Review

How to apply peer role-play simulation in medical education?

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ABSTRACT

Peer role-play is applied in medical education as one type of human simulation. It is a simulation method to teach communication and clinical skills; besides, it is used as an assessment method in the Objective Structured Clinical Examination (OSCE). Peer role-play simulation provides a chance for training without any stress, developing the ability of students to think and interact rapidly with the patient in real-time to enhance authenticity. Peer role-play simulation has many advantages that serve the educational process. It promotes high-level engagement of students and a self-study approach in the learning process, develops interpersonal skills, improves professional attitude, and helps to acquire knowledge. Moreover, it develops the ability to recall information, interview skills, self-efficacy, confidence, and experience reflection. However, the efficacy and success of implementing peer role-play simulation in medical education still face many challenges based on its application method. Furthermore, there is still debate about the preference for using peer role-play in medical education compared to using standardized patients as an alternative method. In addition, virtual role-play simulation has emerged as another alternative to traditional peer-role play simulation via an intelligent learning environment to gain more knowledge in a short time.

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¿Cómo aplicar la simulación de juegos de roles entre pares en la educación médica?

RESUMEN

El juego de roles entre pares se aplica en la educación médica como un tipo de simulación humana. Es un método de simulación para enseñar habilidades de comunicación y clínicas; además, se utiliza como método de evaluación en el Examen Clínico Objetivo Estructurado (ECOE). La simulación de juego de roles entre pares ofrece una oportunidad de capacitación sin estrés, desarrollando la capacidad de los estudiantes para pensar e interactuar rápidamente con el paciente en tiempo real, lo que mejora la autenticidad. Presenta numerosas ventajas para el proceso educativo. Promueve la participación activa de los estudiantes y un enfoque de autoaprendizaje, desarrolla habilidades interpersonales, mejora la actitud profesional y facilita la adquisición de conocimientos. Además, desarrolla la capacidad de recordar información, las habilidades de entrevista, la autoeficacia, la confianza y la reflexión sobre la experiencia. Sin embargo, la eficacia y el éxito de la implementación de la simulación de juego de roles entre pares en la educación médica aún enfrentan numerosos desafíos en cuanto a su método de aplicación. Asimismo, existe un debate sobre la preferencia por el uso del juego de roles entre pares en la educación médica en comparación con el uso de pacientes estandarizados como método alternativo. Además, la simulación de juegos de roles virtuales ha surgido como otra alternativa a la simulación tradicional de juegos de roles entre pares a través de un entorno de aprendizaje inteligente para adquirir más conocimientos en poco tiempo.

1. INTRODUCTION

The use of human simulation in medical education is considered one aspect of simulation-based learning. The human simulation includes peer role-play or standardized patients. Peer role-play is one low-fidelity simulation method in which the medical student is trained to assume patient and physician roles in specific situations simulating a real-life event [1].

Until now, no accurate data is available about the number of medical schools that use peer role-play simulation in the curriculum [2]. Some medical schools use peer role-play simulation in teaching communication skills such as breaking bad news, besides acquiring the skills of establishing a professional relationship in real-life situations in a safe environment. On the other hand, other medical schools use it to train students on some clinical skills such as blood pressure and pulse. Moreover, peer role-play simulation is used in the conduct of clinical assessments of medical students such as the Objective Structured Clinical Examination (OSCE) [3].

However, the efficacy and success of peer role-play simulation in medical education still face many challenges from one medical school to another based on its application

method. Some medical schools used peer role-play simulation in teaching history-taking and counseling skills instead of the traditional didactic method, but the outcomes were unsatisfactory because it was applied randomly depending on personal diligence in an unplanned and unstructured manner without a formal accredited strategy [4]. On the other hand, other medical schools succeeded in the peer role-play simulation implementation based on using a structured planned method [5]. However, some difficulties and challenges that are related to the preparation of well-designed clinical scenarios, motivation, and students' engagement are still [6].

In another view, there is a conflict among the results of studies about using and the role of peer role-play simulation in medical education in comparison with the use of standardized patients. Previous studies concluded that the use of standardized patients (simulated patients) in teaching communication skills is more effective compared to the use of peer role-play simulation [7]. On the other hand, other studies elucidated that the key performance indicators of peer role-play simulation are significantly higher in comparison with training with the standardized patient [8]. Therefore, this review will present an implementation view about how to apply a successful peer role-play simulation

session in medical education, how to overcome obstacles, and how to face challenges.

2. THE EDUCATIONAL IMPACTS OF PEER ROLE-PLAY SIMULATION

Peer role-play simulation is considered an aspect of active learning that promotes high-level engagement of students leading to the development of interpersonal skills, besides improvement in professional attitude and acquiring knowledge. A practical method translates theoretical knowledge into practical steps in a safe clinical setting without risk [9].

Furthermore, Peer role-play simulation also develops the cognitive skills of trainees to improve their ability to recall information, interview skills, self-efficacy, confidence, and experience reflection [10]. In addition, it focuses on ethical considerations of the physician-patient relationship with a chance of improvement in clinical skills performance during conducting a physical examination. According to Kirkpatrick's evaluation model, the application of peer role-play simulation has a positive impact on reaction, learning, behavior, and results in the educational process [11].

Peer role-play simulation provides a chance for training and repeated practice without any stress besides developing the ability of students to think and interact rapidly with the patient using a sociolinguistic approach in real-time to enhance authenticity [12]. Moreover, peer role-play simulation is easily applicable and provides a more chance for the independence of students to promote a self-study approach in the learning process. Lastly, peer role-play simulation is considered a low-cost benefit educational method and time-saving, so it is considered if facilities are unavailable or restricted [13].

Noteworthy, several published studies presented documentation about experiences of peer role-play simulation implementation in some medical schools, showing opportunities, challenges, and the extent linked to the outcomes. Elhilu et al. conducted a study about the implementation of peer role-play simulation during the COVID-19 pandemic to compensate for the suspended bedside teaching in the Jazan University faculty of medicine. This study showed that peer role-play simulation can cover a large and diverse number of clinical scenarios, promoting clinical reasoning skills, but it is less efficient than bedside teaching in enhancing communication skills because bedside teaching has more realism in comparison to the artificial nature and lack of authenticity of peer role-play simulation [14].

Another study was carried out at Datta Meghe Institute of Medical Sciences University and Jawaharlal Nehru Medical College. This study provided a practical basis for the use of role-play in clinical medicine because this method fostered empathy and a greater understanding of the material, associated with an increase in the ability of students to gain several new perspectives on the topic. This study showed that role-play simulation could increase awareness of different aspects of issues and the ability to memorize material, thereby improving the students' public speaking abilities [15].

In the related context, a study was conducted in the Institute of Nursing Professions and Health Technologies of Marrakesh in Morocco to address the effects of role-play simulation-based case studies on motivation and learning strategies in healthcare sciences. This study showed an association between role-play simulation-based case studies and improved student motivation, besides the improvement in the mean score of elaboration and critical thinking [16].

In the same context, a study was conducted descriptive analysis of the challenges and opportunities that face the implementation of peer role play simulation in medical education. This study showed enhancing students' clinical skills and professionalism by integrating peer role-play simulation into teaching methods of the curriculum, providing students with learning opportunities to overcome the challenges of clinical practice and cooperation in teamwork that are essential skills for health care providers [17].

Finally, some researchers carried out a project to assess the effectiveness of using role-play to enhance student understanding of genetic counseling. This project showed an improvement in the medical students' understanding of the complexity of genetic counseling [18].

3. HOW TO IMPLEMENT SUCCESSFUL PEER ROLE-PLAY SIMULATION SESSIONS?

Initially, peer role-play simulation is considered one tool of teaching methods or human simulation in medical education. Therefore, the chosen topic or subject should be suitable for this teaching method to achieve the target outcomes [19].

The chosen topic should be flexible to be dynamic and interactive based on dialogue, discussion, or interactive conversation such as history taking, health education, breaking bad news, or medical counseling. Peer role-play may also be used as an educational method to train the students on some clinical skills, such as blood pressure measurement or peripheral pulse examination [20].

After that, the facilitator, organizer, or tutor should determine the learning objectives or outcomes before organizing the session. The next step should be to design a script or scenario translating these learning objectives into questions and answers determining the role of every player in the session [21]. Peer role-play simulation sessions should be carried out in small groups not exceeding 10 to 15 students per group wherein every student in the group should have an equal opportunity to participate in different roles. It is preferred that there is a rehearsal before the session to refine the performance of the players and treat any mistake on the time [22].

In the session, the role of the facilitator or tutor should be an observer based on the evaluation checklist or based on his experience in this involved topic to record defects and comment immediately to correct mistakes or guide to the best or wait until the end of the session to comment and guide [23].

The facilitator should guide the players to translate questions and answers or any medical terms in the previously prepared script or scenario into a public language to simulate the real situation in the clinical setting. Moreover, the tutor or facilitator can stop the interactive interview between peer role-play couple to ask questions to the other students of the group about some of the involved points in the interview that need clarification to maintain students' attention in the group and interaction [24].

In addition, the facilitator can ask the students' group about the content of the dialogue generating a discussion using open or leading questions to help the students gain more knowledge about the discussed topic. At the end of the session, there is a debriefing after a discussion to ensure that the target learning outcomes are achieved [25].

It should be noted that assessment of the peer role-play simulation session is very important before any next session to manipulate any error and consider any suggestions for improvement. Session assessment should be based on an interview between the organizer of the education process and the facilitator to discuss the results of the evaluation. Checklists of the facilitator and students wherein it should create an evaluation checklist for assessment of the peer role-play couple by the facilitator and the group to be a helping tool in the evaluation of the session [26].

4. IS PEER ROLE-PLAY SIMULATION AN ALTERNATIVE METHOD FOR A STANDARDIZED PATIENT?

A standardized patient is a healthy trained individual to simulate a real patient according to a previously designed scenario to train medical students on physical examination and communication skills. Besides, it is considered an assessment method to evaluate their performance. Moreover, the standardized patient is used in medical education to train medical students on different skills such as affective (interaction), psychomotor (doing), and cognitive (thinking) skills via interaction between student and standardized patient leading to the development of learner skills and his ability to make diagnostic reasoning and therapeutic decisions [27].

Furthermore, the interaction of students with the standardized patients helps them to develop their professional and personal identities. The authentic response of the standardized patient during the interaction provides implicit feedback provided that there is a balance between authenticity and the standardization of the simulated patient because too much standardization which addresses in training (overtraining) and selection of the standardized patient may disturb this balance [28].

Assessment of the standardized patient impact as a learning and evaluating method in medical education is considered generally positive although some refer to some negative points that are discovered during its use as a simulation method. The consistency of standardized patients is variable due to unavoidable human factors, but their adaptability is possible after some practice although their ability to play some roles may be difficult wherein the standardized patient cannot play different characters representing various genders, ages, and voices. In addition, the use of standardized patients requires a high cost for recruitment and training besides its use in medical education faces some logistic problems related to training, time, and the training site [29].

However, the use of standardized patients in medical education compared to the use of peer role-play simulation becomes a controversial issue, as some studies have favored peer role-play simulation while others have favored standardized patients. Based on the same context, Gorski et al., revealed that the implementation of the standardized patient in medical education as a simulation method is considered more realistic and engaging than peer role-play simulation, especially in communication skills teaching [30]. On the other hand, Cortés-Rodríguez et al., concluded that both standardized patient and peer role-play simulation promote the same improvement in the knowledge, self-efficacy and interprofessional communication skills for medical students [31].

On the other hand, Bosse et al., found that the training by using the peer role-play simulation method led to a significantly higher performance of trainees than the

training via using standardized patients. According to this study, this is attributed to better performance in understanding biomedical perspectives and the methodological advantage of peer role-play simulation wherein it is considered a more empathic approach compared to the training by using the standardized patient. Besides, peer role-play simulation is applied easily with fewer resources thus; this study advocated its more prominent use in medical education [32].

In another context, Taylor et al., showed that the implementation of the standardized patient as a simulation method in medical education is not superior to the use of peer role-play simulation consistent with some other published literature wherein both methods are considered equally efficacious in the safe learning context [33].

5. VIRTUAL ROLE-PLAY SIMULATION

Recently, virtual role-play simulation has been used as an alternative to traditional peer role-play simulation to gain more knowledge in a short time. Several studies were carried out to investigate the efficacy of virtual role-play simulation in comparison with the efficacy of peer role-play simulation. One of these studies was conducted in the Catalan Health Institute to compare virtual role-play simulation and traditional role-play simulation in basic life support training. This study showed that there is no statistically significant difference between learning outcomes using traditional role-play simulation or using a virtual role-play simulation, wherein the rating in both groups is very high, but the difference is minimal concerning trainee satisfaction with the training activity [34].

In the same context, another study concluded that the perceptions of medical students related to the effectiveness of using either a virtual role-play simulation or a conventional role-play simulation in training are the same without any difference, although there is a strong similarity in common themes. However, virtual role-play simulation is characterized by the benefit of repetition in contrast to peer role-play simulation. Furthermore, the training setting of conventional role-play simulation is restricted and needs more time [35].

On the contrary, another study was conducted at Newcastle University Medicine Malaysia about the use of online role-play simulation in training medical undergraduates on family medicine communication skills during the COVID-19 pandemic. This study showed that medical students get successful and highly enjoyable learning experiences through the use of online role-play simulation. Moreover, online role-play simulation can help the trainees to acquire

knowledge, attitude, and skills in communication as well as engage students intimately in the learning process [36].

In the related context, a study was carried out about an evaluation of virtual peer role-play simulation in teaching breaking bad news communication skills to medical students. This study indicated that the students' satisfaction was positive about using virtual peer role-play simulation, especially regarding realism, organization, interest, and perceived benefits. Moreover, the study showed that the virtual peer role-play simulation was feasible, low-cost, applicable, and relevant to the growth of teleconsultation [37].

In addition, a study was done to compare the efficacy of virtual simulation to traditional role-play simulation. Findings of this study showed that virtual simulation was significantly more realistic and a more useful practice tool when compared with peer role-play simulation [38].

6. CONCLUSIONS

Peer role-play simulation is considered an aspect of active learning. It is a practical method that translates theoretical knowledge into practical steps in a safe clinical setting without risk. Moreover, peer role-play simulation is an easily applicable, low-cost benefit educational method and time-saving, promoting a self-study approach in learning, provided that it is applied by using a structured method via a previously prepared script or a previously prepared interactive dialogue. However, the use of peer role-play simulation in medical education in comparison with the standardized patient is still considered controversial, wherein it is a more empathic approach leading to a better performance in understanding the patient's perspective, while the standardized patient is more realistic and engaging. Furthermore, virtual role-play simulation is considered an alternative method to traditional peer role-play simulation using an intelligent learning environment.

7. RECOMMENDATIONS

To implement effective and efficient peer role-play simulation sessions in medical education, it is recommended that there be a previously well-prepared script and a well-trained tutor facilitating the session using a scoring checklist to guide and correct mistakes. Moreover, the preference for using traditional peer role-play simulation, standardized patient, or virtual role-play simulation in medical education should depend on the extent of appropriateness of the topic, learning objectives, target outcomes, and available

resources, whether human, logistical, or technical, for the method used.

8. CONFLICT OF INTERESTS

The authors have no conflict of interest to declare. The authors declared that this study has received no financial support.

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