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Use of simulated patients for formative assessment of moral competence in medical students

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Abstract:

BACKGROUND: During the course of their education, medical students must attain moral competence. The current study aims at designing a formative structured examination that would create the opportunity for learners to practice and interact with simulated patients under expert supervision.

MATERIALS AND METHODS: This article reports an experience in developing and implementation of a formative assessment of moral competence and the point of view of medical students. In this study, the formative structured examination of medical ethics for 80 medical students in 2 rounds with eight stations was designed. In each station, a scenario was proposed, and the opportunity was provided to the learners to interact with a simulated patient under the supervision of a medical ethics expert. Then, the learners would receive structured feedback in accordance with their performance. All learners expressed their experience in reflective writing, and their opinions were put under content analysis.

RESULTS: The content analysis of this reflective writing revealed three main categories, namely "Deeper understanding of ethical subjects," "Collaborative thinking and synergy with peers," and "Effective feedback of supervisors."

CONCLUSION: Within the framework of a formative structured examination of medical ethics, a safe space was created for interacting with simulated patients and practicing ethical reasoning, as well as dimensions of moral competence.

Keywords:

Ethics, medical students, patient simulation, professional competence

Introduction

Medical ethics refers to the moral principles that determine and control the behavior of individuals while providing health services. Physicians face numerous moral challenges during their practice. Hence, to prevent any harm to the patients or the caregivers, it is necessary to pay attention to the ethical dimensions of clinical patients. Having a deep understanding of ethical concepts and the capability of moral practice is essential for medical students who are studying to become general practitioners. Moral competence and communication skills are reported by

young practitioners as the main areas in which they are unprepared, leading them to face moral distress.^[1,2]

Commonly, medical ethics training is carried out with a focus on moral principles and with the help of cases, and the teaching methods involve classical or interactive lectures in large groups. In such teaching methods, learning does not occur through experience, and the learners do not receive the opportunity to understand the various dimensions of ethical matters, including the socioemotional dimensions they will be facing in professional settings.^[3-5]

If we define moral competence as having ethical awareness, moral judgment, and

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moral practice, then there will be barriers to achieving it through these types of learning experiences. However, the development of moral competence, as a new concern for medical schools, will be achievable through novel methods. Regarding this matter, numerous studies have proposed the use of simulation methods in order to achieve moral competence in medical sciences.^[6-8]

For example, in a study on ENT assistants, a medical ethics training program was designed for the 4-year period of residency using simulated patients. The results indicated a desirable level of improvement in the moral reasoning and moral decision-making skills of the residents.^[9]

In another study, neurosurgery residents also practiced some cases of informed consent and breaking bad news with the help of simulated patients, which improved their performance in moral reasoning.^[10] The simulated patient was used to teach medical ethics to dental students in Saudi Arabia, and it was able to improve the moral reasoning of the learners.^[11]

The ethics committee of a hospital used simulated patients to improve decision-making and the ability to differentiate futile treatments among the committee members accurately. In this case, improvements were revealed in the participants' decision-making using a pre- and post-intervention survey.^[12] The health-care provider acted as simulated patients and practiced ethical problems with nursing and midwifery students and graduates. The participants considered this experience educational and believed it had improved their moral skills.^[7]

There are also other similar studies available that were designed and carried out with a limited number of students and under specific titles.^[13-15] These cases highlight the necessity of conducting the current study to achieve nationwide and more objective evidence. In this respect, the present study was designed and carried out, aiming at designing a formative structured medical ethics examination with the help of simulated patients to assess the moral competence of medical students at the end of medical ethics training courses.

Materials and Methods

Study design and setting

This article reports an experience in design, implementing a formative assessment of moral competence and point of view of the medical students by a reflective essay. This study was carried out among the students at the Shiraz University of Medical Sciences in 2019. This assessment was performed through a structured examination of medical ethics. In the design of this examination,

the 10-step model of Objective Structured Clinical Examinations (OSCEs) was used.^[16]

Examination design

In the first step, five faculty members and four medical ethics residents were invited to design and perform the examination. Next, moral competency was defined based on consensus among the faculty members and the official curriculum, and an exclusive examination table was designed in a way that would involve all key competences in the examination [Table 1].

In the next step, a general design was carried out with regard to the number of learners, number of titles in the exclusive examination table, and approximate required interaction time for each ethical case [Table 2].

Station preparation

For each title in the exclusive examination table, a number of scenarios were proposed that made it possible to evaluate the desired moral competence. The scenarios were then discussed in a meeting in the presence of the faculty members, and all items were assessed in terms of face and content validity. The comments and adjustments were applied, and finally, the scenarios verified by consensus were selected for the study. In the next step, for each scenario, the correct response and important assessment items were determined, and an evaluation checklist was formed on that basis. In each station, the checklist consisted of three sections. In the first section, the "seriousness of learners in interaction with peers and simulated patients" was evaluated, where the response was limited to yes and no. The second section assessed

Table 1: List of key moral competence in the examination

Communication in challenging situations
How to breaking bad news
Ethical consideration in the beginning of life
Ethical consideration at the end of life
Disclosure of medical errors
Truth telling
Informed consent
Ethics in medical research

Table 2: List of station titles of the structured practical medical ethics formative examination

Obtaining permission for rectal examination from a young boy
3-year-old epileptic child with the need lumbar puncture for diagnosis
7-year-old cerebral palsy girl who is currently suffering from sepsis
Pregnant young woman who is addicted
Elderly cancer patient whose family members insist on concealing the disease
Transfusion of the wrong type of blood to the patient after surgery
Fatality upon arrival
Obtaining consent for participation in a drug trial

the “desired moral dimensions in the scenario,” where a number of questions were asked to assess the learner’s condition with regard to desired moral principles: 1–3 items in the checklist were dedicated to this section in each station. The third section focused on the “way of interacting with the simulated patient to execute the desired moral act:” 6–11 items were dedicated to this section in each station. The second and third sections of the checklist were rated based on a 4-point Likert scale and were used as a basis for providing feedback to the learners.

Next, simulated patient instructions were devised for each scenario. These instructions included the story, important points in the storyline, challenging subjects, way of responding to learners’ questions, and additional information.

Study participant

Preparation of learners and supervisors

This objective structured examination was a new experience for the learners in the medical ethics course. Therefore, to achieve a better educational performance, the following matters were explained to the students during the educational course and before the examination. The first matter involved the fact that the objective structured examination was formative, and the students’ performances would not impact their final scores in the course. Second, that to receive extra points, the students were to participate in the objective examination with proper interaction and a deep understanding of the contents presented during the course. Moreover, third, that at the end of each station, feedback would be provided to the students based on their interaction with the simulated patient. The learners were told not to get worried or anxious about this feedback and to proceed with their efforts in the examination stations. The process of supervision over the learners was carried out at each station by faculty members of the medical ethics department or Ph.D. students. This was done based on the way the checklists were completed at each station. All supervisors received appropriate training for feedback provision based on the sandwich method.

Selection and preparation of simulated patients

In this study, the simulated patients were to present a proper portrayal of the role of a patient or the patient’s family member and were not tasked with educating or evaluating the learners. Therefore, in selecting the simulated patients, factors such as the consistency of age and gender with the desired role and the capability of memorizing the scenario were taken into account. Furthermore, attention was also paid to the understanding the individuals had of the key concepts in the scenario, and, finally, it was extremely important

to the authors that the simulated patients be able to present an appropriate portrayal of the agitation and emotions associated with the story.^[17] Thereby, among the individuals with experience performing as a simulated patient in OSCEs, those who met these criteria were selected. The simulated patient instructions were provided to the simulated patients before the study. On the day before the examination, the roles were practiced with a focus on paying attention to body language, eye contact, and delivery to make the interactions as realistic as possible.

Data collection

Examination execution

The objective structured examination of ethics was designed for 80 learners in 2 rounds and 8 stations. In each station, five learners would enter, read the question, then engage in a discussion about the proper answer and the moral dimensions of the subject, and, finally, arrive at the answer and the way to express the answer in cooperation with each other. Five minutes were dedicated to this interaction. Then, one of the learners would engage in conversation with the simulated patient. The type of question would determine the type of interaction. This conversation was carried out in 5 min, and the supervisor would complete the checklist simultaneously based on the learner’s performance. Next, the station supervisor would provide feedback to the learners based on the checklist. With the ring of a bell, the learners would proceed to the next station. After the examination, the learners were asked to write a reflective essay about their experience of the objective structured examination of ethics. The essays were then put under content analysis to determine the quality of the learners’ experiences.

Ethical consideration

Medical students during the course and before the examination received detailed explanations of the exam. The Ethical Committee at Shiraz University of Medical Sciences approved this study (IR.SUMS.REC.1400.086).

Results

A total of 80 learners participated in our formative structured medical ethics examination, which was carried out in 2 rounds with 8 stations. In each station, the supervisor would complete the checklists for groups of learners and provide them with feedback in the last 5 min based on the checklist. The results indicated that 15 groups out of the initial 16 groups of learners engaged in interactions with simulated patients and their peers and completed the examination with seriousness. Only one group did not adhere to the desired criteria in interaction with the simulated patient in three stations. This was of importance considering the fact that the examination was

formative. The “recognition of moral acts in the proposed cases” was checked in 57 stations (89%), which was higher than the “way of interacting with the simulated patient to execute the moral act” that was checked in 37 stations (57%). In line with these results, the largest portion of the feedback provided to the learners was about how to execute the moral act in various scenarios.

At the end of the examination, the learners expressed their experience of this objective examination through reflective writing in 250 words.

Content analysis of reflective essays

A total of 78 learners presented their 250-word essays. A content analysis of the essays produced 124 meaning units, which eventually resulted in three categories, namely “Deeper understanding of ethical subjects,” “Collaborative thinking and synergy with peers,” and “Effective feedback of supervisors,” and nine subcategories [Table 3].

Deeper understanding of ethical subjects

The experience of the learners with the objective examination of professional ethics indicated that they had achieved a deeper understanding of ethical concepts and executing moral decisions in clinical settings. In the opinion of the learners, the objective structured examination of medical ethics in the presence of simulated patients had made it possible for them to achieve a deeper understanding of ethical concepts and a higher capability to execute moral decisions in clinical situations. One of the medical students explained the matter as follows.

In the station where the mother was requesting euthanasia for her 7-year-old child who suffered from cerebral palsy, I noticed that I must sympathize with the mother and understand what a difficult situation she is in. In this situation, it is of no use to talk about the law and the prohibition of euthanasia or the fact that it is forbidden by Sharia. Or, in the station where we delivered bad news to an elderly man, I could feel his concern and bad feelings. I realized that I must

sympathize with him and bring him consolation and how important all this is for a patient. The knowledge I had of cancer was required, but it was not enough for this conversation, and I got to practice understanding the human dimensions of the disease... (P41).

The conversations the learners had with the simulated patients based on different scenarios provided them with the opportunity to experience complex human interactions. Practicing deep human interactions with simulated patients during the examination had changed the perspective of the learners about the value of ethical subjects.

... Now I understand the significance of the medical ethics course better... (P10).

The quality of the designed interactions had an impact on the experience of the learners. One student explained this matter as follows.

The simulated patients played the role of patients extremely well. Throughout the exam, it felt like I was actually talking to real patients... (P38).

... This exam was really good. It was held in the form of an exam, but it was, in reality, an educational course (P55).

Collaborative thinking and synergy with peers

One dimension of the examination that attracted a lot of attention was the fact that the learners were divided into teams. The learners described their experience of collaborative thinking for solving ethical problems to be attractive and engaging.

Such friendly and fun gatherings are always memorable, and when they are combined with a scientific subject, we learn much better (P29).

We always competed with each other, but this time we put our thoughts together, analyzed the scenario, and reached the answer in cooperation with each other. Only one person performed in the exam, but we all had a share in the answer (P3).

At the end of the day, it was really fun, we had a great time, didn't even realize how the 2 h of the exam passed. It wasn't filled with stress and worries like normal exams (P16).

For the learners, the team-oriented design of the examination was interesting and attractive. The interactions between peers during the examination created a suitable synergy, and this eliminated the stressful atmosphere of the examination. Instead, a cheerful and energetic atmosphere was present in the interactions throughout the examination.

Table 3: Theme, categories, and subcategories of the study

Category	Subcategory
Deeper understanding of ethical subjects	Variety of ethical cases
	Practical experience of interaction with simulated patients
	Recognition of various dimensions of ethical cases
Collaborative thinking and synergy with peers	Synergy instead of competition
	Cheerful learning experience
Effective feedback of supervisors	Effective learning due to receiving feedback without anxiety
	Patience and forbearance of supervisors

Effective feedback of supervisors

The third dimension of the professional ethics examination, in the opinion of the learners, was the appropriate interactions of the supervisors. In this study, a number of professors of medical ethics supervised the learners and provided them with feedback at each station based on the checklist. The medical students described this matter as follows.

A positive factor in this exam was the presence of advisors in the stations, who, during the discussions and especially after the conversation with the simulated patient, analyzed our performance and interaction with the simulated patient and explained our strengths and weaknesses (P73).

The notes they were giving us in this examination will remain in our memories more than those topics taught in the classroom (P12).

Discussion

This study reported an experience of designing a structured examination of medical ethics with the use of simulated patients and expert supervisors. During the formative examination, the learners had the opportunity to practice various dimensions of moral competence under the supervision of a medical ethics expert and receive feedback. The results indicated that using simulated patients in the formative assessment of moral competence along with constructive feedback had created an attractive and effective learning experience for the learners. Numerous studies have used simulated patients to teach and improve moral competence. However, these studies have often performed their intervention in only one ethical area and rarely practiced the various topics of medical ethics with the help of simulated patients. Results from studies conducted on one or more topics of medical ethics are in line with the current study and indicate the positive effect of simulated patients on moral competence.^[7,9,10,12,18]

The present study revealed that the learners had a higher level of recognizing moral acts than that of executing moral acts, which indicates a higher level of ethical sensitivity than other ethical dimensions such as ethical practice, ethical decision making, and ethical reasoning, which were being assessed in the checklist. Accordingly, the feedback of the supervisors was also focused on these dimensions. In other words, the learners had a good performance in recognizing the moral problems embedded in the proposed scenarios but faced challenges in ethical reasoning or ethical decision-making and in executing the moral act. The feedback of the supervisors was of utmost importance in this stage. This was consistent with results from the study

by Kucukkelepce *et al.*, in which a simulated-patient intervention was compared with case-based training among nursing students. In that study, the ethical sensitivity of the learners was improved more than the other dimensions of moral competence, and there were no differences with regard to ethical reasoning and ethical decision-making.^[19]

Results from the content analysis of the reflective essays indicated that for the learners, experiencing this structured examination of medical ethics had inculcated a deeper understanding of the subjects and concepts of medical ethics. The method used in this examination was influential in this matter by increasing collaborative thinking and synergy between peers, and the feedback of the supervisors at the end of the scenarios played a role in the learners' attainment of moral competence. In other words, based on the opinions and experiences of the learners, the presence of simulated patients and their impactful acting had enabled them to achieve a deeper understanding of medical ethics.

The medical ethics examination provided the learners with the opportunity to have an objective experience of interaction with simulated patients to resolve various problems of medical ethics. Furthermore, through the emotional portrayal of the scenarios by the simulated patients, it was made possible for the learners to understand the different dimensions of the ethical topics. Given that the examination was formative, the learners did not have any stress or anxiety while practicing their professional roles and also paid attention to the approaches, arguments, and methods of decision-making, not merely correct answering.

Simulated patients cause the learners to face the different dimensions of a given ethical subject. The majority of the learners knew the ethical principles and codes but facing the scenarios performed by simulated patients bridged the gap between their knowledge and practice. Simulation can reveal the human dimensions of clinical decision-making and help with the provision of patient-oriented care. In other words, by demonstrating the moral-emotional complexities, simulation can be an important tool for improving moral competence.^[20]

The ability to understand the situation of others, empathetic response, predicting the future situation are other outcomes of simulation training. This process provides the possibility to engage in emotional practice and use symbols to fully understand ethical situations with the strategy of moral imagination. This method has attracted a great deal of attention in the field of ethical training of practitioners.^[21,22] Simulation has the potential for creating and improving ethical reasoning and other levels of moral competence in learners.^[23]

The learners participating in this study considered the structured feedback provided by supervisors to be one of the factors contributing to the educational effectiveness of this examination. The provided feedback was structured and included a description of strengths and weaknesses and recommendations for the proper execution of the moral act. This type of examination would create a safe, educational space for the students so that they get to know the limitations of their own capabilities and observe the proper model of performance far from dealing with any anxiety.^[20]

Creating a supervised practice structure in the presence of instructors who provide structured feedback to the learners would create confidence in them and increase their competence. Such a process would result in the institutionalization of supervised behaviors and help develop internalized behaviors in the learners.^[24] This has also been verified in a qualitative study in which nursing students were the participants. In that study, the instructor observed the students, analyzed their strengths and weaknesses with regard to the ethical dimensions of their performance, and provided them with feedback, and this process eventually led to the growth of moral competence.^[4] Group work and collaborative thinking in analyzing the scenarios had reduced anxiety in the learners and increased the vitality of the examination. This matter has been ignored in other studies. However, in the current study, the learners entered the examination in groups, while in other similar studies, the learners were assessed individually.

Limitation and recommendation

The main strength of this study is to demonstrate the value of using the simulated patient in the formative assessment of the moral competence of medical students. Teamwork and collaborative thinking are also significant points in this study.

The limitation of the present study was that the formative structured examination was designed only for medical students. To improve the level of moral competence in students, it is essential to use simulated patients in the medical ethics programs of other disciplines within the field of medical sciences, especially for the residency.

Conclusion

Within the framework of a formative structured examination of medical ethics, a safe space was created for interacting with simulated patients and practicing ethical reasoning and decision-making, as well as other dimensions of moral competence. The learners believed this type of collaborative thinking with peers, interacting with simulated patients, and receiving feedback from medical ethics experts had

inculcated a deeper understanding of medical ethics. Using case-based methods, small group discussions, and interactive lectures is effective in improving the ethical knowledge of the learners, however to improve their moral competence, it is essential to use simulated patients and provide the opportunity to practice and reflect under the supervision of experts.

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Conflicts of interest

There are no conflicts of interest.

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