Brief Communication

A Competence-Based Study of Academic and Specialty Career Selection in Medical Students: Elective Experience

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Abstract

Getting acquainted to specialty fields for medical students is a solution to reduce students' indifference towards higher education. This study has been conducted to assess competency-based career selection in medical students. This is a mixed method study. In the quantitative section, 110 medical students who attended classes in 4 specialty groups entered the study voluntarily. After the courses had been held, participants completed a survey about satisfaction with the mentioned classes. In the qualitative section, Delphi was applied. After transcribing the students' brain storming and experts' opinions, content analysis was done to gather data. Results demonstrated 65% of students in cardiology, 75% in surgery, 70% in neurology and 61% in internal medicine groups considered courses useful to deepen students' attitudes towards specialty. In the qualitative section, strengths and weaknesses affecting higher education were extracted. Due to the results, early clinical exposure to special wards helps students to be socialized with professions. This innovative approach contributes to more real learning among medical students as future physicians.

Keywords: Competency-based, Academic, Career choice, Medical students

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Introduction

Being aware of specialty fields as a medical students' future profession is a way to decrease students' unwillingness towards higher education. General medicine is a course which starts with students' entrance to medical schools.

Currently, required knowledge and skills for general medicine are gained through instructions in theoretical classes or in fields which are unplanned (1). Mostly, students-professors relationship is shallow, short-term and transient in fields. In a current traditional approach to medical education, it is considered suitable for education to occur through clinical teaching although there is no confidence to achieve all educational required objectives through the mentioned approach (2). According to the mentioned statement, medical schools try to provide least required skills and knowledge of medicine to ensure optimal performance on real procedures. It's been a while since several pieces of research have been conducted under the issue of "importance of close relationship between students and professors" (3).

From another perspective and as Shanklin indicates, a close relationship of students-professors could be considered as reinforcing factor to increase professors' research productivity (4). Negative role models and students' insight were particularly influential in not selecting certain fields in higher education (5). Exposure

to role models is strongly associated with medical students' choice of clinical fields for residency training. Knowing what characteristics students are looking for in their role models can help identifying those professors who can be most influential in medical students' future career selection (6). Another problem is that students do not have any opinions about what deep knowledge learning and research are, so they are not able to choose suitable topics for their theses (7-8). Considering the mentioned problems, we decided to conduct the present study for the first time in the country.

Methods

The present study is a mixed method study including two quantitative and qualitative sections respectively conducted at the medical school affiliated to Shiraz University of Medical Sciences, Shiraz, Iran.

Target population consisted of medical students; 110 volunteer students were recruited to study, and they were then divided into 4 groups of cardiology, surgery, neurology and internal medicine.

Data collection began in 2010 and the program is continued till now. Following the eligibility assessment, participants were familiarized with the study, and those who agreed entered the study. After carrying out the intervention in the 4 mentioned groups in both quantitative and qualitative sections, researcher-made checklists were given to the students to fulfill and show to what extent they were satisfied. In order to check checklist's reliability, a pilot study using checklist was conducted on 20 medical students and Cronbach's α was calculated 0.86. Validity was checked and confirmed by 10 experts of medical education and basic sciences at expert panel held at medical school.

Quantitative Section

In 2010, 27 students entered the cardiology group. 3 sessions of theoretical and clinical courses were held. Subjects were as below:

- Blood-pressure and pulse
- Thorax anatomy, heart placement in chest and coronary disorders
- Assessment of cardiac sounds and abnormalities

Classes were handled by basic sciences professors. Students' interest caused classes to be changed into 2 sections for freshmen with higher quality of contents.

The surgery group started its work with 30 volunteers in theoretical and clinical fields in 2010-2011. Theoretical classes were attended to introduce surgery and skills which a good surgeon must have. Due to students' interest, it was planned to introduce a particular section of surgical content in each session to the students. In the clinical course of surgery which started immediately after theoretical classes, first the students were introduced to the emergency ward and cardiopulmonary resuscitation section in Rajai and Namazi Hospitals (two of the biggest teaching hospitals in Shiraz, Iran). Introduction was completed by an approach in which 3 or 4 of the students stayed for hours at the emergency wards and observed urgent situations. After being ready students entered the operation rooms to observe surgeries done by surgeons.

The neurology group started with 28 volunteers in 2010. Neurology professors held theoretical classes and internships with participants, and after completing the sessions, the students filled in the researcher-made checklist to mention how satisfied they were with the courses.

The internal medicine group started its work with two subgroups of pulmonary and gastro-intestinal. 25 students participated in this section. Theoretical classes were performed by physiology professors. Internship of the pulmonary section was carried out in the pulmonary laboratory of Faghihi Hospital (another teaching hospital in Shiraz, Iran) and the internship of gastro-intestinal was done in the endoscopy ward of Namazi Hospital for 5 sessions. Since 2010 till now, the competence-based approach has been changed into a longitudinal program in general medicine.

Qualitative Section

The qualitative section was performed following the quantitative section through applying three rounds of Delphi. In order to complete this section, participants (n=110) were invited to the conference hall of Namazi Hospital. The participants were asked to brain storm about how successful their learning had been in both basic and clinical sciences till then to make them interested in continuing higher education. After brain storming, repeated ideas were omitted, and comments were added. The data derived from students' opinions were presented to 12 experts as supervisors who were invited to a confidential meeting. In the third session, all participants were invited, and feedbacks given by experts were discussed. After the feedbacks had been given, the students' last opinions were asked and recorded by the meeting secretary to make an opportunity for other cooperative researchers to review. The medical education group discussed the final data and wrote them down as

tables and explanations to debate at the Education Development Center. The last meeting was held with other cooperative professors and program designers to provide a useful guideline to deepen specialty instruction for graduating medical students of general medicine.

Results

Overall 110 students (68 males and 42 females) completed the study. Most of the participants were male (61%). In addition, mean age of the subjects was 21.99±1.07.

61% of participants in the cardiology group believed their training provided them with specific skills required to succeed in academic fields. 56% believed integration of instructions were suitable enough and was an innovative approach. 67% thought presented issues by professors were based on their suggestions given to the educational group. About 40% pointed out that professors'contribution and interest were suitable based on the objectives. More than half of the students participating in the present study believed that attended classes were suitable enough to fulfill their scientific requirements.

75% of students in the surgery group thought that the competence-based approach was able enough to fulfill their scientific requirements. More than 60% of participants believed that the integrity of the presented issues in the surgery group was compatible with their previous knowledge. About 65% of the students believed their opinions were included in the selected topics.

Results derived from the questionnaires in the neurology group demonstrated that 70% of respondents were satisfied with the course and they stated that they felt more ready to select specialty fields as their professional careers after passing these courses in both theory and practice. About 62% of students believed their opinions were included in the selected issues to be instructed.

61% of students in internal medicine group mentioned that the taken courses were successful to fulfill the requirements of specialty fields as their careers. About 73% of students believed their opinions were included in the selected issues to be instructed (Table 1).

Table 1: Percentage of satisfaction in different groups with instructed items by participants

No.	Group	Satisfaction with instructed issues (Percentage)	Satisfaction with including students' opinions (Percentage)	Satisfaction with changing attitudes towards higher education (Percentage)
1	Cardiology	61%	40%	67%
2	Surgery	75%	60%	65%
3	Neurology	70%	-	62%
4	Internal medicine	-	73%	61%

In the qualitative section, students' points of view were asked about strengths and weaknesses of general medicine which affected students' willingness to select specialty fields as their final careers. Strengths and Weaknesses in students' opinions are presented (Table 2). The most important strength was deepening knowledge and skill in a specialty field by self-learning and the most important weakness was lack of cooperation of some specialists with medical students.

Table 2. Strengths and weaknesses of general medicine in 110 medical students' points of view which affected specialty field selection, Shiraz University of Medical Sciences, 2010

Strengths	Weaknesses
1. Deepening knowledge and skill in a specialty field by self-learning	1. Lack of cooperation of some specialists and university professors with medical students
2. Increasing motivation and attitude towards a specialty field to study in higher degrees	2. Unsuitable educational clinical climate in order to perform a complete clinical instruction
3. Triangulating instructed issues and early clinical exposure	3. Short-term period of early clinical exposure (ECE)
4. Providing research views for medical students while they're at medical schools	4. Low awareness of clinical rules and protocols among medical students
5. Introducing articles and scientific resources, search skills, and study styles to students	5. Inadequate modern educational and evaluation approaches and knowledge in university professors
6. Providing skills and conversancy for students	

Discussion

The results showed that competence-based career selection had effects on what students were eager to know deeply about concerning further specialty studies. In our study 61% of participants in the cardiology group believed their training provided them with specific skills needed to succeed; and based on the survey done, 75% of the surgery students thought this method was able to fulfill their scientific needs. In another study conducted in the United States on (emergency) residents, the response rate was 93%. 36.6% were undecided, and 19.6% were not interested in academic careers (9).

Stefanidis et al. conducted a study showing that the applicants' decision making was influenced in 92% by the presence of an organized skills curriculum (10), which was the same as the results of our study. The results of this research demonstrated that participants' learning average was strengthened, and they could feel what they've learnt more real in clinical practices at hospitals. It helped students learn about the structure and function of healthcare system. It supported learning of both medical and social sciences and helped students acquire communication. Early clinical exposure is an approach through which students' recruitment to primary care would be increased. Because there are not enough studies done under this issue, the results could not be revised more.

It is recommended that researchers work on early clinical exposure and competence-based career selection as major topics among medical students to encourage them to pursue higher education.

Conclusion

Early clinical exposure helps medical students to be socialized with different professions. It has potential benefits for researchers, notably medical instructors and patients. It can also influence choices as a specialist; findings may help program directors to optimize the curriculum process.

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References

1. Kollias C, Banza L, Mkandawire N. Factors involved in selection of a career in surgery and orthopedics for medical students in Malawi. Malawi Medical Journal. 2010; 22(1): 20-23.

2. Tennakoon HD, Vidanapathirana AK, Sutharsan S. Career preferences and the factors influencing their selection in fourth year medical students in the University of Colombo. Academic Medicine Journal. 2005; 3(1): 20-26.

3. Mahoney R, Katona C, Mcparland M, Noble L, Livingston G. Shortage specialties: Changes in career intentions from medical students to newly qualified doctor. Medical Teacher. 2004; 26(7): 650-654.

4. Shanklin, C. A Faculty Perspective: Intrinsic Research Rewards that Make a Successful Faculty Member Tick. Evaluating Research Productivity. 2001; 43-46.

5. Mutha S, Takayama JI, O'Neil EH. Insights into medical students' career choices based on third- and fourth-year students' focus-group discussions. Academic Medicine. 1997; 72(7): 635-640.

6. Wright S, Wong A, Newill C. The impact of role models on medical students. Journal of General Internal Medicine. 1997; 12(1): 53-56.

7. Norman G. Research in medical education: Three decades of progress. BMJ. 2002; 324(7353): 1560-1562.

8. Cochran A, Melby S, Neumayer L. An internet-based survey of factors influencing medical student selection of a general surgery career. The American Journal of Surgery. 2005; 189(6): 742-746.

9. Neacy K, Stern SA, Kim HM, Dronen SC. Resident perception of academic skills training and impact on academic career choice. Academic Emergency Medicine. 2000; 7(12): 1408-1415.

10. Stefanidis D, Miles WS, Greene FL. Factors influencing residency choice of general surgery applicants-how important is the availability of a skills curriculum? Journal of Surgical Education. 2009; 66(6): 325-329.