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Quality Evaluation of Educational Services Gap in Neyshabur Faculty of Medical Sciences Based on Service Quality Scale

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Background: Recognition of views and expectations of students is an important issue to improve the quality of educational services in the universities.

Objectives: The aim of this study was to evaluatethe quality gap of educational services by using Service Quality (SERVQUAL) instrument in Neyshabur Faculty of Medical Sciences in viewpoints of students.

Materials and Methods: In this cross-sectional study, data were collected using SERVQUAL instrument which comprisedof two questionnaires (perception and expectation) and each of them comprised 27 items based on the Likert scale. This questionnaire evaluatedfive dimensions of service: assurance, responsiveness, empathy, reliability and tangible Questionnaires were distributed between 199 students study at Neyshabur Faculty of Medical Sciences and 198 were returned (response rate = 99.5%); one questionnaire was excluded because it was notreturned. Quality gap of educational services was determined based on differences between students' perceptions and expectations. Data were analyzed using SPSS16 software.

Results: The mean age of the students was 20.38±1.92 years; 65.7 % were female and 34.3% were male. There was a negative quality gap in each of the five SERVQUAL dimensions. The overall mean of quality gap was -1.31. The greatest and the least negative quality gap means were observed in the tangible (-1.62) and reliability (-1.02) dimensions, respectively. There were significant differences between perceptions and expectations of students in all dimensions represented by SERVQUAL ($P < 0.05$).

Conclusions: The results of this study showed that there is a notable gap between students' expectations and what they have actually received of educational services. Thus, improvements are required in all dimensions of educational services quality.

*Keywords:*Students; Educational Centers; Quality Gap

1. Background

In altering world, which increasingly is adding to uncertainty, all higher educational institutions should provide favorable responses to the social needs (1). The quality of higher educational services, especially in developing countries such as Iran, it must be considered as a strategic issue for social and technological development and economic growth. Students are consumers of education in educational centers and they demand the best quality of education. To provide the best quality of education to the students, we must first evaluate their expectations and perceptions about these services. Evaluation is one of the strongest tools for strategic development at higher educational environment (2). Evaluation of different courses at higher education is a necessity element nowadays, and also is the way to improve the quality of educational courses. Experiences have proven that universities can provide better services to the community if they have concerns of continuous improvement in the quality of their services (3, 4). Parasuraman and coworkers constructed a multi-item measuring scale evaluating the service quality. This scale is called SERVQUAL. The SERVQUAL instrument represents as a multi-item scale used for measuring the perceptions and expectations of service quality as observed by students (5).

2. Objectives

The aim of this study was to evaluate the quality gap of educational services by using the SERVQUAL instrument in Neyshabur Faculty of Medical Sciences at the students' viewpoint.

3. Patients and Methods

3.1. Participants

This cross-sectional study was conducted in Neyshabur

Faculty of Medical Sciences, Northeast of Iran, in 2012. During the study no ethical issues were considered. The subjects were all students (199 students) of Neyshabur Faculty of Medical Sciences (at operation room, anesthesia and nursing fields). The students who had studied at least one term at the university were entered the study. Questionnaires were given to each student who was present at the time of study. One student was excluded as she did not return the questionnaire. Therefore, 198 questionnaires were analyzed (response rate = 99.5%).

3.2. Procedure and Study Instrument

In this study to enhance the accuracy of the study; all participants were informed that their responses would remain confidential. We used the SERVQUAL instrument in this study. The original SERVQUAL questionnaire was specifically designed to assess organizations and businesses in the service sector (5). Some changes were made to adapt this questionnaire to an academic setting. This adaptation of the SERVQUAL questionnaire was made up of twenty-seven items measuring five postulated dimensions, including assurance (5 items), responsiveness (5 items), empathy (6 items), reliability (7 items) and tangible (4 items). The SERVQUAL questionnaire included two questionnaires: 1. perception questionnaire, 2. expectation questionnaire. The students first completed the perception questionnaire of the educational services quality (students' perceptions of current condition) and then they completed the expectation questionnaire (students' expectations of optimal condition). In perception questionnaire, students selected one choice in each item, including very good, good, moderate, poor and very poor. In expectation questionnaire students selected one choice, including very important, important, moderate, less important and least important. Most important is equal to the highest expectation and least important is equal to lowest expectation. Each item of the SERVQUAL was scored from onto five on a response scale in which one representing very poor/least important and five is representing very good/very important. To calculate the mean of each dimension, the score of each item was added up and the result was divided by the number of its items. The difference between Perceptions (P) and Expectations (E), (P-E = Q) is the service quality (Q). Where Q is negative, a negative gap on service exists. However, where Q is positive, students' expectations are lower than their perceptions. This questionnaire was filed by students at Zahedan and Hormozgan Universities of Medical Sciences (Iran) by Kebriaei and Aghamolaei (6, 7). The content validity and reliability was determined by Kebriaei (6). Cronbach's alpha coefficients of perception scale and expectation scale were 0.887 and 0.842, respectively.

3.3. Dependent and Independent Variables

Total educational service quality and its five dimensions were considered as dependent variables. Other data collected included gender, age, major and education year were considered as independent variables. The age of participants was considered in one of the following groups: < 20 years and ≥ 20 years. Field of study was nursing, anesthesia oroperating room. Education year was one of the following four groups: first, second, third and fourth.

3.4. Statistical Analysis

The collected data was analyzed by SPSS software, version 16. Descriptive analyses performed, including frequencies, percentages, ranges, means, and standard deviations (SD). Cronbach's alpha coefficient, Paired t-test, Friedman, Wilcoxon, and ANOVA were used to evaluate and analyze the data. The means of total educational service quality and its five dimensions were used to compare the students' perceptions and expectations and the gap between these two items. In this study, the level of significance was set at $P < 0.05$.

4. Results

The mean age of the participants in the study was 20.38±1.92 years (Rang: 18-35 years). Of all participants who completed the SERVQUAL questionnaire, 130 persons (65.7%) were female with a mean age of 20.2 ± 1.51 and 68 (34.3%) were male with a mean age of 20.74 ± 2.5 years. One hundred and nineteen (60.1%) individuals were nursing students, 54 (27.3%) were anesthesia students and 25 (12.6%) were at operation room. The results of this study showed that in all five SERVQUAL dimensions, there were negative quality gaps. The overall quality gap mean was -1.31. The greatest and the least negative quality gap means were the tangible (-1.62) and reliability (-1.02) dimensions, respectively (Table 1). According to negative quality gaps in all SERVQUAL dimensions, they can be allocated into three groups: assurance, responsiveness

Table 1. Comparisons of Students' Expectations, Perceptions and Service Quality Gap Means [a]

Service Dimensions	Perceptions	Expectations	Paired t-Test, t/P	Service Quality Gap	Friedman Test, X^2/P	
Assurance	3.21 ± 0.55	4.47 ± 0.47	-27.31/ < 0.001	-1.26 ± 0.65	93.04	< 0.001
Responsiveness	3.04 ± 0.63	4.34 ± 0.46	-22.45/ < 0.001	-1.30 ± 0.82		
Empathy	3.16 ± 0.55	4.49 ± 0.39	-28.55/ < 0.001	-1.33 ± 0.66		
Reliability	3.38 ± 0.59	4.40 ± 0.45	-19.98/ < 0.001	-1.02 ± 0.72		
Tangible	2.55 ± 0.63	4.17 ± 0.63	-22.76/ < 0.001	-1.62 ± 1.002		
Total service quality	3.07 ± 0.46	4.37 ± 0.35	-32.41/ < 0.001	-1.31 ± 0.56		

[a] Data are presented as Mean ± SD

and empathy dimensions are placed in one group, the reliability dimension is placed in another group, and the tangible dimension is placed in a third group. As Table 1 shows, there were statistically significant differences between perceptions and expectations of students in all SERVQUAL dimensions ($P < 0.001$). Also, there were significant differences between negative quality gaps in all SERVQUAL dimensions ($P < 0.001$). By using the Wilcoxon test, the differences between negative quality gaps in each of the five SERVQUAL dimensions, except the differences between assurance dimension and responsiveness and empathy dimensions and also the differences between responsiveness dimension and empathy dimension, were significant (Table 2). As showed in Table 3, there were negative quality gaps in all of the items of SERVQUAL, and there were also significant differences between perceptions and expectations of students (except item 24). There was no significant difference between the genders

Table 2. Comparison Service Quality Gap in All of SERVQUAL Dimensions

Service Dimensions	Wilcoxon Test, z/P
Assurance	
Responsiveness	-0.84/0.39
Empathy	-1.26/0.27
Reliability	-4.42/< 0.001
Tangible	-4.49/< 0.001
Responsiveness	
Empathy	-0.56/0.57
Reliability	-5.29/< 0.001
Tangible	-4.50/< 0.001
Empathy	
Reliability	-6.36/<0.001
Tangible	-4.45/< 0.001
Reliability	
Tangible	-7.70/< 0.001

Table 3. Mean Level of the Students' Perceptions, Expectations and Service Quality Gap at All of SERVQUAL Items [a]

Items	P	E	SQG	Paired t-test	
				t	P
Assurance					
Facilitating discussion and interaction about lessons in class	3.28	4.42	- 1.14	-15.59	<0.001
Qualifying students for future job	3.23	4.70	-1.47	-21.56	<0.001
Accessibility of faculty members to Answer students' questions outside the class	3.18	4.19	-1.01	-12.23	<0.001
Accessibility of adequate references to increase students' professional	3.16	4.59	-1.43	-19.61	<0.001
Knowledge of the faculty members and its adequacy	3.44	4.86	-1.42	-19.91	<0.001
Responsiveness					
Supervisors accessibility when needed	3.02	4.39	-1.37	-15.30	<0.001
Easy accessibility of administrators to express views about the curriculum	2.85	4.26	-1.41	-14.05	<0.001
Making an allowance for students' views and suggestions in curriculum	2.78	4.20	-1.42	-16.02	<0.001
Introducing suitable references to students toread	3.22	4.35	-1.13	-13.11	<0.001
Declaring the hours that students can refer to faculties to talk about their educational problems	2.48	3.98	-1.50	-15.68	<0.001
Empathy					
Assigning suitable and relevant homework	2.93	4.04	-1.11	-11.90	<0.001
Faculty members flexibility when exposing to specific conditions of each student	3.10	4.46	-1.36	-14.26	<0.001
Convenience of class hours	3.04	4.60	-1.56	-16.89	<0.001
Silent and convenient places in school for reading	2.28	4.69	-2.41	-27.76	<0.001
Respectful behaviorof school staff with students	3.53	4.55	-1.02	-11.09	<0.001
Respectful behaviorof faculty members with students	3.77	4.68	-0.91	-13.92	<0.001
Reliability					
Presenting educational content regularly and relevantly	3.44	4.44	-1.00	-13.86	<0.001
Informing students about the result of the examinations	3.12	4.13	-1.01	-11.05	<0.001
Presenting materials and content understandably	3.29	4.80	-1.51	-22.39	<0.001
Givehigher scores if students attempt more	3.51	4.50	-0.99	-11.81	<0.001
Recording students' educational documents without mistake	3.69	4.29	-0.60	-7.04	<0.001
Easy accessibility of available references at theuniversity	3.26	4.52	-1.26	-14.06	<0.001
Fulfilling responsibilities by faculty members and staff in the promised time	3.42	4.18	-0.76	-8.53	<0.001
Tangible					
Arranged and professional appearance of faculty members and staff	3.74	3.85	-0.11	-1.14	0.255
Visual appealing and comfort of physical facilities	1.57	4.45	-2.88	-34.02	<0.001
Up to date material and educational equipment	2.17	4.57	-2.40	-26.98	<0.001
Visual appealing of teaching tools	2.72	3.80	-1.08	-9.56	<0.001

[a] Abbreviations: P, perception;E, expectation; SQG, service quality gap

of students with regards to the mean of quality gap (P = 0.257) but there was a significant difference between the different age groups of students (< 20 and ≥ 20 years) with regards to the mean of the quality gap (P = 0.002). There was no significant difference in perceptions and expectations of the students in the nursing, anesthesia and operating room fields (Table 4), but there were significant differences in some perceptions and expectations of the students in the different educational years (Table 5). As showed in Table 6, the greatest and the least percentage of the negative gap were observed in empathy dimension (97.5%) and reliability dimension (89.4%), respectively.

Table 4. Comparison of the Students' Perceptions, Expectations and Service Quality Gap Means in Different Field of Study

Service Dimensions and Field of Study	Perceptions	Expectations	Service Quality Gap
Assurance			
Nursing	3.18	4.51	-1.33
Anesthesia	3.31	4.45	-1.14
Operation room	3.14	4.32	-1.18
ANOVA	0.289	0.165	0.162
Responsiveness			
Nursing	2.99	4.39	-1.40
Anesthesia	3.14	4.26	-1.12
Operation room	3.05	4.27	-1.22
ANOVA	0.313	0.145	0.078
Empathy			
Nursing	3.17	4.51	-1.34
Anesthesia	3.18	4.44	-1.26
Operation room	3.04	4.51	-1.47
ANOVA	0.531	0.512	0.438
Reliability			
Nursing	3.35	4.43	-1.08
Anesthesia	3.45	4.37	-0.92
Operation room	3.39	4.31	-0.92
ANOVA	0.567	0.454	0.311
Tangible			
Nursing	2.58	4.19	-1.61
Anesthesia	2.50	4.07	-1.57
Operation room	2.52	4.28	-1.76
ANOVA	0.743	0.345	0.74
Total service quality			
Nursing	3.05	4.40	-1.25
Anesthesia	3.11	4.32	-1.21
Operation room	3.03	4.34	-1.31
ANOVA	0.636	0.365	0.256

Table 5. Comparison of the Students' Perceptions, Expectations and Service Quality Gap Means in Different Education Years

Service Dimensions and Education Year	Perceptions	Expectations	Service Quality Gap
Assurance			
First	3.29	4.39	-1.10
Second	3.15	4.46	-1.31
Third	3.11	4.56	-1.45
Fourth	3.15	4.68	-1.53
ANOVA	0.283	0.027	0.004
Responsiveness			
First	3.21	4.28	-1.07
Second	2.80	4.29	-1.49
Third	3.08	4.35	-1.27
Fourth	2.88	4.60	-1.72
ANOVA	0.001	0.012	< 0.001
Empathy			
First	3.23	4.50	-1.27
Second	3.01	4.43	-1.42
Third	3.21	4.48	-1.27
Fourth	3.16	4.62	-1.46
ANOVA	0.122	0.212	0.403
Reliability			
First	3.48	4.32	-0.84
Second	3.25	4.31	-1.06
Third	3.35	4.60	-1.25
Fourth	3.35	4.64	-1.29
ANOVA	0.173	< 0.001	0.007
Tangible			
First	2.61	4.20	-1.59
Second	2.36	4.15	-1.79
Third	2.61	4.11	-1.50
Fourth	2.64	4.18	-1.54
ANOVA	0.094	0.914	0.566
Total Service quality			
First	3.16	4.34	-1.18
Second	2.91	4.32	-1.41
Third	3.07	4.37	-1.40
Fourth	3.03	4.54	-1.51
ANOVA	0.017	0.032	0.013

Table 6. Frequency and Percentage of Service Quality Status in all of SERVQUAL Dimensions [a]

Service Dimensions	Positive Gap	Without Gap	Negative Gap
Assurance	1(0.5)	7 (3.5)	190 (96)
Responsiveness	5 (2.5)	4 (2)	189 (95.5)
Empathy	3 (1.5)	2 (1)	193 (97.5)
Reliability	9 (4.5)	12 (6.1)	177 (89.4)
Tangible	9 (4.5)	4 (2)	185 (93.4)
Total service quality	1 (0.5)	0 (0)	197 (99.5)

[a] Data is presented as No. (%).

5. Discussion

In this study, the quality gap of educational services was studied. A modified SERVQUAL instrument among students in Neyshabur Faculty of Medical Sciences was used for evaluating the difference between students' expectations and perceptions of educational services (Quality Gap). As the findings of this study showed, there is a negative quality gap in all of the five SERVQUAL dimensions. These findings confirmed the results of the Kebriaei (6), Aghamolaei (7), Clare Chua (8), Braddley (9) and Singh (10) studies. In a study conducted by Ruby, there were negative quality gaps in four dimensions (reliability, assurance, responsiveness and empathy), but there was a positive quality gap in the tangible dimension; in this dimension, students' expectations of the educational services quality were lower than their perceptions (11). In Abili study, there were negative quality gaps in three dimensions (tangible, reliability and empathy) (12). Negative quality gaps in educational services mean students' perceptions are lower than their expectations, indicating the dissatisfaction of students. Thus, it seems that improvements are required across all dimensions of educational services quality. The negative quality gap in service dimensions can be used as a guideline for planning and allocation of resources (13). As showed in results, the greatest and the least negative quality gap are observed inthe tangible (-1.62) and reliability (-1.02) dimensions, respectively. The findings support the results of the Kebriaei (6), Aghamolaei (7), Clare Chua (8) and Singh (10) studies in the least negative quality gap. But the greatest negative quality gap in Kebriaei (6) and Aghamolaei (7) studies was observed in responsiveness dimension, in Clare Chua (8) study in assurance dimension and in Singh (10) study in empathydimension. In this study, there were negative quality gaps in all of the items of SERVQUAL, and there were also significant differences between perceptions and expectations of students in all of them (except item 24). Also the results of Kebriaei (6), Aghamolaei (7) and Singh (10) studies showed that there were negative quality gaps in all of the items of SERVQUAL. The negative quality gaps in all dimensions of SERVQUAL and their items indicated that to improve the educational services quality, some measures should bebe taken into account. As mentioned, in this study the greatest negative quality gap was observed in the tangible dimension. This dimension indicates how the service provider's physical installations, equipment, people and communication material are? (14).

The greatest negative quality gap in this dimension and its items indicates that 1. Faculty members and staff do not have arranged and professional appearance, 2. Physical facilities in faculty are not visually appealing and comfort, 3. Material and educational equipment are not up to date and, 4. Teaching tools that teachers use do not have visual appealing. In this study the greatest negative gap between items was observed in item 25 (Visual appealing and comfort of physical facilities) and item 24 has the least negative gap (-0.11) that shows faculty members and staff have partly arranged and professional appearance. Also Kebriaei (6) and Aghamolaei (7) observed that item 25 has the greatest negative gap between all items. Aghamolaei (7) observed that item 24 have the least negative gap between all the items, but in Kebriaei (6) study, item 20 has the least negative gap.

In this study there was no significant difference in students' perceptions and expectations in different field of study, but there were significant differences in some perceptions and expectations of the students in the different education years. In general, students in the fourth year of education have greater expectations of educational services quality. Also, the negative quality gap in all dimensions (except tangible) is greater in students at the fourth year of education than the other students.

The findings of this study showed that there is a notable gap between students' expectations and what they have actually received from educational services. In addition, overall service quality and five dimensions of educational service quality (assurance, responsiveness, empathy, reliability and tangible) were identified to be of inadequate quality. Hence, this study demonstrates that improvements are required in all dimensions of educational services quality to improve educational service quality, so it is necessary to contact students regularly and assess their service experiences.

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Authors' Contributions

Ali GHolami designed and conducted the study, performed statistical analysis and drafted the manuscript and edited it. Zohre Foroozanfar assisted in performing the statistical analysis and drafting the manuscript. Akram Gazerani and Keyvan Behfar assisted in drafting the manuscript. Other authors participated in data collection. All authors read and approved the final manuscript.

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