

Research Article

The impact of high-fidelity simulation training on first-year nursing students' attitudes toward communication skills learning: A quasi-experimental study

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Keywords

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Abstract

Background: Communication skills are essential for fostering nurse-patient relationships and ensuring quality nursing care, making them a critical competency in nursing education. Attitudes constitute powerful behavioral indicators and influence the learning process of nursing students.

Aim: This study evaluated the effects of high-fidelity simulation training on first-year nursing students' attitudes toward learning communication skills.

Methods: A total of 149 first-year students participated in a quasi-experimental study, in which their attitudes toward learning communication skills were compared between baseline and after the simulation experience. The standardized patient performed different behaviors during each simulated nursing consultation: assertive, passive/noncompliant, depressed, aggressive, and agitated.

Results: Nursing students significantly improved their attitudes toward learning communication skills after the simulation sessions.

Conclusion: High-fidelity simulation training using standardized patients allows first-year nursing students to improve their attitudes toward learning communication skills. This improvement can provide benefits directly related to nurse-patient relationships and high-quality nursing care. Therefore, the

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inclusion of simulation training programs in nursing curricula is necessary to promote these attitudes in order to prepare undergraduate nursing students for real clinical practice.

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Introduction

Communication skills are essential for nurse-patient relationships and quality nursing care (Balzer-Riley, 2024). Consequently, communication skills are identified as a critical competency for nursing education (American Association of Colleges of Nursing [AACN], 2021). During their clinical practice, nurses spend most of their time with patients, allowing them to form strong bonds with them (Kerr et al., 2020). Thus, nurse-patient interaction is essential to nursing practice (Fleischer et al., 2009). In this sense, one of the requirements for fostering a good nurse-patient relationship is the ability to connect with individuals (Balzer-Riley, 2024). On the other hand, effective communication is a critical skill for nurses to build therapeutic relationships with their patients and increase patient satisfaction (Gutiérrez-Puertas et al., 2020). Moreover, communication reduces treatment errors and raises the standard of nursing care (Pope et al., 2008). Providing information, listening attentively, maintaining a meaningful conversation, and communicating with empathy are qualities valued positively by patients and their caregivers in nursing professionals (Balzer-Riley, 2024). However, research suggests that some conversations may be challenging for nurses, especially conversations about sexuality, end-of-life care, goals of care, and disease-specific counseling (Kerr et al., 2020). Therefore, nurses must be adequately trained in communication skills to establish genuine contact and satisfactory interaction with patients (Bylund, 2017).

Educational interventions to improve nursing students' abilities to communicate with patients are promising (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020). In this sense, the direct impact of these interventions on students' communication skills is difficult to measure due to nonstandardized outcome measurement tools (Kerr et al., 2020). Among the different types of educational interventions, clinical simulation is one of the most frequently used to improve communication skills in nursing students (Kerr et al., 2020). However, it has not been determined which of the different types of educational interventions is most effective (Gutiérrez-Puertas et al., 2020).

Nevertheless, students may not always believe that communication skills are beneficial to their future clinical practice or may not see the value in the skills they acquire and practice (Molinuevo & Torribia, 2011). Consequently, it is necessary for students to not only acquire communication skills and knowledge but also cultivate positive attitudes associated with these skills (Balzer-Riley, 2024). In this sense, competency-based education is increasingly emphasized in nursing education programs to achieve curriculum transformation (Lewis et al., 2022). This educational approach is shaped around the acquisition of competencies, defined as the combination of knowledge, abilities, and attitudes that allows students to effectively manage diverse and complex situations (Arrogante, 2017). These attitudes can act as a mediating factor between students' clinical competence and their clinical performance (Fleischer et al., 2009).

Attitudes are evaluations that ascribe positive or negative attributes to a subject, an entity, or an individual. In this sense, attitudes are a class of emotions that, frequently derived from our beliefs, make us more likely to react in a certain manner to things, people, and situations (Myers & Twenge, 2021). Consequently, behavior is driven by attitudes, as a person's behavior can change when their thinking is altered (Anvik et al., 2007). Affective (how we feel), cognitive (how we think), and behavioral (how we act) are the three basic components of attitudes. Emotional responses are reflected in affective attitudes, which can shift when repeatedly exposed to circumstances that align with the attitude's objective (Fazio & Petty, 2007). The cognitive component of attitudes is considered more enduring, fundamental, and strongly related to core values (Pendleton et al., 2003). Although cognitive attitudes are difficult to alter, they can be changed when new information is convincing and the source is reputable (Wood, 2000). The underlying cognitive and affective attitudes give rise to behavioral attitudes. Research suggests that acquiring new skills for professional behavior modification can impact more basic attitudes without explicitly addressing them (Kurtz et al., 2005). Therefore, nursing educators need to find innovative and practical strategies

for helping nursing students develop their attitudes toward communication skills learning.

Although previous studies have demonstrated the effectiveness of simulation-based training for acquiring communication skills in nursing education (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020), a paucity of evidence has been observed regarding the use of clinical simulation focused on the improvement of nursing students' attitudes toward communication skills learning. Even though Shorey et al. (2018) and Wittenberg-Lyles et al. (2013) demonstrated an increase in these attitudes in nursing students after communication training and blended learning pedagogy, respectively, they did not apply the clinical simulation methodology. In this sense, it should be noted that most studies in this area have been conducted on medical students (Gutiérrez-Puertas et al., 2020). In addition, attitudes constitute powerful behavioral indicators (Fazio & Petty, 2007), so nursing students' attitudes toward communication skills have an influence on their learning process. Consequently, positive attitudes must be fostered that can serve as a mediating link between nursing students' clinical competence and their clinical performance.

Given the above, this study aimed to evaluate the impact of high-fidelity simulation training on first-year nursing students' attitudes toward communication skills learning.

Methods

Study design

A quasi-experimental study with a longitudinal design was conducted with a single group pre- and post-intervention evaluation. The development of communication skills and attitudes was evaluated using high-fidelity simulation-based training, by comparing the levels obtained in these skills at baseline (pre-test) and after the simulation experience (post-test). The research and reporting methodology followed the TREND criteria for quasi-experimental study designs (Des Jarlais et al., 2004).

Sample and setting

The participants were first-year nursing students from a Spanish university. A total of 182 students participated in high-fidelity simulation sessions within the course "Nursing Practice Methodology", which is included in the first year of the Nursing Degree curriculum. Ultimately, 149 students consented to be included in the study. The study was conducted between September 2023 and May 2024.

High-fidelity simulation sessions

The nursing students formed pairs and voluntarily selected their partners to work as a team. All students received

a brief description of the simulated situation to train and prepare the necessary communication skills to resolve each simulated scenario. During this four-month preparation time before the simulated experience, theoretical knowledge related to communication skills (theoretical classes, multimedia presentations, and videos) was provided to all students during the 'Nursing Practice Methodology' course. Each student pair took part in a simulated scenario and interacted with one type of standardized patient behavior, while the remaining students observed the clinical performance of each student team in another room. Each simulated scenario lasted 10 minutes; subsequently, the professor of the course was the facilitator during the debriefing phase, which lasted 20 minutes.

An actor or standardized patient, who was trained and selected to guarantee a standardized process and high-fidelity experience, performed the role of this patient (Lewis et al., 2017). The Healthcare Simulation Standards of Best Practice™: Simulation Design (INACSL Standards Committee et al., 2021) were followed in all simulation sessions.

The simulated scenarios recreated primary care nursing consultations in a consulting room, where students must be able to communicate effectively with a patient who performed different behaviors during the nursing consultations. A 45-year-old patient diagnosed with hypertension and type 2 diabetes came to the consulting room alone, reporting general discomfort. He works as a lawyer in a large law firm, lives alone, and is independent in all basic and instrumental activities of daily living. He has no significant family medical history and no known drug allergies. He is being treated with oral antihypertensive and antidiabetic medications. He performed different behaviors in each simulated scenario:

- Assertive patient: The patient suffers from work-related stress and insomnia and asks for help. He seems collaborative and answers all questions assertively.
- Passive and noncompliant patient: The patient does not take his medications, do physical exercise, or eat a healthy diet. He seems noncollaborative and answers passively and with monosyllables.
- Depressive patient: The patient's partner has broken up with him because of the little time he spends with her due to his stressful job. He presents low self-esteem and depressive symptoms.
- Aggressive patient: The patient has been waiting in the waiting room for a long time and enters the consulting room rudely and shouting. He seems aggressive during the nursing consultation.
- Agitated patient: The patient has been using psychoactive drugs and energy drinks to stay awake due to his stressful job. During the nursing consultation, the patient presents tremors, uncontrollable movements, and incomprehensible speech.

Data collection instrument

To evaluate the nursing students' attitudes toward communication skills learning, the "Communication Skills Attitude Scale" (CSAS) (Rees et al., 2002) was used. This scale consists of 26 items and is answered using a 5-point Likert-type response scale (from 1 = "strongly disagree" to 5 = "strongly agree"). Thirteen of these items are worded positively, while the other 13 are worded negatively and comprise the 'positive attitudes' and 'negative attitudes' subscales, respectively. All of these items are ordered randomly throughout the scale. After reversing the scores for the 13 negative items, the CSAS's total score ranges from 26 to 130 points. Higher scores reflect a positive attitude toward communication skills learning. Subsequently, Anvik et al. (2007) identified three dimensions that were different from the two previously described subscales: "communication skills learning" (13 items) mainly measures students' feelings about how communication skills are taught, reflecting the affective aspects of the attitudes; "importance of having communications skills" (5 items) encompasses the attitudes of students toward communication skills, reflecting basic cognitive attitudes and values; and finally, "usefulness of communications skills to respect patients" (four items) reflects that communication skills will be helpful for the student to respect patients' rights. It should be noted that Anvik et al. (2007) discarded four items from the original scale. The Spanish version of the CSAS was adapted by Ruiz-Moral et al. (2019) and Molinuevo and Torrubia (2011) in medical and nursing students, obtaining reliability coefficients and internal consistencies quite similar to the original version.

Data analysis

STATA version 15.0 statistical software for Windows (StataCorp. LLC, College Station, TX, USA) was used to analyze the study data. Descriptive statistics (frequencies, percentages, means, and standard deviations) for demographic data and each subscale, dimension, and the total score of CSAS were calculated. All statistical data were blinded to the professor of the course. Our null hypothesis proposed was the inexistence of a change in first-year nursing students' attitudes toward communication skills learning after the high-fidelity simulation training. Conversely, our alternative hypothesis was that this training improves attitudes toward communication skills learning in these nursing students. We confirmed that the data followed a normal probability distribution using the Kolmogorov–Smirnov test. Previously, we evaluated the possible influence of the participants' demographic characteristics on their attitudes toward communication skills learning. The Student's t-test and Pearson's correlation coefficients (r) were obtained to analyze sex and age differences, respec-

tively. Subsequently, the paired samples Student's t-test was used to analyze the differences at baseline (pre-test) and after the high-fidelity simulation training (post-test). All statistical tests were two-tailed ($\alpha = 0.05$), and consequently, the statistical significance was set at 0.05. Finally, Cohen's d was calculated to estimate the difference in the CSAS's mean scores, considering these cut-off points: >1.3 (very large), 0.5–0.8 (medium), 0.2–0.5 (small), and <0.2 (insignificant) (Cohen et al., 2011).

Ethical considerations

The corresponding University Research Ethics Committee approved the study (reference code: CE_20231116_17_SAL). Although the simulation sessions were carried out as a required class activity, all first-year nursing students voluntarily completed the pre- and post-scale. All nursing students were informed about the study before participating, and those who accepted to participate voluntarily, signed a written consent form. This study was conducted according to the principles and ethical guidelines for medical research of the International Declaration of Helsinki (World Medical Association, 2013).

Results

A total of 182 first-year nursing students took part in the scheduled high-fidelity simulation sessions, and most of them, 149 students, consented to voluntarily participate in the study (81.87% response rate). Most participants were women ($n = 123$; 82.6%) and their ages ranged from 18 to 52 years old (mean = 20.01; SD = 4.259).

The analyses to determine possible differences based on the participants' characteristics showed that no demographic characteristics, neither sex nor age, had main effects on the communication skills and attitudes scale. Both the applied Student t-test and the obtained Pearson's correlation coefficient (r), respectively, were not statistically significant.

Descriptive statistics of the total score obtained in the CSAS scale and its subscales and dimensions at baseline (pre-test) and after high-fidelity simulation training (post-test) are shown in Table 1. This table also shows the paired samples Student's t-test and effect sizes (Cohen's d) based on the difference in the mean scores of this scale.

The obtained paired samples Student's t coefficients showed statistically significant differences in all subscales and dimensions of the CSAS and its total score. The effect size of these differences was large for the "communication skills learning" dimension and the total CSAS score, whereas the obtained effect size was medium for the "importance of having communication skills" dimension, and "positive attitudes" and "negative attitudes" subscales. In

Table 1 – Descriptive Statistics of the Scores Obtained for the Communication Skills Attitudes Scale (CSAS) at Baseline (Pre-test) and After High-Fidelity Simulation Training (Post-Test), Paired Samples Student’s t-Test, and Effect Sizes (N = 149).

	Measurements							Postpre Pairs			
	Post		Pre		t [‡]	p [§]	MD	SE [¶]	95% CI [#]		Cohen's d
	M [*]	SD [†]	M [*]	SD [†]					Lower	Upper	
Communication skills learning	57.20	4.05	53.93	5.07	13.46	< .001	3.27	4.19	2.79	3.75	0.82
Importance of having communication skills	20.69	1.96	19.67	2.15	8.62	< .001	1.02	2.04	0.78	1.25	0.53
Usefulness of communication to respect patients	18.83	1.59	18.11	2.22	6.30	< .001	0.71	1.96	0.49	0.94	0.37
Positive attitudes	60.62	4.65	56.86	6.59	12.02	< .001	3.77	5.41	3.15	4.39	0.73
Negative attitudes	26.20	4.54	28.18	5.00	−7.96	< .001	−1.99	−4.31	−2.47	−1.50	0.51
Total score	112.43	7.55	106.67	8.81	14.66	< .001	5.76	6.78	4.98	6.53	0.85

* M = mean score.
† SD = standard deviation.
‡ t = T-test.
§ p = p-value.
|| MD = mean difference.
¶ SE = standard error difference.
CI = confidence interval.

contrast, for the “usefulness of communication to respect patients” dimension, the obtained effect size was small.

Figure 1 graphically shows the magnitude of the statistically significant differences in the three dimensions and two subscales of the CSAS and its total score at baseline (pretest) and after high-fidelity simulation training (post-test).

Discussion

Our research assessed the efficacy of high-fidelity simulation training in attitudes toward communication skills learning in first-year nursing students. Our results show the positive effects of this training on improving these attitudes in our students. Specifically, they improved their levels in the total score of attitudes toward communication skills learning, including the two subscales of the CSAS, ‘positive attitudes’ and ‘negative attitudes’, and its three dimensions, “communication skills learning”, “importance of having communications skills”, and “usefulness of communications skills to respect patients”. Therefore, our findings support our alternative hypothesis, as the high-fidelity simulation training had a positive impact on first-year nursing students, increasing their attitudes toward communication skills learning after its implementation.

Although previous studies have demonstrated the effectiveness of simulation-based training for acquiring communication skills in nursing education (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020), there is a lack

of studies that analyzed attitudes toward communication skills learning in nursing students using a clinical simulation methodology. Our high-fidelity simulation training on first-year nursing students comprised five simulated scenarios, in which our students must communicate effectively with a patient who performed different behaviors during nursing consultations. In addition, we included an actor in our simulated scenarios who performed the patient’s role. It should be noted that the inclusion of standardized patients in simulation experiences has been shown to support the development of therapeutic communication skills (Ross et al., 2024). Consequently, our results demonstrate that the development of positive attitudes towards learning communication skills is enhanced when nursing students have opportunities to interact with simulated patients, as they become more aware of the importance of improving these attitudes.

In this sense, some authors have indicated differences between didactic and experiential methodologies, preferring the latter (Rees et al., 2002), while others believe the opposite, associating experiential methodologies with negative attitudes toward communication skills learning caused by the students’ emotional discomfort after being observed directly (Anvik et al., 2007). This reasoning could also be applied to including standardized patients in experiential methodologies (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020). However, our results indicate that our simulation-based experience increased and improved these attitudes. As an evidence-based active learning strategy, the use of standardized patients in clinical simulation method-

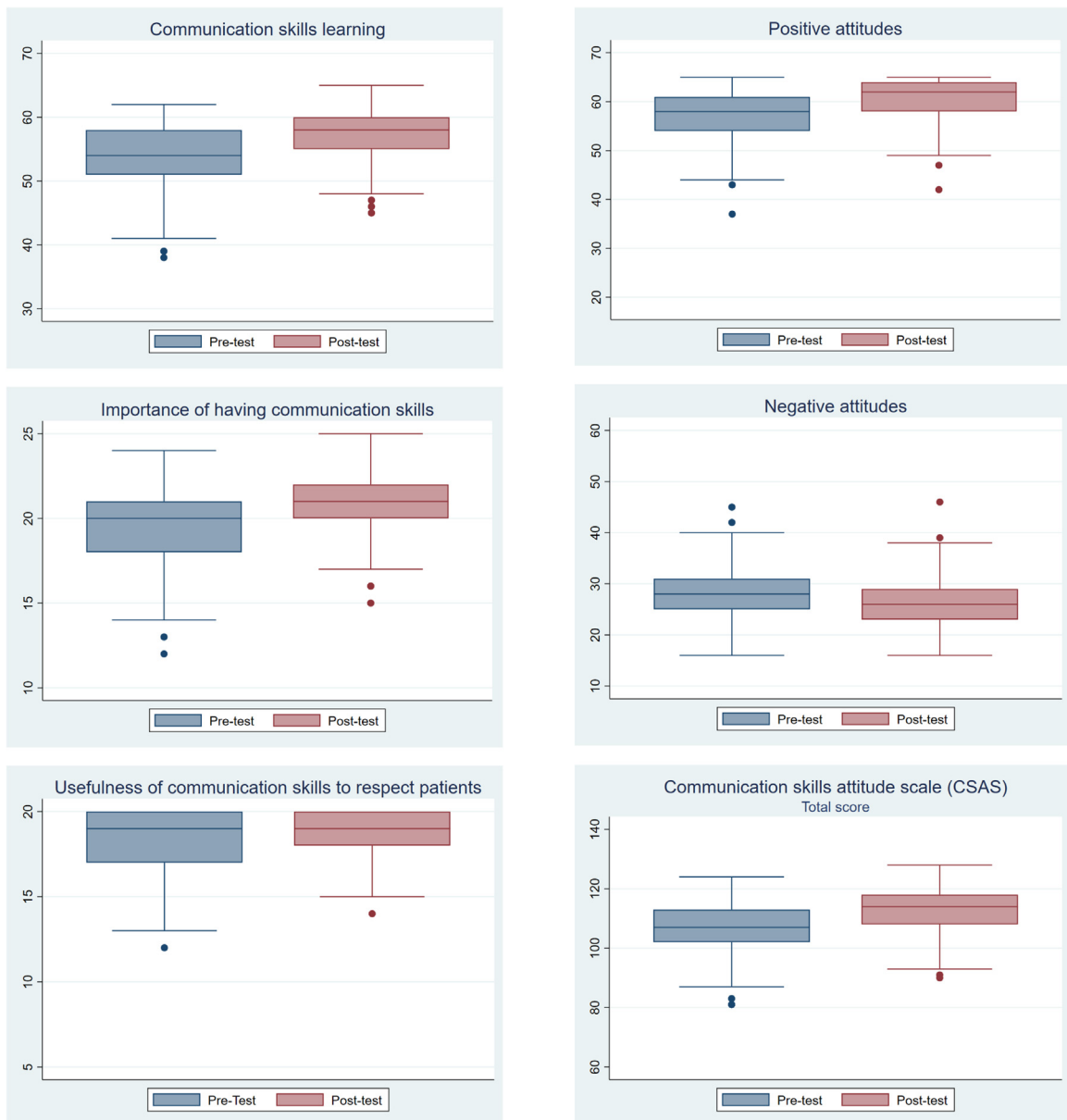


Figure 1 Statistically significant differences in the three dimensions, two subscales, and total score of the Communication Skills Attitude Scale (CSAS) at baseline (pretest) and after high-fidelity simulation training (post-test) (N = 149).

ologies provides opportunities for nursing students to practice their communication skills by interacting with persons in an immersive and realistic experience (Donovan & Mullen, 2019). Although nursing students frequently indicate communicating with patients as a stressful and challenging situation (Blake & Blake, 2019), our simulated actor helped first-year nursing students to be more conscious about an adequate development and improvement of communication skills. Therefore, it is essential to control students' emotional reactions when standardized patients are used in a clinical simulation, as they could negatively influence the nursing students' attitudes toward communication skills learning. It should be noted that these attitudes could affect the amount of time nursing students spend studying

communication skills or how they will use them to treat patients in clinical practice (Gutiérrez-Puertas et al., 2020; Kerr et al., 2020).

Our high-fidelity simulation training was focused on general patient-centered communication skills. By contrast, most educational interventions for nursing students have been based on mental health, end-of-life, and maternity issues (Gutiérrez-Puertas et al., 2020). However, communication skills related to daily conversations with patients are equally important, particularly because of the perception that nurses lack time to engage with patients, especially those with chronic illnesses (Balzer-Riley, 2024). On the other hand, several studies have shown that inadequate training or inadequate attention to the importance

of patient-centered communication could cause nurses to lack communication skills (Hsu et al., 2015). In this sense, active learning strategies, such as the clinical simulation methodology, and the development of positive attitudes toward communication skills learning so that nursing students become more aware of the importance of communication skills, could be an effective way to foster communication skills in nursing students.

The results of our research show that the inclusion of high-fidelity simulation training using standardized patients in nursing education is highly recommendable to foster positive attitudes toward communication skills learning, ideally from the first year of the nursing degree. Since these attitudes constitute powerful behavioral indicators (Fazio & Petty, 2007) and influence the nursing students' learning process, it may be recommended that nurse educators first determine their attitudes toward learning communication skills before training them. High-fidelity simulation training may contribute to improving these attitudes in nursing students, leading to high-quality nurse-patient relationships and nursing care. Considering our findings, simulation training programs must be implemented in nursing curricula to foster positive attitudes toward communication skills learning that can serve as a mediating link between the nursing students' clinical competence and their clinical performance, preparing them for real clinical practice. In this sense, one of the current priorities in nursing education research is the transfer of communication skills from clinical simulation to real clinical practice (National League for Nursing, 2020).

Limitations

Using a self-report scale is a limitation of our study, as self-report data are associated with specific biases. However, the applied scale includes negative items to avoid social desirability and acquiescence biases. In addition, this scale has shown to have a high internal validity and has been validated and translated into various languages and applied in different international studies. However, the positive impact of our high-fidelity simulation training is based on short-term effects and, consequently, it would be advisable to assess this impact in the long term, by evaluating nursing students beginning in their first year and throughout their university studies.

Finally, future research is needed to confirm the positive effects of high-fidelity simulation training using standardized patients for increasing positive attitudes toward communication skills learning in undergraduate nursing students. These studies should use quasi-experimental or experimental designs with a control group and assess the impact of this training during follow-up periods. Furthermore, future research should evaluate the development of positive attitudes toward communication skills learning using this high-fidelity simulation training in registered nurses, and

not only in undergraduate nursing students, by applying it in other healthcare and educational settings.

Conclusion

Our high-fidelity simulation training using standardized patients allows first-year nursing students to improve and develop positive attitudes toward communication skills learning. Before training nursing students in communication skills or communicating with a real patient in real clinical practice, the improvement of these attitudes is fostered when nursing students have opportunities to interact with simulated patients, as they become more aware of the importance of improving these attitudes. Moreover, the development of these attitudes could provide benefits directly related to high-quality nurse-patient relationships and nursing care. Therefore, the inclusion of simulation training programs in nursing curricula to foster positive attitudes toward communication skills learning is needed to train undergraduate nursing students, as these attitudes can serve as a mediating link between the nursing students' clinical competence and their clinical performance, preparing them for real clinical practice. Our findings should be confirmed by future research, by conducting quasi-experimental or experimental studies with a control group and follow-up periods, with registered nurses, and expanding this high-fidelity simulation training to other healthcare and educational settings.

Declaration of competing interest

The authors have no conflict of interest to declare.

CRediT authorship contribution statement

Oscar Arrogante: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Ismael Ortuño-Soriano:** Writing – review & editing, Visualization, Validation. **Ana Sofia Fernandes-Ribeiro:** Writing – review & editing, Visualization, Validation, Methodology, Investigation. **Marta Raurell-Torredà:** Writing – review & editing, Visualization, Validation, Methodology, Investigation. **Diana Jiménez-Rodríguez:** Writing – review & editing, Visualization, Validation, Methodology. **Ignacio Zaragoza-García:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation.

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