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ORIGINAL ARTICLE / ORİJİNAL MAKALE

The Effect of Simulation-Based Education Applied to Nursing Students on Approach to Individuals Diagnosed with Schizophrenia and Student Opinions: A Mixed Method Study

Hemşirelik Öğrencilerine Uygulanan Simülasyon Temelli Eğitimin Şizofreni Tanısı Almış Bireylere Yaklaşım ve Öğrenci Görüşlerine Etkisi: Karma Yöntem Çalışması

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Abstract

Background: Due to the constraints faced in clinical settings, simulation-based applications have gained increasing significance in enhancing students' knowledge and skills in nursing education.
Objectives: This study aims to evaluate the effectiveness of simulation-based training applied to nursing students to approach individuals diagnosed with schizophrenia.

Methods: The research was designed according to a concurrent triangulation design, a type of mixed methods research that collects and analyzes both quantitative and qualitative data simultaneously. The population of the research (n=68) consisted of senior nursing students in the fall semester of the 2023-2024 academic year. Quantitative data (n = 68) were collected using the Demographic Information Form and the Modified Simulation Effectiveness Tool, while qualitative data (n = 12) were collected through focus group interviews using a semi-structured interview form. Quantitative data were analyzed using SPSS 26.0. Qualitative data were analyzed through content analysis.

Results: The total score of the students in the Simulation Effectiveness Tool- Modified was 75.20 ± 11.94, indicating that their perceptions of the effectiveness of simulation-based training in improving the students' approach to individuals diagnosed with schizophrenia were positive. In the qualitative dimension, two themes and six subthemes of these themes were created. The themes were determined as Pre-Simulation Perspectives and Post-Simulation Development.

Conclusion: This study revealed that simulation-based training contributed positively to the knowledge, skills, and attitudes of nursing students in psychiatric diseases exposed to prejudices, such as schizophrenia. Future studies should examine the long-term effects of this training and evaluate its effectiveness in larger and more diverse student samples.

Keywords: Psychiatric Nursing, Nursing Students, Simulation-Based Education, Schizophrenia, Mixed Method.

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Öz

Giriş: Klinik ortamlarda karşılaşılan kısıtlamalar nedeniyle, hemşirelik eğitiminde öğrencilerin bilgi ve becerilerini geliştirmede simülasyon tabanlı uygulamalar giderek önem kazanmaktadır.

Amaç: Bu çalışma, şizofreni tanısı konmuş bireylere yaklaşım konusunda hemşirelik öğrencilerine uygulanan simülasyon temelli eğitimin etkinliğini değerlendirmeyi amaçlamaktadır.

Yöntem: Araştırma, karma yöntem türlerinden, nicel ve nitel verilerin eş zamanlı olarak toplanıp analiz edildiği, eş zamanlı üçgenleme tasarımına göre tasarlanmıştır. 2023-2024 eğitim öğretim yılı güz dönemi son sınıf hemşirelik öğrencileri araştırmanın evrenini (n=68) oluşturmuştur. Nicel veriler (n=68), Tanıtıcı Bilgi Formu ve Modifiye Simülasyon Etkililik Aracı kullanılarak; nitel veriler (n=12) ise yarı yapılandırılmış görüşme formu kullanılarak odak grup görüşme yöntemi ile toplandı. Nicel verilerin analizi SPSS 26.0 kullanılarak yapılmıştır. Nitel verilerin analizi ise, içerik analizi yoluyla çözümlenmiştir.

Bulgular: Öğrencilerin Modifiye Simülasyon Etkililik Aracından aldıkları toplam puan 75.20 ± 11.94 olup, öğrencilerin şizofreni tanısı almış bireylere yaklaşımlarını geliştirmede simülasyon temelli eğitimin etkililiğine ilişkin algılarının olumlu olduğunu göstermektedir. Nitel boyutta iki tema ve bu temalara ait altı alt tema oluşturulmuştur. Temalar Simülasyon Öncesi Görüşler ve Simülasyon Sonrası Gelişim olarak belirlenmiştir.

Sonuç: Bu çalışma, simülasyona dayalı eğitimin şizofreni gibi önyargılara maruz kalan psikiyatrik hastalıklarda hemşirelik öğrencilerinin bilgi, beceri ve tutumlarına olumlu katkı sağladığını ortaya koymuştur. Gelecekteki araştırmalarda , bu eğitimin uzun vadeli etkileri incelenmeli ve daha geniş ve çeşitlilik arz eden öğrenci gruplarında etkinliği değerlendirilmelidir.

Anahtar Sözcükler: Psikiyatri Hemşireliği, Hemşirelik Öğrencileri, Simülasyona Dayalı Eğitim, Şizofreni, Karma Yöntem.

INTRODUCTION

Schizophrenia is a lifelong psychiatric illness that directly affects quality of life. It is characterized by impairments in thinking and perception and causes individuals to move away from reality (Mortan, Sütçü & German, 2011). Because of the nature of the illness and its symptoms, individuals with schizophrenia are often stigmatized and perceived as "dangerous" or "unpredictable" (Avcil, Bulut, & Hızlı Sayar, 2016). Despite this, patient comfort increases when regular antipsychotic medication, individual therapies, and psychosocial treatment programs are used during the treatment process (Mortan, Sütçü & German, 2011; Kulakaç & Uzun, 2020).

Caring for individuals with psychiatric disorders requires specific communication skills. Therefore, communication skills are important. These skills should be developed before students enter clinical practice. In contrast, nursing students experience some obstacles when applying the theoretical knowledge they learn in psychiatry education to clinical settings. Fear of psychiatric patients and difficulty adapting to clinical settings may hinder students' ability to apply theoretical knowledge in practice (Choi, 2012; Doolen, Giddings, Johnson, Guizado de Nathan & Badia, 2014). Simulation-based education enables nursing students to transform theoretical knowledge into practice by providing realistic clinical experiences (Karaduman & Başak, 2022; Bağrıaçık, Aydın &Yılmaz, 2022).

Simulation in nursing education may include low-fidelity models, standardized or simulated patients, computer-assisted formats, and more integrated simulation approaches (Dur-

maz Edeer & Sarıkaya, 2015; Bağrıaçık, Aydın & Yılmaz, 2022). Standardized/simulated patients, in particular, are widely used in nursing and medical education. In scenarios involving standardized/simulated patients, having a structured and planned program is essential for the development of students' knowledge, skills, and attitudes. Standardized/simulated patients may consist of professionally trained actors, students, or nurses working in clinical settings (MacLean et al., 2019; Webster & Carlson, 2020; Røssland et al., 2022; Wand et al., 2022).

Simulation applications are an effective teaching strategy for developing communication skills and applying therapeutic communication techniques before the clinical experiences of nursing students with psychiatric patients. Simulation-based education offers a safe and realistic environment in which nursing students can develop communication, empathy, critical thinking, and clinical skills before entering practice (Choi, 2012, Outlaw & Rushing, 2018; Zare-Bidaki et al., 2022; Oh & Park, 2023; Dawood et al., 2024). In simulation-based training sessions for psychiatric patients, students reported improved therapeutic communication and greater confidence in building trust with patients after simulation (Gaba, 2007; Blake, 2019). Similarly, studies involving nursing students regarding communication with individuals diagnosed with schizophrenia have shown that simulation supports the learning experience and that students provided positive feedback after the simulation (Speeney et al., 2018; García-Carpintero Blas, et al., 2024; Olasoji et al., 2023; Alexander et al., 2024).

Despite the widespread use of simulation in nursing education, studies focusing specifically on nursing students' approach to individuals diagnosed with schizophrenia through standardized patient simulation remain limited (Speeney, Kameg, Cline, Szpak, & Bagwell, 2018; García-Carpintero Blas et al., 2024). In addition, students are known to experience fear and hold prejudicial attitudes when approaching individuals with schizophrenia, which may create barriers to effective communication. Accordingly, this mixed-methods study aimed to examine the effectiveness of simulation-based education in improving nursing students' approach to individuals diagnosed with schizophrenia and to explore their views and experiences related to this training. By integrating quantitative and qualitative data, the study is expected to contribute to the literature.

METHOD

The Type of the Research

This study employed a mixed-methods design. The research was conducted according to the concurrent triangulation design, which is a mixed-methods design (Creswell & Creswell, 2017). Accordingly, quantitative and qualitative data were collected and analyzed concurrently.

The quantitative component was conducted during the simulation-based scenario implemented as part of the Mental Health and Psychiatric Nursing laboratory course.

The quantitative method was performed retrospectively during the simulation-based scenario application of the laboratory course of the Mental Health and Psychiatric Nursing course because it was within the scope of the course. Before the simulation, the standardized/simulated patients were trained by the research team. The Descriptive Information Form and Simulation Effectiveness Tool- Mod-

ified were used to collect quantitative data. The qualitative method used was the phenomenological approach.

The Place of the Research

The study was conducted between October 2023 and November 2023 at the Nursing Department of the Faculty of Health Sciences of a foundation university in Istanbul.

The Population/Sample of Research

The study population consisted of senior nursing students enrolled in the Mental Health and Psychiatric Nursing course at a foundation university in Istanbul. For the quantitative phase, no sampling method was used; instead, all eligible senior nursing students enrolled in the course during the 2023–2024 fall semester were invited, and the entire accessible population was included in the study (n = 68). Accordingly, the quantitative phase was conducted as a census of eligible students, and no a priori sample size calculation was performed.

The inclusion criteria for the quantitative phase were:

1. being enrolled in the Mental Health and Psychiatric Nursing course for the first time,

2. having attended the theoretical course on "Schizophrenia and Other Psychotic Disorders",

3. and having participated in the simulation on the approach to individuals diagnosed with schizophrenia.

For the qualitative phase, students who had attended both the theoretical course and the simulation on approaching individuals diagnosed with schizophrenia and who volunteered to participate in the focus group interviews were recruited. Data collection continued until saturation was reached, resulting in a final qualitative sample of 12 students.

Data Collection Instrument

The Introductory Information Form, Simulation Effectiveness Tool-Modified, and semi-structured interview form were used to collect qualitative data. Permission to use the scales was obtained.

Introductory Information Form: This two-question questionnaire including the age and sex characteristics of the participants was prepared by the research team.

Simulation Effectiveness Tool-Modified (SET-M): The "Simulation Effectiveness Tool" developed by Elfrink Cordi et al. in 2012 was modified in English by Leighton et al. in 2015. Turkish validity and reliability studies on the scale were conducted by Şahin et al. The measurement tool for students' perceptions of learning effectiveness in the simulation environment was designed according to self-reports. The measurement tool comprises 19 items with four subdimensions. The subdimensions of the measurement tool are as follows: prebriefing, learning, confidence, and debriefing. This is a 5-point Likert-type scale. There are no reverse-scored items. The total score was obtained by summing all subdimension scores. High scores indicate that students' perception of learning effectiveness in the simulation environment is positive. The Cronbach's alpha internal consistency coefficient of the measurement tool was 0.93. In this study, Cronbach's alpha was 0.96.

The Simulation Effectiveness Tool- Modified was assessed using a 5-point Likert scale. The step of not evaluating the 7th item if there was

no drug administration specified in the scale-was left blank by the participants because there was no drug administration in the scenario, and the evaluation was made considering this. The reliability of the scale and subdimensions were analyzed using Cronbach's alpha

Semi-Structured Interview Form: The semi-structured interview form was developed by reviewing relevant literature (Olasoji, Garvey, Sadoughi, & Willetts, 2023; Chen et al., 2024). To ensure the content validity of the questions, expert opinions were obtained from three expert faculty members working in the field of mental health diseases. The interview form was finalized based on these opinions (Table 1).

Table 1. Semi-Structured Interview Form Questions

No	Questions
1.	**Starter/opening question:** What do you think about conducting your clinical practice trainings with simulation method?
2.	Can you share your experience in simulation-based training on the approach to an individual diagnosed with schizophrenia?
3.	After the theoretical course and simulation, what changes occurred in your nursing practices when approaching an individual diagnosed with schizophrenia?
4.	What was the most difficult situation in approaching an individual diagnosed with schizophrenia?
5.	Did your perspective on individuals diagnosed with schizophrenia change before and after the simulation? How did it change?
6.	How was this study different from the simulation applications in your other courses?

Rigor

To ensure trustworthiness, the criteria of credibility, confirmability, dependability, and transferability were applied (Graneheim & Lundman, 2004; Arslan, 2025). Credibility was ensured through research triangulation, expert evaluation, and participant validation. At the end of the interviews, the findings were summarized by the researcher and shared with the participants, and the participants' approval was obtained. To ensure confirmability, the process was conducted by expert researchers in qualitative research. Interviews and participants' statements were recorded. The data collection and analysis process was described in detail, and participant statements were included.

To ensure dependability, two researchers analyzed the interview transcripts separately. The consistency of the analyses was reviewed under the supervision of the last researcher. Transferability was ensured by an adequate number and diversity of participants, a thorough explanation of the research design, and the inclusion of direct statements from the participants.

Intervention

The research team comprised two PhD students in Mental Health and Psychiatric Nursing (X, Y) and a professor in Mental Health and Psychiatric Nursing (Z). All researchers were trained in simulation and had experience in this field. Doctoral student researchers (X, Y) prepared a scenario focusing on the approach

to patients diagnosed with schizophrenia based on the International Nursing Association for Clinical Simulation and Learning standards. After preparing the scenario, the opinions of three experts in the fields of mental health and psychiatric nursing were obtained.

The simulation was designed using standardized patients. The standardized patients were trained via a Zoom-based session by the researchers (X, Y) on schizophrenia, its symptoms, the flow of the scenario, and the cues they were expected to provide when students did not demonstrate the required behaviors.

The students were first given theoretical lectures on the nursing approach to schizophrenia and psychotic disorders. Before attending the simulation-based training, they were asked to review their lecture notes. During the prebriefing, students were asked about communication with a patient diagnosed with schizophrenia, mental status assessment, and therapeutic communication techniques. Scenario goals were to initiate an interview with a patient diagnosed with schizophrenia using therapeutic communication, to assess the patient's mental status through therapeutic communication, and to appropriately terminate the interview.terminate the interview.

Students were assessed using checklists to evaluate their progress during the scenario and their achievement of the scenario objectives. As a debriefing method after the scenario implementation, the Plus Delta method was used by the researchers (X,Y,Z), which contributed to the learner's learning through self-evaluation (Cheng et al., 2021). The scenarios lasted 10 min, and the debriefing sessions lasted 40 min on average. After the debriefing session, students were instructed to fill in the Simulation Effectiveness Tool-Modified.

The research data were collected in two stages. Quantitative data were collected in the first stage, and qualitative data were collected in the second stage. Quantitative data were collected immediately after the simulation-based scenario during the laboratory component of the Mental Health and Psychiatric Nursing course. Filling out the forms and scales took approximately 5–10 min on average.

Qualitative data were collected from 12 students who volunteered to participate in the focus group interviews. Two focus group interviews were conducted, each involving six students. The average duration of the focus group interviews was 60–75 min. Each interview was audio-recorded with participants' consent.

The data were transcribed exactly as the participants expressed them. The real identities of the individuals were not specified in the audio recordings, analyses, and reports, and pseudonyms were used. Participants were informed that the interviews would be conducted in accordance with confidentiality principles. They were also told that the recordings would not be shared with any third party and that pseudonyms would be used. At the end of each interview, the interview data were shared with the participants, and participant confirmation was obtained.

Evaluation of the Data

The Mixed-Methods Appraisal Tool for reporting the mixed-methods research and the Reporting Guidelines for Health Care Simulation Research for reporting the simulation phase were followed (Cheng et al., 2018, Hong et al., 2018).

Quantitative data were analyzed using Statistical Package for the Social Sciences (version 26.0). While evaluating the data, numerical data were presented using measures of central tendency (i.e., mean, standard deviation, median, and minimum and maximum values), and categorical data are presented as frequencies and percentage distributions.

Qualitative data were collected using semi-structured interview forms and analyzed through con-

tent analysis. The main purpose of content analysis is to combine similar, interconnected concepts in the obtained data on themes and to transfer and interpret them by organizing them in a way that the reader can understand (Yıldırım & Şimşek, 2021). Qualitative data were analyzed using content analysis based on Colaizzi's seven-step phenomenological method (Colaizzi, 1978). For this purpose, themes were created using the interview form. Two researchers independently reviewed the transcripts, developed codes and themes, and reached consensus through discussion with the research team. After this stage, final adjustments were made, and the qualitative findings were finalized. When presenting the opinions of all participants in the study, participants were anonymized as Student 1, Student 2, Student 3, and so on.

Variables of the Research

Dependent Variables: Simulation Effectiveness Tool-Modified Scale score**.**

Independent Variables: Sociodemographic characteristics.

Ethical Aspect of the Research

This study was approved by the Ethics Committee of Acibadem University on 30.11.2023 (Meeting Number: 2023/19, Decision Number: 2023-19/639). The participants were informed about the purpose and method of the study, and they provided informed consent. Before ethical approval was obtained, permission to use the Simulation Effectiveness Tool–Modified (SET-M) was obtained by email from the researcher who conducted the Turkish validity and reliability study of the scale.

RESULTS

While obtaining quantitative findings, the quantitative part of the research was conducted with students (n = 68) who agreed to participate in the research without sample selection. Sixty participants (88.2%) were female, and the average participant age was 21.9 years. Table 2 illustrates the descriptive statistics of the SET-M subdimension and the total scale scores of the students. When the subdimension averages of the students who participated in the simulation application were evaluated, it was observed that the students received high scores in all subdimensions.

Table 2. Information on SET-M sub-dimension and total scores

	Min-Max (Median)	Ort±SS
Pre-briefing (1-2)	2-10 (8)	8,53 ± 1,97
Learning (3-7)	4-20 (16)	15,49 ± 3,23
Confidence (8-14)	7-35 (29.5)	28,76 ± 4,68
De-briefing (15-19)	5-25 (25)	22,40 ± 3,93
Total	**18-90 (77.5)**	**75,20 ± 11,94**

The SET-M Pre-information subdimension comprised two items, and the internal consistency level of the items was 0.95. The participants' scores ranged from 2 to 10, with a mean score of 8.53 ± 1.97. The SET-M Learning subdimension comprised five items, and the internal consistency level of the items was 0.85.

The participants' scores ranged from 4 to 20, with a mean score of 15.49 ± 3.23. The SET-M Trust subdimension comprised seven items, and the internal consistency level of the items was 0.90. The participants' scores ranged from 7 to 35, with a mean score of 28.76 ± 4.68. The SET-M Analyzing subdimension comprised five items, and the internal consistency level of the items was 0.95. The participants' scores ranged from 5 to 25, with a mean value of 22.40 ± 3.93. The SET-M comprised 19 items, and the internal consistency level of the items was 0.95. The participants' scores ranged from 18 to 90, with a mean value of 75.20 ± 11.94. The fact that the students scored 75.20 ± 11.94 from the total scale indicates that their perceptions of learning effectiveness in the simulation environment were positive.

In the qualitative findings of the study, 12 students who participated in the Schizophrenia and Other Psychotic Disorders theoretical course and simulation application and who volunteered to participate in the focus group interviews constituted the sample. Seven participants (58.3%) were female, and the participant age ranged between 21 and 24 years. Data analysis revealed two themes: Pre-Simulation Perspectives and Post-Simulation Development. The themes and subthemes are shared below (Fig. 1).

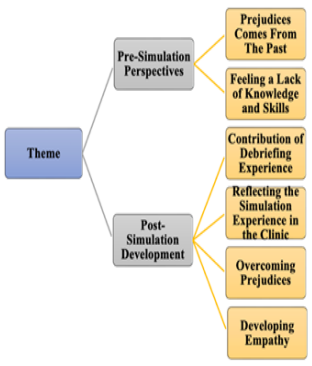

Figure 1. Theme and Sub-themes

Theme 1: Pre-Simulation Perspectives

Before participating in the simulation-based training, the students expressed negative emotions and thoughts because of their past biases and lack of knowledge and skills. The theme of Pre-Simulation Perspectives comprised two subthemes: Prejudices Comes from the Past and Feeling a Lack of Knowledge and Skills.

Subtheme 1.1: Prejudices Comes for the Past

Students reported anxiety and fear during the simulation scenario and described uncertainty as a source of their prejudicial attitudes.

"At first, I was very anxious. I was really nervous when entering because I didn't know what to expect." (Participant 3)

"I used to perceive psychiatry from a distance, always feeling anxious and scared. That day, when I encountered such a situation for the first time, I was really frightened and thought to myself that I had to overcome this fear. I experienced that kind of anxiety." (Participant 7)

Subthime 1.2: Feeling a Lack of Knowledge and Skills

The students expressed that they felt inexperienced when entering the simulation-based training scenario because they anticipated facing a scenario different from previous ones.

"At first, I felt inexperienced because, normally, we can predict patient profiles in other simulations… Here, rather than thinking about what I should do, I was more concerned about what I should say and how I should behave. Could I incorporate emotions into the situation?" (Participant 4)

"I felt inexperienced and unprepared. Because normally, we go in and can predict the patient profile in simulations; we know what to do. So, it becomes predictable. I was anxious, wondering who was waiting for me, what they were expecting, and how they were expecting it." (Participant 6).

Theme 2: Post-Simulation Development

After participating in the simulation-based training scenario, the students observed their personal growth. This development was attributed to the contribution of debriefing experiences and was supported by other subthemes, including reflecting the simulation experience in clinical practice, overcoming prejudices and developing empathy.

Subtheme 2.1: Contribution of Debriefing Experiences

The students stated that they benefited from different perspectives during the debriefing session and improved themselves through feedback.

"During the debriefing, we discussed what we could do differently or where we went wrong. I think it contributed significantly to our communication skills." (Participant 11)

"Here, everyone shares different insights during the debriefing, and all of them are correct. That was a valuable aspect." (Participant 1)

"We do our best in the simulation, but discussing what we did right and wrong during the debriefing is really beneficial. It helps us learn what to do and allows us to express our feelings and thoughts." (Participant 6)

"After the simulation experience, I can assess how well I controlled my emotions, whether I got nervous or not. Then, I realize where I am lacking and tell myself that I need to work on it. Yes, during the debriefing, I see my mistakes and successes." (Participant 2)

Subtheme 2.2: Reflecting the Simulation Experience in the Clinical

The students reported that the simulation experience helped them learn how to communicate with patients and apply theoretical knowledge in a clinical setting.

"I didn't know how the patient would react or how I should communicate with them. So, experiencing this before going into clinical practice was beneficial for us." (Participant 5)

"Practicing through simulation before encountering real patients provides a huge advantage. We think about how we might respond to patients and discuss possible reactions. That is why simulation is important." (Participant 7)

"It helps reinforce the theoretical knowledge we have learned. The information doesn't just remain abstract; it becomes easier to apply when we go into clinical practice." (Participant 10)

"Practicing with a specific patient group in the simulation before entering the clinic helps us understand how to approach patients, anticipate their reactions, and recognize their behaviors. This makes it easier for us to adjust our approach." (Participant 8)

Subtheme 2.3: Overcoming Prejudices

The students expressed that they initially experienced fear and negative emotions toward patients with schizophrenia, which led to biases. However, after the simulation-based scenario, their prejudices were reduced.

"My biases were broken. When I heard the word 'schizophrenia,' I used to feel fear. Since I didn't really know what it was, I was scared. I also thought that people with schizophrenia would always exhibit aggressive behavior. I realized how wrong that perception was. I

used to think that individuals diagnosed with schizophrenia would be easily noticeable in public. That misconception was shattered for me." (Participant 5)

"I had more prejudice and fear towards psychiatric patients. But after the simulation, I realized that wasn't the case at all, and I became aware of my own potential in communicating with patients." (Participant 11)

Subtheme 2.4: Developing Empathy

After the simulation-based training scenario, the students reported that they better understood both the patients and nurses and recognized the challenges of treatment.

"Through the scenario and the patients I encountered at the hospital, I realized that this issue is much more significant than I had previously thought. People often dismiss mental disorders, saying 'it's just psychological,' but I learned how serious and difficult the treatment of such conditions can be." (Participant 2)

"I understood how difficult the illness, treatment, and the work of nurses can be. I used to think that, like other illnesses, these conditions could be treated and cured easily, but I learned that many patients actually have to live with their hallucinations." (Participant 12)

DISCUSSION

This study evaluated the effects of simulation-based training on nursing students' approach to individuals diagnosed with schizophrenia and explored their perspectives on this experience. Based on the study findings, the students reported that the training program had positive effects and facilitated communication with patients during clinical practice. The quantitative findings of the study also showed that the students found simulation-based training effective in approaching individuals diagnosed with schizophrenia. The students' post-simulation SET-M scores were high. Onay et al. (2024) also found high SET-M scores in their study on patient care and clinical decision-making.

Before participating in the simulation session, the students stated that they were prejudiced against interacting with patients diagnosed with schizophrenia, that they lacked knowledge and skills and that they felt stress and fear because of uncertainty about what they would encounter. Studies have shown that nursing students may hold prejudicial attitudes toward individuals with mental disorders and experience emotions, such as stress, fear, and anxiety, when communicating with patients (García-Carpintero Blas, et al., 2024; Happell et al., 2019). The students also felt inadequate in terms of knowledge and skills, which increased their stress and fear. Supporting the research findings, the literature indicates that in the first weeks of psychiatric nursing courses, students struggle to understand the complexity of mental disorders and communication with individuals with such conditions. They fear saying something wrong and being harmed during interactions (Kirkbakk-Fjær, Andfossen & Hedelin, 2015; Alhamidi & Alyousef, 2023). Students may feel a lack of knowledge and skills due to both difficulty communicating with psychiatric patients and anxiety about making mistakes because they lack clinical experience. Therefore, simulation offers a structured learning process that reduces students' anxiety and allows them to gain experience without real clinical risks.

Prejudice and stigma against individuals with mental disorders are significant issues be-

cause of their potentially devastating effects on individuals' lives. Contrary to expectations, stigma against individuals with mental disorders is common among healthcare professionals (García-Carpintero Blas et al., 2024). Stigma among healthcare professionals must be addressed because it reduces the quality of care provided to individuals with mental disorders, may lead to the neglect of their medical needs, and results in a lack of understanding and support for these individuals (Chen et al., 2024). Undergraduate nursing education plays a crucial role in preventing the stigma against individuals with mental disorders (Başoğul, 2021). Therefore, incorporating simulation and role-playing activities in nursing education and organizing interactive sessions with instructors are recommended to strengthen communication between groups and reduce stigma (O'Ferrall-González et al.,2020; Fernandes, Família, Castro, & Simões, 2022). In this study, the students reported that after theoretical and simulation-based training, their prejudices and negative emotions regarding communication with patients decreased and that they empathized with the patients and nurses. Reductions in prejudice may be accompanied by increases in empathy. Simulation is an important educational process not only for developing knowledge and skills, but also for developing attitudes. Many previous studies have demonstrated that as a result of simulation-based training, students gain a better understanding of patients' experiences and thoughts, thereby increasing their empathy and sensitivity (Outlaw & Rushing,2018; Zare-Bidaki et al., 2022; Øgård-Repål,De Presno & Fossum, 2018). These changes may strengthen communication between nurses and patients and improve the quality of care.

The students expressed that the training program increased their knowledge, skills, and confidence in approaching individuals diagnosed with schizophrenia. They also stated that the learning gained from the simulation-based training greatly benefited them in clinical practice. Dawood et al. (2024) found that a simulation program using standardized patients was effective, with 91.7% of students recommending its use as an educational method. The literature indicates that simulation programs using standardized patients offer a high degree of realism, allow students to respond to patient reactions in real time during therapeutic communication, and prepare them for clinical practice, thereby making them beneficial for students (Olasoji et al., 2023; Knutson de Presno, Øgård-Repål & Fossum,2021).

The students also reported that the debriefing session significantly contributed to their learning. Supporting the qualitative findings, students scored high on the confidence and debriefing dimensions of the SET-M scale. Similarly, Roh et al. (2016) reported that the participation of expert instructors in both the implementation and debriefing sessions yielded better outcomes and greater satisfaction. According to Donovan & Mullen (2019), 96% of students stated that the debriefing session facilitated by an instructor constituted the majority of their learning and found it beneficial.

IMPLICATIONS FOR PRACTICE

The findings suggest that simulation-based training should be more widely incorporated into nursing education to enhance students' communication skills when caring for individuals diagnosed with schizophrenia. Simu-

lation and role-playing activities should be integrated with theoretical education to reduce prejudices and help students cope with emotions such as stress and fear. The use of standardized patients may contribute substantially to preparing students for encounters with real patients.

In conclusion, this study highlights the positive contributions of simulation-based education to nursing students' knowledge, skills, and attitudes. The shift from pretraining anxiety and prejudice to confidence and empathy highlights the value of integrating such training more widely into nursing education. Future studies should assess the long-term effects of simulation-based education and compare its effects on different student groups using larger samples. Furthermore, examining the effects of simulation training on students' adaptation to clinical practice can provide a deeper understanding of its effectiveness.

Limitations

This study has some limitations. First, the small size of the quantitative (n=68) and qualitative (n=12) samples and the fact that participation was based on willingness to take part limit the generalizability of the results. The fact that the study was conducted at a single university also limits the ability to capture institutional differences.

The collection of quantitative data using self-report scales may lead to social desirability bias. The simulation application, being based solely on a schizophrenia/psychotic disorder scenario, limits the generalizability to different clinical conditions. The immediate collection of data after the simulation may have been influenced by the students' momentary emotional responses.

Schizophrenia is inherently a complex subject, and detailed questions were asked during the focus group interviews to ensure a thorough understanding of the students' experiences. The fact that students were asked about the difficulties they encountered in communicating with schizophrenic patients during the interviews could be considered a limitation, as it may have created a directive approach.

Conducting qualitative interviews by the same researcher may increase the researcher bias. Furthermore, the majority of participants being female created a homogeneous sample in terms of gender and limited the assessment of gender-based differences in findings. Finally, as no longitudinal follow-up was conducted in the study, the lasting effects of simulation-based training could not be evaluated. Nevertheless, the mixed-methods design strengthened the study by enabling triangulation of quantitative and qualitative findings (Gandhi, Yeager and Glaman, 2021).

Information

The authors declare that they have no conflicts of interest related to this manuscript. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. This study was approved by the Ethics Committee of xxxx University on 30.11.2023 (Meeting Number: 2023/19, Decision Number: 2023-19/639). The participants were informed about the purpose and method of the study, and they provided informed consent.

Author Contributions

TD, DSK, and SD contributed to the development of the research topic. TD led the study planning and the ethics and institutional approval process. TD and DSK conducted the data analysis. TD drafted the literature review

and discussion, and SD critically revised the manuscript. The authors thank the students who participated in the study and the nurses who served as standardized patients.

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