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Investigating the current status of the student evaluation system in Iran University of Medical Sciences: A step to improve education

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Abstract:

BACKGROUND: Medical education has special features due to the need various areas of learning. The present study was conducted to provide a complete picture of the evaluation system in Iran University of Medical Sciences for improving the evaluation system and medical sciences examinations.

MATERIALS AND METHODS: The research was cross-sectional study that conducted through self-reporting of educational departments, a comprehensive review of the student evaluation system in the affiliated faculties of Iran University of Medical Sciences from 2017 to 2018. Educational members and heads of nine faculties and 80 departments participated in this study. The research tool was a researcher-made questionnaire, include two parts: (1) 10 general questions about the activities of the educational groups regarding the student evaluation system and (2) 20 questions about the types and quality of examinations.

RESULTS: From 80 questionnaires, 71 were completed by the managers of the departments. The results showed that 62% of the faculty members in the educational departments in the last 2 years did not participate in the workshop on the methods of evaluation and making tests. 56% of the faculties have a reference for continuous monitoring of students' assessment and evaluation, and in 87% of the cases, the content is given in accordance with the objectives. The use of logbooks was more common (28%) than other methods to assess practical skills.

CONCLUSION: Empower faculty members on the use of various tools, strengthening the supervision of formative evaluation and use of medical education graduates to promote evaluation methods seems necessary.

Keywords:

Educational department, evolutional system, faculty member, medical education, student evaluation

Introduction

Medical education has special features compared to other educations due to the need for diverse areas of learning in a wide range of issues related to people's health and illness. In Iran, in order to achieve the goals of the Health System Transformation Program, educational programs need to be changed that improved the abilities of graduates in identifying community health problems and care for maintain public health.[1] Evaluation is an integral part of the teaching and learning process and one of the important elements of the curriculum.[2] Through proper evaluation can be ensured the competence of the future medical staff of the country in meeting the health needs of the community.[3]

Designing an evaluation system is not an easy task. Decisions about how to evaluate

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student learning are often based on educational philosophy, learning theory, and perception of learning.[4] It is now accepted that an evaluation tool alone is not sufficient to determine the full picture of an individual's competence and performance, and that a variety of known tools are needed.[5] Some studies report a fundamental flaw of common assessments of student learning.[6] Evidence shows that evaluation methods in clinical courses, not being appropriate to the educational goals, are not effective in measuring clinical skills and student performance.[7]

Some studies such as the study of Seraje *et al*. shown that the assessment methods used by departments do not have the ability to assess the desired capabilities and should be reviewed in the evaluation programs of medical students.[2] Due to the considerable expansion of fields of study in Iran University of Medical Sciences and the need to improve the quantity and quality of higher educational evaluation methods in the field of health, it is necessary to ensure the exist an up-to-date and comprehensive evaluation system that is an integral part of education.

Therefore, given the importance of evaluation system, the present study was conducted to provide a complete picture of the evaluation system in Iran University of Medical Sciences in the working group for improving the evaluation system and medical sciences examinations. Examining the current situation provides the possibility of determining the strengths and weaknesses as well as determining the distance from the expected situation to improve it.

Materials and Methods

In this cross-sectional study, through self-reporting of educational departments, has been done a comprehensive review of the student evaluation system in the affiliated faculties of Iran University of Medical Sciences. A comprehensive review of the student evaluation system in the affiliated faculties of Iran University of Medical Sciences conducted from 2017 to 2018. Educational member and head of 9 faculties and 80 departments participated in this study.

The research tool was a researcher-made questionnaire whose different sections were organized into two sections by reviewing related studies.[8,9] The first section consisted of 10 general questions about the activities of the educational groups regarding the student evaluation system. The second section of the questionnaire was prepared specifically for each postgraduate course, which included 20 questions about the types and quality of examinations. George Miller's Pyramid was used to build part of this questionnaire. George Miller proposed a blueprint called the Miller Pyramid, which defines four levels of knowledge, comprehension, representation, and application. Each of these levels must be assessed with appropriate tests.[6] The content validity of the questionnaire in this study was done with a qualitative approach and using an experts panel in a face-to-face meeting. In this expert panel, 8 expert professors of medical education confirm content of this questioner. The reliability coefficient of this questionnaire was 0.97 by Cronbach's alpha method.

Due to the fact that characteristics of educational groups are different from each other and information about all educational groups was considered by researchers, so the census method was used. The prepared questionnaire was sent in an official letter to all the heads of the departments of the faculties (80 departments) through the Vice Chancellor for Education. A period of 1 month was considered for the return of the questionnaires. After collecting the questionnaires, the data were analyzed IBM® SPSSv. 21 software. After collecting information, data analysis was performed at both descriptive and inferential levels. At the descriptive level, statistical characteristics such as mean and standard deviation, frequency, and frequency percentage were used.

Results

Iran University of Medical Sciences has 9 faculties and 80 departments. From 80 questionnaires, 71 were completed by the managers of the departments. The response rate was 88.6%. Table 1 shows the percentage of answers to some questions in the both two part of the questionnaire.

Regarding the variety of written questions used, 48 educational groups (68.5%) use a combination of written tests. Ten department (14.1%) use more than four-choice tests, 3 department (4.2%) use more short-answer 9 questions and 5 department (7%) use more descriptive questions and 5 educational groups (7%) did not answer to this question.

Regarding the assessment of clinical skills, 33 educational groups (46%) used of objective structured clinical examination (OSCE). One group (1.4%) used of the objective strutted practical examination. Fifteen of the 21 educational groups stated that the clinical evaluation was not applicable in their educational group and 22% and 30% did not answer the question. Among the clinical reasoning tests of 12 educational groups (16.9%) used the patient management problem examination. Two educational groups (2.8%) used the key feature test. An educational group used a combination of these two tests at a rate of 1.4%. In other groups, the clinical reasoning test was not practical. The next question was

Table 1: Answered some questions

Question number	Questions	Yes (%)	No (%)	Un answered (%)
1	Have been held training courses on faculty construction and validation exams for faculty members in the past 2 years?	23.9	73.2	2.8
2	Is there a reference for continuous monitoring and evaluation of student in the faculty? (Examination Evaluation Committee)	56.3	39.4	4.2
3	If the answer to the question is positive (reference for continuous monitoring of student assessment), has there been a regulation for the activities of the officials?	21.1	36.6	4.1
4	Are existing evaluation methods being evaluated?	49.3	47.5	4.2
5	Is there a specific schedule for evaluating students and assistants at different levels?	85.9	9.9	4.2
6	Do the content of the tests match the educational objectives in the areas of knowledge, skills, and attitudes contained in the approved course title?	87.3	7	5.6
7	Is the pass/fail criterion specified in the types of examinations for students of different levels?	88.7	2.8	8.5
8	Are oral assessment tools used?	74.6	19.7	5.6
9	Are skills assessment tools used?	35.2	45.3	15.5
10	Apart from the score, is the learner given feedback?	81.7	11.3	7
11	Is there a written pre-test in theoretical courses?	22.5	73.2	4
12	Are students "and assistants" communication skills and professional behavior measured?	57.7	39.4	2.8
13	Are self-assessment methods taught to students?	23.9	67.6	8.5
14	Are medical education graduates used to improve assessment methods and its continuous monitoring in the faculty?	23.9	66.2	9.9
15	Are the tests performed analyzed?	63.4	32.4	2.8
16	Will the results of the analysis of the tests be given feedback to the head of group?	50.7	43.7	5.6
17	Are software and hardware factors used to better conduct the tests?	50.7	42.3	7
18	Is there a unit for handling student complaints and suggestions regarding exams?	60.6	26.8	12.7
19	Is formative evaluation used?	38	52.1	9.9
20	Are the validity and reliability of evaluation tools checked?	29.6	57.7	12.7
21	Is there an annual report on examinations from the responsible authority in the university?	28.2	56.3	15.5
22	Are there any measures taken for students with special conditions (people with physical problems, etc.,) to provide equal opportunities during the examination?	66.2	11.3	22.5

about work-based tests. Table 2 shows the frequency distribution of the tests used.

In 43 educational groups (60.6%), there is a unit to handle students' complaints and suggestions related to the examinations held. Nineteen educational groups (26.8%) do not have and 9 groups (12.7%) do not answer the question. In response to the question "What measures have been taken to improve the quality of existing tests?" The majority of responses are in the form of related workshops by faculty members.

Table 2: Workplace-based tests

Type of exam	*n* (%)
Direct observation of procedural skill	3 (4.2)
Mini-clinical evaluation exercise	2 (2.8)
Long case	2 (2.8)
Portfolio	8 (11.3)
Log book	22 (31)
No application in the educational group	13 (18.3)
Unanswered	20 (28.2)

Discussion

The aim of this study was to investigate the current status of the student evaluation system in the faculties affiliated to Iran University of Medical Sciences to identify strengths and weaknesses and assist in planning to improve this system. Student assessment determines what and how the student has learned.[6] Tests are one of the effective tools to ensuring the quality of education and their accurate analysis is effective in improving the quality of the education system.[10]

According to the results of the present study, there is a written guide in the departments of Iran University of Medical Sciences to inform students about the exam schedule and the acceptance criteria in various examinations for students of different levels in 88% of departments is clear. In the most faculties (87.3%), the content of the examinations is in line with the educational goals in the areas of knowledge, skills, and attitudes. This increases the validity of the tests. Test validity is closely related to justice. In other words, a test that has validity is also fair.[11]

Taking account the needs of students with special conditions can provide equal opportunities for all test takers. For example, the use of appropriate chairs and tools for left-handed students, including problems such as low vision, physical problems, is also addressed

in the report of the UK General Medical Council.[8] In the present study, more than 65% of educational departments were considered facilities for students with special conditions.

In general, evaluation and feedback have a positive effect on a student's future performance.[12] According to the answers, more than half of the departments have announced that there is a unit to deal with students' complaints and suggestions related to the examinations. 81% said they provide feedback on their students' performance on examinations. Based on the results, 63.4% of the educational groups stated that the examinations were analyzed. Special attention should be paid to all groups to provide the necessary information and facilities for test analysis. Providing feedback on the analysis results of the tests held to the group manager can be used to improve learning strategies, modify teaching methods, and improve test questions and test methods.[13] However, only 50% of the groups stated that they receive feedback from the test analysis results.

Only half of the departments use software and hardware facilities in holding and analyzing tests. It seems that due to the appropriate available infrastructure in the university, should be improved in this field. Educational technology can be used to support almost any aspect of medical education. Some of the benefits of e-evaluation include the ability to provide markup, receive quick feedback, and the ability to analyze multiple evaluations.[14]

The results of the present study show that most of the faculties in the last 2 years have not conducted training courses in the field of familiarity with the methods of assessment and evaluation of students, as well as educational programs to familiar with the methods of construction and validation of examinations. However, in some studies, insufficient knowledge and skills of teachers of new assessment methods introduced as an important challenge in student assessment.[2,15] In addition to the fact that most groups do not hold pretests for their theory courses, only half of the training groups value and use formative assessment. Formative assessment not only identifies the student's weaknesses during the course but also promotes learning.[16] Furthermore, students are not given training on self-assessment. Self-assessment is a structured process in which the learner judges the quality and quantity of his/her learning.[17] Self-assessment is an important process in developing professional lifelong learning skills. The results of repeated research have shown that the ability of self-assessment of medical students and physicians with low experience is weak.[18-20] Therefore, according to this results and important of evaluation based on Harden theory,[2] it seems that in some cases, corrective strategies and programs should be considered to improve the quality of the evaluation system in Iran University of Medical Sciences.

Regarding the type of tests used based on the results in written examinations, more than half of the educational groups have announced that they use a variety of written examinations (four-choice, descriptive, short answer, etc.) in combination. As mentioned in the sources, it is not a complete evaluation tool and a good evaluation program should include different types of methods, each of which is used for a specific purpose.[5] For evaluating the competency of students, OSCE test skills have been more popular, which is not unexpected due to the clinical nature of disciplines such as medicine, nursing, and rehabilitation sciences. In the workplace-based evaluation tools group, the logbook has been the most widely used method. Kouhpayezadeh and colleagues in a study that conducted at the University of Tehran on clinical evaluation methods,[21] they reached a similar results to our study.

In this study similar to Gandomkar *et al*.'s study in Tehran University of Medical Sciences,[9] patient management problems have been the most widely used method among clinical reasoning tests.

At present, about 25% of the faculties use medical education graduates. Due to the increase in the number of graduates in this field and the general popularity of faculty members to participate in the virtual medical education course, it is possible to increase the participation of these graduates, one of whose main specialties is evaluation.

Conclusion

According to the results of this study, the establishment of workshops to empower faculty members on the use of various tools based on workplace evaluation, clinical reasoning, practical skills, strengthening the supervision of formative evaluation and also the use of medical education graduates to promote the use of evaluation methods and its continuous monitoring in colleges it seems necessary.

Strengthening and improving the university evaluation system is expected through the direct cooperation of these professionals in different faculties. Using the results of this study, a new regulation was designed for the university examination center, in which all the vital steps to improve the status of the university evaluation system have been seen. The authors also trying to present the results of this study in related educational workshops to encourage college test centers to identify their strengths and weaknesses and involve them in planning for the development of the university evaluation system.

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Conflicts of interest

There are no conflicts of interest.

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