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Exploring Academic Satisfaction of Operating Room MSc Students at Medical sciences Universities in Iran During the Academic Year 2022-2023

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Abstract

Introduction: This study investigates the academic satisfaction of master's level operating room students, who are potential future faculty members. This exploration aids in monitoring the educational system of medical sciences universities in Iran.

Methods: This 2022 cross-sectional survey research included all 131 master's students in operating room technology across Iran for the academic year 2022-2023. Students in Tehran completed the questionnaires in person, while those from other provinces responded electronically. Data were collected using a demographic profile form and a researcher-developed academic satisfaction questionnaire. The validity and reliability of the questionnaire were confirmed. Data analysis was performed using SPSS26 software.

Results: Of the 131 students participating in the study, 72% were female, 65% were employed, 61% were married, and 26% were local residents. The overall academic satisfaction was average (with a mean score of 66 in a range of 23 to 115). Factors such as the host university, undergraduate GPA, academic semester, employment status, marital status, gender, and parents' education significantly influenced academic satisfaction ($P<0.05$).

Conclusions: The academic satisfaction of master's level operating room students was moderate. To enhance student satisfaction, steps such as creating favorable conditions to advance the operating room field at the master's level and providing specialized training for postgraduate specialists are necessary. Enhancing specialized skills can foster a more positive attitude among students towards their field of study, thereby increasing their academic satisfaction.

INTRODUCTION

The field of Operating Room Studies is a branch of medical sciences. Students in this field are introduced to the latest principles and technologies in operating room procedures. An operating room technologist serves as an assistant to the surgeon, aiding in the surgical process. Their responsibilities include preparing the surgical environment and equipment, ensuring sterilization, assisting the surgeon during the operation, and caring for the patient before, during, and after surgery. In Iran, this field accepts students at both undergraduate and graduate levels. The undergraduate program primarily aims to prepare students for work in the operating room, while the master's program is designed to provide students with more specialized skills in operating room

management, faculty membership at universities, and teaching operating room-related courses. The objective of this study is to investigate the academic satisfaction of graduate students.

The development of education in the world today has highlighted the issue of satisfaction with its different dimensions in education [1]. Academic satisfaction is one of the important issues in education, which includes students' perception of educational programs, the conditions required for study, and the educators' behavioral characteristics and supervision [2]. In other words, satisfaction with education can be defined as a part of the student's attitude in relation to their perception of the educational environment [3]. According to Kuo (2010), students' satisfaction refers to how they perceive their learning experiences [4].

A wealth of research has identified academic satisfaction as a key factor influencing academic progress, motivation, the development of academic skills, mental health in the educational environment, and the desire for learning [5]. Furthermore, academic satisfaction impacts the level of closeness and independence among students, their self-efficacy, their relationships with peers and university professors, and ultimately, the quality of education [6]. Studies suggest that students with higher academic satisfaction exert more effort to achieve academic success [7-9]. Therefore, it can be concluded that there is a direct relationship between academic satisfaction and academic success.

Universities and other academic centers play a very important role in the development of a country as they are responsible for the admission and education of students in various fields of study [10]. One of the important challenges for the management of any organization is the quality of services as they create growth, success and sustainability of an organization [11]. Universities are not an exception, It is believed that the two basic characteristics of higher education in this era are quality and competition [12]. The views of the people in any organization provides a valuable opportunity to explore the issues and processes in the organization and increase the quality of services there [13]. Students are the main target of higher education and their satisfaction is an essential factor in evaluating the quality of universities in the world [14]. They can have a great role in measuring the educational performance of universities and provide information to improve the relevant educational centers [15]. The exploration of satisfaction makes it possible to take the initial measures towards the realization of the goal of "providing satisfaction and improving the services" of an organization, or increase the degree of satisfaction if it is at a weak or moderate level [16]. In today's world with ample competition among organizations to attract customers, satisfaction can be a sign of the superiority and success of an organization, because what makes the progress of the organization and the loyalty of the customer possible is customer satisfaction [17, 18]. On the other hand, dissatisfaction, causes negative publicity against the organization and directs the organization towards failure [19]. Therefore, the evaluation and measurement of satisfaction is the only tool that can measure the performance of the system and increase its capability [20]. Different local and international studies have already investigated the academic satisfaction of medical students in different disciplines and degrees. Rahimi and his associates focused on nursing, midwifery and emergency medicine students and found they had average academic satisfaction [21]. Jahanian et al.'s study showed that postgraduate students at Babol University of Medical Sciences in Iran had high academic satisfaction most of which was related to the services made by supervisors [22]. Muronga and Tomas also found that the nursing students of the University of Namibia had high academic satisfaction stimulated by classroom teaching, simulation-based training, and staff behavior, but access to university services was the main cause of dissatisfaction among them [23]. However, Hakim found that most nursing students had little satisfaction [24].

Recent studies have highlighted various factors influencing the academic satisfaction of operating room students. Waseem et al. (2022) explored the quality of learning in the operating room, emphasizing the importance of structured learning, teacher engagement, and emotional and organizational factors [25]. Chao et al. (2022) examined the intra-operative learning process, identifying key interventions and models to enhance teaching and learning, such as structured feedback and adequate supervision [26]. Pasquer et al. (2024) in a systematic review on operating room organization and surgical performance identified factors that impact both surgical outcomes and the learning experience of students, underscoring the complexity of the OR environment [27]. Additionally, Sedigh et al. (2024) in a study on peer mentoring programs demonstrated significant improvements in academic progress, self-confidence, and stress reduction among operating room students, suggesting that such programs can complement traditional educational methods4. These findings collectively underscore the multifaceted nature of academic satisfaction in the operating room, highlighting the need for comprehensive and structured educational approaches [28].

Research shows that factors such as gender, ethnic and racial status, personal and family characteristics, educational environment, teaching methods and educational environment can affect satisfaction [1].

Graduate students are the new generation of faculty members, researchers, scientists, who form the country's scientific society [29]. It is then necessary for the universities to provide the necessary facilities and equipment and obtaining the satisfaction of these students through exploring their expectations, needs

and satisfaction degree in the current conditions [30]. Because the students of the operating room engage in educating and training new forces when they complete their master's program, learning about their academic satisfaction can help the officials in management and planning. To the best of our knowledge, no comprehensive study has been conducted on the satisfaction status of MSc students of operating room in Iran. Most of the current studies have been conducted on population of other disciplines or with undergraduate students. Therefore, the present study aims to explore through a comprehensive survey the satisfaction status MSc students of operating room in Iranian universities of medical sciences in the academic year of 2022-2023. In the academic year 2022-2023, master's students are being admitted to the universities of medical sciences in several regions of Iran, including Isfahan, Shiraz, Kermanshah, Hamedan, Yazd, and Mazandaran. This reflects the growing interest and opportunities in the field of Operating Room Studies in the country.

METHODS

The current research is a cross-sectional study that analyzed the factors affecting satisfaction through the description of variables and both bivariate and multivariate analyses. The participants comprised all students pursuing a Master's degree in Operating Room Studies at the universities of medical sciences in Iran. This included 131 Master's students from the universities of medical sciences in Tehran (23 students), Isfahan (24 students), Shiraz (21 Students), Hamedan (19 students), Mazandaran (15 students), Yazd (9 students), and Kermanshah(10 students). The inclusion criterion was being a Master's student in Operating Room Studies, while the exclusion criterion was the student's unwillingness to participate in the study. This ensures that the study's findings are representative of the target.

The data collection instruments were a demographic profile form and a researcher-made questionnaire of academic satisfaction (including 23 items). The academic satisfaction measurement questions were derived from a combination of items used in previous studies and a form for gauging student academic satisfaction in the university education system. These items encompassed questions about satisfaction with university professors, university staff, university facilities, the hospital environment, and the chart and course headings. The titles of these items are clearly stated in Chart 1. Following the collection of these items, their validity and reliability were assessed. Detailed results of the validity and reliability evaluation of the questionnaire were conducted in the Turkashund study (1402), which were measured and confirmed by 10 field experts (19). The face validity of the questionnaire was examined by the experts, and the clarity, comprehensibility, relevance, and necessity of the questions were evaluated and confirmed. Additionally, expert opinions regarding the phrasing of the questions and the deletion or addition of questions were applied. The reliability of the questionnaire was measured through its internal consistency and using the Cronbach's alpha index (20, 21). Initially, as a pre-test and after the questionnaire's validity was confirmed by experts, the questionnaire was distributed among 30 master's degree students of the operating room studying in the country's universities of medical sciences. After aligning the items, its reliability value was 0.848. After the initial approval of the questionnaire in the pre-test stage, the reliability test was re-evaluated in the final completion of the questionnaire in the whole sample, and its value was 0.886. The responses were rated on a Likert scale as very low, low, medium, high and very high, and scores from 1 to 5 were assigned to the responses respectively.

The data were collected both in person and electronically and then analyzed using SPSS26 software. Students studying at universities in Tehran province were interviewed using face-to-face questionnaires, while students from other provinces were interviewed through electronic questionnaires.The research sample consisted of Master's degree students in the field of Operating Room Studies at the country's universities of medical sciences. Initially, a list of these students was obtained from the vice-chancellor of each university. Subsequently, through both face-to-face and electronic communication, the students were briefed on the necessary details. After this briefing, the students completed the questionnaires. This method ensured that all participants were well-informed and willing to participate in the study. Quantitative data were specified in mean, standard deviation and qualitative data in percentage. To analyze the data, parametric tests of analysis of variance (One Way ANOVA) were used for the multivariate variables and Independent Samples T-tests were used for bivariate variables. Finally, linear regression was employed to conduct a multivariate analysis of the factors influencing students' academic satisfaction. To determine whether to use parametric or non-parametric tests for analyzing the relationships between research variables, the normality indicators of the main research variables were examined. The results of the skewness index, kurtosis, Kolmogorov-Smirnov test, and Shapiro-Wilk test indicated that the main variables followed a normal distribution, allowing for the use of parametric tests. A box plot analysis was conducted to identify any outliers, and the results showed no outlier values in the variables. Additionally, the Levene test was used to assess the homogeneity of variance among the main variables across the groups of independent variables. Since homogeneity of variance was confirmed in all cases, parametric tests such as One-

Way ANOVA for multivariate variables and the Independent Samples t-test for bivariate variables were employed.

Regarding ethical considerations, the study adhered to the following protocols:

Permission: The research committee of the paramedical faculty granted permission for the study.

Ethics Code: An ethics code was obtained from the Ethics Committee of the Iran University of Medical Sciences, ensuring the study conformed to ethical guidelines.

Consent: Consent forms were obtained from the research participants, ensuring their voluntary participation in the study.

Confidentiality: Each student was assigned an information code to maintain the confidentiality of their information.

These measures ensured that the study was conducted in an ethical manner, respecting the rights and privacy of the participants.

RESULTS

In general, 131 people participated in the study including 33 from Iran University of Medical Sciences, 21 from Shiraz University of Medical Sciences, 24 from Isfahan University of Medical Sciences, 19 from Hamedan University of Medical Sciences, 15 from Mazandaran University of Medical Sciences, 10 from Kermanshah University of Medical Sciences and 9 from Yazd University of Medical Sciences. Most of the students under study were in the age range of 25-30 (42.7%), and 72.5% of them were women. The undergraduate GPA (Grade Point Average) of 52.7% of the students was 18 and above. 64.9% of the people were employed, of whom 63.4% had jobs related to operating room major. 61.1% of the students were single and the rest were married. Most of the students (38.9%) admitted to the master's program had ranked 1 to 10 in the entrance exam. The students under study were in the first, third, fifth, seventh and ninth semesters but most of them (34.4%) were in their first semester. 38.9% of the students' fathers and 42.7% of their mothers had a high-school diploma. 43.5% of the participants stated their father's occupation but 71.1% of them did not specify their mother's occupations. 74% of students were not from the same place of study but only 26% of them were studying in universities in their place of residence. Academic satisfaction was measured through 23 questions with 5 options each, the lower and upper scores were 23 to 115 classified into three groups of low (23 to 53), medium (54 to 84) and high (85 to 115). As Table 1 shows, most of the students have an average score (mean score of 66.62±17.2) with regard to academic satisfaction. As can be seen in Figure 1, the scores for the satisfaction items for the items "trainings will improve my professional capability in the future" with a mean score of 3.5±1.2, "There is proper access to books, scientific journals and electronic resources in the university" with a mean score of 3.4±1.2, "University professors and staff have a good relationship with students" with a mean score of 3.3±1.3, and "the professors employ collaborative teaching method during the course" with a mean score of 3.3±1.2 had the highest satisfaction score. On the other hand, the items "hospital facilities (dressing room, closet, resting place, etc.) are suitable" with a mean score of 2.2±1.0, "Specialized Journal Club is held to increase professional capability" with an average score of 2.5±1.1, and "The Research deputy of the faculty provides sufficient facilities to conduct research on time" with a mean score of 2.6±1.1 had the lowest satisfaction score.

Tables 2 and 3 show the relationship between academic satisfaction and the personal characteristics and family features of the students, respectively. According to these tables, there is no significant relationship between academic satisfaction and the variables of age, master's entrance exam rank, residence status, and parents' occupations. However, a significant relationship was found between academic satisfaction and other variables including university of study, gender, undergraduate GPA, employment status, marital status, semester, and parents' education ($P<0.05$). Students studying at Shiraz University of Medical Sciences had the highest academic satisfaction score (academic satisfaction mean score 71.9±15.6) and Yazd University of Medical Sciences students had the lowest academic satisfaction score (academic satisfaction mean score 56.6±15). Male students had more academic satisfaction (the mean score for academic satisfaction was 69.58±15.6 for males and 62.49±17.7 for females). With the increase in the undergraduate GPA, the academic satisfaction decreased (the satisfaction mean score for people with GPA 14 to 16 was 68.4±8.7, but the satisfaction mean score in people with GPA 18 and above was 65.6±16.9). Employed people had less academic satisfaction than unemployed people (the satisfaction mean score in employed people was 66±17.4 and in non-employed people 68±16.8). Single people had more academic satisfaction than married people (the mean score of academic satisfaction in single people was 68.9±17.3 but in married people it was 63±16.7). As the academic semester increased, the academic satisfaction decreased (the mean score of academic satisfaction in 1st semester participants was 70.3±13.4 but in 7th semester participants it was 63.9±23.5). The higher the educational qualification of the parents, the higher the academic satisfaction was (the mean score of academic satisfaction in students whose fathers and mothers were under diploma was 65±17.2 and 63.4±15.4, respectively, but the mean score in people whose fathers and mothers had a master's degree or higher, it was 72.4±25.8 and 69.8±23, respectively). Despite the absence of a significant relationship between residential

status and academic satisfaction, local students had more academic satisfaction. Moreover, students whose fathers had engineering jobs had more academic satisfaction, although the relationship was not much significant. Finally, the net effect of the variables was examined using multivariate analysis. In Table 4, a linear regression analysis was conducted to examine factors influencing students' academic satisfaction. Nine variables were included: attitude towards career, attitude towards profession, employment status, academic semester, bachelor's GPA, marital status, gender, father's education, and mother's education. The model was significant and explained 40% of the variance in academic satisfaction. Significant factors were attitude towards career, attitude towards future career, marital status, and mother's education. Positive attitudes towards career and higher maternal education were linked to greater satisfaction, while single students reported higher satisfaction than married ones.

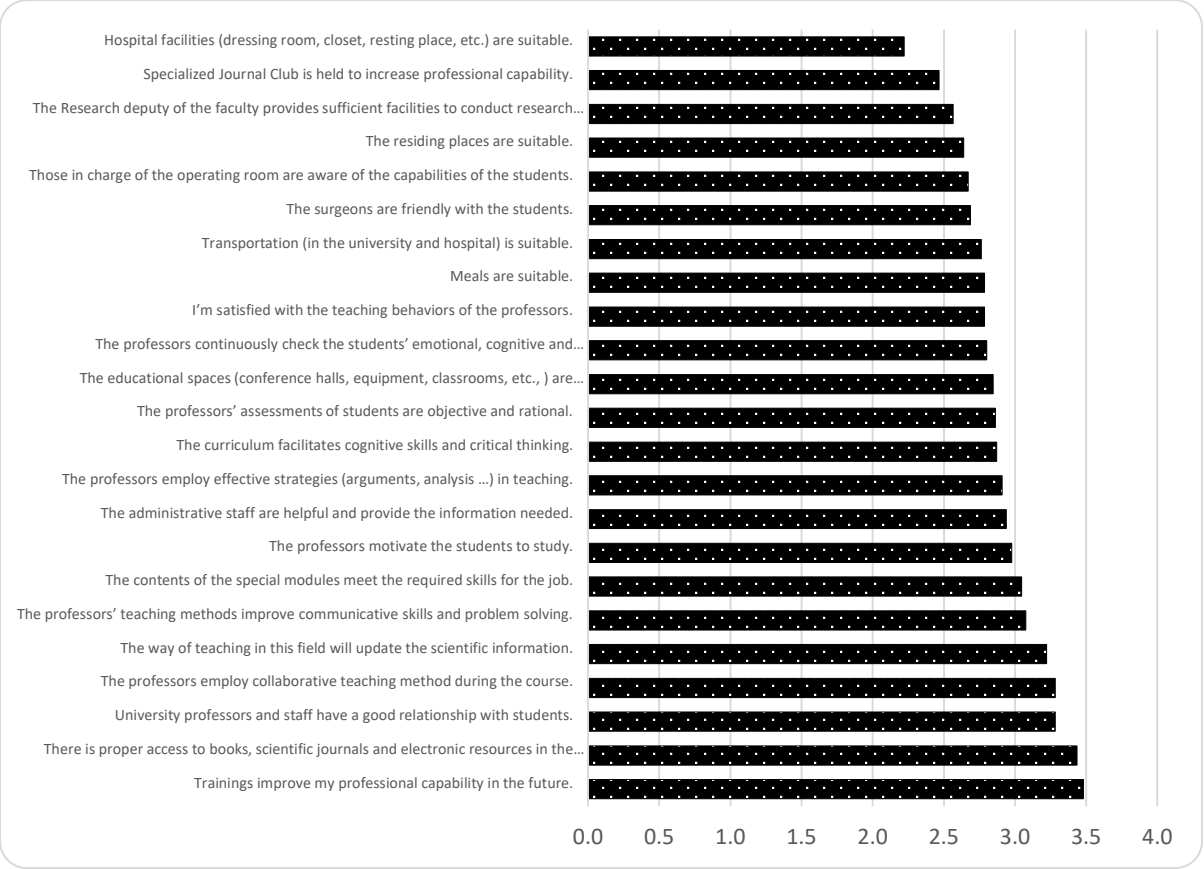

Figure 1. The scores of the responses to the academic satisfaction items

Table 1. Distribution of responses according to academic satisfaction scores

Score	frequency	percent	Mean (SD)
Academic satisfaction			66.62 (17.2)
low (23 to 53)	23	17.6	
medium (54 to 84)	89	67.9	
Hight (85 to 115)	19	14.5	
total	131	100	

Table 2. Comparison of the mean scores of academic satisfactions in with regard to personal characteristics

Group	N	Means of academic satisfactions	SD	Test of Homogeneity of Variances	Coefficient	P-Value
University				Levene Statistic = 1.22, P = 0.358	ANOVA F=4.6	0.032
Iran	33	67.1	19.5			
Shiraz	21	71.9	15.6			
Esfahan	24	67	14.7			
Hamedan	19	71.2	17			
Mazandaran	15	63.9	16.8			
Kermanshah	10	57.4	17.4			
Yazd	9	56.6	15			
GPA				Levene Statistic = 1.8, P = 0.396	ANOVA F=3.7	0.049

14 To 16	9	68.4	8.7			
16 To 18	53	67.6	18.8			
18+	69	65.6	16.9			
Master's Entrance Exam Rank				Levene Statistic = 0.164, P = 0.920	ANOVA F=0.63	0.92
1 To 10	51	66.5	17.6			
11 To 20	34	68.1	17.1			
20+	23	66.5	16.2			
Talented	23	64.8	18.3			
Semester				Levene Statistic = 0.89, P = 0.432	ANOVA F=3.16	0.032
1	45	70.3	13.4			
3	38	64.2	17.4			
5	31	64.5	18.8			
7	14	63.9	23.5			
9	3	76.7	10			
Employment Status				Levene Statistic = 0.471, P = 0.494	Independent Samples Test, t=2.2	0.048
Employed	85	66	17.4			
Not Employed	46	68	16.8			
Marital Status				Levene Statistic = 0.1, P = 0.712	Independent Samples Test, t=4.6	0.017
Single	80	68.9	17.3			
Married	51	63	16.7			
Gender				Levene Statistic = 1.2, P = 0.278	Independent Samples Test, t=3.2	0.026
Male	36	69.58	15.6			
Female	95	62.49	17.7			
Age				Levene Statistic = 1.01, P = 0.379	ANOVA F=1.1	0.774
20 To 25	49	66.3	15.6			
25 To30	56	65.9	19.6			
30 +	26	68.8	14.9			
Total	131	66.6	17.2			

Table 3. Comparison of the mean scores of academic satisfactions with regard to family features

Group	N	Means Of Academic Satisfactions	SD	Test Of Homogeneity Of Variances	Coefficient	P-Value
Residence Status				Levene Statistic = 0.7, P = 0.0.4	Independent Samples Test, T=0.1	0.987
Native	34	66.88	18.7			
Non-Native	97	66.53	16.7			
Fathers' Education				Levene Statistic = 0.45, P = 0.564	ANOVA F=3.9	0.035
High School	42	65	17.2			
Students	51	67	15.8			
Bachelor's Degree	31	70.1	17.1			
Master's Degree And Higher	7	72.4	25.8			
Mothers' Education				Levene Statistic = 0.48, P = 0.95	ANOVA F=2.14	0.043
High School	56	63.4	15.4			
Students	48	68.9	17.8			
Bachelor's Degree	23	69.4	19.1			
Master's Degree And Higher	4	69.8	23			
Fathers' Employment				Levene Statistic = 0.83, P = 0.298	ANOVA F=.754	0.558
Medical Staff	3	67.3	17.8			
Teaching Staff	12	66.2	20.9			
self-employment	51	66.5	15.8			
Engineering	8	76.6	11.4			
Other	57	65.3	18.3			
Mothers' Employment				Levene Statistic = 0.51, P = 0.534	ANOVA F=.891	0.472
Medical Staff	2	79	17.8			
Teaching Staff	14	67.7	20.9			
self-employment	21	63.3	15.8			
Engineering	1	89	11.4			
Other	93	66.7	18.3			

Table 4. Multivariate analysis of factors affecting academic satisfaction

	Unstandardized Coefficients		Standardized Coefficients, Beta	t	Sig.	Analysis of variance, ANOVA	Model Summary
	B	Std. Error					
(Constant)	29.13	13.82		2.11	0.04	F= 7.6, p= 0.000	R=0.63, R Square= 0.40
Attitude to the profession	0.9	0.19	0.5	4.8	0		
Attitude towards future career	0.37	0.24	0.23	2.28	0.048		
have a job (no 1)	-0.06	2.78	0	-0.02	0.98		
academic semester	-0.68	0.61	-0.09	-1.11	0.27		
Bachelor's grade point average	-0.48	2.17	-0.02	-0.22	0.83		
Marital status (married 1)	-4.02	2.74	-0.17	-2.05	0.014		
gender (female 1)	-2.32	3.01	-0.06	-0.77	0.44		
father's education	-2.16	2.34	0.11	0.92	0.36		
mother's education	3.94	2.43	0.19	1.62	0.041		

DISCUSSION

The aim of this study was to examine the level of academic satisfaction among Master's degree students in the field of Operating Room Studies at universities across the country. Additionally, the study compared the academic satisfaction of students based on demographic variables and the specific university they attended. This comparison could provide insights into how different factors and environments influence student satisfaction, which could be valuable for educational institutions seeking to improve student experiences and outcomes.

In the present study, most of the students had an undesirable average score of the academic satisfaction variable (67.9%). The highest satisfaction scores belonged to the items "trainings will improve my professional ability in the future", "There is adequate access to books, scientific journals and electronic resources in the university", "The professors and staff of the university have a good relationship with the students" and "The teaching method of the professors during the course is cooperative". On the other hand, lowest satisfaction scores belonged to the items "Well-being facilities in the hospitals (dressing rooms, closets, rest areas, etc.) are proper", "Specialized journal club is organized to increase professional ability" and "Research deputy of the faculty provides sufficient facilities to conduct research on time". The results of this study are in line with those obtained by Rahimi et al. (2019) [21] who found the academic satisfaction of nursing, midwifery and emergency medicine students at an average level. Our results are different from those In Farsi et al.'s study (2019) [31], where the satisfaction of undergraduate and graduate nursing students was at a high level. Jahanian et al. (2019) [22] also found high satisfaction rate for the graduate students (master's degree and doctorate) in medical sciences. Two reasons to account for the controversy can be the different statistical population (course or field of study) and the educational satisfaction measurement instrument.

Among the demographic variables, the variables of the university, gender, undergraduate GPA score, employment status, marital status, academic semester, and parents' education had a significant relationship with the academic satisfaction variable, but other variables did not show a significant relationship. The students of Shiraz University of Medical Sciences had the highest academic satisfaction but the students of Yazd University of Medical Sciences had the lowest academic satisfaction, which can be accounted by the different characteristics of these two universities. There is a significant relationship between gender and academic satisfaction in that male students had a higher academic satisfaction. Farsi et al. (2022) [31], Mirzaei et al. (2016) [32], Noghan et al. (2012) [33], and Nester Tomas et al. (2022) [23], had also found a significant relationship between gender and Academic satisfaction. However, this result is inconsistent with the studies by Rahimi et al. (2021) [21], Jahanian et al. (2021) [22], Feizi et al. (2020) [34] Hosseinzadeh et al. (2012) [35] and Naglaa Abd El Aziz Mahmoud El-Seesy et al. (2020) [36] was non-aligned. The relationship between undergraduate GPA and academic satisfaction in this study indicates that students with higher GPA had less academic satisfaction. This result is consistent with that obtained by Fernández-García et al. (2020) [37] but was different from the result arrived at by Farsi et al. (2022) [31] and Noghan et al. (2012) [33]. This can be accounted for by the difference in the research population.

CONCLUSION

Employed students had significantly less academic satisfaction than unemployed students, which can be due to the fact that employed students were engaged in both work and study at the same time with many responsibilities. This result is in contrast to what Behnam Pour et al. (2013) [38] had discovered. The relationship between marital status and academic satisfaction shows single people had more academic satisfaction, because perhaps married students carried more family the responsibilities. This result is in line

with those of the study by Mirzaei et al. (2016) [32] but inconsistent with the results reported by Rahimi et al. (2020) [21], Jahanian et al. (2020) [22], Nestor Tomas (2022) [23], and Naglaa Abd El Aziz Mahmoud El-Seesy et al (2020) [36]. The results show that academic satisfaction was reduced significantly with the number of academic semesters and the students in their first semester were the most satisfied. This issue can be the result of the students' increasing knowledge over time of various facets of their university. Feizi et al. (2019) [34], Farsi et al. (2021) [31], Nestor Tomas et al. (2022) [23] and Naglaa Abd El Aziz Mahmoud El-Seesy et al. (2020) [36] also found significant relationship between these two variables, but Samira Mohammed Ebrahim (2020) [39] had reached different results. Among the variables related to the family, parents' education had a significant relationship with academic satisfaction, i.e., the higher the educational qualification of the parents, the higher the academic satisfaction. The non-significance of the relationship between type of residence and academic satisfaction can be due to the high number of non-local students living in dormitories in the studied population. This study aimed to examine the academic satisfaction of MSc students in operating room technology in Iran. The results indicated that their satisfaction was at a medium level, suggesting the need for improvement. One significant challenge is the lack of specialized training. MSc students expect their program to be distinct from the BSc program, with more specialized courses in research, teaching, and operating room skills. Enhancing specialized training at the master's level could improve their satisfaction. Based on the findings, the following recommendations are proposed:

Enhancement of the Educational Environment: Update course materials, establish new facilities, improve access to resources, and offer student support services.

Career Guidance: Provide career guidance and job placement services to assist students in transitioning into the workforce.

Support for Non-native Students: Offer additional support such as dormitories close to the university, improved nutrition and transportation, and leisure facilities.

Specialized Training: Make the curriculum more specialized to distinguish MSc students in both educational and professional environments.

Distinct Master's Program: Ensure the MSc program is distinctly different from the BSc program with more specialized courses related to research, teaching, and specialized skills in operating room studies.

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AUTHOR'S CONTRIBUTIONS

Zahra Tarkashvand (70%): Data collection, data analysis, manuscript preparation, response to reviewers. Sedigheh Hanani (10%): Consultation and guidance in conducting the study. Nmamali Azadi (10%): Statistical consultation. Fardin Amiri (10%): Consultation and final text evaluation.

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This study was extracted from a master's thesis approved at Iran University of Medical Sciences, which was conducted in medical universities across the country.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the Research Ethics Committees of Iran University of Medical Science (Approval code: IR.IUMS.REC.1401.006).

CONFLICT OF INTEREST

There is no conflict of interests for this study.

REFERENCE

1. Karemera D, Reuben LJ, Sillah MR. The effects of academic environment and background characteristics on student satisfaction and performance: The case of South Carolina State University's School of Business. College Student Journal. 2003;37(2):298-309.
2. Caprara GV, Barbaranelli C, Steca P, Malone PS. Teachers' self-efficacy beliefs as determinants of job satisfaction and students' academic achievement: A study at the school level. Journal of school psychology. 2006;44(6):473-90. **doi:** 10.1016/j.jsp.2006.09.001
3. Hassan MM. Academic satisfaction and approaches to learning among United Arab Emirates university students. Social Behavior and Personality: an international journal. 2002;30(5):443-51. **doi:** 10.2224/sbp.2002.30.5.443
4. Kuo Y-C. Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in distance education courses. Logan: Utah State University ProQuest Dissertations Publishing,; 2010.
5. mohtaram m, torkzadeh j. A Study of the Relationship between Type of Organizational Structure of University and Departmental Social Capital with Students' Academic Satisfaction at Shiraz University. Journal of Applied Sociology. 2014;25(1):175-94.
6. Torkzadeh J, Mohtram M. The Validation of Student's Academic Satisfaction scale. Higher Education Letter. 2014;7(26):155-76.
7. Keup JR. Promoting new-student success: Assessing academic development and achievement among first-year students. New Directions for Student Services. 2006;2006(114):27-46. **doi:** 10.1002/ss.205
8. Elliott KM, Shin D. Student satisfaction: An alternative approach to assessing this important concept. Journal of Higher Education policy and management. 2002;24(2):197-209. **doi:** 10.1080/1360080022000013518
9. Fredman N, Doughney J. Academic dissatisfaction, managerial change and neo-liberalism. Higher education. 2012;64(1):41-58. **doi:** 10.1007/s10734-011-9479-y
10. Gh F, Hasanzadeh Samand H. Scientific productivity of the faculty of Tabriz University during 2003-2008. J Public Library. 2011;16(2):157-75.

11. Zohreh S, Zahra M. Educational Services Quality Gap: Perspectives Of Educational Administrators, Faculty Members And Medical Students. Payavard Salamat. 2013;7(5).
12. Mehr Alizadeh Y, Bluhezchii A, Elhampour H. Quality of Educational Services: Graduate Courses: Study A comparative between the two old and new universities. journal of Iranian Higher Education. 2015;7(2):1-24.
13. Davarzani M, Razghandi F, Golafruz M, Akaberi A. Evaluation of students' satisfaction from the Education Department of Sabzevar University of Medical Sciences in the second semester of 2007-2008. J Res Com. 2011;15(3):9-15.
14. Kebriyai A, Rodbari M, Rakhshaninejad M, Mirlotfi P. Students evaluate of Zahedan University of medical sciences from quality of educational services. Journal of Tabib-E-Shargh. 2005;2:139-58.
15. Amini A, Ashoori H, RANJBAR EM, HADI NH, Eslami H, DEHGHANI TA. The Survey in Satisfaction of Students of Medical Laboratory Sciences from Educational, Research, and Welfare Services at Paramedical Faculty in Shahid Sadoughi University of Medical Sciences. J Jundishapur Educ Dev. 2014;5(1):67-72.
16. Mohammadi A, Vakili M. Measuring students' satisfaction of educational services quality and relationship with services quality in Zanjan University of Medical Sciences. Journal of medical education development. 2010;2(3):48-59.
17. Manuel N. Customer perception of service quality at the business studies unit of the Durban University of Technology 2008.
18. J GL, C M. The Future of Business: The Essentials. Ohio South-Western: Mason; 2005.
19. S A, C C. Customer satisfaction in the restaurant industry. Journal of Services Marketing. 2006;20:3-11. **doi:** 10.1108/08876040610646536
20. F N, J J. Studying the satisfaction of graduate students from the library service of Mashhad Nursing and Midwifery Faculty. JSLIS. 2009;3(3):197-226.
21. rahimi n, asadollahi z. The assessment of association between educational stress and Academic Satisfaction in students of nursing and midwifery school of Rafsanjan University of Medical Sciences in 2016. Bimonthly of Education Strategies in Medical Sciences. 2021;13(6):649-55.
22. jahanian i, Adel f, shabani m, Golafshani A. Evaluation of the quality of educational services and facilities of Babol University of Medical Sciences from the point of view of graduate students. Medical Education. 2020;8(2):7-15.
23. Tomas N, Muronga H. Undergraduate nursing student satisfaction with the nursing program at a university campus in Namibia. International Journal of Africa Nursing Sciences. 2022;17:100443. **doi:** 10.1016/j.ijans.2022.100443
24. Hakim A. Factors affecting satisfaction of nursing students of nursing major. 2 Journal of Nursing Education. 2013;2(2):10-20.
25. Waseem T, Baig HM, Yasmeen R, Khan RA. Enriching operating room based student learning experience: exploration of factors and development of curricular guidelines. BMC Med Educ. 2022;22(1):739. **doi:** 10.1186/s12909-022-03793-x **pmid:** 36289491
26. Chao V, Ong C, Kiegaldie D, Nestel D. Learning and teaching in the operating room: a surgical perspective. Clinical Education for the Health Professions: Theory and Practice. 2022:1-24. **doi:** 10.1007/978-981-13-6106-7_64-1
27. Pasquer A, Ducarroz S, Lifante JC, Skinner S, Poncet G, Duclos A. Operating room organization and surgical performance: a systematic review. Patient Saf Surg. 2024;18(1):5. **doi:** 10.1186/s13037-023-00388-3 **pmid:** 38287316
28. Sedigh A, Bagheri S, Naeimi P, Rahmanian V, Sharifi N. The effect of peer mentoring program on clinical academic progress and psychological characteristics of operating room students: a parallel randomized controlled trial. BMC Med Educ. 2024;24(1):438. **doi:** 10.1186/s12909-024-05424-z **pmid:** 38649841
29. Araste H, Baniasadi A. Student Satisfaction Survey of the First Educational Masters Course: A Case study. Journal of Educational Planning Studies. 2012;1(2):5-25.
30. Haghdoost AA, Rafiei H, Raeisvandi A, Kazemzadeh Y. Satisfaction of Postgraduate Students of Kerman University of Medical Sciences Iran with their Training Program and Campus Facilities. Strides in Development of Medical Education. 2015;12(2):355-65.
31. Farsi Z, Aliyari S, Ahmadi Y, Afaghi E, Sajadi SA. Satisfaction of the Quality of Education and Virtual Education during the Covid-19 Pandemic in Nursing Students of Aja University of Medical Sciences in 2020. Journal of Military Medicine. 2021;23(2):174-85. **doi:** 10.30491/jmm.23.2.174
32. Shahla M, Mansour R, Shiva R. Pharmacy Students' Satisfaction Rate with their Majors and its Relationship with Educational Status in Kermanshah University of Medical Sciences (2014). Educational Research in Medical Sciences. 2016;5:81-6.
33. Noghan ǂ, Cheraghi MA, Mahjub H. urvey on Satisfaction from Quality of Passed Educational Course from Last Year Students' Perspective of Hamadan University of Medical Sciences. Iranian Journal of Nursing Research. 2013;8(1):76-86.
34. feizi h, saeedi p. Student satisfaction rate of educational services and facilities of Kurdistan University of Medical Sciences in the academic year 2017. 2 Journal of Nursing Education. 2019;8(4):33-8.
35. Hoseinzadeh E, Hamidi Y, Roshanaie G, Cheraghi P, Taghavi M. Evaluation of student satisfaction from Hamadan University of medical sciences educational process and programs in 2012-2011. Pajouhan Scientific Journal. 2013;11(3):37-44.
36. El-Seesy. NAEAM, Banakhar. M, Kandil. FSAEF. Nursing Students' Satisfaction with the Academic Program: Across-sectional Study. Universal Journal of Educational Research. 2020;8(11):122-9. **doi:** 10.13189/ujer.2020.082417
37. Fernandez-Garcia D, Gimenez-Espert MDC, Castellano-Rioja E, Prado-Gasco V. What Academic Factors Influence Satisfaction With Clinical Practice in Nursing Students? Regressions vs. fsQCA. Front Psychol. 2020;11:585826. **doi:** 10.3389/fpsyg.2020.585826 **pmid:** 33391105
38. Behnampour N, Heshmati H, Rahimi S. A survey on Paramedical and health students' satisfaction with their discipline and some of the related factors. Iranian Journal of Medical Education. 2012;12(8):616-8.
39. Ebrahim SM. Academic Satisfaction Among Nursing College Students in Basra. Research Journal of Medical Sciences. 2020;14(1):15-9. **doi:** 10.36478/rjmsci.2020.15.19