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Studying the Satisfaction of Radiology Technology Students with the Evaluation Method of Internship Units at Shahroud University of Medical Sciences in 2023

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Abstract

Background: Clinical education plays a fundamental role in shaping students' basic skills and professional capabilities. Identifying problems in clinical education helps to eliminate or correct weaknesses and can improve the achievement of educational goals, train skilled individuals, and provide higher quality services.

Objectives: This study was conducted to investigate the satisfaction of radiology technology students with the method of evaluating internship units at Shahroud University of Medical Sciences in 2023.

Methods: This descriptive-analytical study was conducted using a census method on 62 students of the radiology technology major at Shahroud University of Medical Sciences in 2023. At the beginning of the study, a series of entry and exit criteria were set, and a demographic information checklist and a researcher-made questionnaire were used to collect information. After collecting the data, it was entered into SPSS18 and analyzed using descriptive and analytical statistics.

Results: In this study, the results showed that the average age of the participants was 22.18 ± 1.56 years, most of the participants were female (59.7%), 37 academic semester (37.1%), 17 - 18 (59.8%), and the age group was 22 - 24 (63%). There was also a significant relationship between gender, academic semester, GPA, and age with the method of evaluating internship units, and among the areas of student satisfaction, the highest scores were respectively supervision and evaluation 11.01 ± 3.33, educational environment 10.23 ± 3.25, behavior with students 8.06 ± 2.59, instructor performance 7.75 ± 2.57, general question 3.23 ± 1.01, and the overall satisfaction score 4.16 ± 11.49, and different subgroups had a significant relationship with each other.

Conclusions: According to the results of the study, which showed that the satisfaction score of the clinical education evaluation of radiology technology students was high, planning by faculty officials is necessary and vital to maintain these conditions.

Keywords: Student, Radiology, Evaluation, Clinical, Satisfaction Survey

1. Background

Universities are sometimes introduced as the main axis of development as an important source of skilled manpower. Therefore, maintaining and enhancing the efficiency of universities is recognized as an important goal, because the inefficiency of universities can limit scientific development and educational and research systems (1, 2). Today's industrial world expects universities to be, first, producers of new knowledge; second, transfer old and new scientific findings to the younger generation; and third, make the results of these

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findings available to society. Due to the diversity of activities and various goals of universities, assessing their efficiency is particularly complex. Since one of the main indicators of the development of countries is the contribution of society to knowledge production, it is of great importance to examine the performance of educational systems and, along with it, to improve their efficiency. Looking at the current developments in the higher education system, it can be seen that higher education should pay attention to the crisis of increasing quantity and financial constraints, as well as to maintaining, improving, and promoting the quality of education (3, 4). Since the efficiency, accuracy, and satisfaction of students with clinical skills assessment indicators are of particular importance, in fact, a satisfaction survey can be the first step towards achieving satisfaction and improving the organization's services. If students evaluate the organization's educational services as weak to moderate, it means that there is a need to increase student satisfaction in all aspects of educational services (5). Therefore, surveying the satisfaction of students, who are recipients of the educational system and play a major role in evaluating the performance and educational activities of any university, provides us with the necessary information in the field of quantitative and qualitative improvement of these centers. As mentioned earlier, clinical internships are of vital importance, and improving their quality can lead to the training of students with competence in various clinical areas (6). Physicians and paramedics, as those who have the most contact with patients, play an important role in advancing the goals of clinical care, so their productivity is important. Achieving appropriate productivity requires that trained personnel acquire the maximum knowledge and skills necessary for their future careers during their training. For this reason, clinical education is one of the most important aspects of the education of students in medical science departments, including radiology, and is considered an essential component of their educational program. The acquisition of clinical skills depends on the quality and quantity of education in clinical settings (7). Therefore, clinical internships are of vital importance, and improving their quality can lead to the education of students with competence in various clinical areas (8). Various studies have shown that unclear clinical education goals, inconsistency between theoretical courses and clinical work, insufficient instructor skills, tension in the clinic, lack of educational and welfare facilities, and unrealistic evaluations are among the obstacles to clinical education. Therefore, evaluation is an integral part of educational programs, and undoubtedly, conducting appropriate evaluations can improve the quality of education (9). Among the many variables that affect clinical education, those involved in education must identify the factors affecting the quality of clinical education and correct the negative or inhibiting factors of clinical education. Therefore, identifying the problems of clinical education is the first step to reducing and eliminating them. Identifying the status of clinical education helps to eliminate or correct weaknesses and can improve the achievement of educational goals, train skilled individuals, and provide higher quality health and medical services (10). The most common method of evaluating educational activities used in most countries, including Iran, is evaluation by students. Examining the views and ideas of students, as recipients of educational services, can be the best source for identifying problems and opening the way for future programs (11). Identifying the factors of student satisfaction with the method of evaluating clinical units provides the possibility of identifying the factors determining a real evaluation of students so that, if necessary, educational policies and programs can be modified accordingly.

2. Objectives

This study aimed to determine the factors affecting the satisfaction of radiology technology students with the method of evaluating internship units at Shahroud University of Medical Sciences.

3. Methods

This descriptive-analytical study was conducted in 2023 AH on students of radiology technology at Shahroud University of Medical Sciences using a cross-sectional method and census sampling method. At the beginning of the study, a series of inclusion and exclusion criteria were set, including: 1- being a radiology technology student, 2- having completed at least one internship, and 1- not wanting to participate in the study. A demographic information checklist, including age, gender, grade point average, and academic semester, and a researcher-made questionnaire regarding the evaluation of satisfaction with the evaluation of clinical professors and instructors were used to collect information. This questionnaire included 15 questions in 5 sections: Instructor performance (3 questions and scores 3 - 15), student behavior (3 questions and scores 3 - 15), educational environment (4 questions and scores 4 - 20), and supervision and evaluation (4 questions and scores 4 - 20), and an open question regarding the level of student satisfaction with the radiology department.

Scoring is on a 5-point Likert scale (very low = 1, low = 2, medium = 3, high = 4, and very high = 5). The overall score ranges between 15-75, with a higher score indicating student satisfaction. To examine the questionnaire in terms of validity and face validity, it was provided to several experts in the field of education and radiology, and their feedback was reviewed and applied. The reliability of the questionnaire was tested using the test-retest method. The questionnaire was provided to 30 students, and two months later, it was completed again by the same individuals. The correlation of the scores was calculated using the Cronbach's alpha method, which was 0.86. After collecting the data, it was entered into SPSS18 and analyzed with the help of descriptive statistics (frequency, percentage, mean, and standard deviation) and analytical statistics (*t*-test, ANOVA, and Pearson). This article is the result of a research project approved by the Ethics Committee of Shahroud University of Medical Sciences under the number IR.SHMU.REC.1402.078. In this study, the principles of research ethics as per the Declaration of Helsinki were observed. The research units were given sufficient assurance regarding anonymity, confidentiality, and privacy, and the results of the research were made available to the participants if they so desired.

4. Results

A total of 62 people participated in this study, with an average age of 22.18 ± 1.56 years. Most of the participants were female (59.7%), in the 8th semester (37.1%), had a grade point average of 17 - 18 (59.8%), and belonged to the 22 - 24-year age group (63%). There was also a significant relationship between gender, semester, grade point average, and age with satisfaction (Table 1).

In this section, the results showed that among the areas of student satisfaction, the highest scores were for supervision and evaluation (11.01 ± 3.33), educational environment (10.23 ± 3.25), student behavior (8.06 ± 2.59), instructor performance (7.75 ± 2.57), general question (3.23 ± 1.01), and the overall satisfaction score (4.16 ± 11.49). The different subgroups had a significant relationship with each other (Table 2).

5. Discussion

This study was conducted with the aim of investigating the satisfaction of radiology technology students with the evaluation method of internship units at Shahroud University of Medical Sciences in 2023. The results showed that the average age of the participants was 22.18 ± 1.56 years, and most of the participants were female (59.7%), in the eighth academic semester (37.1%), with a grade point average of 17 - 18 (59.8%), and in the 22-24 age group (63%). There was also a significant relationship between gender, academic semester, grade point average, and age with satisfaction. In another part, the results showed that among the areas of the evaluation method of clinical units, the highest scores were for supervision and evaluation (11.01 ± 3.33), educational environment (10.23 ± 3.25), behavior with students (8.06 ± 2.59), instructor performance (7.75 ± 2.57), general question (3.23 ± 1.01), and the overall satisfaction score was 11.49 ± 4.16. The different subgroups had a significant relationship with each other. In recent years, the concept of student satisfaction has been considered one of the main goals of educational institutions (12). Various studies have been conducted in Iran and other countries in the field of satisfaction assessment, including a study titled “Student Satisfaction with Educational Services and Facilities” conducted among students of the Faculty of Computer Science in Malaysia. The results showed that the gap between student expectations and the number of facilities received reduces satisfaction. According to the students of this university, laboratory facilities, computer services, and the Internet were the least satisfying facilities, respectively (13). The results of the study by Hongkan et al. showed that the level of satisfaction of Thai students with the educational environment was "at the average level" (14). The study by Pejhan et al. (as cited by Feizi and Saeedi) showed that the overall level of satisfaction of students with educational services and facilities was at the average level (6). In other studies, conducted by Jafari-Rad et al. and Haqdoost et al., it was found that students' satisfaction with the quality of university services was significantly lower than the average level (15, 16). In a study conducted by Shahroudi et al., the overall level of satisfaction of students with educational services and facilities was at the average level. The lowest level of satisfaction was with the services of the education department (17). The researchers showed in the study that the lack of amenities and equipment in the educational environment is one of the most important obstacles to clinical education (18, 19). All studies are approximately consistent with our study, only in our study the level of student satisfaction was above the average level, which indicates the importance of the attention of the faculty officials to student satisfaction, which requires maintaining these conditions. In the study by Abedini et al., the lack of suitable educational space for internship, inadequate welfare and educational facilities, and the lack of use of teaching aids were identified as problems in clinical education from the students' perspective (20). In the study by

Table 1. Demographic Characteristics of the Study Participants and Their Relationship with Satisfaction

Variables and Subgroups	No. (%)	Degrees of Freedom	P-Value
Gender		60	0.001
Male	25 (40.3)		
Female	37 (59.7)		
Academic semester		60	0.001
4	14 (22.6)		
6	14 (22.6)		
8	23 (37.1)		
Graduate	11 (17.7)		
Grade		60	0.001
14 - 16	13 (20.1)		
17 - 18	36 (59.8)		
≥ 19	13 (20.1)		
Age		60	0.001
19 - 21	19 (30.7)		
22 - 24	39 (63)		
≥ 24	4 (6.3)		

Table 2. Mean and Standard Deviation of the Subgroups of Internship Unit Evaluations

Variables	Minimum-Maximum	Variance	Mean ± SD	Significance Level
Monitoring and evaluation	5 - 18	11.36	11.01 ± 3.33	0.001
Instructor performance	3 - 12	6.71	7.75 ± 2.57	0.001
Student behavior	3 - 12	6.96	8.06 ± 2.59	0.001
Educational environment	4 - 16	10.76	10.23 ± 3.25	0.001
Overall question	1 - 5	1.06	3.23 ± 1.01	0.001
Overall score	18 - 62	132.17	40.16 ± 11.49	0.001

Mabuda and Mthombeni, the lack of educational and learning support, and poor interpersonal interactions between students and instructors were identified as factors inhibiting clinical learning (21). Farzi et al. identified factors such as insufficient access to instructors, unclear job descriptions of students, inappropriate treatment of students, and unclear final evaluation process as factors inhibiting clinical education (22). In their study, Ebrahimnia et al. concluded that the students' perspective was assessed as good in the areas of instructor performance, educational goals and program, student behavior, educational environment, and supervision and evaluation. To increase student satisfaction, they suggested holding orientation classes and stating the goals of the internship at the beginning of the course and explaining the evaluation criteria. They also noted that reviewing the educational planning, designing the correct clinical evaluation criteria, and correcting the problems and lack of facilities in the clinical department can be effective in improving the quality of education and increasing student satisfaction (23). The policies of the country's higher education system are based on attention to qualitative goals; therefore, the educational program should be evaluated prospectively between the goals and the achievement of the program's results, and in this way, the program's shortcomings should be identified (19). Obviously, the compatibility of syllabi and theoretical courses with practical skills in the internship and training period, as well as the use of interested and skilled professors in the areas of clinical education, have been reported to be among the factors affecting the effectiveness of the educational program (24). One of the strengths of this study is that such a study was not conducted at the university level, especially on students in the field of radiology technology, which was a newly established field at Shahroud University of Medical Sciences. One of the weaknesses of this study was the students' self-reports, which requires some caution in generalizing the results of the study. Also, the level of student satisfaction was generally above average, and it is

suggested that weekly conferences be held in the clinical environment to maintain the conditions and increase the scientific ability of students. Creating an educational environment based on mutual respect can help reduce stress and boost students' self-confidence, and in this regard, using experienced instructors and holding training workshops for staff and instructors can be effective. To increase the quality of clinical education, the lack of amenities and educational aids should be considered and efforts should be made to eliminate them. To increase student satisfaction, it is recommended to hold orientation classes, state the goals of the internship and training at the beginning of the course, and explain the evaluation criteria. Also, the level of academic competence and performance of instructors should be continuously evaluated, students who are less satisfied with their field of study should be identified, and mandatory counseling should be provided to increase their interest in the field.

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Footnotes

Authors' Contribution: Study concept and design: H. T. and O. G.; Analysis and interpretation of data: R. Z. H. and R. M.; Drafting of the manuscript: A. H.; Critical revision of the manuscript for important intellectual content: Sh. N., H. E., and G. M.; Statistical analysis: O. G.

Conflict of Interests Statement: All authors hereby declare that there is no conflict of interest regarding the present study.

Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after publication.

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