Original Article

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Teaching Medical Professionalism with a Scenario-based Approach Using Role-Playing and Reflection: A Step towards Promoting Integration of Theory and Practice

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Abstract

Introduction: Professionalism, as one of the core competencies of physicians, is essential for providing the patients with higher quality care. It is an abstract concept and its education and assessment need objective and operational methods. The present study aimed at teaching the concepts of professionalism based on a scenario-based approach using role-playing and reflection.

Methods: This is a pre-experimental study (one-group pretest-posttest design) with a mixed method approach. The study was conducted on 18 medical students (by voluntary sampling method) who had enrolled in the Medical Ethics Course at Kashan University of Medical Sciences in 2020. Twelve scenarios were designed about the most prevalent issues of medical professionalism. In each session, one group of students played out their scenarios and then, the participants and instructors discussed their role-playing. Participants' knowledge about professionalism was assessed at the beginning and end of each session, and they completed a satisfaction questionnaire and a reflection form. T-tests (one-sample and paired T-test) were applied for statistical analysis. Quantitative and qualitative data were analyzed using SPSS software (version 26), and $P<0.05$ was considered statistically significant. Conventional content analysis was used to analyze the qualitative data.

Results: The mean scores of the participants' knowledge in post-test were significantly higher than those in the pre-test ($P=0.042$, $t=-2.074$). The mean scores of the participants' role-playing quality ($P<0.001$) and satisfaction ($P=0.001$) were significantly higher than their corresponding test values. Qualitative analysis of the participants' reflections revealed their satisfaction with the study intervention.

Conclusion: The scenarios, role-playing, and reflection could provide an opportunity for operationalizing the concepts of professionalism and deep learning of students. Medical instructors need to improve their knowledge and skills of using active methods in teaching professionalism to medical students.

Keywords: Medical education, Professionalism, Role playing

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Introduction

Professionalism as one of the main competencies of physicians is necessary for providing higher quality services to patients (1). Medical professionalism is a set of behaviors that build trust in the relationships between the physicians and patients and the public. The American Board of Internal Medicine (ABIM) defines professionalism as the internalization of a set of attitudes and behaviors in medical students and physicians which make them consider patients' interests more important than personal interests (2). Nonetheless, evidence shows the decreasing importance of professionalism in medicine as well as the progressive prevalence of problems which threaten professional values (3-6). These can reduce public respect for physicians, thereby reducing the patients' adherence to medical recommendations and damaging the processes of diagnosis and treatment (5, 6).

Medical education has a significant role in improving professionalism among medical students (7). Accordingly, a two-unit Medical Ethics Course (MEC) was integrated into the official curriculum of medical education in Iran. Also, in addition to the medical ethics course, another course called the "Medical Etiquette" was added to it in the revision of the general medical curriculum; one of its topics is dedicated professionalism (8). Official courses on professionalism are usually implemented through the lecturing method. This method is appropriate for providing a wide range of information in a short period of time and rapidly improves the learners' knowledge about the intended topic; however, improvement of such knowledge is associated with low knowledge retention rate (9).

Given the disadvantages of the lecturing method, interactive and student-centered teaching methods are needed to improve learning outcomes in MEC. Examples of these methods are role-playing, role-modeling, reflection, video presentation, simulation, journal club, team-based learning, problem-based learning, and educational portfolio (9-12). In role-playing, scenarios are used for training, and learners have closer interactions with each other and assume an active role in learning; hence, they can get to know and understand ethical issues (13). The scenarios provide an opportunity for reflecting on the realities of professionalism. Several studies have successfully used scenarios to explore how students perceive appropriate or inappropriate behavior and make decisions about how to act (14).

Reflection is another active learning method. It is a meta-cognitive process which aims at creating a deep understanding of the immediate situation, thereby facilitating deep learning (15) and improving knowledge and performance in similar situations in the future (9).

Previous studies reported contradictory results about the effects of lecturing, role-playing, and reflection (16, 17). A qualitative study reports that despite the challenges of traditional teaching methods, most medical instructors are reluctant to use role-playing and reflection in teaching professionalism because of their limited ability to establish effective interactions with students and provide them with constructive feedback. Thus, they do not use active teaching methods for MEC teaching (18).

The use of active teaching methods, due to creating an active learning environment, can contribute to enhancing the integration of practice and theory in the classroom (19). Teaching medical professionalism with student-centered and active methods should be a priority in educational planning. One of the reasons for the importance of this issue is the abstraction of the concepts of professionalism and the difficulty of teaching and assessing them with traditional teaching and learning methods. Therefore, the present study aimed at teaching the concepts of professionalism with a scenario-based approach using role-playing and reflection.

Methods

Design

This is a pre-experimental study (one-group pretest-posttest design) with a mixed method approach. The study was conducted in 2020. Participants were 18 fourth and fifth-year medical students (by voluntary sampling method) who had enrolled in the MEC at Kashan University of Medical Sciences, Kashan, Iran. They were recruited to the study through the census method. Initially, an introduction session was held to inform them about the study, role playing, and reflection, and their consent to participate in the study was obtained.

The study intervention was teaching professionalism through a scenario-based approach using role-playing and reflection. A medical ethics specialist (as instructor), two clinical specialists, and a medical education specialist (as facilitators) participated in the study.

Instructors designed sixteen scenarios about the six main concepts of professionalism (altruism, respect, excellence, justice, honor and integrity, and duty and responsibility) based on their clinical experiences and the existing literature (5). Scenarios were about prevalent concepts of professionalism in real and familiar

clinical contexts and included a wide range of roles such as those of physician, patient, patient companion, professor, medical student, intern, resident, and nurse. Four medical specialists with master's degree in medical education, one medical specialist with PhD degree in medical ethics, one medical student, and one medical graduate assessed the face and the content validity of the scenarios. They were provided with the scenarios and a researcher-made assessment checklist with open-ended items about the attributes of the scenario (relevant, realistic, engaging, challenging and instructional) (20). Then, the scenarios were revised according to their comments. Finally, four scenarios were excluded, and twelve were used for the study intervention (Figure 1).

Then, the students were divided into three six-member groups with a student as the secretary of each group. Group secretaries were responsible for managing their groups to play scenarios, responding to criticisms and recommendations of classmates and instructors, and documenting and reporting activities. Participants were free to select their preferred group and group members. Every four scenarios was randomly allocated to one group. Participants in each group role-played their allocated scenarios in the presence of all participants and instructors in the second to the fifth sessions of the study intervention. A WhatsApp group was also created for communication between group the secretaries and instructors. Pre-test at the beginning and post-test at the end of each session were performed to assess the participants' knowledge. After the pretest, students played their scenarios and then the participants in other groups and instructors verbally assessed and criticized their performance. Besides, instructors and other students scored their performance using role-play evaluation forms and the secretary of the group responded to the criticisms. Instructors guided group talks and criticisms. In the last thirty minutes of each session, a medical ethics specialist summarized educational materials and gave a lecture on the intended concept. In the sixth session of the intervention, a reflection form was used to assess the participants' experiences of the study intervention, and the best group respecting role-playing and knowledge scores was determined. After the MEC final exam, the rate of the participants' total satisfaction with the intervention was assessed using a satisfaction questionnaire.

Instruments

Knowledge Questionnaire

The researcher-made knowledge questionnaire (pre-test and post-test) was designed to assess the learner's knowledge with four multiple-choice questions on medical professionalism. The source of the selection of questionnaire questions was from the item bank of course exam questions in previous years. These questions were appropriate in terms of the psychometric characteristics of the exam (difficulty and discrimination index); as a result, the reliability of the exam and its questions was acceptable. The structure of the questions was scenario-based and related to the concepts and goals of professionalism specific to the same session. To determine the validity, five experts in medical education and medical ethics assessed the face and content validity (Content Validity Ratio (CVR) and Content Validity Index (CVI)). For scoring, wrong and right answers were respectively scored 0 and 1; hence, the possible total score of the questionnaire was 0–4. Participants completed this questionnaire at the beginning and end of each session.

Scenario area:

Duty & Responsibility (observance of rules and regulations), honor and integrity (honest behavior, accepting responsibility for your work)

Scenario narration:

In the surgical ward of a medical teaching hospital, the ward nurse asks the intern to discontinue the patient catheter in bed 23 that underwent an appendectomy yesterday. The intern does this without checking order in the patient's. After a few hours, the same patient develops urinary retention and severe bladder pain. It is later revealed that the patient in bed 22 had order to discontinue the catheter and not bed 23. The resident noticed the mistake of the nurse and the intern. The catheter is inserted again for that patient bed 23. The patient complains why the catheter was discontinued. To solve the problem, the resident tells the patient, we wanted to send the urine collected at the beginning of the catheter to the lab for a culture test, so the catheter had to be discontinued and a new catheter inserted. The patient is satisfied. After leaving the patient's room, the resident reprimands the intern and gives him an extra duty hour.

Figure 1: An example of a secnario about "duty and responsibility" and "honor and integrity"

An example of the pre-test-post-test questions (1 out of 4 questions in one of the sessions) was as follows:

"One of the doctors in the ward notices that one of the nurses has caused many complications in the patients when injecting a certain drug due to unfamiliarity with the specific injection technique. What is the doctor's duty in this case?
A. Reporting the problem to the head of the ward, senior nursing officer, and matron
B. Not showing any reaction to avoid disgrace
C. Giving a warning to the nurse
D. Informing the patient's relatives about the problem

The Role-playing Assessment Form

The researcher-made role-playing assessment form was designed to assess the quality of role-playing performance of groups. To do so, we scored the nine items as follows: 5 points for "Excellent", 4 points for "Very good", 3 points for "Good", 2 points for "Poor", or 1 point for "Very poor". Six experts in medical education and medical ethics assessed the face and the content validity of this form (CVR and CVI). The content validity ratios and indices of all items were acceptable; no item was excluded, and two items were revised. Reliability assessment also showed that the Cronbach's alpha of this form was 0.94.

The Reflection Form

The reflection form was used in the sixth session to assess the participants' experiences of the study intervention. This form included three sets of items based on the Barton model, namely "What?", "So what?", and "Now what?" questions (19). The "What?" questions were used to ask the participants to describe the experience? Examples of the "What?" questions were: "What was your experience?", "What individuals were involved in the experience?", "What did you see in your experience?", "What did you do?", and "What were your reactions?" The "So what?" questions were used to analyze the experienced situation and its strengths and weaknesses. Examples of the "So what?" questions were: "Can you analyze your experience?", "What was your feeling about this experience?", "Could you do something else in that situation?", "What information or skills did you need for that situation?", "Was your feeling about that experience different from your previous feelings?", and "What were the positive and negative aspects of that experience?" The "Now what?" questions were about the action plan for self-change, outcomes of the intended experience, application of the experience in similar situations in future, and recommendations for improving the experience in similar situations in future (20).

The Satisfaction Questionnaire

The researcher-made satisfaction questionnaire was used to assess the participants' satisfaction with the study intervention at the end of the study. This questionnaire has 33 items in three main dimensions including: 1. Goals, course content and design (6 items), 2. Teaching method (21 items) and 3. Instructor (6 items). Items were scored in this way: 5 ("Completely agree"), 4 ("Agree"), 3 ("No idea"), 2 ("Disagree"), or 1 ("Completely disagree"). Six experts in medical education, medical ethics, and clinical medicine assessed the face and content validity of this questionnaire (CVR and CVI). Seven items were excluded due to unacceptable content validity ratios and indices and eleven items were revised. The Cronbach's alpha of this questionnaire was 0.96.

Rigor

The rigor of qualitative data and findings was established using Lincoln and Guba's criteria, namely credibility, dependability, confirmability, and transferability (21). Credibility was ensured through peer-checking by two colleagues who commented on and confirmed the accuracy of data analysis. Their comments were used to revise the findings. For dependability, a person with experience in qualitative research and medical education reviewed the classification of the data. As to confirmability, an external observer experienced in qualitative research verified all study processes from implementation to analysis of findings. Moreover, transferability was ensured through providing detailed descriptions about all steps of the study.

Data Analysis

Qualitative data collected using the reflection form were analyzed through conventional content analysis. Hsieh and Shannon divided the content analysis in qualitative research into three types: 1- Conventional, 2- Directional, and 3- Summative content analysis. The conventional content analysis is usually used in a research which aims to describe a phenomenon. This type of design is often suitable when the existing theories or models or research literature about the phenomenon under study are limited. In this case, researchers avoid using preconceived classifications and instead arrange for the classifications to emerge from the data. In this case, researchers float themselves on the waves of data in order to obtain novel knowledge for them (22).

Quantitative data were analyzed using the one-sample *t-test* (SPSS software (version 26), the

significance level 0.05) to evaluate role playing in students and lecturers and evaluate the students' and instructors' satisfaction; the paired-sample *t*-test was used to compare the students' mean knowledge score in pre and post-tests. It should be noted that the test-value in the one-sample t-test is obtained from the product of the number of questions related to each area in the middle number 3.

Ethical Consideration

The Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran, approved this study (code: IR.KAUMS.MEDNT.REC.1399.107). Participants were informed about the study aims and methods and three incentive points were considered for their final MEC scores. Students' lack of participation had no effect on their final score.

Results

Participants were eight males and ten females with a mean age of 26.00±0.94 years (in the range of 25–28). Pretest-posttest comparisons revealed that the posttest mean score of knowledge in the first and second sessions and the total posttest mean score of knowledge were significantly higher than their corresponding pretest values (P<0.05, Table 1).

As the possible total score of the role-playing assessment form was 9–45, the possible total mean score of the form was determined to be 27 (number of questions=9×3). This score was considered as the test value of the form. Then, one-sample *t*-test was used to compare the participants' scores of the form with this test value. Results showed that the participants' mean score of role-playing was significantly greater

Table 1: Comparison of the pretest and posttest mean scores of knowledge

Variable	Session	Pretest	Post-test	Mean difference	*t*	P*
Knowledge score	First	2.41±0.87	2.94±0.55	-0.53	-3.043	0.008
	Second	2.29±0.98	3.00±1.06	-0.71	-3.165	0.006
	Third	4.00±0.00	3.69±0.63	0.31	1.760	0.104
	Fourth	3.47±0.83	3.27±1.03	0.20	1.146	0.271
	Total	2.97±1.05	3.19±0.88	-0.22	-2.074	0.042

*The results of the paired-sample *t* test

Table 2: The mean scores of the role-playing assessment and its items and the results of comparison with the test value

Variable	Evaluator	Test value	Mean±SD	t	P*
Role-play	Instructors	27	38.58±5.87	8.13	0.000 <0.001
	Students	27	32.59±11.26	3.91	0.000 <0.001

* One-sample t-test

Table 3: Participants' mean scores of satisfaction and their dimensions and their comparisons with the corresponding test value.

Dimensions	Test value	Mean±SD	*t*	P*
Satisfaction with goals, course content and design	18	21.43±5.86	2.34	0.030
Satisfaction with teaching method	63	79.81±16.38	4.10	0.001
Satisfaction with instructor	18	22.56±5.01	6.63	0.002
Total	99	123.8±24.45	4.05	0.001

*The results of the one-sample *t*-test

Table 4: The results of the qualitative content analysis of reflection-related data

Main categories	Subcategories
Strengths	Change of attitude towards the course.
	Operationalization of concepts of professionalism and deep learning.
	Improvement of different skills such as teamwork, group discussion, and communication skills.
	Criticizing performance and providing feedback.
Weaknesses	Determination of the best group and creation of an unconstructive competitive atmosphere.
	Weaknesses in some skills and abilities such as the ability to give effective feedback.
Recommendations	Further exercise for improving essential competency.
	Exclusion of incentive points and reward.
	Generalization of the experience to other courses.

than 27 (P<0.05, Table 2), indicating acceptable quality of role-playing.

The test value of 18 was determined for satisfaction with goals, course content and design and instructors' dimension. In addition, the test value of 63 was determined for the satisfaction with teaching method, and the test value of 99 for the whole satisfaction questionnaire. The results of one-sample *t*-test revealed that the mean scores of satisfaction and all its three dimensions were significantly higher than their corresponding test value (P<0.05, Table 3).

The data obtained from the reflection form were qualitatively analyzed using conventional content analysis. Forty primary codes were generated which were reduced to 24 final codes and categorized into nine subcategories and the three main categories of strengths, weaknesses, and recommendations and strategies (Table 4).

Participants' experiences showed that most of them were satisfied with the study intervention and highlighted that the intervention modified their attitudes towards professionalism, its importance, and its application. They also noted that professionalism teaching through role-playing promoted their deep learning and knowledge retention. Moreover, they reported that the study intervention helped them practice professional skills such as teamwork, constructive group discussion, and communication skills and provided them with the opportunity to test their abilities. They also introduced feedback by instructors and classmates as the other strength of the study intervention.

"The notion of role-playing improved our motivation for teamwork. We met each other and exercised role-playing one day before our class. Role-playing in class and involvement in group discussions also helped stabilize learning. Although role-playing was difficult for amateur individuals like us, it was very interesting" [Participant No. 6].

"Role-playing was associated with positive feeling and experience for me" [Participant No. 3].

"These scenarios were very informative because they were realistic, and our mistakes were analyzed by instructors and classmates to determine the best actions in real situations. This intervention helped us learn what to do if we re-experience such situations" [Participant No. 2].

According to the participants, the weaknesses of the study intervention were our plan to determine the best group and some participants' limited skills to provide feedback to questions and challenges.

"Some classmates made inappropriate and upsetting criticisms" [Participant No. 3].

"I had negative feelings about classmates' feedback and unconstructive criticisms despite they knew that their feedback and unconstructive criticisms had no firm basis and made them just to win the competition" [Participant No. 4].

Recommendations

Participants recommended that professional skills such as effective feedback giving as well as the generalization of the study intervention to other courses should be improved.

"I suggest that students should be taught the principles of criticism and constructive feedback, so that they can express their criticism in pleasant words and sentences and make it appealing to their audience" [Participant No. 5].

Discussion

The present study aimed to teach the concepts of professionalism based on a scenario-based approach using role-playing and reflection. Our findings revealed the positive effects of the study intervention on satisfaction, deep learning, and attitude towards professionalism. Also, a significant improvement was shown in the mean score of knowledge after the study intervention, implying the effectiveness of teaching professionalism through scenario-based role-playing and reflection which significantly improved the participants' knowledge about professionalism. This is consistent with the findings of several previous studies. For example, a study on fifty learners attending a legal procedure course reported that role-playing was more effective than lecturing in improving the mean scores of learning and knowledge retention (16). Another study also found that scenario-based role-playing in an educational workshop significantly improved the learning outcomes among veterinary instructors (23). Moreover, a comparative study on the effects of role-playing and lecturing reported that while short-term learning effects in lecturing were better than role-playing, knowledge retention in role-playing was higher than lecturing (17).

Our participants also reported that group discussions by classmates and instructors after role-playing helped stabilize learning outcomes. Similarly, a study on 63 medical students reported that 78.5% of them found role-playing effective in significantly improving their knowledge (24). Most students in another study reported that role-playing was associated with better retention of ethical knowledge (25).

Our findings also showed the promotion of teamwork as another positive outcome of teaching professionalism through scenario-

based role-playing and reflection. Students in a previous study also reported that role-playing was associated with more active involvement in learning activities and teamwork (26). Teamwork is very important for medical practice, so that it is considered as an essential competency for physicians (27). Another positive outcome of role-playing in the present study was the improvement of communication skills. This is in line with the findings of previous studies which showed that role-playing significantly improved communication skills (28, 29).

Study participants also reported that reflection on role-playing, criticizing the role-playing performance of other students, providing them with feedback, and discussing role-playing sessions provided them with a good opportunity to practice critical thinking skills. In agreement with this finding, a previous study reported role-playing as an effective strategy for active and experiential learning which facilitated the students' learning and improved their critical thinking skills (29). More than 95% of the participants in another study also reported role-playing as a good opportunity to give and receive feedback (30). Another study found that role-playing had positive effects on feedback giving and reported that 60% of students considered it as an effective strategy for feedback giving (31). Although most of our participants reported the effectiveness of role-playing in improving their feedback-giving skill, some of them noted that effective feedback-giving necessitates education. Accordingly, they recommended educational courses on feedback to empower the students' feedback-giving.

In our study, providing effective feedback and critique and practicing it in groups helped to operationalize the concepts of professionalism and deep learning of students. The students believed the scenarios could provide an opportunity for group discussion with their classmates and instructors. Another study also found that using small group discussions with familiar college instructors and senior students as facilitators encouraged active student participation in the scenarios and maximized comprehension and retention (14).

Our participants also reported that considering a prize for the members of the best role-playing group was an inappropriate strategy and considered it as a weakness of the present study. They noted that this practice caused an unhealthy competitive atmosphere in class and damaged the classmates' relationships. This contradicts the findings of a former study in which nursing students considered the creation of a competitive atmosphere as a strength of team-based teaching (32). Our participants also reported satisfaction with role-playing and reflection and recommended the generalization of these methods to their other courses. Participants in two previous studies also requested the integration of role-playing in the curriculum of medical education (24, 33).

The small sample size of the study reduced the generalizability of its findings. Most eligible students preferred not to receive education through role-playing and opt to pass the course through the lecturing method. The other limitation of the present study was its one-group design with no control group for comparison. This limitation reduced our ability to provide firm conclusion about the effectiveness of teaching professionalism through scenario-based role-playing and reflection.

Conclusion

In this study, it was concludes that teaching professionalism using scenario-based role-playing and reflection was an effective strategy to improve medical students' knowledge about the concepts of professionalism and enhance their satisfaction with learning. Using the student-centered methods can involve the students in the process of teaching and learning in order to internalize the concepts of professionalism, leading to deep learning.

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Author Contribution

E.M, A.S, S.M.R.T, A.T contributed to the conception and design of the work; the acquisition, analysis, or interpretation of data for the work. All Authors contributed in drafting and revising the manuscript critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest: None declared.

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