Research

A qualitative survey of top-achieving undergraduate medical students' perspectives of medical education: An Iranian exploration

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Background. Curriculum reform has received a great deal of attention in the field of medical education in recent years. Many studies are being conducted worldwide to assess the deficiencies of current curricula in order to construct new ones.
Objective. To investigate the perception of a group of students regarding the curriculum currently being taught in medical schools in Iran.
Methods. This qualitative research was conducted in a cohort of 20 top-achieving students who ranked 1 - 10 in the medical university entrance examination and those who succeeded in the International Biology Olympiad examination in the past eight years. These students were in different stages of their studies, ranging from the second term of study to clerkship to internship. Several semi-structured focus group discussions were held and the results were extrapolated from the transcription of these sessions.
Results. The majority of medical students, regardless of the stage of study, were deeply concerned about the current curriculum. They believed that the existing discipline-based approach, teacher-centred curriculum and shortage of hospital-based learning were deficient and suggested that the lectures, handouts, and multiple choice question examinations should be blamed for the development of unskilled doctors.
Conclusion. There is a need for educational reform to contribute towards providing communities with doctors with better skills.

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Curriculum reform has received an enormous amount of attention in the field of medical education in recent years, particularly after the World Federation for Medical Education generated the Edinburgh Declaration of 12 principles for reforming medical education in 1988.[1] Studies have shown that medical schools and students benefit from the evolution of curriculum change and innovation in constructing new curricula.[2-4] Consequently, many medical schools worldwide have developed new curricula to produce medical graduates committed to lifelong, self-directed learning.[5,6]

Despite considerable changes in Iranian medical education in the past three decades, curriculum reform has not yet been welcomed. Therefore, the principal issue confronting medical education in Iran is a lack of continuing curriculum reform, which is essential if the standard of healthcare and public health is to improve.

The increased number of medical schools and medical students along with free medical education has, to some extent, remedied Iran's shortage of doctors so that all rural areas now benefit from the healthcare system. Efforts to improve the organisation and provision of healthcare, however, have not led to improvements in the undergraduate medical curriculum.[7,8] Owing to the insufficiency and inappropriateness of educational programmes, many medical students, who are considered to be the most talented students, leave the country halfway through their undergraduate education or just after graduation.[9]

Nearly all Iranian medical schools still offer programmes based on the traditional system, i.e. a discipline-based approach with a teacher-centred structure in which each subject is taught independently and with little practical training. These programmes have been used in Iran over the past 17 years, without much modification.[10,11]

Many teachers and students believe that the current medical curriculum has certain deficiencies in content, methods of teaching, examination system and specification of educational outcomes.[8,12] The aim of this study, therefore, was to investigate the perception of a group of students in different stages of medical study regarding the curriculum currently taught in medical schools in Iran. A group of top-achieving students were selected as the greater capabilities of these students are believed to help them to cope better with different teaching methods and to increase their expectations from the courses.

Materials and methods

Considering the nature of the research questions, a qualitative research design was employed. Participants were students who ranked 1 - 10 in the medical university entrance examination and those who succeeded in the International Biology Olympiad examination (held for high-school students) in the past eight years. They were selected through a purposive sampling technique.

It should be noted how the student selection in Iran is done. In many countries medical students are selected among top high-school students who meet a score requirement for their entrance, but in Iran the students' high-school average is not taken into account to study at an Iranian medical university. Iranian students from different parts of the country participate in a national entrance exam. Therefore, 1 500 students from among some 700 000 students who take part in the Natural Sciences Group entrance exam every year are accepted in the field of medicine. Of this group, only 150

may continue their education at the Tehran University of Medical Sciences, which is considered to be the top medical school and serves as a model for other medical schools in the country.[7] Therefore, this university, considered to be an example to others, should set the example of best educational practice.

There were approximately 62 students who met the criteria for this study, all of whom were successfully recruited. To achieve the objectives, semi-structured focus group discussions (FGDs) were held with two 10-member groups, who were randomly selected among the students in different stages of study, ranging from the second term of study to clerkship to internship, under the supervision of study executives who played the role of tutors and managed the discussion sessions. Two focus group interviews were conducted because the data collected from those two groups were suitable for trying to understand our research question. The focus group interviews were audio-taped and transcribed. 'Spot checking' of transcripts was conducted to confirm their accuracy. The data were then analysed by organising them into categories, themes and quotes.

The topics covered during the FGDs consisted of the teaching approach and examinations. The participants were asked broad questions and encouraged to respond in narrative form, e.g. 'Can you explain to us more about the teaching methods and examinations?, 'Are you satisfied with the current teaching system, do you consider it to be successful?', 'Does the current programme cover all your learning needs?'.

Considering that the current curriculum is divided into four sections (basic science (2.5 years), clinical science (1 year), clerkship (2 years) and internship (2 years)), participants were also asked to express their ideas regarding each section separately.[13] Subsequent questions were extracted from the participants' responses during the two focus group interviews. However, the overall aim was to allow participants to interpret their situation in their own words.

Results

Current teaching method

From the discussions it emerged that the general teaching approach in many classes comprised teacher-centred, content-orientated lectures. A group of students were responsible for recording and transcribing the topics discussed in each class. This group believed that such a technique overcame the need for taking notes or even attending the classes, which were described as boring and useless.

> 'We can learn the whole material by studying these handouts and consequently, achieve a good score on the exams.'

> 'Using these handouts, we can benefit from our time all through the study semester, participate in various research programmes, and finally obtain an acceptable score.'

Handouts

The students also noted that most of the topics presented in these courses were similar to those of previous courses; therefore, the handouts were not really hard to prepare, even if the teacher prevented audio-taping of the courses.

They also claimed that the examinations, which consisted mainly of multiple choice questions (MCQs), were designed based on the topics presented in class. Using this source to study, they argued, was sufficient for answering the majority of the questions. Many described their experiences by saying that they obtained low scores in the examination each time they studied reference books instead of the handouts.

> 'Studying such incomplete and redundant handouts does not help us in having a better understanding of the topic; they, though, guarantee our final score.'

They went on to say that the final scores play an important role in their future, adding that very high scores provided them with a wider range of choices to select a hospital for their clerkship or internship period.

One of the students stressed that the existing teaching and evaluation approaches had suppressed his analytical ability and made him adopt a passive role in the education programme.

Deficiencies of the current curriculum

The students were then asked to express their individual ideas regarding different sections of their education.

All students were dissatisfied with the basic sciences curriculum. They mentioned that the content and structure of the basic sciences section (anatomy, histology, immunology, physiology, biochemistry and social sciences) have remained largely unchanged during the past years, adding that the material presented at these courses could not be applied in the clinical areas. The students also claimed that the relationship between the basic sciences and their later application in the clinical context was not made clear. Therefore, many believed that a large part of the curriculum presented at this stage was clinically irrelevant.

Furthermore, first-year medical students criticised the memorising of a large volume of information. Many of the senior students reported that they could not recall any of the information they had memorised owing to its irrelevance in later clinical issues. Many of the students suggested that the basic sciences should be placed in a clinical context and be presented by a clinician.

However, a small group believed that learning such topics is necessary to provide medical students with a basic knowledge. They therefore felt that the course was necessary to assist students with background knowledge for effective clinical practice. They were however unable to name the curriculum changes.

Most of the students were satisfied with the physiopathology course, where basic training in history taking and physical examination, general pathology, general microbiology, general pharmacology and laboratory medicine was presented mainly in the form of lectures, with limited patient exposure. The participants believed that the course was an appropriate introduction to clinical practice during their clerkship and internship. They added that this transition period was an appropriate time for lowering the 'practice shock' for medical students who had not yet worked in a ward.

The absence of a structured educational programme, the incompatibility of the topics taught in the wards and the theoretical classes, and the overlap of the topics in different courses were the most important concerns for the clerkship section. During this latter period medical students are introduced to different specialties, including those of internal medicine, general surgery, paediatrics, psychiatry, obstetrics and gynaecology, dermatology, and ear, nose and throat. The students stressed that ward training depended on the patients admitted in each ward and the professor's choice, indicating that it is impossible to guess the topic which would be discussed. They could therefore not prepare themselves before each session. Many of them also claimed that the professors expected

a great deal from the students, making the course really stressful and demanding:

'According to the existing curriculum, we are expected to take proper history, do an accurate physical examination and provide the professor with the precise differential diagnoses; the professors, however, expect us to achieve the final diagnoses and sometimes even the proper treatment.'

They added that because different groups of medical students including those in clerkships, interns, and residents participated in bedside rounds, many of the topics discussed were of little value (too specialised) for students studying in the clerkship.

Internship is usually considered a preparation stage, where students gain skills required to become a physician. Many believed that internship is a training course during which they should perform certain tasks on their own, explaining that there is a gap because of their experiences of the curriculum.

'For many of us, internship is the first exposure to the patient. Many of us have to perform certain procedures accurately during this stage while we are not really trained for them.'

'During clerkship, we are in charge of taking history and performing physical examination; during internship, however, we should tap the ascites fluid, measure CVP and many other similar procedures which we haven't performed before. Moreover, except for a short workshop, there is no other source which helps us with the procedures.'

The majority of the students confessed that they had learned the procedures from other students and performed these without supervision, while they knew that they were not capable of accurate work.

'Hospitals often rely on the work accomplished by interns; inserting intravenous lines, taking arterial blood gas (ABG) and even ambu bag resuscitation, which can be done by nurses, are among the major responsibilities of an intern.'

A few students, however, argued that certain activities and courses had recently been added to their curriculum, stressing that these initial changes could be considered as part of a move towards improving the quality of teaching.

'A few teachers use teaching methods such as brain storming in some of their sessions. Some departments employ the Objective Structured Clinical Examination (OSCE) as an assessment tool to measure specified skills of medical students during clerkship. While many of the stations do not fulfill the criteria for an OSCE exam, employing an OSCE is a good enough step toward applying new approaches with the limited resources in our hospitals. Moreover, the number of workshops and skill labs have increased in the past years, all of which signifies that medical teachers are looking forward to improve the quality of education in this university; the changes, however, are occurring on a slow pace.'

Recently graduated students concluded that the clinical modules were not based on the fundamental requirement of the community's needs. Therefore, they graduated with a good knowledge of complicated and rare cases, while they are not really qualified to treat patients suffering from common diseases.

'Our pediatric teaching hospitals are all specialized hospitals in which we have frequently met patients suffering from metabolic diseases, rarely seen in the society, but as for more simple diseases such as flu, which account for the majority of cases referred to my office, I myself am not quite sure whether I am doing the correct thing or not.'

They also noted that certain topics are presented several times at different stages, whereas others are excluded because of time limitations.

'The main reason contributing to multiple presentation of a specific topic may be the inappropriate relation between different departments and the absence of a structured curriculum. Many teachers are unaware of what we have learned before; this not only results in the repetition of some topics but also the over-expectation of the teachers.'

'The main problem with the current curriculum is the fact that it is overcrowded with various topics particularly in the basic science where many of the presented material are useless. The overrepresentation of some subjects and lack of integration are other problems with this curriculum.'

The students were finally asked if they would choose to study medicine if they were given the choice again. Except for two students, they still preferred medicine over other fields, despite all the concerns.

Discussion

This study was undertaken to gain insight into students' perceptions of the medical curriculum in Iran. It generally seems that the majority of medical students interviewed were deeply concerned about the current curriculum.

Compared with teaching approaches and educational systems in other countries, which are based on self-directed learning, our educational system is based on a traditional curriculum.[13-18] This system follows a discipline-based, teacher-centred and hospital-based approach, with no options or elective modules. Similarly, portfolio learning and communication skills as tools for promoting formative assessment and professionalism have not been adopted in this curriculum.[7] Many studies, however, have reported that traditional teaching approaches confine analysis, synthesis and creativity abilities in students, eliminating the motivation for critical thinking.[15,16,19,20]

However, it seems as if the currently used evaluation system (MCQs based on lectures) in Iranian medical schools forces students to memorise information rather than to gain a deeper knowledge. As a result, students prefer to spend a major proportion of their time reviewing their handouts rather than making use of updated reference books, deeming self-directed learning and searching for new materials a time-consuming and pointless task. The final outcome of the current educational and assessment system is superficial learning, which not only produces unprofessional physicians but also eliminates teamwork among students.

In concordance with previous studies of the Iranian curriculum, our findings revealed that little attention has been paid to curriculum development in Iran, indicating that the existing curriculum does not equip doctors to meet the needs of the community that they will attend to.[7,8,21,22]

It can therefore be argued that the majority of Iranian medical educators have not taken the importance of the changing needs of the population and medical students seriously and are resisting any reform in this field. Previous studies named the following as some of the factors accounting for the current concerns in the undergraduate medical education in Iran: lack of suitable space

for teaching in hospitals, overcrowding in hospitals, failure to involve medical teachers in the development of the curriculum, and poor level of medical teachers' knowledge of innovative teaching and assessment methods.[21,22]

Conclusion

There is an urgent need to move forward with educational reforms to help to provide communities with the necessary doctors. To achieve such a goal requires linking of theoretical and clinical instruction, extension of interdisciplinary and topic-related instruction, improvement of bedside training, fewer lectures, examination reforms, strengthening of general practice, and evaluation of teachers on a regular basis. Additionally, developing national standards for various procedures may not only improve the quality of healthcare in different regions, but also upgrade medical schools to international standards.

Shahid Beheshti University of Medical Sciences in Tehran has recently provided medical students with an innovative course based on a newly developed integrative curriculum. They are aiming to compare the results of students graduating in this system with those of the traditional system. Promising results of such a study might be a guarantee for an upcoming reform in the Iranian medical curriculum.

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