



Examinations and curriculum in medical education and learning-assessment relations

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ABSTRACT

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In recent times, the increasingly growing developments contribute to be configured to curriculum and examinations. Even though the curriculum planning and development are extremely important: it should be noted that students' examination anxiety. We may consider it as the relationship among the student-tutorials-education program.

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1. Introduction

The recent development in data processing in medical education, continuously developing, evolving and increasing knowledge, learning methods and reflections of technology on teaching methods contribute to determine educational targets and to structure curriculum and examinations. Although determination and development of curriculum in medical schools is very important; it should be noted that students mainly focus on the subjects that are asked in examinations; because they are mainly concerned about examination results. The process of creating expected changes in the behavior of the learners constitutes one of the integral parts of education. We can consider them as the relationship between the student- instructor and the educational program. The instructors should do educational planning activities in order to provide targeted behaviors, knowledge, skills and attitude changes which are aimed to be gained by medical students in order to be used in their professions.

2. The curriculum development in medical education

In the World Congress on Medical Education which was held on 2002, it was emphasized the importance of assessment of clinical skills at the end of medical education by measurement-assessment systems (World Federation for Medical Education, 2003). It was especially recommended that; the educational methods with small groups should cover one-third of the curriculum and it was targeted that the elective courses should consist approximately 20% of total courses (World Federation for Medical Education, 2003). The curriculum of medical faculties should be prepared in such system that it would make the students to attain knowledge and skills which would be useful during their lives. It is expected that; a good educational curriculum should be systematic, student-centered, problem-based, community-based, elective, and integrated (Harden et al., 1984). Harden's medical educational curriculum provides precisely these principles. Harden examined curriculums in four different groups. These are science-based curriculum, organ systems-

based curriculum, problem-based learning and oriented, non-oriented curriculum (Harden, 2009). According to Kern, curriculum development process can be assessed by a six-step approach; these can be listed as identifying the problem, determining the student's needs, planning objectives and measurable targets, developing training methods and strategies, using effectively to the assessment methods and evaluating feedback. The assessment either can be in developmental and formative structure which is supported by feedback (formative) or can have ratable and decisive nature (summative) (Thomas and Kern, 2004).

3. The historical overview of medical education applications

The teachings of Hippocrates and practices of medicine has formed the future of medicine in Europe (Georgantopoulou, 2009). Anatomy and physiology began to take a part of medical education especially in the period of the Greeks (Elçin, 2010). Galen brought another approach to medical education when he said that knowledge of doctors should be assessed (Okka and Demirci, 2012). During the medieval period, in the Islamic cultural geography, the professional competency of doctors was measured and assessed for the first time in this sense (Elçin, 2010). During the 1800's, the medical school students in France were allowed to work in any field of medicine they preferred after passing written and oral exams at the last year of the school. At the beginning of the 19th century, the General Medical Council in England emphasized that professional competency examinations should have been implemented and this change was quickly spread in all over Europe (Humphrey et al., 2011). The search for standardization of medical education was started with the publication of "the Flexner Report" in 1910 in the United States and then, the importance of creating a curriculum was emphasized and this influence brought on the understanding of organ-system-based training within a short time in Europe in the beginning of the 20th century (Weatherall, 2006). The first medical education unit was established at Case Western Reserve University in the same century (Al Shawwa, 2012). During the development process, the instructor-student relationship of the educational aspects of medical education was persisted; however, the idea of developing educational models not only in terms of quantity but also in terms of quality with the measurement-assessment process created for the students became stronger.

4. The relationship between curriculum and assessment methods of examinations

World Federation for Medical Education (WFME) defines the purpose of medical education as to improve the human health. Globalization, doctors' regional mobility, the increasing number of health care institutions, the dynamic nature of medical science and continuous updating of educational standards brought on the agenda of establishing standards for learning and assessment in medical education. As a result of the studies in order to make medical education more qualified and more effective in Turkey, it was planned to reorganize and standardize the medical education in accordance with "The World Federation for Medical Education", The European Specifications for the Global Standards of Medical Education. These standards are

determined as undergraduate medical education, graduate medical education and a dynamic process which includes continuous professional development. It was taken very important steps in the international arena about medical education as a result of the 'Edinburgh Declaration' which was adopted by the World Health Assembly (World Federation for Medical Education, 2003). The education programs established with this declaration should reflect national health issues; therefore they should not only include the participation of hospitals; but they should also include the active use of all healthcare facilities and the basic education method should be developed around problem-oriented solution. Life-time planning of professional education, the active learning methods such as studying with independent and small groups are among the targets determined to be used in the standardization phase of medical education. The lecturers in medical education should not be only the best experts in their fields, but also they should be educated as good instructors. Although there is large freedom in terms of measurement and assessment methods in medical schools; it has been experienced significant difficulties in terms of the implementation and development of such methods and the assessment of the new designs (Frenk et al., 2010).

The design process of a "Good" test does not only include the assignment of tasks, but it also requires effective assessment in terms of the content and adequacy of tests, definition of the grading system, examination security, the statistical interpretation of tests, analyzing and reporting the results (Möltner et al., 2010). Most of the faculties prefer to apply multiple-choice questions in the assessment of examinations; because the orientation through more innovative question types depends on effective use of time and innovative thinking (Hochlehnert et al., 2012). Similarly, some faculties experience difficulties on the assessment procedure due to resource constraints. Automatic test correction, scoring systems, classification of exam grade, statistical analysis, document reading systems, assessment programs or the use of computer-supported applications provide savings in the use of resources (Jünger et al., 2010).

The general increase of medical care necessities in the United States also increased the number of medical students and required to adopt a model as basis which was developed by the accreditation council for graduate medical education and can provide comparative standardization. This model aims to provide knowledge, skills and attitude changes such as medical knowledge related to each other, patient care, professionalism, communication, practice-based learning and development (Batalden et al., 2002). Proficiency in medical education should be regarded as a life-long learning habit for the doctors in terms of self-assessments and determining of their learning necessities. Proficiency is also a conceptual context which reflects the relations between a person's personal skills and which is expected to complete some specific professional tasks in life (Frank et al., 2010). Contextuality often includes the local prevalence of a disease, the natural forms of symptoms, the educational levels of the doctor and the patients and the other demographic characteristics. The students will gain mental, behavioral and professional development through practice-based applications and teaching methods which will reflect to the experiences and the effective assessment mechanisms

for existing development process. Over the last decade, the faculties have shown extensive efforts in order to measure and evaluate the students' medical development timely and effectively through accurate and reliable methods; some of them are determining the skills of students and instructors through future learning targets, providing formal services for advanced training of the students creating learning and implementing targets against the public health damages might occur due to improper medical practices and using effectively the measurement and evaluation methods (Cox and Irby, 2007).

5. The formative and summative assessment

Different assessment methods are used in medical education since 1950. Until recently, the clinical skills and medical information of doctors was often assessed by written and oral examinations. Oral examinations were typically performed by students' gathering information at patient's bedside, getting patient's history and evaluating treatment options with physical examination findings and the students' performances were assessed according to their answers to the questions of the instructors (Norcini, 2005). In the past, the decisions regarding the methods of the exams were taken primarily according to validity and reliability. Validity was considered as an assessment which was based on the accuracy of the assessment points of medical proficiency (White and van den Broek, 2004). The assessment method can be formative and summative. Although it was aimed to provide professionalism, professional proficiency and responsibility by summative assessments, it was also provided that they could constitute barrier on development of education (Schuwirth and van der Vleuten, 2004). It is one of the commonly used forms of assessment in education and it determines the success level by taking decisions such as "sufficient, passed, failed, successful or unsuccessful". The midterms and final exams at the end of the terms can be done in this way. In formative assessment, it is dealt with learning difficulties and all factors which contribute to complete learning of the learners while it is determined how much they gained the targeted behaviors in learning process (Ben-David, 2000). Generally the education results are monitored by summative assessment. Cowie and Bell define summative assessment as the interactive assessment of student development and determination of student necessities and re-organization of the teaching accordingly (Cowie and Beverley, 1999). Nicol and Macfarlane-Dick was determined the role of students in formal education and emphasized the importance of dealing with the content and performance details of qualitative feedback created for students and instructors sake. According to the result of another study made by Crooks; summative assessments have less effect to education than the formative assessments (Nicol and Dick, 2006). A meta-analysis of the studies on formative assessment showed that there are important teaching gains in all content areas, knowledge and skill types and the level of education (Black and Wiliam, 1998).

6. The assessment methods in medical education, and an overview to examinations

Medical educators from all over the world have used many different oral and written methods in order to assess their

students; and multiple choice and oral exams were the basis of medical education for a long time. Written exams are made on a pre-determined date and time period and they are still used in some disciplines of science. The written exam questions typically are prepared as open-ended or multiple-choice in a rich or poor content. It does not provide adequacy in student's education and may direct students to superficial learning because most times it is not given feedback after the examination. GE Miller considers that human behavior is so complex that it cannot be measured or summarized by only one score or one observation (Miller, 1990). The oral exams and multiple-choice exams which have been used for many years were created during the educational process. The authenticity of exams makes oral examination as an effective and valid method which compares the written exam success level with the performance. Although unmeasured skills in written exams are assessed in oral exams; the less content of knowledge in comparison with written exams, less feasibility of application for large groups and providing security criteria overshadow the effectiveness and qualitative characteristics of oral examinations. The fairness, being comparable and improvable of the assessment methods is important in terms of determination the proficiency of medical students. In this sense, the classic oral exams and multiple-choice examinations have left their position to the new assessment means such as clinical simulation, objectively structured clinical examinations (Objective Structured Clinical Examinations-OSCEs), clinical reasoning tests, question banks creation and student report concepts (Norcini and McKinley, 2007).

7. The clinical simulation, the use of simulated/standardized patients, and objectively structured clinical examinations

The term of clinical simulation can be summarized as creation of co-conditions with a behavior, situation or process in order to use especially in medical education. Thanks to the use of simulated patients; the use of real patients has been reduced, the patients have been protected against incorrect applications of inexperienced students, the improperness of ambient conditions and impossibility of gaining knowledge and skills of all the students at once have been prevented (Yelland, 1998). Simulated patients were used for the first time in 1964 by Barrows and they were defined as real patients or volunteers who were educated for providing clinical case (Turan et al., 2010). Simulated patient use is very useful as it provides to overcome the reservations of students-which they might have when they examine the pelvic and reproductive system and therefore it provides them to demonstrate professional attitude. Simulated patients are widely used in measuring the clinical skills of students as a part of the OSCEs'. The use of simulated patient has important contributions because of standardizing learning objectives and educational programs, providing the proper use of time, planning difficulty levels of cases, providing high efficiency and security. Although creating proper clinical environments in educational program with simulated patient seems disadvantages in terms of the cost and the application process; the studies performed have proven that clinical simulation is a valid, reliable, cost-effective method in medical education (Norcini and Boulet, 2003).

OSCEs are modern type of examinations which are commonly used in the health sciences. Harden defines OSCE as a method whose clinical proficiency components are well-planned and it is carefully implemented in terms of structure (Hodges, 2003). It is an examination which is designed to test the adequacy of many clinical skills performances such communication, clinical examination, medical procedures, prescriptions, joint mobilization and evaluation of radiological imaging results; and it is a kind of examination which assesses the knowledge, skills and behaviors with objective criteria (Harden, 1988). Students are assessed in a large number of stations. The parts of communication, physical examination, medical intervention and laboratory are applied in processing stations; and the clinical reasoning step is applied in question station. Using simulated patients, the clinical knowledge and skills of students are assessed at the each station within 3-30 minutes. Among the negativities of OSCE's which have highly efficient structure in order to develop knowledge, skills and attitude in comparison with classical test methods are negative cost-effectiveness, lack of confidence due to shortening of the time allocated for the students, lack of diversity of clinical scenarios are counted,

some studies argue the incompetency of the OSCE's for assessing attitudes and behaviors according to the learners' cognitive evaluations (Özdemir, 2005). The reliability of a test is a measure of the repeatability and accuracy of that test. OSCE's are generally considered as a reliable form of assessment. There are many features which contribute to the reliability. The assessor consistency is very high. As a result, especially multiple cases are some of the important features which contribute to enough test time OSCE's reliability (Swanson, 1987). The empirical results of a systematic evaluation which will be made in literature show that the reliable assessment of communication skills is more effective with clinic skills among stations. Use of more stations in examinations shows that assigning two observers in the examination instead of one has tendency of showing higher reliability (Brannick et al., 2011).

8. Conclusion

In this sense, revising the issues such as clinical environment, number of lecturers, variety of clinical scenarios, the standardization of assessment time would be very efficient in terms of the medical education.

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