Review of Faculty Members' and Medical Students' Viewpoints about the Reform of General Medical Degree Program, (pre-Clinical Phase) at Shahid Beheshti University of Medical Sciences

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Abstract

Background and Purpose: *Educational development center (EDC) at Shahid Beheshti University of Medical Sciences began general medical degree program reform from early 2000 and it was implemented since October 2004 with the admission of the first group of medical students. The study objective is to investigate faculty members and medical students' viewpoints on the achievement of the objectives of the reform of general medical degree program at the level of basic sciences.*

Methods: *The study is cross-sectional and its field is "Medical Education". Studied population is all faculty members employed to teach and medical students in the fourth and fifth semesters in pre-clinical phase. Sampling method was census and data collection tools were two researcher-made questionnaires. Data analysis was performed using SPSS software.*

Results: *The overall average response to the questionnaire questions was 2.98 for students (n=116, SD=0.646) and for faculty members was 3.36 (n=31; SD=0.551). 84 students (72.4%) and 21 faculty members (67.7%) announced the achievement of the objectives of the program. No correlation is observed between the response of faculty members and students (Spearman's Coefficient=0.1, P=0.873). In student-centered strategies (Spearman's Coefficient=0.975, P=0.005) and electives (Spearman's Coefficient=0.943, P=0.005) there is a correlation between students in the fourth and fifth semesters.*

Conclusions: *Insufficient number of similar previous studies and lack of faculty members' willingness to participate in the study make it difficult to generalize the results to other departments. However, as the first study, the results of this study can be effective on future revisions of the program.*

Keywords: *EDUCATIONAL PROGRAM, REFORMS, PHASE OF BASIC MEDICAL SCIENCES, FACULTY MEMBERS, MEDICAL STUDENTS*

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Introduction

Today in the world there is a high tendency to reform traditional Medical Education program. There is much global evidence for reform and innovation in the structure and process of Medical Education (1). Medical schools' plays an important role in all phases of the reform of the educational program from design to implementation and monitoring reformed educational program (2). One of the most important duties of faculty members is to participate in educational planning and its design (3).

Medical Education should be changed according to changing conditions of the community health needs and also economic, cultural and even political conditions. Considering international standards and indices along with investigating the country health needs in future caused Medical Education program authorities at Shahid

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Beheshti University of Medical Sciences to design and implement general medical degree reform program at School of Medicine in Shahid Beheshti University of Medical Sciences based on the need to comply with the country new conditions and the need to consider new ways and developments in Medical Education. Medical Educational Development Centre (EDC) at this university began Medical Education program review in early 2000 and Reform Committee has attempted to develop a new general medical degree program for a period of three years. The proposed program in June 2004 was approved in Supreme Council of Planning, Ministry of Health, Treatment and Medical Education, and the implementation of this new program has been started since October 2004 by admission of the first group of medical students (2).

The purpose of this study was to investigate the viewpoints of faculty members teaching basic medical sciences and medical students studying in the fourth and fifth semesters of basic sciences phase in School of Medicine about how to achieve reforms' objectives of general medical degree program. In search of resources, there was no study measuring achievement of the objectives of the program from the perspective of students and faculty members on interventions conducted according to Harden strategies. But a number of similar studies has been investigated which examined the effect of interference on the educational program based on one or more new educational strategies.

Doctor Azizi conducted studies on the need for change and the challenges of Medical Education (4, 5). Evaluation of Medical Education indices from 1994 to 1997 in Dr. Azizi study, "The Reform of Medical Education in Iran" has shown that in this period the integration of health services and Medical Education in 1985 caused promoting the quality and quantity of Medical Education. The first general medical degree program was developed in 1980 by Supreme Council of Cultural Revolution. Author of the study concluded that according to the global changes there is a need to develop community-based Medical Education, outpatient education, problem-based and student-centered education is the integration of basic and clinical sciences and promoting evaluation methods (6).

Dr. Kojouri et al. have presented Medical Education problems and proposed solutions in eight axis in their paper: 1) High volume of courses particularly theoretical courses in basic medical sciences and physiopathology phases, 2) Information overload, especially related to theoretical and factual knowledge, 3) Heavy use of teacher-centered teaching methods, 4) Separation of the basic medical sciences phases, physiopathology and clinical phases, 5) Insufficient attention to clinical education, 6) Community-based learning, 7) Non- proportional evaluation methods of medical students with training purposes, 8) Insufficient attention to improving medical students competencies. At the end of this paper a summary has been presented to provide proposed changes' framework in the current system of Medical Education in eleven aspects: 1) Reduction of theoretical training and emphasis on clinical general skills education, 2) Critical thinking education through higher thinking skills in small groups, 3) Moving towards self-centered and problem-based learning, 4) Introduction of actual performance of s by Portfolio to medical students and attracting their participation in s' selection, 5) Greater emphasis on education position of clinics and community to hospital, 6) Moving toward determining the main directions of education and determining some courses as optional units, 7) Teaching the main courses required in the curriculum, 8) Broader horizontal and vertical integration of clinical and non-clinical issues, 9) Modify current evaluation systems 10) More communication between educational groups and forming interdisciplinary committees, and 11) Introductory courses with study methods and creating a unit on behalf of the rights of medical students (7).

Doctor Haeri in the study in 2010 entitled "Reform of Medical Education" stated a global concern is on the effectiveness of Medical Education program available in training competent graduates. Current concerns are about consequences of implementing educational program and competencies of graduates in solving problems of the community health and diseases' control. Knowledge, skills and attitude-forming ability of graduates as future physicians, are components that should be considered in the development of Medical Education program. Despite the fact that the basic elements of education over the past 100 years have been implemented well almost by most universities but today the number of institutions that have used these elements in developing their educational program is not too much. Most schools of Medicine in the world have no precise definition of Medical Education program reform in order to cover effective aspects of Medical Education program. A limited number of national, regional and international meetings have emphasized decisive activity carried out in the reform of Medical Education program (8).

A research was conducted at Shahid Beheshti University of Medical Sciences between 1999 and 2000 with the participation of 42 faculty members and 686 medical students in the first and second year of basic medical sciences phase in school of medicine by Mirzabeigi et al. selected courses for the study were anatomy, Parasitology, Immunology, Histology, Biochemistry, English, Physiology and Bacteriology. A number of interferences were performed before and during research, including workshops, learning skills, individual guidance, consulting, feedback, evaluation and decision-making, in order to prepare s and students for a change. In above meetings, active learning methods were used instead of traditional methods were also encouraged to develop their lesson plans and use active methods. The process was evaluated through repeated observation, interview and questionnaire. The results showed that the plan has been quite successful in changing attitude and developing needed skills of faculty members and increasing the quality of education but not successful in changing attitude of students (9).

Tavanaei Pour et al. at Medical University of Otago in 2002 in a study which conducted aimed to investigate the opinions of faculty members about new curriculum to previous one concluded that a combined training program that is accepted by many traditional s and students has a greater effect on s' positive sense to students' abilities to new program (10).

In a study conducted by Mr. Wilkes and Bligh in 1999 entitled "Evaluation of educational interventions", they concluded, despite recent extensive changes on Medical Education in America and Britain, these changes need to be evaluated in terms of achieving the desired objectives. Training innovations can be complicated and extensive and that makes it more difficult to measure and describe them. There are different approaches for this type of evaluations that include: student-oriented through measuring student's performance (tests' results), program-oriented to compare courses' function, educational objectives and teaching activities, institution-oriented, usually done by foreign organizations for ranking the quality, stakeholder- oriented done by NHS organizations in England and HMO in America (11).

In 1984 Dr. Harden et al. in their study introduced six new training strategies known as SPICES strategies to the traditional strategies, including student-oriented to - oriented, problem-based learning to collect information, integrated teaching to field-based teaching, and community-based education to hospital education, optional to standard training program, systematic to - student or opportunistic training programs (12).

Harden et al, in 2000 has compared the use of SPICES strategies in educational program between 1970-1985 and 2000 and has

categorized 2015 prediction as follows (1, 13, 14):

1. Student-oriented program: great emphasis on student-oriented learning in educational program/development adaptive program based on the specific needs of students.

2. Problem-based program: using a range of problem-based approaches as routine/task-based learning extensively.

3. Integrated program: continued agreement on integration and inter-professional learning/ integrated evaluation/emphasis on multi-professional learning.

4. Community-based programs: community as a major focus of a training program.

5. Optional programs: increasing the choice of the program/increase in optional chapters'/student exchange between Schools due to selecting special study modules.

6. Systematic program: outcome-based education with teaching-learning and measuring based on learning outcomes.

Schwartz et al. at University of Otago, New Zealand in 1999 conducted a study aimed to investigate the effect of reviewing pre-clinical educational program and courses of systemic integration and problem-based learning of students' feeling to learning environment. The results showed that observed mean for students in new program can be compared with what has been recently reported of students in problem-based learning program and is higher than traditional programs. Of course, scores of students in the old program have been also higher than other reported studies of students with older programs. But, in this study there was a significant increase in new program criteria. So, it seems in traditional medical schools, changes in educational program that is designed appropriately can lead to understanding the benefits of problem-based learning approach in students to learning environment (15).

Rosenthal et al. in England in 1998 conducted a study aimed to investigate beliefs and opinions of medical students about the need for a change in Medical Education as recommended by General Medical Council as well as investigating the relationship between the ideas of the students and their academic year. Most of the students agreed with the most of recommendations, although two key recommendations "more community-based teaching" and "Add optional courses", respectively, were only confirmed by students in 50.2% and 46.3% of answers (16).

Gilbert in 3 Medical Schools in Switzerland during 1990-1995 conducted a study aimed to determine the opinions of the students and s of School of Medicine in Geneva on problem-based learning and community-based reforms in the School of Medicine. The results were obtained in seven themes: 1) community-based education, 2) Professional profile, 3) learner-centered education, 4) Pedagogical level of s' ability, 5) Overlapping's concepts, 6) Problem-based learning. 7) Evaluation of the educational program. In this study, it was attempted to answer the question, why the university educational programs are not evaluated? Reviewing opinions of education officials specified several important education problems in this field: maybe evaluation process is against academic freedom, another fact is the lack of teacher training in educational sciences and different methods of evaluation. The fact is that educational institutions are not developing their educational policies to be clear. So far there has been no activity to evaluate the quality of educational programs (17).

In designing reforms of general medical degree program in the phase of basic medical sciences in Shahid Beheshti School of Medicine, SPICES educational strategies were the main focus of the educational program design. Based on evidence and documents available in the field of general medical degree reform (basic medical sciences phase), five strategies have been implemented in basic medical sciences phase until the time of conducting the study at Shahid Beheshti University of Medical Sciences. These strategies included: 1. systematic, 2. student-oriented, 3. integrated learning, 4. community-based learning, and 5. Elective courses.

Recognizing the views of faculty members and medical students can be used as a guide for medical school authorities' decision-making. So, the results of this study can be effective on future revisions of reforms of general medical degree program, reinforcing strengths and addressing the weaknesses of the educational program and facilitate transferring the innovative experiences to other Schools of Medicine in the country.

Methods

This study is cross-sectional. The studied population included all faculty members teaching in basic medical sciences phase at Shahid Beheshti School of Medicine and also students studying in the fourth and fifth semesters of basic medical sciences phase of general medical degree program at Shahid Beheshti School of Medicine. Given that medical students in the first, second and third semesters have passed shorter times and fewer units in basic medical sciences phase, we did not include them in the study.

Sampling method was census. The questionnaire was provided for all the study population namely 152 faculty members teaching in basic medical sciences phase (121 faculty members of basic medical sciences and 31 faculty members of clinical groups) and 144 students studying in the fourth (n=65) and fifth (n=79) semesters in basic medical sciences phase in Shahid Beheshti School of Medicine. The study was conducted in the first half of the academic year of 2009-2010.

Data collection tool was a researcher made questionnaire based on Likert 5-point rating scale. Two questionnaires were used to collect data: the first questionnaire was to determine the viewpoints of faculty members, including 30 questions and the second questionnaire including 26 questions to determine the viewpoints of medical students. In addition, demographic characteristics of the participants, including age and gender as well as students were asked about semester and native or non-native. The content of the questionnaire was prepared based on evidence and documentations available in the field of general medical degree reform (basic medical sciences phase) at Shahid Beheshti University of Medical Sciences. So, the questionnaire was designed based on five strategies used in basic medical sciences phase and the number of questions was set according to the importance of the strategies in basic medical sciences phase. The number of questions in the questionnaire for faculty members and students according to strategies included: 1. Systematic (4, 4), 2. Student-oriented (5, 5), 3. Integrated learning (6, 9), 4. Community-based learning, (5, 5), 5 electives (6, 7), respectively.

Questions and rating scale of questions were revised for the last time using a pilot study and the opinions of participants in the pilot study. In order to establish face validity, based on the opinions, the text of the questions is developed legible and clear, and a clear introduction is included at the beginning of the questions and the order and the sequence of questions was also modified. Questions were categorized based on five strategies used in basic medical sciences phase and also for each of these questions' category in the questionnaire; descriptive statistics were calculated according to strategies.

In order to determine the reliability, by assuming internal consistency and given using multi- value options in the questionnaire with Likert scale, Cronbach's alpha coefficient was calculated. This study was conducted using the results of a pilot study in studied population in research environment. The questionnaire of determining the viewpoints of faculty members included 30 questions with Cronbach's alpha coefficient=0.868 and the questionnaire of determining the viewpoints of students included 26 questions with Cronbach's alpha coefficient=0.930 that according to Cronbach's alpha coefficient, research tool, including two questionnaires, has necessary reliability ($\alpha > 0.7$).

In order to analyze data, SPSS software Version 16 was used. Having defined the relevant codes and data entry in SPSS software, data analysis was done in 2 parts of descriptive and analytical statistics. A) In order to determine normal distribution, Kolmogorov-Smirnov test has been used that based on the results of the test and the number p (which represents non-normal distribution in this study), non-parametric tests were used. B) For demographic investigation, descriptive statistics were used. This means for each question of the questionnaires, descriptive statistics including frequency, mean and standard deviation were calculated. C) In order to determine the reliability, Cronbach's alpha coefficient was calculated. D) In order to investigate the relationship between gender and native status of the students and the results of the questionnaires, non-parametric Mann-Whitney test (U test) was used. E) In order to investigate the relationship between the gender of faculty members and the results of the questionnaires, non-parametric Mann-Whitney test was used. F) In order to investigate the relationship between the age of faculty members and the results of the questionnaires, Kruskal-Wallis nonparametric test (H test) was used. G) In order to compare mean comments of faculty members with mean comments of students, according to Likert scale in the questionnaires, the results of Spearman correlation coefficient were used. In addition to the main questions of the questionnaire, including 26 questions for students as well as 30 questions ranked by Likert scale for faculty members, in the final page of the questionnaire, participants were asked on achieving objectives of educational program in basic medical sciences phase in Shahid Beheshti School of Medicine by triple ranking; lack of achievement, relative achievement and complete achievement. Given the conditions, the study was conducted in a period of about nine months.

In this study, it was attempted to consider and respect all aspects of ethical issues related to scientific research. First, written or verbal permissions were obtained to conduct research from the respected management of Educational development center (EDC), head of School of Medicine, director of medical students' education in basic medical sciences at School of Medicine. Faculty members and students' participation was done with personal consent and being informed of the study process and students and s who were not willing to cooperate were not forced to participate in the study and were excluded. Necessary explanations were given in students' questionnaire based on that the study results have no effect on students' scores at the end of the course. Necessary details were given in faculty members' questionnaire in based on that the study results have no effect on their evaluation. The questionnaires were anonymous, as well as faculty members and students participated in the study were assured that their personal information and names will remain confidential and personal information and names of students will not be used in presenting the study results. Administrative coordination of all steps of the study was done by informing all theses and consulting advisors. All financial costs related to the study have been paid by the researcher independently.

Results

Total faculty members' questionnaire return ratio is 20% (21% for basic sciences and 13% for clinical sciences faculty members), so the number of participants of faculty members in this study was 31. 31 of 152 faculty members participated in the study. Of these, 17 people (54.8%) were male and 9 (29%) were female and 5 cases gender (16.1%) was not declared. Faculty members' age range participated in the study was between 26 and 80 years old (Table 1).

Total students' questionnaire return ratio is 80% (for students of fourth semester is 73.8% and the number of participants is 48 and for fifth semester students is 86% and the number of participants is 68), so total number of

students participated in the study was 116. 116 medical students participated in this study (48 students (4.41%) in fourth semester, 68 students (58.6%) in fifth semester). Of these, 51 students (44%) were male and 65 students (56%) were female. Native students were 58 people (50%), non-native were 56 (48.3%) and 2 (1.7%) did not specify their status (Table 2).

According to five strategies used in basic sciences, the highest level of agreement of faculty members is related to the strategy of electives (n=29, mean=3.68, SD=0.677) and the lowest level of their agreement is related to student-oriented strategy (n=31, mean=3, SD=0.701). Also the highest students' agreement is related to integrated learning strategy (n=116, mean=3.38, SD=0.937) and their lowest agreement is related to student-oriented strategy (n=116, mean=2.63, SD=0.794) (Table 3).

Both groups of faculty members and students have declared achieving the objectives of new educational program in basic medical sciences as relative (faculty members, n=21, 67.7% and students, n=84, 72.4%) (Table 4).

In terms of gender, age and residency status (native) with students' viewpoints (Table 5) as well as gender, age and teaching phases (basic and clinical sciences) with faculty members' viewpoints, totally no statistically significant relationship was observed (Table 6).

Discussion

There is much evidence on the prevalence of cheating and other forms of unacceptable behavior in many areas of education. Many researchers believe that the prevalence of cheating has increased over time in different universities. In this case, there is general agreement that cheating should be minimized in professions that are based on honesty and deal with human life (1). In this study, we tried to find motivations, reasons and attitudes of medical students studying at Shahid Beheshti University of Medical Sciences about the different cheating

behaviors and comparison between the two groups of basic sciences and intern students. All students agreed that this issue has not been considered well at their University. Providing educational programs that evaluate the attitude on cheating and control its

Table 1. Faculty members' characteristics participated in the study

Characteristics	Sub-group	No. (%)
Training groups	Faculty member, basic sciences	27 (87.1)
	Faculty member, clinical sciences	4 (12.9)
	No answer	0 (0.0)
Academic rank		2 (6.5)
	Associate	5 (16.1)
	Assistant	13 (41.9)
	Instructor	3 (9.7)
	Other	3 (9.7)
	No answer	5 (16.1)
Gender	Male	17 (54.8)
	Female	9 (29)
	No answer	5 (16.1)
Age	26-30 y	1 (3.2)
	31-35 y	6 (19.4)
	36-40 y	3 (9.7)
	41-45 y	3 (9.7)
	46-50 y	6 (19.4)
	51-55 y	3 (9.7)
	56-60 y	3 (9.7)
	61-65 y	0 (0.0)
	66-70 y	0 (0.0)
	71-75 y	0 (0.0)
	76-80 y	1 (3.2)
	No answer	5 (16.1)

consequences require more attention. The 100% response rate of the students in the present study showed the importance of cheating, confirmed by oral comments the students participating in this study.

Our study showed that, cheating behaviors had statistically significant difference in three of the seven behaviors. Most students considered copying from someone, pamphlets, and books and helping other students to copy answers during exams as cheating, while students of basic sciences considered this behavior as an immoral act, they did not emphasize the seriousness of this behavior as an act of cheating. Also, intern students, but not students in the basic sciences considered helping other students to copy

Table 2. Demographic characteristics of students participating in the study

Characteristics	Sub-group	4th semester		5th semester		Total students	
		No.	%	No.	%	No.	%
Gender	Male	20	41.7	31	45.6	51	44
	Female	28	58.3	37	54.4	65	56
	No answer	0	0.0	0	0.0	0	0.0
	Total	48	100	68	100	116	100
Age	15-20 y	25	52.1	42	61.8	67	57.8
	21-25 y	22	45.8	25	36.8	47	40.5
	No answer	1	2.1	1	1.5	2	1.7
	Total	48	100	68	100	116	100
Native status	Tehran	24	50	34	50	58	50
	Other city	23	47.9	33	48.5	56	48.3
	No answer	1	2.1	1	1.5	2	1.7
	Total	48	100	68	100	116	100

Table 3. The results of investigating the viewpoints of faculty members and students about reform of general medical degree program (basic sciences) according to strategies

Strategy	Faculty members' view			Total students			Faculty members and total students		4th and 5th students	
	M	SD	No.*	M	SD	No.*	P-value	correlation coefficient**	P-value	correlation coefficient**
Systematic	3.38	0.563	31	2.82	0.791	115	0	1	0.684	0.316
Student-oriented	3	0.701	31	2.63	0.794	116	0.747	0.2	0.005	0.975
Integrated learning	3.28	0.782	30	3.38	0.937	116	0.188	0.7	0.280	0.530
Community-oriented learning	3.44	0.779	29	3.19	0.916	116	0.741	0.205	0.104	0.8
Electives	3.68	0.677	29	2.79	0.896	116	0.148	0.667	0.005	0.943
Total view	3.36	0.551	31	2.98	0.646	116	0.873	0.1	0.037	0.9

* The number of those who have answered the given question.
** Spearman correlation coefficient

Table 4. The viewpoint of faculty members and students about achieving objectives of reforms of basic sciences education program of Shahid Beheshti School of Medicine

Comments	Faculty members' No. (%)	Students' No. (%)*		
		4th semester	5th semester	Total students
Not achieving	1 (3.2%)	9 (18.8%)	13 (19.1%)	22 (19%)
Relative achieving	21 (67.7%)	36 (75%)	48 (70.6%)	84 (72.4%)
Complete achieving	2 (6.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Those who have no idea	5 (16.1%)	3 (6.2%)	1 (1.5%)	4 (3.4%)
Those who did not answered	2 (6.5%)	0 (0.0%)	6 (8.8%)	6 (5.2%)
Those who answered	29 (93.5%)	48 (100%)	62 (91.2%)	110 (94.8%)
Total	31 (100%)	48 (100%)	68 (100%)	116 (100%)

* The number of those who have answered the given question

answers during exam as cheating. There was also a significant difference between the two groups regarding the view of deliberately recording false records in order to facilitate the tasks. Perhaps the most important finding of this study could be the change in the attitude of students; as interns with more years at university considered the mentioned three behaviors as cheating, while students of

basic science considered these immoral, but not cheating.

According to the findings of Zajunc, emotions are preferred to thoughts and what we feel about ourselves will affect how we think and behave. In other words, our feelings play a causative role in our thinking and

It seems that this change of attitude on the cheating behavior is a positive point that is obtained after years of study and practical and clinical academic terms in medical students. Baird has also declared in his study that students with more years of study at university are less likely to commit cheating

Table 5. The relationship between gender, age and native status from the perspective of students

Strategy	P-value					
	Gender		Age		Native status	
Systematic	0.121		0.504		0.383	
Student-oriented	0.984`		0.136		0.836	
Integrated learning	0.014		0.849		0.026	
Community- oriented learning	0.003		0.694		0.106	
Electives	0.782		0.993		0.515	
Demographic	Male No.	51 (44%)	15-20 years	67 (57.8%)	Tehran Native No.	58 (50%)
	Female No.	65 (56%)	21-25 years	47 (40%)	Non- native No.	56 (48.3%)
Total view	0.051		0.924		0.296	
In terms of achieving objectives			P-value			
	gender		age		native status	
	0.828		0.624		0.293	

* Mann-Whitney test

Table 6. The relationship between gender, age and teaching phase from the perspective of faculty members

Strategy	P-value		
	Gender*	Age**	Teaching step***
Systematic	0.340	0.620	0.475
Student-oriented	0.204	0.344	0.859
Integrated learning	0.054	0.990	0.427
Community-oriented learning	0.098	0.672	0.924
Electives	0.194	0.794	0.975
Total view	0.049	0.631	0.724
In terms of achieving objectives		P-value	
	Gender*	Age**	Teaching step***
	0.034	0.703	0.129

* Mann-Whitney test
** Kruskal – Wallis test
*** Teaching step: a step of faculty member teaching, including basic and clinical sciences

action. It seems that some expressed emotions affect behavior, before we have a chance to think about it (9).

(10). Newstead also reported in 1996 that cheating will decrease with increasing age of students and this difference is likely due to differences in motivation, because older students study for personal reasons (11). The results of this study relatively confirm the results obtained in our study. In our research, it became clear that this change in attitude have been shaped with increasing years of education.

According to the results obtained in this study, there was a significant difference in the frequency of cheating in three behaviors, including helping other students to copy answers during exams, asking friends who did the exams in order to access the questions, and copying report of others with their own name in exam tasks. It was also found that the cheating repetition in most people who cheat was more than 3 times. Crown and Spieler believe that if students come to the conclusion that cheating is common in universities, cheating and repeating it will be easier for them that will cause the prevalence of cheating (12). This

finding seems to indicate that people will repeat the cheating behavior, if they cheat through adapting to this behavior.

Regarding the cause of tendency to cheat, there was no significant difference between two groups, but the most frequent causes of tendency to cheat in all students included fear of failing in the exam, difficulty of the course and earning a better score. It seems that the students consider this justification for cheating due to high levels of stress for earning the minimum scores for passing the exam and because their scores are considered for promotion to the next level. However, our findings are consistent with the results of Monica (1) that pointed out the fear of failing as the most common reason for participation of students in such behavior. But there is still controversy regarding the cause of students' tendency to various cheating behaviors and there is no clear theory in this context. Generally, most students have accepted that the reasons for cheating is unacceptable and they expose themselves to further problems and conflicts (13). It is important that students use cheating as a bypass to prevent failing in the exams. Baldwin and his colleagues during their investigation found that cheating is affected by students' demographic characteristics (such as age, gender, mean score) and contextual factors (such as cheating among peers, acceptance rate of cheating, severity of the punishment considered for cheating) (14). Therefore, universities should found a systematic and institutionalized strategy to deal with the causes that lead to students' tendency to cheating.

Conflict of Interest

The authors declare that they have no competing interests.

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