



Evaluation of the strengths and weaknesses of community-based education from the viewpoint of students

SEDIGHEH MOKHTARPOUR¹, MITRA AMINI¹, HOURI MOUSAVINEZHAD², ALIREZA CHOOBINEH³, PARISA NABEIEI^{1*}

¹Quality Improvement in Clinical Education Research Center, Education Development Center, Shiraz University of Medical Sciences, Shiraz, Iran; ²Cardiovascular Research Center, Shiraz University of Medical Sciences, Shiraz, Iran; ³Faculty of Health, Shiraz University of Medical Sciences, Shiraz, Iran

Abstract

Introduction: Responsive medicine is an appropriate training method which trains the graduates who can act effectively in initial and secondary aspects of health issues in the society.

Methods: This was a cross-sectional descriptive-analytic study which was done using quantitative method. The target population of this study was all the students of the Nutrition and Health School of Shiraz University of Medical Sciences. The sample was randomly selected in this study and 75 students were selected based on the methodologist's comments and similar studies and random-number table from a list obtained from the school's department of education. This questionnaire was a researcher-made one which consisted of 23 questions in 2 sections with 21 closed-ended questions and 2 open-ended questions; 70 questionnaires were completed correctly. The closed-ended questions had 4 aspects (completely agree to completely disagree) answered in 5-point Likert scale type. Its face validity was confirmed by 4 faculty members. The construct validity of the questionnaire was analyzed by factor analysis test and its reliability was assessed by a pilot on 20 students with a Cronbach's alpha of 0.85. The data were analyzed using descriptive statistical tests (mean, standard deviation, ...) and the Pearson coefficient ($p < 0.001$).

Results: The results of this study showed that the maximum mean score was 3.58 ± 0.65 which was related to the context of these courses and the minimum mean was 2.66 ± 1.14 which was related to the logbook implementation. The 2 open-ended questions indicated that the most important strengths were the use of logbooks as a guide and determining the minimum training; of the weaknesses was the mismatch between the theoretical education and the practical activities. Also, developing the minimum training that an expert should know and using the common topics related to theoretical education were the most important points mentioned by the respondents.

Conclusion: The educational planning of the authorities for keeping the balance of the theoretical training with the practical activities and giving opportunities to the trainee or intern to face diseases and the common problems of the community seems to be necessary.

Keywords: Clinical; Education; Nutrition; Health

*Corresponding author:

Parisa Nabeiei,
Education Development
Center,
Sadra-Sina Halls Complex,
Neshat Ave.,
Shiraz University of Medical
Sciences,
Shiraz, Iran,
Tel: +98 713 2333064
Fax: +98 7132349338
Email: parisanabeiei@yahoo.
com

Please cite this paper as:
Mokhtarpour S, Amini
M, Mousavinezhad H,
Choobineh AR, Nabeiei
P. Evaluation of the
strengths and weaknesses of
community-based education
from the viewpoint of
students. J Adv Med Educ
Prof. 2016;4(4):195-201.

Received: 8 February 2016

Accepted: 27 April 2016

Introduction

The higher education system takes important responsibilities in the field of economic, social, political, cultural and educational development in communities (1). Medical education is an important part of the higher education system that deals with the human life (2). The medical sciences education is one of the most important parts of the higher education system that is responsible for education, research, provision of services to the society, professional development of different fields and cultural improvements (3). In addition, medical universities have the important task of training skilled human resources needed for different sectors of the society, as well as providing health services to the people (4).

Studies at the University of Liverpool, England, on community-based medical education demonstrated that this approach provides an opportunity for students and leads to a deeper understanding of influential economic and social factors on the health and disease issues. Also, they mentioned that the students' attitude of providing services should be empowered and that the community-based education provides a dynamic practical model for the students' learning (1, 4).

The review of the current developments of higher education shows that the system should pay attention to preserving, improving, and promoting the quality (5). Evidence also proves that this system can do its task in a condition that it would be in a suitable situation of the education quality. Accordingly, it seems necessary to find some ways in order to improve the quality of education (6). So, medical education should be constantly under review and promote by fixing its flaws.

Since the human resources constitute the foundation of the health care system, if the plans and training programs are not matched to the needs of professional and social conditions, they will not be able to improve the level of health in their communities in a way that people have a productive life socially and economically (7, 8).

Therefore, the assessment of training programs is a part of the educational system (2). In fact, the evaluation of the offered activities to prepare the students is the main component in the design and implementation of these activities since it is the only way of realizing the shortcomings of the program and resolving them (6). Evaluating the curriculum is one of the things that should be considered in evaluation. In a college curriculum, the outcomes should be noted. Who will graduate? What abilities should they have? How are they

in communication skills and whether the health education and health promotion are taught? These are all issues that should be considered in the training program.

In fact, students of health and nutrition are a part of the large healthcare system who tries to get experienced in various subjects over the years of the clinical training. The conducted studies on accountable education have mostly focused on general medicine as well as social medicine and few coherent studies have been done on clinical education of other disciplines. So, this study focuses on the physical presence of researchers in all fields and evaluation of the curricula based on direct observation and the assessment of the students and faculty members' interviews.

Previous studies inside and outside the country showed a lack of adequate skills and the mismatch of educational objectives with the professional needs of the graduates of various fields of medical sciences and it is more than two decades that medical centers in the world are concerned about the efficiency of medical sciences and the amount of its proficiency (9, 10).

In a study entitled "Evaluating the attitude of the university students of environmental health on the role of universities in their job expectations", 49.5% of the students considered the university education effective on their future career, but it seemed that the students were worried as the university education may not help them to find their favorite job in the future (11).

Also, Jamali in his research entitled "The environmental and occupational health students' attitude towards their disciplines and future jobs in Qazvin University of Medical Sciences" showed that the mean scores of environmental health students to their future careers were lower than the acceptable level and modifying the curriculum of these fields in order to increase the potential of this group of students was one of the solutions to this problem (12).

In another study which evaluated the medical education problems and the possible solutions based on the students and interns' viewpoints, the results showed that the majority of the students mentioned the inappropriate time of basic science education, having numerous general courses, lack of adequate space and conference halls, and the lack of laboratory facilities as the most important problems (13).

Methods

This was a cross-sectional, descriptive-analytic study done using quantitative method. The target population of this study was all the students of the Nutrition and Health College of Shiraz University

of Medical Sciences. The sample was randomly selected in this study and 75 students were selected based on the methodologist's comments and similar studies and random-number table from a list obtained from the School's department of education; finally, 70 questionnaires were completed correctly. The researcher supervised the filling of the questionnaires after doing the necessary correspondence with the department of education and presentations in the school. The study population consisted of all students of the Nutrition and Health College, Shiraz University of Medical Sciences who had passed at least a course of internship or training and completed the log book. The selected questionnaire was researcher-made and consisted of 23 questions in 2 areas with 21 closed-ended questions and 2 open questions. The closed-ended questions were designed in 4 aspects (content and duration of training, field equipment and facilities, quality of teaching and supervision of the professor or instructor and log book usage) and set in the form of Likert scale with answers ranging from strongly agree to strongly disagree by the 5-point Likert scale; its validity was confirmed by 4 faculty members. The 2 open questions were raised to investigate the strengths and weaknesses of training sessions and giving recommendations in order to improve the training courses. The validity of the questionnaire was confirmed by 4 faculty members and its reliability was assessed on 20 students of this sample with the Cronbach's

alpha of 0.85. Quantitative statistical tests and Pearson test were used for analysis of the data through SPSS 14 ($p < 0.001$). The data of the first part of the questionnaire were analyzed using statistical tests such as the descriptive statistical tests (mean, standard deviation,...) and the Pearson coefficient.

Finally, the questionnaire was distributed among 70 students and then collected and analyzed.

In order to confirm the construct validity of the questionnaire, the collected data after completing the questionnaire were analyzed by the SPSS 14.

Table 1 shows the results of the confirmatory factor analysis showed a significant relationship and only the relationship of question 15 with the evaluation factor was non-significant. As the score of question 15 was less than 1, it was not confirmed.

Based on the results displayed in Table 2, the questionnaire has an acceptable internal consistency ($\alpha = 0.850$). The results of the consistency investigation of each of the sub-dimensions of the questionnaire showed that the lowest alpha was related to the sub-dimension of the content and duration of training ($\alpha = 0.745$) and the highest alpha was related to evaluation ($\alpha = 0.888$).

Results

The results of the quantitative section are as follows:

Table 1: The relationship between the items and the defined dimensions of confirmatory factor analysis

Row	Questions	Dimensions	Relationship	The coefficient of determination	T-value	Result
1	Question 1	Content and duration of training	0.35	0.079	3.91	Confirm
2	Question 2		0.22	0.041	2.80	Confirm
3	Question 3		0.32	0.10	4.50	Confirm
4	Question 4		0.41	0.19	6.35	Confirm
5	Question 5		0.31	0.16	5.77	Confirm
6	Question 6		0.27	0.089	4.18	Confirm
7	Question 7		0.21	0.091	4.21	Confirm
8	Question 8	Facilities	0.26	0.086	4.12	Confirm
9	Question 9		0.32	0.15	5.45	Confirm
10	Question 10		0.23	0.054	3.31	Confirm
11	Question 11		Evaluation	0.23	0.050	3.11
12	Question 12	0.20		0.051	3.14	Confirm
13	Question 13	0.13		0.018	1.97	Confirm
14	Question 14	0.14		0.035	2.41	Confirm
15	Question 15	0.017		0.00021	0.20	Reject
16	Question 16	0.36		0.17	5.94	Confirm
17	Question 17	Log book	0.32	0.17	5.91	Confirm
18	Question 18		0.23	0.081	4.16	Confirm
19	Question 19		0.21	0.041	2.72	Confirm
20	Question 20		0.33	0.22	7.04	Confirm
21	Question 21		0.41	0.19	6.10	Confirm
22	Question 22		0.58	0.22	6.84	Confirm

Table 2: The results of Cronbach’s alpha coefficient on the internal consistency of the questionnaire

Row	The dimension title	No. of questions in each area	Cronbach’s alpha	95% confidence interval of the difference	
				Lower	Upper
1	Content and duration of training	7	0.745	0.302	0.921
2	Facilities	3	0.852		
3	Evaluation	6	0.888		
4	Log book	5	0.874		
6	Total questions	21	0.850		

Table 3 is the average of each of different aspects of the training course; the highest average was on the field of the content (3.58±0.65) and the lowest mean was related to the log book (2.66±1.14), respectively. Also, it can be concluded that the mean of the log book as a notebook for recording the daily activities was lower than the other areas. The results are presented in Table3.

Table 3 shows the Pearson’s correlation coefficient among different domains. As the Table shows, the highest correlation coefficient (0.871) was observed between the teacher and content; as seen, providing a suitable content shows a high positive correlation with good teaching method and the lowest correlation (0.033) was among the facilities and logbook. This means that the quality of the log books did not correlate with the level of facilities.

The results of the open-ended questions are presented in the following Tables 4 and 5:

Discussion

The policy of the training programs is to design complete programs while promoting the educational process, enhancing the quality of education and recruiting professional graduates. In this study, we tried to investigate the most important problems of internship and training fields of health and nutrition.

The results of the evaluation of the educational

fields of the training courses of Health and Nutrition disciplines showed that the presence of students in hospitals, clinics and health centers prepares them ready for their future working conditions. In addition, it makes the trainees and interns aware of a variety of diseases and their prevalence in the society, health conditions of the community and the type of common diseases. The research showed that the developed content for these courses had the highest average (3.58), which may indicate that developed content is appropriate for these courses. Results also showed that the lowest average (2.66) is the score of log book. To explain this issue, it can be said that using log books had shortages as it’s a new trend and it was not experimented before. Log books an appropriate method for evaluation of educational status and can specify acquired experiences in educational courses and clarify the deficiencies in learning process. In a research conducted on the students, it was revealed that they were more satisfied from registering functional skills or log book in comparison with the other methods (14). A study that was conducted on the use of log book in determining the participation of students and teachers in the learning evaluation process showed that log books are effective in three ways: First, it is useful as an intermediate to assess the small groups. Second, because of the immediate encouragement and guidance, it causes serious

Table 3: Pearson correlation coefficient between different areas of training and internship

Areas	Mean±SD	Correlation coefficient	Content	Facilities	Teacher	Log book
Content	3.58±0.65	Correlation coefficient	1	0.627**	0.871**	0.138
		Level of significance	-	0.003	0.000	0.22
Facilities	3.10±0.84	Correlation coefficient		1	0.163	0.033
		Level of significance		-	0.15	0.77
Teacher	1.05±1.49	Correlation coefficient			1	0.279*
		Level of significance			-	0.013
Log book	2.66±1.14	Correlation coefficient				1
		Level of significance				

**Indicates that the correlation coefficient is significant (p<0.001).

Table 4: Summary of the strengths and weaknesses of different groups

Groups	Summary of results		
	Strengths	Weaknesses	Suggestions
Nutrition	The presence of some professors who were dominant on hospital education in the group Using log book as a guide to determine the minimum of educational programs Regular follow-up of the training programs on behalf of the school	Lack of proper understanding of the discipline by the other disciplines, especially doctors Lack of faculty members and not having nutrition base in some of the faculty members The limited number of trained patients in the field Lack of practical training due to medical restrictions	Before starting some internships courses, hold some orientation sessions on how to read the files. Special round is held for nutrition students. The number of students assigned to each group is lessening in order to have higher quality of education. The training courses start from the autumn season.
Public health	Proper education of vaccination in health care centers Using log book as a guide to determine the minimum of training programs	The problem of mismatch between theoretical training and practical activities The longtime of training courses and its mismatch with the patients presence in health care centers	Holding theoretical classes before starting the practical activities (practice room) Allocating appropriate spaces for conferences and education Removing the task report and adding some items to the log book
Environmental health	Participation in organizations such as municipalities, recycling places, water and sewage purification Regular follow-up of the training programs by the school	Failure to provide basic information before starting the training courses The mismatch between the theoretical trainings with practical activities Lack of the number and fitness of organizations and centers to passing the training and internship courses	

Table 5: The recommendations for the scientific promotion

Areas	High priority activities	Sub-activities
Promotion of the students' scientific level and performance in the fields	Practical training related to their future careers	<ul style="list-style-type: none"> Find common causes related to the theoretical training courses <p>The development of the minimum of educational programs that an expert or technician should know</p>
	The number of the lessons should be consistent with their use in the future career	The appropriateness of the content provided in this time period The number of the students should be balanced with teachers or professors in each field The time of practical and theoretical courses should be suitable
Developing the cooperation and coordination with the hospitals, health care centers and factories and industries	Diversity of training and internship fields	Rotational training centers so that all students experience all centers Creating specific places in the hospitals to locate faculty members and students
	Suitable planning and mutual cooperation with health care and industrial centers.	Conducting official correspondence with the department of environment and other organizations to issue the license and agreement for the trainees to visit the relevant organizations and laboratories
Improving the quality and quantity of training instructors and training	Providing the staff and faculty members	Considering the capabilities of the groups especially the human resources by the vice chancellor of education of the university Determining the balanced pyramid of faculty members Making the recruitment opportunities and the license of attracting educational and research faculty members annually
	Educating training educators	Finding the needs and shortages for training and updating of training instructors and holding Burke workshops and seminars on teaching and learning methods
Promoting the training facilities and equipment of the fields	Providing facilities and suitable space in hospitals and health centers	Providing sufficient space along with desks and chairs, computers, and conference rooms in the fields
		Assigning the appropriate transportation service to go to the villages

interaction between teachers and students. Finally, it provides a proper atmosphere for the feedback on the evaluation of students' activities by the instructors (15, 16).

In this study, the students evaluated the quality of the training as above average (3.50). There were some concerns about the quality of teaching in the field of nutrition and not having nutritional base, but in general the students' comments have been in terms of the favorable faculty members' performance. In the study of Nasri et al., 28.6% of the students believed in adequate training of the instructors and 40.9% expressed poor teaching performance (13). In a research conducted by Ghanbari and Yousefi, the administration and leadership power of the professors, moral values and motivation, dominance on the material, having educational objectives, the appropriateness of the class with the presented materials, and proper use of instructional time for each course were reported as favorable (17, 18).

The results also showed that there was a significant relationship between the development of content and presentation and teaching there. To explain, if the content and goals are well organized, the teachers' presentations will be better. There was also a significant relationship between the content and facilities. Totally, the results showed that the rate of the students' satisfaction of training courses was at an average level and relatively high. At the end, we can say that learning occurs in the society basically and education should cause the students to treat their patients with their social and familial background (19-22).

Conclusion

In general, paying more attention by the educational programming authorities leads to creation of some opportunities in which the trainees and interns are faced with the common diseases and problems of the society; in this regard, physical examination, filing and registering the complaints and follow-up, teaching prevention of disease and methods of cooperation and coordination with other influential sectors in health promotion contributes to achievement of the objectives in a more practical way. An overview of the results shows that the students' attitudes of School of Health and Nutrition on practical and clinical education are at a relatively average level. In a study at Tehran University of Medical Sciences by Farzyanpour, 81% of all groups were satisfied with their training. The present study showed that, in general, the mismatch of the time between theoretical and practical courses in some

lessons, the huge number of students in some of the fields of training, and the lack of sufficient facilities and equipment including physical space, dressing room and conference room are among the main problems.

Holding the theoretical courses before the start of practicum, assigning the appropriate spaces for conferences, starting the training and internship courses from the first semesters, and allocating a lower number of students in groups to enter the various fields were the most important requests and suggestions of the students. Since this study was conducted both quantitatively and qualitatively and a limited number of students were investigated in a special period of time, the results cannot be generalized. It is suggested that a larger scale study should be conducted with more comprehensive coverage of the problems in the educational field.

Acknowledgements

This article is the result from a research project with the grant No. 60-60, adopted on 23.04.1390. The authors would like to acknowledge all the professors, students and colleagues working in hospitals and clinics who helped us to collect the data.

Conflict of Interest: None declared.

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