The Effectivenes of Simulation Methods to Improve Communicatio Skill in Clinical Nursing Practice: A Systematic Review

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ABSTRACT

Communication is one of the competence areas that is needed by nursing students, especially in clinical nursing practice. The purpose of this study was to analyze the effect of the simulation method on improving communication skills in nursing clinical practice. Using Systematic design review. Search for articles was conducted from 29 Apri to 16 Juni 2020 by accessing five electronic databases (Scopus, Science Direct, Pubmed, Ebscohost dan ProQuest). The article year is limited from 2015-2020. Keywords: "Simulation" OR "Roleplay", "communication" AND "Communication Skills" OR "Communication Ability" OR "Communication Competence" and "Nurse" AND "Students". Assessing the quality of articles using the Joanna Briggs Institute Critical Apprational Tool and PRISMA checklist as a guide in article screening. A total of 25 articles were analyzed according to inclusion criteria. The selected article is divided into two broad themes about simulation methods: simulation methods with exercises (n = 14) and simulation methods with roleplay or role-playing (n = 11). The research design uses mostly observational studies (cross-sectional and qualitative studies), Quasi-Experimental, and Randomized Control Trials. The sample was nursing students with a varied sample size ranging from 36 to 160 respondents. Simulation methods with exercises and roleplay or role-playing effective in improving communication skills in nursing clinical practice.

**Keywords:** Simulation method, Communication skill, Nursing Practice

BACKGROUND

Communication skills are very important for a nursing student (Stevens, Mcniesh, & Goyal, 2019). Beginning nursing students have knowledge, experience, and few opportunities to practice communication which can negatively impact communication skills (Yu, 2017) as well as their learning abilities in clinical practice (White, 2015). Existing research states that there are several interventions that can be used to improve student communication skills. The method applied during education to improve a student's communication skills is one of them is the simulation method, but the simulation method applied still cannot guarantee that it can have a significant effect on student communication skills. (Blake & Blake, 2019). Based on research conducted in Turkey, it was stated that as many as 76% of the 249 students who practice nursing clinics experience communication problems and most of these 66% of communication problems occur between students and patients. (Öztürk, 2015). Communication is closely related to the health care process and is included in the target patient safety standards. According to James (2016), there are as many as 440,000 people die each year due to mistakes which are accidental or unwanted injuries. 80% of these accidental incidents are serious medical errors that occur due to poor communication between nursing service providers and patients (Blake & Blake, 2019). According to WHO (2016), one of the causes related to medication errors is poor communication which has an impact on patient safety in the hospital. Communication is influenced by several factors, namely perception, values, emotions, background, roles, knowledge and relationships (Amirah, 2016). The knowledge factor is very closely related to the learning process received by students during education and what determines the success of this learning depends on the learning method used (Alamrani, Alammar, Alqahtani, & Salem, 2017). The learning method that can be done is the simulation method. The simulation method as a step in learning can effectively increase knowledge and skills because students can immediately see what is being learned applied not only in theory. Several studies have been carried out related to learning methods that can improve the communication skills of nursing students. Based on the results of research submitted by Basak, Demirtas and Iyigun (2019), it was stated that the learning method with simulation has a positive effect on the communication skills of nursing students.

METHODS

This systematic review was conducted to provide a comprehensive systematic description of the simulation method to improve the communication skills and self-confidence of nursing students. The protocol in this systematic review refers to The Center for Review and Dissemination and the Joanna Briggs Institute Guideline as a guide in assessing the quality of the study. Systematic reviews will be evaluated using the PRISMA checklist to determine the selection of studies that have been identified. This systematic review will be registered at Airlangga University, Surabaya. Literature search strategy using 5 databases; Scopus, Science direct, Pubmed, Ebscohost, and ProQuest. The search was carried out from 29 April 2020 to 16 June 2020 to identify relevant research. Phrase searching used is the boolean logic used is "And", and "Or". In addition, the search process for articles is limited to article journals and in English and the year limitation focuses on articles published in the last 5 years. Keywords in this Systematic review are adjusted to Medical Subject Heading (MeSH) Pubmed Communication, simulation and nursing student.

RESULTS

The results of the article analysis found that 4 studies were Randomized Control Trials, 14 studies used Quasy-Experimental, 3 cross-sectional studies and 3 qualitative studies. Based on these results, after the critical appraisal was carried out using the JBI critical appraisal tools, a quality score was given.
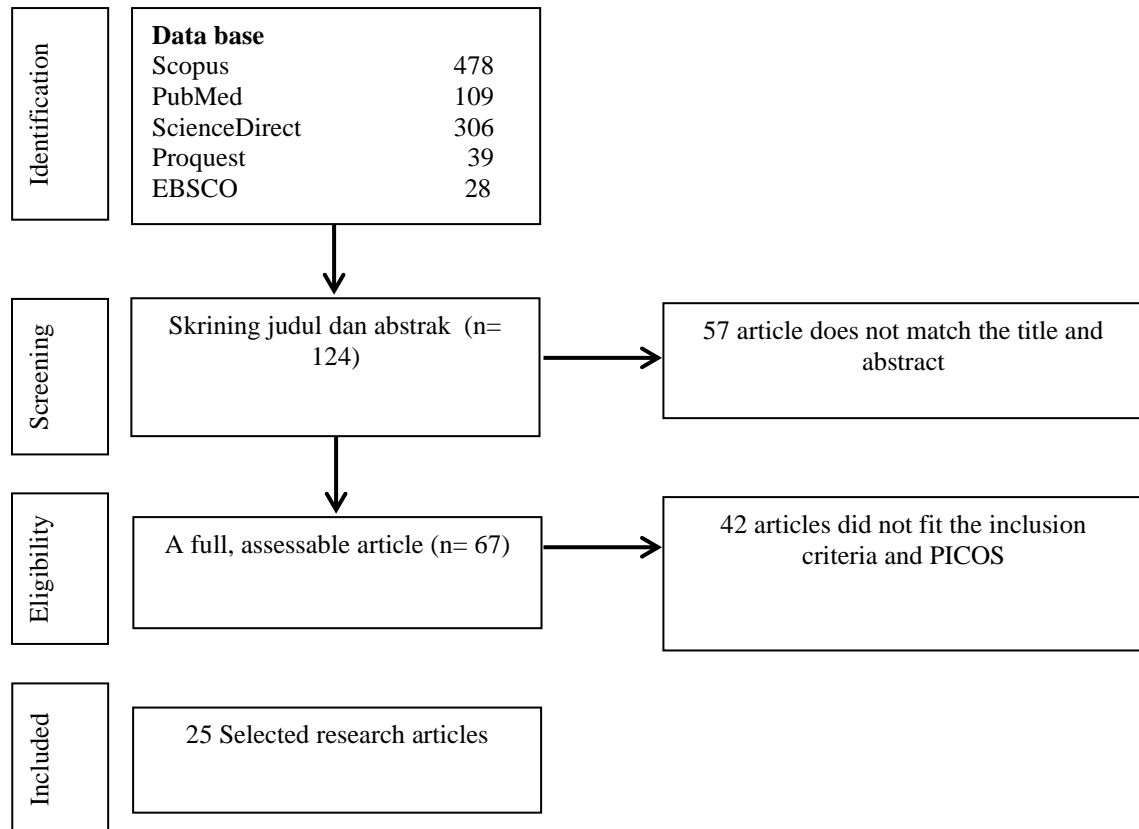
Figure 1. Study selection flow diagram

The studies included in this systematic review article consisted of 10 studies in the USA carried out in laboratories, classrooms, nursery departments, hospitals and simulation wards, 4 studies in Korea were conducted in laboratories, simulation education centers and clinical learning centers, 2 studies were conducted in Norway, Australia and China were conducted in laboratories, classrooms, and hospitals, and 1 other study was conducted in Turkey, Ireland, Taiwan, England, and Sweden conducted in classrooms and online. The time of the research was conducted between 2015 - 2019. The simulation method is based on the results of the study conducted, it was found that there were 2 types of simulation methods to improve communication skills in nursing. First, the type of simulation method in the form of both offline and online exercises. There are 18 studies, namely patient standard-based, debriefing simulation, environment-based, teach-back simulation, video simulation and online simulation. Second, the type of simulation method using roleplay or role playing, there are 7 studies consisting of drama, psychodrama, roleplay and scenarios. Respondents in this study were nursing students from various countries who were not limited by education levels. This study has mentioned a simulation method for communication skills in nursing practice, with a total of 2,060 participants. Respondents / participants for research with quasy experimental ranging from 35-160 people, RCTs

research 109-132 people, cross sectional 82-150 people, and qualitative research 12-141 people. The results can be seen in table 1.

Table 1. Summary of Literature Search Results for Systematic Reviews

No	Author, year and country	Study design	Summary of results
1	Ok, Kutlu and Ates, (2019) Turkey	Design: Quasy-experimental Sample: 85 nursing students from 2 different universities Variables: Standard-based simulation of patients and communication skills Instruments: personal information questionnaire, communicational skills inventory, and state-trait anxiety inventory. Analysis: independent sample t test	The comparison of the scores obtained with the intervention group before and after being given the patient standard-based simulation intervention showed a statistically significant improvement in the communication skills of the intervention group after the simulation exercise with a score ($p < 0.001$).
2	Beaird, Nye and Ii, (2017) USA	Design: Quasy-experimental Sample: 112 nursing students Variable: Simulation using reflective video and communication skills Instrument: The Macy Communication Scale is based on the NYU model from the Macy Initiative in Health Communications Analysis: independent sample t test	The results obtained were that the simulation using reflective video affected changes in the communication ability score (P 0.1874), although there was no significant difference between the two groups, the intervention group did have a higher score than the control group for the second, third, and fourth simulations. For simulation intervention using the Patient Standard (SP) showed a significant relationship was found between student self-assessment and SP ratings ($p < .0001$).
3	Blake and Blake, (2019) USA	Design: Quasy-experimental Sample: 35 nursing students from nursing programs located in west-central United States Variables: Standard-based simulation of patients and Communication skills Instruments: a pretest and an identical Posttest self-efficacy and therapeutic communication questionnaire Analysis: independent sample t test	From the results of the Wilcoxon test, there was an increase in student self-efficacy in communication skills after being given a simulation with patient standards indicated by five questions, all of which were significant with $p < 0.01$.
4	Breen et al., (2019) Ireland	Design: Randomized Control Trial with three parallel arms Sample: 109 people in the third year of nursing school and 201 medical students in the last year Variables: E-learning and Proficiency-based progression (PBP) simulation and communication skills Instruments: ISBAR Tools Analysis: The Kruskal-Wallis test	The simulation results show that the addition of a simulation program Proficiency-based progression (PBP) to the e-learning module can provide superior skills for ISBAR communication in terms of worsening patient relationships than the e-learning module either alone or in combination with standard simulations with significant results, meaning 8.5 (1.7), rather than either the E-learning group, means 5.8 (1.6), $p < 0.000$, or the standard E-learning + Simulation group, mean 6.3 (2.1), $p < 0.000$. Similarly, the combined errors and critical errors were significantly less in the E-learning + Proficiency-based progression (PBP) group, meaning 3.7 (1.6), compared to the Group E group, mean 5.9 (2.1), $p < 0.000$, or group E + S, mean 5.2 (1.5), $p < 0.01$.

No	Author, year and country	Study design	Summary of results
5	Donovan and Msn, (2019) USA	Design: Pre-Post survey intervention Sample: 160 undergraduate nursing students. Variable: Simulation with video and communication skills Instruments: A self-reported pre and post simulation survey Analysis: one-sample sample t-tests.	There was a significant increase in the level of self-confidence and the ability of students to communicate well with patients between before and after intervention (p <0.001).
6	Gaylle, (2019) USA	Design: Quasi-experimental, mixed-method design Sample: 67 senior nursing students enrolled in a clinical rotation of psychiatry in the community Variables: Debriefing simulation and communication skills Instrument: psychiatric assessment and therapeutic communication Analysis: independent and paired sample t tests	There was a greater improvement in therapeutic communication in the simulated treatment group. The difference in means between the simulation and postsimulation groups for therapeutic communication (mean, 1.39 and 0.83) was statistically and practically significant from pre-test to post-test, with a very large effect size of 0.98.
7	Haugland and Reime, (2018) Norwegia	Design: Qualitative Sample: 12 first year undergraduate nursing students Variable: simulation with scenario and communication skills Instrument: Open-ended question verbatim Analysis: Focus group	Scenario-based simulation training becomes a valuable didactic method in order to improve nursing students' communication skills, increase ethical reflection and the ability to avoid the use of coercion in demanding situations in dementia care. This method can prepare nursing students for clinical practice.
8	Karlsen, Kristin and Lise, (2017) Norwegia	Design: Qualitative Study, exploratory and descriptive design. Sample: 14 respondents of postgraduate students in intensive care. Variables: environment-based simulation and communication skills Instrument: Open-ended question verbatim Analysis: Thematic analysis	The main finding of this study was that students reported improved communication skills after taking a communication course with an environmentally based simulation. The analysis resulted in three main themes: "awareness", "ice-breaking" and "challenging learning environment."
9	Kim and Cho, (2018) Korea	Design: Cross Sectional Sample: 82 senior nursing students Variable: simulation method with problem based learning (PBL) and communication skills Instrument: communication apprehension questionaire Analysis: paired-samples t test	The results showed that SIM-PBL is a teaching-learning strategy that reduces communication worries and increases the clinical self-efficacy of nursing students in communicating.
10	Lai, (2016) Taiwan	Design: Pre-Experimental Sample: 50 nursing students Variable: Simulation with online video and communication skills Instrument: Interpersonal Communication Assessment Scale (ICAS) Analysis: paired-samples t test	There was a significant result of the intervention given to improving students' communication skills (p <0.001).
11	Maclean et al., (2019) Australia	Design: Qualitative Sample: 141 undergraduate nursing	Using simulated patient and video-assisted reflection when teaching communication skills

No	Author, year and country	Study design	Summary of results
		students Variables: Simulation with reflective video and communication skills Instrument: Interviews Analysis: Thematic analysis	shows that the process helps to gain a greater understanding of communication skills in patient discharge.
12	Maclean *et al.*, (2018) Australia	Design: A quasi-experimental control group Sample: 50 second or third year undergraduate students Variables: Tech-Back simulation and communication skills Instrument: Two subscales of the Quality Discharge Teaching Scale (QDTS) Analysis: Independent group multivariate analysis of variance (MANOVA)	Significant improvement in students' communication skills in patient discharge was achieved in the interaction and information group compared to the control group with a P value <0.001
13	Martin and Chanda, (2016) USA	Design: A quasi-experimental, one group, preepost test Sample: 28 pre-licensed nursing students Variable: Standard-based simulation of patient and communication skills Instruments: Previous Knowledge and Demographic Questionnaire, Confidence With Communication Skills Scale, Therapeutic Communication Pretest and Posttest Analysis: Dependent t tests	There was a significant increase (p <0.000) in students' reported self-confidence with communication skills and knowledge after mental health simulation experiences using patient standards.
14	Neilson and Reeves, (2019) UK	Design: Cross Sectonal Sample: 158 nursing students. Variable: Simulation based on drama and communication skills Instrument: A simple communication checklist Analysis: Dependent t tests	Results indicated that exercise had a positive impact on participants' perceptions of ability to communicate clearly in end-of-life care settings. The results also augment the literature by demonstrating the use of novel, and the effectiveness of, forum theater in describing the translation of communication theory into practice, in the context of late life pediatric care. The identified impacts of the various teaching methods used and the collaborative interdisciplinary approach will be discussed and the learning process explored.
15	Kellie Long, (2018) USA	Design: Quasy experimental one-group pretest / posttest design Sample: 33 undergraduate nursing students. Variable: patient standard-based simulation and communication skills Instruments: Use of NLN Surveys and Research Instruments Analysis: A paired sample dependent t-test	The results showed that the nursing students had higher self-efficacy scores helping them identify ways to improve communication, and would help them communicate with patients in a clinical setting statistically with a significance of p = 0.001 ..
16	Li, Li, Gu, Zhang, Zhao,	Design: Randomized controlled trial Sample: 132 nursing students	The results obtained were communication skills, empathy, and self-efficacy in the

No	Author, year and country	Study design	Summary of results
	Cai, Lu, Meng, et al., (2019) China	Variable: direct practice-based simulation and communication skills Instruments: Communication Skills Assessment Scale, the Jefferson Scale of Empathy-Health Professionals, and the General Self-Efficacy Scale. Analysis: chi-square tests for categorical variables and t tests for continuous variables	experimental group all significantly improved, compared to the control group with a value of P <0.001. A simulation-based conscious practice program is worthy of being a teaching method that targets improving nursing student communication, empathy, and self-efficacy.
17	Bloomfield, Gillett and Neill, (2015) Inggris	Design: Mixed Methods Sample: 180 nursing students Variable: patient standard-based simulation, self-confidence and communication skills Instruments: Students' perceptions of confidence and competence levels communicating questionnaires Analysis: Thematic analysis and Wilcoxon test	Simulation was found to be an effective way to prepare students to communicate with dying patients and their families with a significant increase (p = 0.5) in competence and self-confidence. The themes of the FGD were responding to sadness and anger, difficulty dealing with emotions, knowing the "right things" to say, and lack of experience..
18	Kim M, (2015) Korea Selatan	Design: A quasi-experimental pretest-posttest study Sample: 90 nursing students Variable: simulation with roleplay and communication skills Instrument: self-report questionnaire Analysis: paired t-test	The results showed that the Patient Role Simulation Practicum was effective in improving problem-solving abilities and communication skills, although not significant. The problem-solving ability level of the experimental group was significantly higher than the control group (t = 2.30, p = .024).
19	Beauvais, Özbaş and Wheeler, (2019) USA	Design: A quasi-experimental pretest-posttest study Sample: 84 nursing students Variable: simulation with psychodrama and communication skills Instruments: process recordings and Frommelt Attitude Toward Care of the Dying (FATCOD) Scale Analysis: paired t-test analysis	The study highlighted the value of psychodrama as a strategy that can improve the communication skills of nursing students. Statistically significant difference in attitude improvement between the group receiving the psychodrama intervention and the control group (t = 27.19, p = .000).
20	Stevens, Mcniesh and Goyal, (2019) USA	Design: Pre-post test intervention study Sample: 35 nursing students Variable: simulation with self-confidence workshop and communication skills Instruments: Nursing Anxiety and Self-Confidence With Clinical Decision-Making Scale Analysis: paired t-test analysis	Mean statistically significant improvement in self-confidence from pre- (range = 70 to 140) to post intervention (range = 75 to 157), p = <. 05, t = −2,434. The findings support the use of SBAR and continuous simulation as an organizing tool for increasing nursing student confidence during communication; However, further effort is needed to qualitatively examine how these tools are driving these changes.
21	Jeong and Kim, (2020) Korea	Design: Randomized control pre-post test study Sample: 54 nursing students Variable: simulation based on patient standards and communication skills Instruments: Fall-related patient safety competence and communication clarity	The SBAR group showed improved related skills and communication clarity compared to the handoff group. There was a significant difference in knowledge before and after intervention (P <0.001. SBAR-based simulation programs can be used as an educational intervention for nursing students not only to improve skills in reporting and

No	Author, year and country	Study design	Summary of results
		Analysis: Anova	communication but to prevent or handle patient safety accidents efficiently.
22	Wang *et al.*, (2015) Cina	Design: Quasy-Experimental Sample: 19 nursing students Variable: video simulation and communication skills Instrument: pre- / post-workshop questionnaire SBAR tools Analysis: A Wilcoxon signed-rank test	The SBAR workshop in combination with video-stimulated recall and roleplay case scenarios significantly improved the knowledge and communication skills of Chinese nursing students with SBAR. The total score increased significantly from 40.9 ± 5.0 to 49.2 ± 5.9 (p <0.01). In addition, 93.8% of students agreed and strongly agreed that they would use SBAR during clinical practice.
23	Yeh *et al.*, (2019) USA	Design: Quasy-Experimental Sample: 81 nursing students Variables: online simulation and communication skills Instruments: story-specific checklists adapted from the identification, situation, background, assessment, recommendation (ISBAR) Interprofessional Communication Rubric (IICR) Analysis: ANCOVA	The results showed that there was a significant change in students' communication skills after being given a course with online simulation
24	Webster and Carlson, (2019) Swedia	Design: Cross Sectional Sample: 114 nursing students Variable: patient standard-based simulation and communication skills. Instrument: behavior element scale Analysis: chi-square anlysis	Standardized patient simulations are needed to motivate nursing students to build therapeutic relationship skills with seriously ill people to improve person-centered care.
25	Choia *et al.*, (2020) Korea	Design: Randomized control trials Sample: 135 nursing students Variable: simulation with video and communication skills Instrument: Questionnaires consisted of scales on communication knowledge, learning self-efficacy, communication efficacy, and satisfaction Analysis: a t-test and chi-square test	There was a significant change in students' knowledge and communication skills after being given intervention with the ComEd program which contained video simulations (P <0.001).

DISCUSSION

Based on the results of the systematic review, there are 2 types of simulation methods, namely the simulation method in the form of training and the simulation method in the form of roleplay or role playing. The discussion in this systematic review will focus on simulation methods that can and can be done in Indonesia. According to previous research conducted in Indonesia, the simulation method uses both offline and online training methods (Indriasari, 2016) and roleplay simulation (Sukamto & Putri, 2019) effective in increasing student knowledge and skills. There are various types of simulation methods, one of which is in the form of training. Simulation methods in the form of exercises both offline and online as an intervention in improving communication skills in nursing practice. Some of them that can be applied are patient standard-based simulation methods (Martin and Chanda, 2016; Ok, Kutlu and Ates, 2019; Kellie Long, 2018; Blake and Blake, 2019) , simulation with video (Beaird et al., 2017; Donovan & Msn, 2019;

Maclean et al., 2019) and online simulation (Yeh et al., 2019). The second simulation is roleplay or role playing (Wang *et al.*, 2015; Wang *et al.*, 2015).

Standardized Patient, namely people who are trained to act as real patients to provide specific responses to certain medical conditions (Gaylle, 2019). Martin and Chanda, (2016) define standard patients as people who are trained to represent the characteristics of a patient. The patient standard allows students to be immediately exposed to feedback on the success or lack of success of being used communication strategies. In other words, students will immediately know whether their approach is working or not because of how the patient is responding. The effectiveness of simulations using standard patients has been reported in terms of increased self-confidence, improved communication skills, satisfaction with learning experiences, overall decreased anxiety of individuals with mental illness, and increased self-reflection and availability of immediate feedback. (Martin & Chanda, 2016). Video-assisted debriefing / reflection (VAD) is used because it may be difficult for participants to remember precisely the events in the simulation. Watching a video performance provides an opportunity for performance evaluation without relying on participants' own memory or interpretation of the simulation session (Cheng et al., 2016). Usually, the questions and answers, under the guidance of the facilitator, are resolved as a group. Chronister and Brown, (2012) retention of knowledge, skills, and response time measured by students completing simulated cardiopulmonary resuscitation using video assistance and verbal debriefing methods. They found that using video and verbal debriefing together positively influenced nursing skills and response time. Online or virtual simulation as a strategy for the future direction of interprofessional communication training (Foronda, Macwilliams, & Mcarthur, 2016). Asynchronous online simulation, which provides experiential learning opportunities without the limitations of facility scheduling and faculty time, presents such an educational modality (Lai, 2016). Using clinical stories and asking students to verbalize their reports helps simulate experiences that are realistic but in a safe environment. Online simulation practice opportunities overcoming structural barriers and scheduling on-site training sessions by offering alternative online educational methodologies that can help preserve resource scarcity (Yeh et al., 2019). The educational intervention includes a series of asynchronous online simulation-based DP sessions designed to provide students with structured and focused practice opportunities. We hypothesized that the intervention would have a positive impact on the ability of nursing students to meet the MPS and their performance and confidence levels in reporting critical incidents of patients.

Roleplay or role-playing is a form of simulation method. Role playing means that students are required to be able to play a role as the simulation plan is drawn up. The simulation method in this form that can be applied in Indonesia is simulation with roleplay. Roleplay helps students learn to work closely with their team members using scripts assigned to them different roles in a multidisciplinary team in a variety of scenarios and provides an imaginary context in which they can investigate the problems and behaviors of participants' different personalities and roles by enhancing perceptions and critical thinking. they are skills (Wang et al., 2015). Active stimulation by roleplay has been used as an educational strategy in the study of educational ethics (Sukamto & Putri, 2019).

CONCLUSION
Improving communication skills for students is very important in the nursing practice process. The simulation method is a learning method that can improve communication skills. The simulation method provides a good stimulus because this activity is carried out

directly by students so that it can influence responses and skill changes. There are two types of simulation methods to improve communication skills, namely simulation methods in the form of offline and online training and simulation methods in the form of roleplay or role playing. The simulation method that can be applied in Indonesia is simulation in the form of training, including based on patient standards, simulation with video and online simulation. Second, the type of simulation method with roleplay or role playing. Both types of simulation methods are effective in improving the communication skills of nursing students.

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