Original Article

Evaluation of the doctoral program in medical education of Isfahan University of Medical Sciences based on the CIPP model

Samira Derakhshanfard, Fariba Jokar, Soheyla Ehsanpour, Arash Hadadgar

Abstract

BACKGROUND: Continuous evaluation is necessary to achieve appropriate quality in educational programs. The aim of this study was to evaluate the doctoral program of medical education at Isfahan University of Medical Sciences based on the CIPP model.

MATERIALS AND METHODS: This descriptive and educational evaluation study was conducted in 2020 at Isfahan University of Medical Sciences. The study population consisted of all heads of department, faculty members, students, and PhD graduates of medical education from 2010 to 2020 who were enrolled in the study by census method. The data collection tool was a researcher-made questionnaire of CIPP evaluation model which was used when validity and reliability of them were confirmed. The data obtained from the questionnaires were analyzed in two levels of descriptive statistics of mean and standard deviation and inferential statistics one-sample t-test.

RESULTS: Based on the CIPP model, the mean evaluation scores from the perspective of the heads of department, faculty members, and graduates were 4.1 ± 0.1, 3.64 ± 0.42, and 3.33 ± 0.66, respectively, which were significantly higher than the average ($P \leq 0.05$). However, the mean evaluation score was not significantly higher than the average from the viewpoint of the students (3.24 ± 1.17).

CONCLUSION: Based on the results of the study, the status of the doctoral course in medical education at Isfahan University of Medical Sciences was assessed as appropriate by the subjects of the study including the heads of department, faculty members, and graduates. It was not, however, acceptable according to the students. Based on the results, it is suggested that evaluation be done continuously and measures are taken to correct the weaknesses and enhance the strengths.

Keywords:
Context, input, process, product, program evaluation

Medical Educational Development Center, Isfahan University of Medical Science, Isfahan, Iran

Address for correspondence:
Dr. Fariba Jokar, Medical Education Research Center, Department of medical education, Isfahan University of Medical Sciences, Isfahan, Iran. E-mail: faribajowkar@ gmail.com

Introduction

Quality improvement of educational programs is one of the basic and strategic objectives of higher education worldwide.[1] The strategy that allows judgment on the level of quality is evaluation. The evaluation is one of the most important elements of the management process.[2] It makes possible the achievement of objectives and the compatibility and coordination of a program with the needs of the individual and society through collecting, analyzing, and interpreting information.[3,4] The significance of a correct and principled evaluation is to the extent that while enhancing the strengths and correcting the weaknesses, it can be the basis for many educational decisions and planning and improve the academic level of the university.[5] One of the concerns of managers for a long time has been the successful implementation of programs, the extent and the manner of achieving the objectives of the program.[6]

Providing information about the effectiveness of the program and the extent to which the objectives are achievable, program evaluation leads to the optimization of results and efficiency.[7] One of the most important educational programs in the field of medical sciences is the medical education program.[8]

Medical education is a field of study in which students, using modern knowledge and technology and specialized information, gain the ability to train human resources, including faculty members and students in the field of medical education, design, and conduction of fundamental and applied research. They also improve the quality of education and research by using scientific mechanisms of planning, evaluation, leadership, and educational management in accordance with the health system. For a better understanding of this course, it should be noted that there was no discipline entitled "medical education" in Iran until 2007. In the same year, it was proposed for the first time by the policy-makers of the Ministry of Health, Treatment and Medical Education to set up this discipline. Although admission of PhD students in medical education started at Isfahan University of Medical Sciences since 2010, the quality of the course has not been evaluated since its establishment.[9] The program of any discipline should be evaluated between 3 and 5 years after the end of the first education course to determine how successful it has been in achieving its objectives and, then, further decisions be made to either continue, strengthen or stop the implementation of the program. The establishment of such a discipline imposes a large amount of money on the country's economy through admitting students and faculty members, providing educational facilities, developing educational programs, and so forth. Therefore, if universities do not succeed in achieving the objectives of the curriculum, they not only will waste financial sources but also have to tolerate dire consequences of training unskilled and inefficient manpower.[10]

Proper use of evaluation methods is critically important in evaluating any educational program.[5] There are several methods and models for evaluating educational programs. Worthen and Sanders (1987) categorized evaluation approaches into six approaches of objective-oriented, management-oriented, consumer-oriented, expertise-oriented, adversary-oriented, and the naturalistic or participant-oriented evaluation approach.[3]

As the aim of this study was to provide managers with information, management-oriented approach was used. This approach has different patterns one of which is the CIPP evaluation model. Many researchers such as Najimi *et al.*, Mazloomy Mahmoudabad and Moradi, Hemati *et al.*, MirzaaAmini *et al.* (2018), Jannati *et al.*, Yazdani *et al.*, Ehsanpour *et al.* (2015), Shamsa *et al.*, Jumari and Suwandi, Qomaria Agustina and Mukhtaruddin, Tsayang *et al.*, Eshun *et al.* have used the CIPP model in evaluation of curricula.[7,11-21]

The CIPP model was first designed by Cuba and then by Daniel Stuffle beam *et al* 1960. As one of the most comprehensive evaluation models, this model was shaped because of the limitations and inefficiencies of other evaluation tools and its most important objective was to improve program performance.[22] The CIPP evaluation model discovers the shortcomings and deficiencies of the medical education curriculum and bridges the gap between theory and practice.[23] This model is used to analyze decision-making based on a systemic perspective. In other words, the CIPP model helps to make wise decisions about the context, input, process, and output of educational programs.[24] The strengths of the CIPP model prompted the researchers of this study to use this model for evaluating the PhD medical education program at Isfahan University of Medical Sciences.

Materials and Methods

Study design and setting
This descriptive and educational evaluation study was conducted in 2020 at Isfahan University of Medical Sciences based on the CIPP model.

Study participants and sampling
The research population included the heads of the department since the establishment of the course (3 people), faculty members and affiliates (19 people), students (21 people), and graduates (23 people) of medical education of Isfahan University of Medical Sciences admitted from 2010 to 2020.

Given the limited statistical population of the study, data collection was performed using the census method and according to the inclusion criteria. Inclusion criteria were the cooperation of the research samples and answering the questions, heads of the department of medical education PhD from 2010 to 2020, faculty members who taught at least one course or part of the specialized PhD courses of medical education, passing at least one semester by students and the students who have graduated from the Department of Medical Education of Isfahan University of Medical Sciences in the doctoral program from 2010 to 2020. If the samples did not complete the questionnaire within the determined time, they would be excluded from the study by double renewal.

Data collection tool and technique
The data collection tool in this study was a researcher-made questionnaire designed based on the latest checklist of

Stufflebeam (2015). In the questionnaires of the heads of department and faculty members, the questions were developed in four areas of context, input, process, and output. In the questionnaire of the students, the questions were related to the area of process, and those of the graduates were related to the area of output.

In determining the validity of the questionnaire, it was given to 5 heads of the medical education department, 10 medical education faculty members, 10 medical education PhD students, and 10 medical education doctoral graduates of Shiraz and Tehran universities of medical sciences. Content validity was calculated based on content validity index (CVI) and content validity ratio (CVR) formulas. The CVR value was 0.98 for the three groups of faculty members, students, and graduates and 0.99 for the heads of department. The CVI value in the areas of simplicity, clarity, and relevance was respectively 0.98, 0.99, and 0.98 for the heads of department, 0.98, 0.98, and 0.97 for the faculty members, 0.97, 0.98, and 0.98 for the students, and 0.83, 0.97 and 0.98 for the graduates. Cronbach's alpha coefficient was used to determine the internal consistency of the questionnaire.

The initial questionnaire was implemented for 30 members of target groups in Shiraz and Urmia Universities of Medical Sciences, and the obtained values were calculated based on Cronbach's alpha coefficient. The value of the internal consistency coefficient was 0.97 for the questionnaire of the department heads, 0.95 for the questionnaire of the faculty members, 0.83 for the questionnaire of the students, and 0.81 for the questionnaire of the graduates.

Before designing the questionnaire, a preliminary agreement was reached based on the CIPP evaluation model about the people involved in the research to determine what information the stakeholders are seeking and who are to be part of the statistical population of the research. After the initial agreement, determining the validity and reliability of the questionnaire, and obtaining permission from the head of the Center for the Study and Development of Medical Education, the names and emails of the students and graduates were obtained and the questionnaires were emailed electronically to the target groups.

The questionnaire had two main parts: the first part contained closed-ended and short-answer demographic information questions, and the second part included multiple-choice questions which were classified based on a 5-point Likert scale.

In the second part of the questionnaire, four areas were examined. In the area of context, the missions and objectives of the program were reviewed based on the developed standards and needs of learners; curricula, faculty members, students, equipment, and facilities were evaluated in the area of input; learning and teaching processes together with organizational management process were examined in the area of process; and the performance of the course and educational and research performance of graduates were also investigated in the area of output. After collecting the questionnaires, the data were analyzed in both descriptive and inferential levels using SPSS software version 16. IBM SPSS software version 1. Accordingly, the descriptive statistics of mean and standard deviation and the inferential statistic of one-sample *t*-test were used.

Ethical consideration

The research process began after obtaining ethical permission. We explained the objectives of the research to heads of department, faculty members, students, and graduates and obtained their consent to collect data.

Results

Two out of 3 heads of department, 10 out of 19 faculty members, 18 out of 21 students and 15 out of 23 graduates completed the questionnaires. The mean age of the department heads was 52 ± 0. The mean age of faculty members was 49.77 ± 6.30 years. The mean age of graduates was 48 ± 1.15 and the mean grade point average (GPA) of graduates was 18.30 ± 0.13. The mean age of students was 43 ± 5.11 and the mean GPA of all students was 17.69 ± 0.63.

In the area of context, from among 10 indicators compiled in the questionnaire of faculty members, six indicators obtained the highest mean score. These indicators and their scores are as follows: need to set up a doctoral course in medical education (4 ± 0.66); need for researchers to conduct research in the field of medical education (3.90 ± 1.10); need for instructors in the specialized doctoral courses of medical education (4.50 ± 0.70); need for educational management specialist of medical education for the country's universities of medical sciences (4.30 ± 0.82); need for educational planning specialist of medical education for the country's universities of medical sciences (4.40 ± 0.84); and need for specialists to design short-term and long-term educational courses required in the field of medical education (4.20 ± 0.91).

In the area of context, from among 10 indicators compiled in the questionnaire of the heads of department, four indicators obtained the highest mean score, which is as follows: regular evaluation of the scientific and skill needs of PhD students (5 ± 0); need for researchers to conduct evidence-based research in the field of medical

education (5 ± 0); need for instructors in the specialized doctoral courses of medical education (5 ± 0); and need for specialists to design short-term and long-term educational courses required in the field of medical education (5 ± 0).

In the area of input, out of 27 indicators complied in the questionnaire of faculty members, 17 indicators obtained the highest mean score, which are as follows: clarity of the curriculum objectives (4 ± 0.81); proportionality of the presented courses to the determined syllabi (4.20 ± 0.78); sequential and logical relationship between the subjects of the presented courses (4 ± 0.66); proportionality of the sequence and level of presented units (academic profile) in the doctoral course (3.90 ± 0.73); proportionality of the faculty members' field of study to the subjects of the PhD courses (3.90 ± 0.99); adequate familiarity of the faculty members with the objectives and contents of the presented courses (4.30 ± 0.82); adequate familiarity with statistical, research and computer methods (4.20 ± 0.87); knowing about different teaching methods and their characteristics (4.30 ± 0.82); proportionality of the specialty of the PhD dissertations' referees to the discipline of medical education (3.70 ± 0.67); proportionality of the faculty's educational facilities and equipment to the educational and research needs of the course (4.10 ± 0.83); enough computer facilities and good Internet access according to the number of students and their educational needs (4.30 ± 0.67); proportionality of the library facilities and databases to the educational and research needs of faculty members and PhD students of medical education (4.60 ± 0.51); proportionality of the library books and publications to the needs and number of the faculty members and students (4.70 ± 0.48); proportionality of hours of access to library resources to the logical and reasonable needs of the students and faculty members (4 ± 0.66); and efficient and up-to-date resources and availability of the educational materials in the library as well as the proportionality of the facilities and educational space to the number of students (4.50 ± 0.52). The entry of the students with the necessary scientific motivations into this discipline, with the lowest mean (2.30 ± 0.82), was evaluated by the faculty members to be inappropriate.

In the area of input, from among 25 indicators compiled in the questionnaire of the heads of department, the following indicators obtained the highest mean score: proportionality of the presented courses to the determined syllabi (5 ± 0); proportionality of the presented courses to the determined time (5 ± 0); proportionality of the presented courses to the prerequisites and previous knowledge of students (5 ± 0); proportionality of the presented courses to the interests and professional capabilities of the heads of department (5 ± 0); proportionality of the heads of department's field of

study to the PhD programs (5 ± 0); proportionality of the supervisors' specialty to the discipline of medical education (5 ± 0); holding necessary programs and educational workshops to enhance the knowledge of the medical education faculty members (5 ± 0); proportionality of library facilities and databases to the educational and research needs of faculty members and PhD students of medical education (5 ± 0); efficient and up-to-date educational resources and materials available in the library (5 ± 0); and proportionality of the educational facilities and spaces to the number of students (5 ± 0). By contrast, the suitability of the admission requirements for the PhD course in medical education (2.5 ± 0.70) and the entry of the students with the necessary scientific motivations into this discipline (2 ± 1.41) obtained the lowest mean scores in this area.

In the area of the process, out of 40 indicators in the questionnaire of the faculty members, 22 indicators obtained the highest scores and were considered to be appropriate from the viewpoint of the faculty members. These indicators were as follows: the availability of the necessary facilities for the participation of the faculty members in scientific and research seminars (4 ± 1.11); necessary facilities for supervising educational projects of the students (4.12 ± 0.83); participation of the faculty members in educational workshops to develop the level of their scientific knowledge (4.44 ± 0.72); probability of allocating a specific time for counseling and solving educational problems of medical education PhD students (4 ± 1.50); allocation of a specific time by the faculty members to provide counseling in their room (4 ± 0.94); Providing the necessary conditions for the participation of the faculty members in individual development workshops during the year (4.20 ± 0.91); using new scientific resources by the faculty members in preparing educational content (4.70 ± 0.48); paying homage to individual differences and previous information of the students in teaching process (4.30 ± 0.82); paying attention to the viewpoint and opinion of the students in teaching methods and provision of the educational content of the course (4.10 ± 0.73); using active teaching methods to foster the creative thinking of the students (4.20 ± 0.78); using different and new teaching methods (4.10 ± 0.87); presenting educational materials in a practical way (4.20 ± 0.78); proportionality of the theoretical content to the practical content in teaching (4.10 ± 0.99); awareness of the head of the medical education department of the quality and quantity of the courses (3.90 ± 0.87); doing managerial tasks and activities by the head of the medical education department as efficiently as possible (3.88 ± 0.78); proportionality of the students' educational achievement assessments to the objectives of the courses (3.70 ± 0.67); giving the exams in accordance with the objectives of the

course (3.70 ± 0.83); appropriate and sufficient interaction between the head of the medical education department and the faculty members of the course (3.88 ± 0.92); probability of interaction and using educational capacities between computer units in software updates and access to the site (4.40 ± 0.51); and acceptability of library management activities in updating library resources and materials (4.40 ± 0.51).

In the area of the process, from among 25 indicators in the questionnaire of the heads of department, the following indicators obtained the highest mean scores from the viewpoint of the heads of department: necessary facilities for supervising educational projects of the students (5 ± 0); participation of the faculty members in workshops so as to improve their level of scientific knowledge (5 ± 0); active participation of the faculty members in scientific and research seminars (5 ± 0); active participation of the medical education-related faculty members in educational decisions (5 ± 0); and proportionality of the exams to the objectives of the course (5 ± 0). On the contrary, using study opportunities by the faculty members to improve their scientific level (1.50 ± 0.70) obtained the lowest mean score.

In the area of the process, from among 52 indicators in the questionnaire of the students, 31 indicators obtained the highest mean scores from the viewpoint of the students. These indicators are as follows: sufficient effort of the faculty members in supervising educational projects of the students (3.50 ± 1.04); determining a specific time in their program by the faculty members for counseling and troubleshooting of medical education PhD students (3.61 ± 0.84); allocation of a specific time by the faculty members to provide counseling in their room (3.61 ± 0.91); using new scientific resources by the faculty members in preparing educational content (4 ± 0.90); paying homage to individual differences and previous information of the students in teaching process (3.55 ± 1.09); paying attention to the viewpoint and opinion of the students in teaching methods and provision of the educational content of the course (3.72 ± 0.95); using active teaching methods to foster the creative thinking of the students (3.77 ± 0.80); using different and new teaching methods (3.66 ± 0.97); proportionality of the teaching methods to teaching subjects (3.66 ± 0.90); presenting educational materials in a practical way (3.77 ± 0.87); proportionality of the theoretical content to the practical content in teaching (3.66 ± 0.84); proportionality of the content of the educational workshops to the educational objectives of the course (3.44 ± 0.85); active presence in doing practical works in the classroom and class activities (4.05 ± 0.63); using additional and supplementary scientific resources in accordance with the subjects of the course (4 ± 0.76); using computer facilities and databases for scientific

purposes (4.22 ± 0.80); satisfaction with their activities and educational performance (3.66 ± 0.90); availability of library resources (3.83 ± 1.20); and acceptable effort of the library management for updating the library resources and materials (4 ± 1.20).

In the area of output, from 11 indicators in the questionnaire of the faculty members, the realization of the objectives and curricula programs of the course obtained the highest mean score (3.66 ± 0.86) and was considered appropriate from the viewpoint of the faculty members.

In the area of output, from 11 indicators compiled in the questionnaire of the heads of department, the department/faculty use of research results for the growth and promotion of medical education obtained the highest mean score (5 ± 0) from the viewpoint of the heads of department.

In the area of output, from among 41 indicators complied in the questionnaire of the graduates, seven following indicators obtained the highest mean scores were considered appropriate from the viewpoints of the graduates: the ability of designing and implementing the educations required in the area of medical scientific education for individuals and related institutions (3.68 ± 1.25); the ability of doing educational interventions with the aim of improving medical education (3.93 ± 1.12); capability of participating in educational empowerment of medical faculty members (3.87 ± 1.08); ability to design appropriate tools for evaluating theoretical courses of medical students (3.68 ± 1.19); ability to design appropriate tools for evaluating practical courses of medical students (3.75 ± 1.24); ability to evaluate the designed educational programs during the implementation (3.68 ± 1.13); and ability to evaluate the designed educational programs after the implementation (3.68 ± 1.25).

Table 1 presents the status of the evaluation areas of PhD in medical education from the perspective of the

Table 1: Situation of the evaluation areas of medical education PhD course from the perspective of the heads of departments and faculty members

Units of study	Field	Mean±SD	T	Significant	P
Heads of department	Context	4.10±0.28	5.50	0.11	≥0.05
	Input	4.31±0.62	2.97	0.20	≥0.05
	Process	3.94±0.28	47	0.01	≤0.05
	Product	3.85±0.35	3.40	0.18	≥0.05
Faculty member	Context	3.74±0.59	3.93	0.00	≤0.05
	Input	3.79±0.41	6.08	0.00	≤0.05
	Process	3.73±0.46	4.97	0.00	≤0.05
	Product	3.15±0.69	0.72	0.48	≥0.05

SD=Standard deviation

heads of department and faculty members. According to the one-sample t-test, the mean of the process area was significantly higher than the average, while the mean of the context, input and output areas was higher than the average, but not significant at the level of 0.05. The univariate t-test of the faculty members revealed that the mean of the context, input, and process areas was significantly higher than the average, and the mean of the output area was higher the average, but not significant at the level of 0.05.

The situation of all evaluation areas of medical education PhD program from the perspective of the research subjects is presented in Table 2. As shown in Table 2, the unilabiate t-test indicated that the total mean score of the areas of the heads of department, faculty members, and graduates was significantly higher than the average.[3] However, the mean evaluation score of the students was not significantly higher than the average. In other words, the evaluation indicators of the PhD course in the four areas of context, input, process, and output were evaluated as appropriate from the perspective of the heads of department, faculty members, and the area of output was considered to be appropriate by the graduates. However, the situation of the process area was not appropriate from the viewpoint of the students.

Discussion

The aim of this study was to evaluate the PhD program of the medical education of Isfahan University of Medical Sciences based on the CIPP model in 2020. Based on the results, the medical education PhD course was considered by the heads of department and the faculty members to have a good condition in the four areas of context, process, input, and output. The course also had a good condition in the area of output from the perspective of the graduates. However, in terms of the process area, the students evaluated the course as inappropriate.

In the area of context, the need for specialized human resources in the field of medical education was one of the indicators considered by the heads of department and faculty members. With regard to the significance of skilled manpower, it should be noted that what finally determines the economic and social development of a

Table 2: The general situation of the evaluation areas of the medical education PhD course from the perspective of the research subjects

Units of study	Mean±SD	T	Significant	P
Heads of department	4.10±0.14	11	0.05	≤0.05
Faculty member	3.64±0.42	4.73	0.00	≤0.05
Student	3.24±1.17	0.82	0.42	≥0.05
Graduates	3.33±0.66	2.12	0.04	≥0.05

SD=Standard deviation

country is human resources, not capital or other material resources.[25] The discipline of medical education is applied disciplines, which examines the foundations of learning and teaching in medical sciences. Accordingly, it requires graduates who are able to identify educational problems through doing appropriate research, provide logical and assessable solutions to educational problems, assist in the planning and management of educational problems in universities of medical sciences, and transfer proper technologies and educational methods for enhancing the capabilities of faculty members.[9]

In the area of input, the indicators related to curricula, the faculty members, and suitable facilities and equipment were evaluated by the heads of department and faculty members to have an appropriate quality. However, in the same area, students-related factors were evaluated to be inappropriate by these two target groups.

In evaluating the area of input, this question was raised: "To what extent does the quantity and quality of human and non-human resources meet the needs of students?" Then, the faculty members and students were evaluated as human resources and the curricula as the non-human ones. Inputs include numerous factors the most important of which are faculty members, students, curricula, budget, and educational facilities and equipment. These factors have been referred to in the studies conducted by Singh (2004), Phattharayuttawat *et al.* (2019), Mohebi *et al.* (2011), Fathabadi *et al.* (2011), and Shayan *et al.* (2010).

Among the indicators of the input, the factors related to the curriculum, faculty members, and appropriate facilities and equipment obtained a high score. The proportionality of the presented courses to the determined syllabus and time, the responsiveness of the presented courses to the educational needs, the sequence and logical connection between the subjects of the courses and the flexibility of the courses in implementing the initiatives and innovations of the faculty members are indicative of the department's attention to the curriculum-related factor. However, the curriculum-related factor along with the factors of learner and teacher are three important factors within the educational system.[26] According to Assel *et al.* (2017), the content of the curriculum provided to students is one of the most important factors in the educational settings.

In terms of the quality of the faculty members' performance, the success of the instructor is of key importance for evaluating their performance. Factors which may be considered by students in the evaluation of teaching include the instructor's dominance over the subject, considering individual differences of the students, whetting the enthusiasm of the students for

teaching, maintaining appropriate academic standards, enhancing the students' participation, freedom in the expression of creativity and so forth. Of course, in addition to the above, other indicators are also tremendously effective in the success of the faculty members.[27]

In this study, the high mean of the indicators of the faculty members indicated the high incentive of the faculty members of the medical education department in holding workshops, participating in workshops, and using various teaching methods in the classroom. Universities of medical sciences need motivated professors and instructors as one of the pillars of education to be effective in educating students and promoting the health and treatment of society.[28] Obviously, when education is presented in a suitable environment, and considering the most appropriate methods and facilities and based on the needs, interests and scientific backgrounds of learners, it will motivate the teaching of the instructors and the learning of the students.[29] In addition to examining the appropriate indicators for further reinforcement, it is very important to pay homage to inappropriate indicators to correct or eliminate them. Accordingly, the following is a review of inappropriate indicators in the field of medical education.

One of the indicators which had a low mean score from the viewpoint of the heads of department and faculty members was the admission requirements and the level of motivation of students entering the discipline of medical education. According to Rostamkhani *et al.* (2017), reasons for choosing and continuing education in the discipline of medical education were divided into three themes: "individual components" including the categories of scientific-personal development, specific stimuli and non-specific stimuli; "systemic components" including the categories of job requirements, professional escape, test escape, and nature and manner of the education; and "social components" including degree-orientation. Although all factors somehow affect the motivation of students in entering this course, the ease of admission compared to other disciplines is a factor which necessitates the review of the criteria for entering this discipline.

With regard to the area of the process, all indicators of teaching and learning process except the indicators related to the use sabbatical, the relationship between the students and other universities, and the continuous communication of the medical education department with other associations were considered to be appropriate from the perspective of the heads of department and faculty members. Moreover, from the viewpoint of the students, all indicators of teaching and learning process except the indicators of providing written and

scientific education on research ethics, necessary action for facilitating the publication of the research results in the department/faculty/university, and communication of the students and graduates of this course with other universities were considered to be in a good condition.

The indicator of sabbatical had a low mean score from the perspective of the heads of department. As one of the basic components, sabbatical can improve the process of professional development and empower the university faculty members. In fact, the effectiveness of this component has been agreed upon with regard to gaining experience, knowledge enhancement, updating information, familiarity with scientific and technological advances of other countries, transformation, adjustment, and adaptation of them, and rebuilding the professional ability and thinking capacity in the faculty members.[30] The most important challenges of the faculty members in sabbatical are classified in the following categories: university-related problems (budget constraints, selection criteria difficulty, limited number of opportunities, inadequate explanations to the faculty members, lack of facilities for the implementation of learned skills, and unclear needs and priorities); person-related problems (low admission skills, poor English language skills in some professors, poor communication skills outside the university, incorrect choice of projects, financial reasons, family problems, worry about losing a position, overwork, old age, stagnation of the faculty members, lack of interest in the work assigned to the destination); senior levels of policymaking (limited authorities in investigating the requests, short period of the course, long administrative procedure); apply (limited choices, limited accessible information); destination country (accommodation, lack of facilities); financial-economic system (changes in exchange rate, high cost); and evaluation and monitoring (poor evaluation of the individual after return, lack of communication between the individual and the university during the course).[31] However, in using the potential of sabbatical for enhancing the various skills of faculty members, a coherent program is required to minimize the identified problems.

In the area of output and considering the mean score of the indicators, all significant indicators were considered appropriate from the perspective of the heads of department, faculty members, and graduates. In evaluating the curricula, one of the criteria for them is the satisfaction of more than 70% of the heads of department with the students and the efficiency and effectiveness of graduates in performing educational and research tasks, which seems to be achieved successfully.

Limitation and recommendation
Access to faculty members, students, and especially

graduates to complete the questionnaire was one of the important problems that was solved to a large extent with consistent efforts. Some students' emails had changed, and many graduates were notified by telephone that a questionnaire had been emailed to them. Time-consuming completion of the questionnaire and reduction of cooperation in completing it, due to the large number of questions. It is recommended that in future research, the evaluation of the doctoral program in medical education be done nationally and qualitatively, as well as more examples be included in the research.

Conclusion

The four areas of context, input, process, and output of the medical education course of Isfahan University of Medical Sciences were evaluated as appropriate from the perspective of the heads of department and faculty members. The area of output was also considered to be appropriate from the perspective of the graduates. By contrast, the area of the process was evaluated to be inappropriate from the viewpoint of the students. However, the appropriateness of the course does not mean that there should be no effort to correct the weaknesses and enhance the strengths. Moreover, the evaluation of the course should not be limited to this single study as evaluation is supposed to be a continuous process. Therefore, in addition to summative evaluation, formative evaluation of the course is needed as well. According to the results of this study, practical solutions should be considered to maintain and improve the indicators which have been reported as appropriate. Nonetheless, for the improvement of the inappropriate indicators, the following suggestions can be considered: if the ministry specialists have some predetermined objectives in admitting students in this course and they expect to attract capable and efficient graduates, they must reconsider the conditions of admission of students and admit them with more knowledge about the condition of the course. Furthermore, by establishing friendly and intimate relations with students, these specialists can motivate them and provide sabbatical for the faculty members.

Conflicts of interest

There are no conflicts of interest.

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