the quality of educational services across the variables of gender, semester, interest in the field of study, and educational level showed significant differences between these groups. Similarly, a comparison of the expected status of the quality of educational services across different educational levels also revealed substantial differences between the scores of these groups. Furthermore, a comparison of the mean scores of the quality gap in educational services across the variables of gender, semester, and interest in the field of study indicated significant differences between the scores in these groups (Table 2).

4. DISCUSSION

The mean score of the current status of educational service quality was 3.27 ± 0.66 out of 5, the expected status was 4.41 ± 0.63 , and the service quality gap was -1.15 ± 0.77 . In another study conducted in 2010 at Shahroud University of Medical Sciences using the same questionnaire, the mean score for the current status of educational service quality was 3.27 ± 1.36 , the expected status was 4.53 ± 0.27 , and the service quality gap was -1.26 [24, 25]. This suggests that the current status has not significantly changed after a decade in our university, despite the university's quantitative expansion and the addition of various programs and degrees. In a study conducted in Egypt using a similar questionnaire, the mean score for the current status of educational service quality was reported as 3.65 ± 0.80 , which aligns with the moderate scores in our study. Although the questionnaires used in all these studies were SERVQUAL, the variations in results can likely be attributed to students' expectations, and institutional or cultural factors contributing to these gaps.

There was a significant difference between the current and expected status, as well as the service quality gap, across all dimensions of service quality, which aligns with the results of another previous study [25]. In other studies conducted at Iranian medical universities such as Kebriaei [23], Nourozinia [19], Aghamolaei [1], Sohrabi [26], Maraghi [27], and Nikkhah, a negative service quality gap was found across all five dimensions and their related items, consistent with our findings. The results of studies conducted in Egypt and India also align with the present

study [6, 28-30]. In a study using a similar questionnaire within the SERVQUAL framework at a medical college in Saudi Arabia, although the results for responsiveness, empathy, and tangibles were similar to our study, there was no significant difference between the current and expected status in terms of assurance and reliability, which contrasts with our findings [18]. Another study involving Russian and Indonesian students showed a service quality gap across all dimensions for Indonesian students, who had higher expectations from their universities [31]. The results of this study regarding the existence of a negative quality gap in all aspects of services are consistent with those of other global studies [31-36]. Despite differences in courses, educational levels, facilities, equipment, staff, and cultural and social characteristics among various universities, this indicates that the educational system has not effectively fulfilled its commitments or met students' expectations and this indicates dissatisfaction. Thus, improvements are needed across all five SERVQUAL dimensions.

The biggest gaps in service quality were observed in the dimensions of responsiveness, empathy, and tangibles, followed by assurance and reliability. In a previous study conducted at Shahroud University, the largest gap was in the responsiveness dimension, and the smallest gap was in the assurance dimension, which is largely similar to our results [25]. In another study conducted at one of Iran's University of Medical Sciences, the largest gap in service quality was in the tangible and reliability dimensions, which does not align with our findings [19]. A study in India found that the largest gap in educational service quality was in the tangible dimension, and the smallest gap was in the reliability and assurance dimensions, which also does not support our findings [30]. In a study conducted in Spain, the dimensions of reliability and empathy were identified as the most important, which does not confirm our findings [37]. In the Saudi study, the dimensions of responsiveness, empathy, and tangibles had a negative gap, while no gap was observed in other dimensions. Although this aligns with our results regarding the gaps in the three mentioned dimensions, it does not support our finding of no gaps in other dimensions [18]. It seems that by prioritizing and allocating funds to dimensions with the highest gaps, other dimensions will also improve from the student's

perspective, as defects and gaps in one dimension negatively affect the quality in different dimensions. The empathy dimension reflects, to some extent, the university's willingness to provide fast and appropriate services to students. Perhaps the heavy workload related to education and the high student-to-staff ratio has prevented the staff from expressing empathy or listening to students' opinions.

A comparison of the mean scores of the gap in the quality of educational services with respect to variables such as semester and interest in the field of study revealed that there is a significant difference between the gap scores in these groups. The average negative gap in male students was higher than that in female students across all dimensions, which contrasts with the results of a previous study on students [25].

4.1. Limitations

Consequently, this study did not examine the quality of other university services such as information technology, library services, IT infrastructure, and campus facilities. Additionally, this study considered only the opinions of students among all the recipients of university services. When generalizing the study results to the entire population of Iranian students, caution is advised due to the study's limitation to a single medical university. Nonetheless, the study's strengths include its good design, comprehensive coverage of all affiliated faculties of the University of Medical Sciences, appropriate sample size, and the use of standardized questionnaires.

CONCLUSION

By understanding the status of educational services from the student's perspective, this study provides valuable information to policymakers and senior university management for improving the educational service system. The observed negative gaps in all dimensions of educational service quality can serve as a guide for effective planning and resource allocation. Additionally, it is suggested that to enhance the quality of services in the assurance dimension, educational workshops should be conducted for faculty members, academic advisors, and staff to improve their technical and communication skills. In the tangible dimension, improvement of the physical environment, such as providing suitable educational spaces, equipment, and communicational instruments is advised. For the responsiveness dimension, increasing the motivation and willingness of employees to help and solve students' problems is needed. Increasing the ability of staff and faculty members to deliver real and confident services can improve reliability. Empathy can be increased in the educational environment by efforts to promote communication skills with the students, honoring and appreciating the personnel and creating organizational behavior with respect. Familiarizing faculty members, advisors, educational staff, and students with educational laws and regulations can help deliver better services to students and align their expectations. Finally, conducting similar research in other medical universities across the country is recommended to improve the quality of educational services.

AUTHORS' CONTRIBUTIONS

M.A. and A.Kh: Designed the study; M.A, H.Sh, H.H, MA, M.G.h, and E.S: Gathered the data; M.A. and A.K.h: Analyzed the data, wrote the main manuscript text, and critically reviewed the manuscripts.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Ethical review board of Shahrood University of Medical Sciences, Iran with the code IR.SHMU.REC.1402.038.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from the participants.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIAL

The data of current study are available from author, [A.K], on a reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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