

EVALUATION OF QUALITY OF MEDICAL EDUCATION SERVICES BY STUDENTS' PERCEPTION BASED ON SERVQUAL MODEL: A CROSS SECTIONAL STUDY IN MAHARASHTRA, INDIA

Jyoti Gaikwad¹, Varsha Bande², Lalita Nikam³, Mayuri Ghorpade⁴

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Corresponding Author:
Dr. Mayuri Ghorpade,
Email. mayoojadhav@gmail.com
ORCID: 0000-0002-0090-2026

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¹Professor and Head, Department of Anatomy, Vedantaa Institute of Medical College, Dahanu, Maharashtra, India.

²Associate Professor, Department of Anatomy, D.Y. Patil Medical College, Navi Mumbai, Maharashtra, India.

³Associate Professor, Department of Physiology, Terna Medical College, Navi Mumbai, Maharashtra, India.

⁴Assistant Professor, Department of Anatomy, D.Y. Patil Medical College, Navi Mumbai, Maharashtra, India.

Abstract

Background: Educational environment in the medical institutes is one of the most important factors for determining the quality of health care services. The students from medical field are the future responsible authorities of the health care system. Therefore, student's perceptions on their educational environment are one of the important factors for improving the quality of educational environment. The aims & objectives is to present study was done to determine the quality gap of educational services by determining the gaps between student's perceptions and expectations. **Materials and Methods:** In this cross-sectional study, a total of 300 students were randomly selected from the medical institute of Navi Mumbai, Maharashtra. The educational quality was measured using validated SERVQUAL instrument. This five-point Likert scale was used to measure the students' perceptions and expectations under five dimensions of quality of educational services. This consists of assurance, responsiveness, empathy, reliability and tangibles. The quality gap of educational services was determined based on differences between students' perceptions and expectations. **Result:** In the present study, all the items under five dimensions of quality of services were considered as important by students with score ≥ 4 except item no 9 (provision of handouts after each class) which was scored as moderate. all 24 items of existing services were perceived as moderate quality except item no 2 and 9 (comfortable physical facilities in classroom and provision of handouts after each class) which were perceived as poor quality of services. There were significant differences found between perceptions and expectations of students in all five dimensions of SERVAQUAL instrument ($P < 0.001$). Highest gap was found in the dimension of tangible (-1.32) and Lowest quality gap was found in reliability dimension (-0.59) followed by assurance dimension (-0.61). **Conclusion:** The findings of the present study showed a negative quality gap in all dimensions of educational services which states that students' expectations exceed their perceptions. Thus, the results obtained can be used to guide strategic planning and the allocation of available resources at concerned teaching institute.

INTRODUCTION

Medical education has its deep-rooted relevance with regard to production of trained and qualified health care professionals in the country capable of shouldering the one's responsibility ensuring an effective health care delivery system. Hence, medical education becomes one of the most

important factors which determine quality of health services in our community. The quality and efficacy of health system is directly related to quality of education of medical students in their medical institutes.^[1]

Medical education in our country is based on traditional methodologies. This traditional method is teacher centred, discipline based, information

gathering and hospital based. The undergraduate curriculum teaching consists of lectures, practicals, demonstrations, bed side teaching in wards. Curriculum is considered to be the most holistic, inclusive and comprehensive entity and notion in education.^[2] There is proven connection between the environment and the valuable outcomes of student's achievement, satisfaction and success.^[3]

National Medical Commission, Medical council of India, universities, medical colleges, teachers, students and the community are the shareholders of medical education in India. Collaboration of these shareholders is requisite for the improvement of quality of medical education in our country. In India the opinions and views of teachers, students and the community are very less considered while planning and implementation of medical education. Student's views of their educational environment are useful factor for improving the quality of educational service.^[3,4] Students' perceptions of their educational environment and thereafter identifying weaknesses of educational services can help medical institutes to improve the quality of medical education.

The judgment about excellence is the perceived quality of a service in view point of the expectations of people using that service.^[5] Parasuraman et al developed a multi-dimensional instrument SERVQUAL with established validity and reliability to measure quality of perceived service. Service quality is a gap between costumers' expectations and perceptions of the actual performance of a specific organization based on the SERVQUAL. This original SERVQUAL instrument was specifically designed to assess organizations and businesses in the service sector.^[6] Some changes were made in this instrument to adapt this instrument in an academic setting such as in academics of medical institutions to measure students' perception and expectations of the service quality of medical education. This adaptation of the SERVQUAL survey was made up of twenty-six parallel likert scale items measuring five postulated dimensions of service quality, which consist of;

1. Tangibles: Physical facilities, materials, teaching tools, equipment in the organization and appearance of personnel
2. Reliability: Accuracy, consistency, responsibility of a department in educational service provision
3. Responsiveness: Accessibility of faculty members, eagerness to help and commitment,
4. Assurance: Interaction and discussion with students to earn students' confidence in a professional manner
5. Empathy: Ability to communicate with dignity, care and understanding

In India very few studies have been done to asses students' perception of educational services. This study was undertaken to evaluate the quality of educational services by determining the gaps between students' perceptions and expectations in relation to quality of educational services.

MATERIALS AND METHODS

Study Design

The study was a cross sectional descriptive study.

Study Site

The study was conducted in a medical institute of Navi Mumbai, Maharashtra, India.

Study Population

The population of this study includes first, second and third professional year completed medical students who were selected by random sampling method.

Sample Size

Total 236 medical students from all professional year were included in the study.

Study Tools and Statistical Analysis

In this study, data was collected using modified SERVQUAL instrument which consisting of two sets of questionnaires (perception and expectation). Each of them comprised 26 items based on the Likert scale These questionnaires belong to five dimensions of service: assurance, responsiveness, empathy, reliability and tangible [Table 1]. The students were first asked to rate their perception on each item in a five-point Likert scale (very good, good, moderate, poor, and very poor). They were also asked to rate their expectations on each item in a five-point Likert scale (very important, important, moderate, less important, and least important). Each item was scored from 1 to 5 with very good and very important as 5, very poor and least important as 1, and others in between.

All statistical analyses were done by using descriptive statistics (mean, standard deviation) and inferential statistics using Wilcoxon test were utilized to evaluate and analyse the data by SPSS16 software. The means were used to compare the students' perceptions and expectations of educational service quality and the quality gap was determined. Results were tested at 5% level of significance.

Ethical approval

The ethical approval was taken from the Institutional Ethics Committee of concerned medical institute prior to the study. The procedure of the study was explained and informed consent was obtained from all student participants. Confidentiality of the study participants was maintained throughout the study.

RESULTS

In the present study, total 300 students were selected randomly. Out of which 236 students responded positively. Out of 236, 70 were females (29.6%) and 166 were males (70.3%). Among the study subjects, 96 (40.6%) were from first professional completed year, 71 (30.08%) were from second and 69 (29.23%) were from third professional completed year.

Expectations: In the present study, all the items under five dimensions of quality were considered as important by students with score ≥ 4 except item no 9 which comes under reliability criteria i.e., provision of handouts after each class which was scored as moderate. All the dimensions of quality as per SERVQUAL model were marked as important by the students. No significant difference in case of expectations was found with reference to gender of professional year [Table 2-7].

Perceptions: In the present study, item no 2 and 9 i.e., comfortable physical facilities in classroom and provision of handouts after each class had perceived as poor quality of existing services by the students. While remaining 24 items of existing services were perceived as moderate score. Thus, the result suggests that out of five dimensions; responsiveness, assurance and empathy were perceived as moderate.

The tangible and reliability were also perceived as moderate with two items (item no 2 and 9) as poor quality of services [Table 2-7].

Quality gap: In present study, we found negative quality gap in all five dimensions of SERVQUAL instrument. For all dimensions; expectations of students exceeded their perceived quality of existing educational services. There were significant differences found between perceptions and expectations of students in all five dimensions of SERVQUAL instrument ($P < 0.001$). Highest gap was found in the dimension of tangible (-1.32) which is indicative of scope of improvement in physical facilities in classrooms, educational equipment including audio-visual tools and appearance of personnel. Lowest quality gap was found in reliability dimension (-0.59) followed by assurance dimension (-0.61) [Table 2-7].

Table 1: SERVQUAL instrument dimensions with questionnaires

Item No	Questionnaire
Tangible	
1	Neat & professional appearance of faculty members
2	Comfortable physical facilities in class rooms
3	Materials & educational equipment being up-to-date
4	Attractive audiovisual teaching tools
Reliability	
5	Provision of correction of tasks by faculty
6	Conducting evaluation regularly & communicating results
7	Understandability of presented educational materials in the class
8	Class attendance for a clear understanding of the students
9	Provision of handouts after each class
10	Taking classes regularly as per schedule
11	Easy accessibility of reference learning materials
12	Fulfilling the responsibilities of the faculty in promised time
Responsiveness	
13	Easy accessibility of faculty members in need
14	Easy accessibility of HOD/ Dean in need
15	Introducing suitable reference to students for reading
16	Considering students view & suggestions in scheduling classes
17	Energy & eagerness of faculty in classes
18	Provision of extra time for educational consultation with faculty
Assurance	
19	Facilitating discussion & interaction in class
20	Accessibility of teachers outside class
21	Faculty members adequate preparedness for class
22	Students prepared adequately for next level of education
Empathy	
23	Provision of anonymous suggestion to the department
24	Dignified treatment of students by teachers
25	Dignified treatment of students by staff
26	Flexibility of teachers to fulfill the individual students need

Table 2: Mean level of the students' perceptions, expectations and service gaps in tangible dimension of SERVQUAL instrument

Item No	Professional year of students	Perception Score	Expectation Score	Mean gap (P-E)	Wilcoxon Signed rank	P-value
		Mean \pm SD	Mean \pm SD			
I	Tangible					
1	II MBBS	4.09 \pm 0.78	4.10 \pm 0.78	-0.01	0.305	0.76
	III/ I MBBS	3.97 \pm 0.69	4.37 \pm 0.66	-0.39	3.953	<0.001
	III/II MBBS	3.75 \pm 0.95	3.99 \pm 0.87	-0.23	0.875	0.381
2	II MBBS	3.30 \pm 1.07	4.29 \pm 0.68	-0.99	6.108	<0.001
	III/ I MBBS	2.83 \pm 0.94	4.68 \pm 0.58	-1.85	7.551	<0.001
	III/II MBBS	2.36 \pm 0.84	4.26 \pm 0.92	-1.90	7.055	<0.001
3	II MBBS	3.37 \pm 0.88	4.38 \pm 0.71	-1.01	6.742	<0.001
	III/ I MBBS	3.10 \pm 0.74	4.79 \pm 0.47	-1.69	7.559	<0.001
	III/II MBBS	2.86 \pm 1.15	4.35 \pm 0.84	-1.49	6.434	<0.001

4	II MBBS	3.37±1.06	4.24±0.79	-0.87	6.185	<0.001
	III/ I MBBS	3.21±0.79	4.55±0.67	-1.34	6.434	<0.001
	III/II MBBS	3.10±1.11	4.20±0.88	-1.10	5.131	<0.001

Table 3: Mean level of the students' perceptions, expectations and service gaps in reliability dimension of SERVQUAL instrument

Item No	Professional year of students	Perception Score	Expectation Score	Mean gap (P-E)	Wilcoxon Signed rank	P-value
		Mean±SD	Mean±SD			
II Reliability						
5	II MBBS	3.68±0.81	4.29±0.68	-0.61	5.479	<0.001
	III/ I MBBS	3.52±0.86	4.35±0.59	-0.83	6.018	<0.001
	III/II MBBS	3.36±1.00	4.20±0.74	-0.84	4.668	<0.001
6	II MBBS	3.56±0.88	4.31±0.75	-0.75	5.909	<0.001
	III/ I MBBS	3.51±0.65	4.28±0.68	-0.77	5.750	<0.001
	III/II MBBS	3.28±1.17	4.20±0.78	-0.93	5.160	<0.001
7	II MBBS	3.57±0.90	4.35±0.80	-0.78	5.375	<0.001
	III/ I MBBS	3.39±0.76	4.51±0.65	-1.11	6.472	<0.001
	III/II MBBS	3.35±1.04	4.19±0.81	-0.84	4.186	<0.001
8	II MBBS	3.84±0.94	4.19±0.66	-0.35	3.578	<0.001
	III/ I MBBS	3.66±0.77	4.18±0.82	-0.52	3.660	<0.001
	III/II MBBS	3.49±0.92	4.01±0.92	-0.52	2.499	0.012
9	II MBBS	3.23±1.01	4.22±0.67	-0.99	6.770	<0.001
	III/ I MBBS	2.69±1.04	3.90±0.89	-1.21	5.918	<0.001
	III/II MBBS	2.77±1.21	4.09±0.92	-1.32	5.629	<0.001
10	II MBBS	4.14±0.84	4.31±0.69	-0.17	0.915	0.36
	III/ I MBBS	3.58±1.10	4.52±0.71	-0.94	4.857	<0.001
	III/II MBBS	3.88±1.00	4.23±0.79	-0.35	1.562	0.118
11	II MBBS	3.76±0.84	4.37±0.72	-0.60	5.408	<0.001
	III/ I MBBS	3.37±0.91	4.59±0.55	-1.23	6.668	<0.001
	III/II MBBS	3.19±1.06	4.06±0.91	-0.87	4.376	<0.001
12	II MBBS	3.91±0.75	4.37±0.64	-0.45	4.447	<0.001
	III/ I MBBS	3.48±0.89	4.51±0.58	-1.03	5.601	<0.001
	III/II MBBS	3.28±1.19	4.29±0.81	-1.01	4.763	<0.001

Table 4: Mean level of the students' perceptions, expectations and service gaps in responsiveness dimension of SERVQUAL instrument

Item No	Professional year of students	Perception Score	Expectation Score	Mean gap (P-E)	Wilcoxon Signed rank	P-value
		Mean±SD	Mean±SD			
III Responsiveness						
13	II MBBS	4.03±0.77	4.39±0.63	-0.35	3.022	0.003
	III/ I MBBS	3.90±0.79	4.46±0.63	-0.56	4.376	<0.001
	III/ II MBBS	3.55±1.14	4.36±0.71	-0.81	4.084	<0.001
14	II MBBS	4.10±0.85	4.33±0.71	-0.24	1.658	0.097
	III/ I MBBS	3.82±0.94	4.49±0.61	-0.68	4.475	<0.001
	III/ II MBBS	3.42±1.21	4.15±0.94	-0.72	3.748	<0.001
15	II MBBS	3.98±0.90	4.32±0.69	-0.34	2.801	0.005
	III/ I MBBS	3.42±0.94	4.46±0.58	-1.04	5.881	<0.001
	III/ II MBBS	3.19±1.13	4.26±0.90	-1.07	4.670	<0.001
16	II MBBS	3.72±0.98	4.32±0.66	-0.60	4.585	<0.001
	III/ I MBBS	3.11±1.09	4.45±0.71	-1.34	5.212	<0.001
	III/ II MBBS	3.03±1.26	4.22±0.75	-1.19	4.959	<0.001
17	II MBBS	3.76±0.89	4.33±0.68	-0.57	4.609	<0.001
	III/ I MBBS	3.40±0.92	4.42±0.69	-1.01	4.777	<0.001
	III/ II MBBS	3.09±1.08	4.14±0.88	-1.06	5.124	<0.001
18	II MBBS	3.57±1.02	4.28±0.70	-0.71	4.887	<0.001
	III/ I MBBS	3.32±1.08	4.11±0.75	-0.79	4.121	<0.001
	III/ II MBBS	2.91±1.13	4.06±0.94	-1.14	4.491	<0.001

Table 5: Mean level of the students' perceptions, expectations and service gaps in assurance dimension of SERVQUAL instrument

Item No	Professional year of students	Perception Score	Expectation Score	Mean gap (P-E)	Wilcoxon Signed rank	P-value
		Mean±SD	Mean±SD			
IV Assurance						
19	II MBBS	3.74±0.87	4.32±0.07	-0.58	4.887	<0.001
	III/ I MBBS	3.53±0.86	4.39±0.66	-0.86	5.515	<0.001
	III/ II MBBS	3.39±0.93	4.28±0.75	-0.88	4.866	<0.001
20	II MBBS	3.84±0.80	4.28±0.70	-0.44	4.070	<0.001
	III/ I MBBS	3.52±0.89	3.91±0.84	-0.39	2.006	0.045

21	III/ II MBBS	3.22±1.11	3.861±0.93	-0.64	2.981	0.003
	II MBBS	3.96±0.74	4.38±0.62	-0.42	4.121	<0.001
	III/ I MBBS	3.76±0.82	4.44±0.69	-0.68	4.668	<0.001
22	III/ II MBBS	3.51±1.00	4.12±0.87	-0.61	3.143	0.002
	II MBBS	3.41±1.10	4.42±0.70	-1.01	6.353	<0.001
	III/ I MBBS	3.07±0.85	4.48±0.63	-1.41	7.082	<0.001
	III/ II MBBS	3.16±1.08	4.13±0.97	-0.97	4.571	<0.001

Table 6: Mean level of the students' perceptions, expectations and service gaps in empathy dimension of SERVQUAL instrument

Item No	Professional year of students	Perception Score	Expectation Score	Mean gap (P-E)	Wilcoxon Signed rank	P-value
		Mean±SD	Mean±SD			
V	Empathy					
23	II MBBS	3.49±0.89	4.27±0.68	-0.77	6.623	<0.001
	III/ I MBBS	3.17±0.94	4.34±0.72	-1.17	5.668	<0.001
	III/ II MBBS	3.26±1.13	4.12±0.79	-0.93	4.384	<0.001
24	III/ I MBBS	3.17±0.94	4.34±0.72	-1.17	5.668	<0.001
	III/ II MBBS	3.12±1.18	4.26±0.83	-1.14	5.143	<0.001
25	II MBBS	3.81±0.82	4.43±0.61	-0.62	5.143	<0.001
	III/ I MBBS	3.46±0.75	4.49±0.67	-1.03	6.286	<0.001
	III/ II MBBS	3.48±1.16	4.31±0.83	-0.84	3.921	<0.001
26	II MBBS	3.78±0.75	4.34±0.74	-0.56	4.763	<0.001
	III/ I MBBS	3.27±0.87	4.31±0.77	-1.04	5.663	<0.001
	III/ II MBBS	3.33±1.09	4.13±0.86	-0.80	4.000	<0.001

Table 7: Table 3: Mean level of the students' perceptions, expectations and service gaps in all 5 dimensions of SERVQUAL instrument

Sr. No	Parameter	Max. Score	Professional year of students	Perception Score	Expectation Score	Mean gap	Wilcoxon Signed rank	P-value
				Mean±SD	Mean±SD	P-E		
1	Tangible	20	II MBBS	3.53±1.0049	4.25±0.7447	0.72	10.015**	<0.001
			III/ I MBBS	3.28±0.8996	4.60±0.6190	1.32	12.287**	<0.001
			III/ II MBBS	3.02±1.1328	4.21±0.8813	1.18	10.373**	<0.001
2	Reliability	40	II MBBS	3.71±0.9067	4.30±0.7043	0.59	13.692**	<0.001
			III/ I MBBS	3.40±0.9242	4.36±0.7227	0.96	15.471**	<0.001
			III/ II MBBS	3.32±1.1117	4.15±0.8362	0.83	12.637**	<0.001
3	Responsiveness	30	II MBBS	3.86±0.9197	4.33±0.6770	0.47	9.408**	<0.001
			III/ I MBBS	3.50±1.0003	4.40±0.6278	0.91	12.282**	<0.001
			III/ II MBBS	3.20±1.1745	4.20±0.8619	1.00	11.874**	<0.001
4	Assurance	20	II MBBS	3.74±0.9055	4.35±0.6741	0.61	9.764**	<0.001
			III/ I MBBS	3.47±0.8872	4.31±0.7433	0.83	9.729**	<0.001
			III/ II MBBS	3.32±1.0374	4.08±0.8908	0.77	8.239**	<0.001
5	Empathy	20	II MBBS	3.74±0.8302	4.36±0.6712	0.62	10.553**	<0.001
			III/ I MBBS	3.36±0.8614	4.40±0.6994	1.05	11.326**	<0.001
			III/ II MBBS	3.30±1.1436	4.22±0.8269	0.93	9.289**	<0.001

** Statistically highly significant at 0.1% level i.e., also $P < 0.001$.

DISCUSSION

In the present study, tangible was the domain where students perceived the highest quality gap. That indicates that students were not satisfied with appearance of faculty members, physical facilities, availability of educational aids, audio-visual tools. Similar findings were found by Mukhopadhyay DK and Ramakrishnan et al in India.^[7,8,9,10] There is really a need to improve the physical facilities in medical teaching institutes in India and in other countries. However, in contrast to above studies, Ruby CA 11 noted a positive quality gap in tangible dimension which indicates that students were satisfied with their classroom physical facilities. The present study showed the lowest negative quality gap in both reliability and assurance dimension. The findings of lowest quality gap in assurance dimension were also noted by Chopra et al, Mukhopadhyay DK, Ramakrishnan et al and

Ruby CA.^[8,9,10,11] It was revealed that the institute and medical teachers are on the toes to fulfil their duties on time and regularly and are also close to the students to gain their confidence. However, Aghamolaei T et al, Kebriaei A et al and Chua reported the lowest quality gap in dimension of reliability.^[1,7,12]

The present study also noted negative quality gap in responsiveness and empathy dimension which was similar with the findings of Chopra et al in India.^[8] Ramakrishnan et al also found negative quality gap in empathy dimension but positive in responsiveness dimension.^[10] In a study of Aghamolaei T et al in Hormozgan university the least quality gap was noted in reliability dimension.^[1]

In a study by Ruby, reliability and assurance dimensions of quality of educational services found the greatest and least negative gaps in quality respectively while Ruby notes positive quality gap in tangible dimension.^[11] The results of this study

are consistent with results of some studies carried out in Iran and other countries.

The study findings are specific to the concerned study institute; however, the situation may differ in different institutes. The students' expectations and perceptions would be different depending on the educational levels, facilities, equipment, the academic staff in universities and also differences in the cultural, social background and exposure in different communities.

Therefore, the result of present study cannot be extended to other medical institutes, universities. It is expected and recommended that such studies can be carried out in other universities too, so that they can improve the quality of education by providing a useful input in emphasizing the areas of concern in medical education.

CONCLUSION

The findings of the present study showed a negative quality gap in all the dimensions of educational services. However, this existing gap in all the aspects of the quality of such services can be used as a reference guide for planning, programming and allocation of resources at the institutional level. It was really encouraging that the quality gaps regarding consistency off and commitment to educational services as well as earning students' confidence were somewhat smaller than in the other dimensions in the present study. The students were not satisfied with the physical facilities and the easy accessibility and extra time by the teachers as well as their flexibility to fulfil the individual students need. If prioritization of resources is carried out on the basis of greatest to least negative gaps in all dimensions, that will lead to eliminate or decrease the quality gaps.

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