مقدمه: استخراج شواهد ارزیابی کیفیت در اعیان پزشکی از صنعت به صنعت متفاوت است. هدف این پژوهش در بررسی شاخص‌های کیفیت در دانشگاه‌های پزشکی و تأسیسات آموزشی دانشگاه مهندسی شیمی است. این تحقیق، ارزیابی کیفیت خدمات نیازمند خانم‌ها و آقایان در فضاهای آموزشی تأسیسات تشخیصی و درمانی است. آزمون به‌وسیله پرسشنوندگی SPSS طراحی و پیاده‌سازی شد. نتایج نشان داد که بالاترین کیفیت خدمات در دانشگاه مهندسی شیمی و پزشکی دندانپزشکی و کلینیک بیشتری و کمتر یادگیری‌گری و کاهش در کیفیت خدمات در رشته‌های پزشکی و تأسیسات درمانی داشت. در نهایت، نتایج نشان داد که بالاترین کیفیت خدمات در دانشگاه مهندسی شیمی و پزشکی دندانپزشکی و کلینیک بیشتری و کمتر یادگیری‌گری و کاهش در کیفیت خدمات در رشته‌های پزشکی و تأسیسات درمانی داشت.

کلیدواژه‌ها: کیفیت خدمات، دانشگاه، شکاف، دندانپزشکی، کمتر یادگیری‌گری، کاهش در کیفیت خدمات.
INTRODUCTION

Sustainable development of the educational system requires a harmonious and balanced development of quantitative and qualitative aspects (1). This has led to an increase in paying attention to the quality of service in recent years. Evaluation of quality of service is defined as the comparison of customers’ expectations and perceptions (2). It is believed that this issue determines the success and survival of every organization.

In the medical education system, the quality of service has other important aspects: the graduates of this system deal with the lives of people. It can be said that education authorities are responsible for the consequences due to the inefficiency in education (3). This may be the reason for the transition from quantitative to qualitative university development (4).

Students are the main customers of educational systems, so their opinion can be a mainstay to improve educational quality. This paradigm can attract attention about resource insufficiency: managers can use their limited resources in areas which are important from the students’ point of view (5, 6).

There are different tools to evaluate the services quality. One of the most famous instrument for this purpose is SERVQUAL Model (7, 8). It evaluates the quality gap (i.e. the difference between ideal status and current status) in five dimensions: tangible (physical facilities, equipment, and appearance of personnel), confidence (ability to perform the promised service dependably and accurately); responsiveness (willingness to help customers and provide prompt service); assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence) and empathy (caring, individualized attention the firm provides its customers) (9).

Several studies in various countries have been conducted with the use of this model. For example, at the University of Singapore, the highest gap is in the assurance dimension (10). The negative gap is reported in all dimensions of educational quality in Canada and China (11, 12). Another study performed in the USA showed that appropriate educational services are not delivered to them (13). Low-quality educational services in Australia had made some students to drop out (14). Some universities in Iran have done similar research which showed negative educational quality gap (4, 15-18). Although a single study in medical faculty has been reported from Mashhad (19), no other study has compared various faculties of this university. Due to this knowledge gap and the importance of students’ viewpoint about educational quality of services, which can guide decision makers to conduct proper interventions, the present survey was performed to evaluate the educational quality in seven faculties of Mashhad University of Medical Sciences (MUMS).

METHODS

This cross-sectional study was performed in all seven faculties (medicine, dentistry, paramedical, health, nursing, pharmacy, traditional medicine) of Mashhad University of Medical Sciences, Mashhad, Iran in 2016. The sample size was calculated based on similar studies (2, 4). We used a quota stratified cluster sampling method. Total sample size was dedicated to each faculty based on its’ quota of total students in the university. In the second step, different educational grades were considered in each faculty, and cluster sampling was performed from the students grouped in a classroom. The only inclusion criterion was being in the third semester or higher.

Student Advisory Committee which is a junction between students and Education Development Center (EDC), had the responsibility for data gathering. In each faculty, the sub-branch of Student Advisory Committee has its members which try to find the educational problems and transfer them to higher levels of decision makers.

The questionnaire of this study was the SERVQUAL questionnaire which has been validated in several studies in Iran (15-19). However, we also checked its reliability based on expert opinion and the validity of Cronbach’s alpha of 0.91. It had two main parts: a) demographic including gender, age, term and being native b) 27 pair of questions about the current and ideal status of educational quality. These issues were categorized into 5 domains including tangibles, responsiveness, empathy, confidence, and assurance. For each question, the respondent should choose among a four Likert scale (current status: 1-very good to 4-very bad, ideal status: 1-very important to 4-very unimportant). We converted this scale into percentages. In this scale, the difference of ideal from current situation shows the quality gap in educational services. Participating in this study was completely voluntary for the students. Mashhad University of Medical Sciences Ethics Committee approved the study (IR.MUMS.REC.1395.137).

Descriptive analysis including frequency, mean and standard deviation and inferential analysis including t-test, ANOVA test, and Spearman correlation coefficient were performed by Statistical Package for Social Sciences version 11.5. All tests were two-tailed with a significance level of <0.05.

RESULTS

A total number of 540 students with a mean age of 22.7±4.2 years were included. The majority were females (327, 61.5%) and native (324, 65%). Participants were studying at their 6.3±3.6 semester.

As Table 1 shows, all faculties had a negative gap in all domains of educational quality of service. The greatest quality gap was observed in dentistry (-41.4±21.6) and medicine (-30.7±15.7) faculties, respectively. On the other hand, nursing (-25.6±17.2) and health (-25.8±14.9) faculties had the lowest educational quality gap, respectively. The main gap in medicine, paramedical, nursing and pharmacy faculties was responsiveness domain while assurance in health and traditional medicine faculties was the most important problem. According to dentistry students, empathy was the main issue.

There was no significant difference between two genders in terms of total quality gap score or in each individual domain. Non-native students perceived a rather higher gap in all domains. Among the various items, responsiveness (p=0.001) and empathy(p=0.02) domains showed...
Educational Quality Gap from Students' Viewpoints

<table>
<thead>
<tr>
<th>Table 1. The percentage of educational quality gap (mean±SD) in five main domains in different faculties of Mashhad University of Medical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tangibles</strong></td>
</tr>
<tr>
<td>Medicine</td>
</tr>
<tr>
<td>Dentistry</td>
</tr>
<tr>
<td>Paramedical</td>
</tr>
<tr>
<td>Nursing</td>
</tr>
<tr>
<td>Pharmacy</td>
</tr>
<tr>
<td>Traditional medicine</td>
</tr>
<tr>
<td><strong>P-value</strong></td>
</tr>
</tbody>
</table>

| Table 2. The percentage of educational quality gap (mean±SD) in five main domains regarding gender and being native in Mashhad University of Medical Sciences |
|---------------------------------|----------------|---------|-------|-------|-------|-----|
| **Gender** | **Native** | **P-value** | **Yes** | **No** | **P-value** |
| Tangibles | Male | Female | 0.29 | -27.6±21.2 | -29±19.2 | 0.49 |
| Responsiveness | -31.4±20.9 | -35±22.6 | 0.07 | -31.1±22.3 | -37.8±21.3 | 0.001 |
| Empathy | -28.1±20.7 | -31.3±22.1 | 0.10 | -28.4±22.2 | -33±20.7 | 0.02 |
| Confidence | -27.5±20 | -26.4±21.2 | 0.56 | -26.5±21.9 | -27.7±18.3 | 0.49 |
| Assurance | -30.7±20.5 | -29.7±22.3 | 0.61 | -29.4±21.9 | -30.9±21.3 | 0.46 |
| Total | -28.6±15.4 | -30.2±17.6 | 0.31 | -28.5±17.7 | -31.2±15.4 | 0.09 |

The results of each individual faculty and possible contributing factors are discussed as follows: **Traditional medicine**: The assurance domain had the highest gap in this faculty. Besides this domain also has the highest gap comparing to this specific domain in other faculties. The traditional medicine faculty is the newest faculty of MUMS which was built in 2011(20) and still is improving its educational system. A limited number of educator which are generally busy with administrative duties is another problem from students' point of view. Currently, there is no externship period for students which seems to be highly needed. Moreover, there is no particular hospital for practising traditional medicine. This can lower the practical education of students (21). The decision makers should pay special attention to improving the practical performance of traditional medicine.

**Pharmacy**: The results obtained from the school of pharmacy, revealed that the least and the greatest negative quality gaps were in the confidence and responsiveness domains, respectively. These findings are in concert with the findings reported by Aghamolaei et al. from Hormozgan University of Medical Sciences and Kebriaei et al. from Zahedan University of Medical Sciences (15, 22). The highest quality gap in the responsiveness domain is solved by time allocation to students to improve student-educator as well as student-administration inter talk. The high ratio of students to supervisors and the involvement of academic staff with statistically significant difference (Table 2).

Increasing the semester of students resulted in worsening the educational gap of four-fifth of domains. This was \( r = 0.16 (p < 0.001) \) for responsiveness, \( r = -0.20 (p < 0.001) \) for empathy, \( r = 0.18 (p < 0.001) \) for confidence, \( r = 0.09 (p = 0.04) \) for assurance and \( r = -0.19 (p < 0.001) \) for total educational quality gap.

In the University, the highest and lowest gap is in responsiveness (-33.8±22.2) and confidence (-26.9±20.9), respectively. Interestingly, the educational gap is symmetrical in different dimensions (Figure 1).

**DISCUSSION**

The results of each individual faculty and possible contributing factors are discussed as follows:

**Traditional medicine**: The assurance domain had the highest gap in this faculty. Besides this domain also has the highest gap comparing to this specific domain in other faculties. The traditional medicine faculty is the newest faculty of MUMS which was built in 2011(20) and still is improving its educational system. A limited number of educator which are generally busy with administrative duties is another problem from students' point of view. Currently, there is no externship period for students which seems to be highly needed. Moreover, there is no particular hospital for practising traditional medicine. This can lower the practical education of students (21). The decision makers should pay special attention to improving the practical performance of traditional medicine.

**Pharmacy**: The results obtained from the school of pharmacy, revealed that the least and the greatest negative quality gaps were in the confidence and responsiveness domains, respectively. These findings are in concert with the findings reported by Aghamolaei et al. from Hormozgan University of Medical Sciences and Kebriaei et al. from Zahedan University of Medical Sciences (15, 22). The highest quality gap in the responsiveness domain is solved by time allocation to students to improve student-educator as well as student-administration inter talk. The high ratio of students to supervisors and the involvement of academic staff with statistically significant difference (Table 2).

Increasing the semester of students resulted in worsening the educational gap of four-fifth of domains. This was \( r = 0.16 (p < 0.001) \) for responsiveness, \( r = -0.20 (p < 0.001) \) for empathy, \( r = 0.18 (p < 0.001) \) for confidence, \( r = 0.09 (p = 0.04) \) for assurance and \( r = -0.19 (p < 0.001) \) for total educational quality gap.

In the University, the highest and lowest gap is in responsiveness (-33.8±22.2) and confidence (-26.9±20.9), respectively. Interestingly, the educational gap is symmetrical in different dimensions (Figure 1).
administrative duties have worsened the problem. The curriculum should be revised considering students’ feedbacks and comments. Well educated academic staff with high enthusiasm and the academic standard have led to the least gap in confidence domain. Also, course plan for general and PhD pharmacy students have been provided and uploaded on the faculty website, and professors are required to adhere to the course plans.

Dentistry: There was a negative gap in all domains of this school. Bahreini et al. reported a negative gap in educational services from Shiraz in 2012 (23). Jafari et al. reported the highest negative gap in responsiveness in Gilan dentistry school (24). Similar findings were reported by Mohebi et al from Ghom (25). This can be due to the high expectation of dentistry students as the best-ranked students in the National University Entrance Exam. Thus, engaging the students in decision making might be a solution to cover this gap.

Health: The highest gap was in assurance domain. A recent study from Tehran health faculty reported the highest gap in tangibility and the lowest gap in confidence (26). Three research projects had previously focused on this domain. A recent study about academic advisors showed that 57% of respondents had a reasonable satisfaction (27). Our study showed that among the different faculties the students of this faculty reported the second least quality gap and their expectations from the educational system were rather fulfilled. This might be due to a limited number of students and a proper student-academic staff relationship. As mentioned earlier the academic advisors of this faculty have a key role in such relations which have improved the educational system. Another qualitative research on nearly all course plans of health school showed that academic staff properly adhere to the approved course plans (28). According to Student Advisory Committee of health faculty, the most beneficial courses for the students’ future career, reproductive health course, mother and child health course and applied nutrition course scored the highest ranks from students’ points of view (unpublished data).

Nursing: The highest negative gap in our study was in tangibles domain but in some other universities such as Gilan, Kerman, and Urmia, responsibility domain was blamed as the main problem (29,30,31). Re-evaluation of physical standards, adjustment of student admission with physical capacity, as well as using modern, efficient technologies can reduce the educational gap in this faculty. The lowest gap in assurance and confidence domains show a proper management of theoretical and practical education to be in line with the students’ future needs. The curriculum revision performed by the Ministry of health and increasing the clinical externship period has led to a reduced gap in assurance and confidence domains. Focusing on the future career and practical needs of graduate students has been emphasized by several researchers in MUMS (32, 33).

Paramedical: This study found that responsiveness and confidence as the highest and lowest negative gap, respectively. This is similar to the findings of Sohrabi et al. in Tehran and Kebriaei et al. in Zahedan (15, 34). The similarity of the lowest gap among different universities may stem from inherent conditions of this major. However, the variety of highest gap may be due to different environmental conditions. Improving the responsiveness domain is not difficult could be considered by educational system policymakers.

Medicine: Most published studies have focused on medical school. Similar to the results of the current study, a negative gap in this faculty has been reported from a variety of medical universities including Hormozgan, Zahedan, Zanjan, Kashan, and Tehran (4, 15, 16, 17, 18, and 22). In our investigation, the responsiveness domain had the highest gap. It seems reasonable that paying attention to the possibility for students to express their points of view, accessibility to educators, and the acceptable responsibility of educational personnel in time of problems might reduce this quality gap (35).

University: In total, no gender difference in the quality gap in this study is congruent with previously reported ones (4,35) although being native was not studied before, the significant higher gap reported by non-native students in responsiveness and empathy domain seems logical due to their feeling of being a guest in MUMS. According to this study, we can categorize the five domains into three priority levels for resource allocation. The top priority dedicates to responsiveness. Workshops for educational staff to improve their service delivery qualities is also recommendable. In addition, efficient system for collecting suggestions can reduce the gap. This was the first study covering all faculties of MUMS to evaluate educational quality gap. Sampling method, high response rate, and engagement of student advisory committee are the strengths points which increase the generalizability of the finding. A study to evaluate educational quality gap from educators’ point of view can broaden our knowledge in this field.

CONCLUSION

The negative gap shows that students’ expectations are not fulfilled. We believe that some items can be easily modified by management interventions and revising processes for educational services. The important issue is that these domains are correlated: improving one can improve others.

ACKNOWLEDGMENT

This study could not be performed without the support of Vice Chancellor for Research and Vice Chancellor for Education. We also appreciate the kind cooperation of Secretaries of Student Advisory Committee in our seven faculties. A special thank should be dedicated to all students who honestly filled the questionnaire.
REFERENCES


24. Zaker Jafar HR, Hamkar B, Mirfarhadi N. The interval of educational services quality: Distance of current and desirable situation from viewpoints of dentistry students of Guilan University of Medical Sciences in 2014. Research in medical education 2014, 7(3): 64-70. [In Persian].

25. Mohbei S, Adeli SH, Arsanj Sh. A study of quality of educational services from the viewpoint of students of Qom University of Medical Sciences based on servqual model, 2013. Iran. Qom University of Medical Sciences journal 2015, 9(6): 66-76. [In Persian].


34. Zaker Jafar HR, Hamkar B, Mirfarhadi N. The interval of educational services quality: Distance of current and desirable situation from viewpoints of dentistry students of Guilan University of Medical Sciences in 2014. Research in medical education 2014, 7(3): 64-70. [In Persian].

35. Mohbei S, Adeli SH, Arsanj Sh. A study of quality of educational services from the viewpoint of students of Qom University of Medical Sciences based on servqual model, 2013. Iran. Qom University of Medical Sciences journal 2015, 9(6): 66-76. [In Persian].