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Impact of empathy interventions on cognitive, affective, and behavioral empathy in nursing students: a systematic literature review

Review

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Abstract: **Objective:** To assess the method of empathy intervention in nursing students in relation to the three dimensions of empathy: cognitive, affective, and behavioral.
Methods: A systematic literature review was conducted following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 guideline. A search for articles in two databases (ScienceDirect and Taylor & Francis) revealed 99 articles. One author independently assessed articles for inclusion, resulting in 10 articles that met the inclusion criteria.
Results: Based on a review of ten extracted journal articles, nine interventions showed increases in empathy, while one intervention did not show such outcomes. Four studies (the simulation-based empathic communication training intervention, the situated teaching program, high-fidelity simulation [HFS] training, and the structured empathy educational model [EEM]) discussed the impact of interventions on the empathy dimension, while the remaining five only explained the impact of the intervention on empathy in general.
Conclusions: The result of this study highlight the need for future research to design empathy interventions for nursing students that effectively target both the affective and behavioral dimensions of empathy.

Keywords: *empathy intervention • heatlhcare education • nursing student • systematic review • empathy in clinical practice*

1. Introduction

Empathy is the most important soft skill that professional nurses must possess because it is the ability to understand and feel the emotions of others.[1–3] Empathy is defined as the ability to understand a patient's situation, feelings, and perspectives without passing judgment, as well as the ability to communicate that understanding.[4] William and Stickley[5] defined empathy in a professional health setting as understanding a patient's situation, feelings, and perspective without judgment, as well as the ability to express the understanding. According to

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Peplau,[6] empathy is a vital component that a nurse must have. According to the Indonesian Ministry of Health,[7] particularly in Indonesia, empathy is a core competency for nurses in the national healthcare system.

As a result, when nurses establish empathy, they are able to understand feelings, recognize emotional situations, and effectively respond to patients' needs.[8] According to William and Stickley,[5] empathy is a fundamental quality of a helping relationship since it facilitates the development of mutual trust and understanding. Nurses with empathy can better understand their patients, as empathy has been shown to improve patient safety, well-being, satisfaction, and compliance with the treatment process.[9–11] According to Mercer,[12] empathy is related to higher treatment adherence, higher patient satisfaction, and lower psychological distress. Furthermore, lower levels of depression, anxiety, and pressure have been shown to increase emotional well-being, satisfaction, more positive team interactions, and a tendency to be more diligent at work in nurses.[13–15]

A lack of empathy, on the other hand, can lead to a tendency to ignore patients' psychological needs and an inability to appropriately identify the patient's response, affecting the nurse-patient relationship and resulting in poor service.[16] This lack of empathy predicts poor patient care because it fosters apathy, indifference, and dehumanization in nurses, increasing the risk of patient harm.[17,18] As a result, empathy is essential for nurses and is central to professional health practice.[19]

Many studies, however, claim that there is evidence of decreased empathy in nursing students during their study period.[20–22] Heavy workload, long working hours, time constraints, and a demanding and unfriendly educational environment can contribute to the empathy deficit.[23,24] Furthermore, students' exposure to clinical matters, such as the number of meetings with patients during the study, might be more strenuous and impact their ability to empathize.[25] Kunyk and Olson[26] stated that, while empathy is frequently mentioned in nursing literature, patient perceptions reveal that empathy is not always demonstrated by nurses in their interactions with patients. Therefore, numerous studies have been conducted to develop various educational intervention methods to increase nursing students' empathy skills.[27–29] Several methods are known to be effective in increasing empathy, including communication skills-based programs and mindfulness-based stress reduction.[30–34]

In practice, empathy training typically focuses on three domains: cognitive, affective, and behavioral.[35] These three empathy components must be present in an individual and balanced with one another. When cognitive empathy is dominant without affective empathy, individuals may understand others' perspectives, but this understanding can also be used to manipulate or exploit others by anticipating the consequences of their actions.[36,37] As only affective empathy is predominant, a person does not have enough self-control in capturing and sharing emotions with others.[38] However, these two domains will be incomplete unless they are followed by appropriate behavior, such as the ability to communicate and determine appropriate behavior based on one's understanding of other people's circumstances.[39] As a result, in any intervention method designed to increase empathy, the balance between the three domains must be considered.

The purpose of this study is to assess the method of empathy interventions in nursing students in relation to the three domains of empathy: cognitive, affective, and behavioral. The research question is, "Does the empathy intervention method for nursing students deliberate its impact on three domains (cognitive, affective, and behavior)?"

1.1. Empathy

Empathy is the ability to understand and feel emotions caused by other people's experiences.[3,40] It is frequently associated with various social competencies, including the ability to increase prosocial behavior.[41–43] According to Derksen, empathy has three dimensions.[39]

a. Cognitive empathy is the ability to understand other people's perspective that allows a person to understand and take other people's points of view.[3]
b. Affective empathy is the ability to feel the emotional state of others.[3]
c. Behavioral empathy is the ability to recognize, communicate, and decide on appropriate actions based on one's understanding of others.[39]

2. Methods

This study applied a systematic literature review to describe, evaluate, and synthesize empirical research on empathy interventions in nursing students. To ensure this literature review is systematic, the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA)[44] guideline was used, involving the following steps: (1) defining relevant studies and establishing inclusion/exclusion criteria; (2) creating search strategies; (3) identifying potential studies through the use of search and screening; (4) describing and assessing the study; and (5) analyzing and synthesizing findings.

2.1. Eligibility criteria

The inclusion criteria in this study are as follows:

- Type of study: primary study, using experimental or quasi-experimental methods, published in English from January 2016 to September 2022.
- Participant characteristics: nursing student, no gender, age, year of study, or country of residence specified.
- Type of intervention: all interventions aimed to increase empathy
- Type of measurement: quantitative measurement using valid and reliable instruments.

The exclusion criteria for this study are as follows:

- Studies that do not meet the inclusion criteria.
- Studies that only have similar concepts to empathy: care, compassion, and emotional intelligence.
- Studies with insufficient information to determine whether they meet the inclusion criteria.

2.2. Search strategy

Prior to beginning the search, the researcher conducted keyword research that best matched the descriptions of prospective studies and were in line with the research objectives. The study included several systematic reviews of journal articles that discussed empathy interventions in nursing students. Researchers used several keywords based on the research findings, including "empathy intervention," "empathy education," "empathy training," "nursing student," and "nursing." On October 7–8, 2022, these keywords were used to search for articles in two databases, ScienceDirect and Taylor & Francis. The researcher restricted the year and language on the database search page based on the inclusion and exclusion criteria.

2.3. Study selection

A total of 99 journal articles were obtained through a search of two databases. Following that, the researcher conducted a title screening and issued a total of 53 articles, with 46 considered eligible for abstract screening. The researcher then conducted an abstract screening process, issuing 26 abstracts, with the remaining 20 articles proceeding to the full text review stage. When conducting a full-text review, one article was inaccessible in full text, so the researcher continued to review the remaining 19 articles. As a result of the review, as many as nine articles failed to meet the inclusion criteria, yielding ten articles, which will be discussed further in this study (Figure 1).

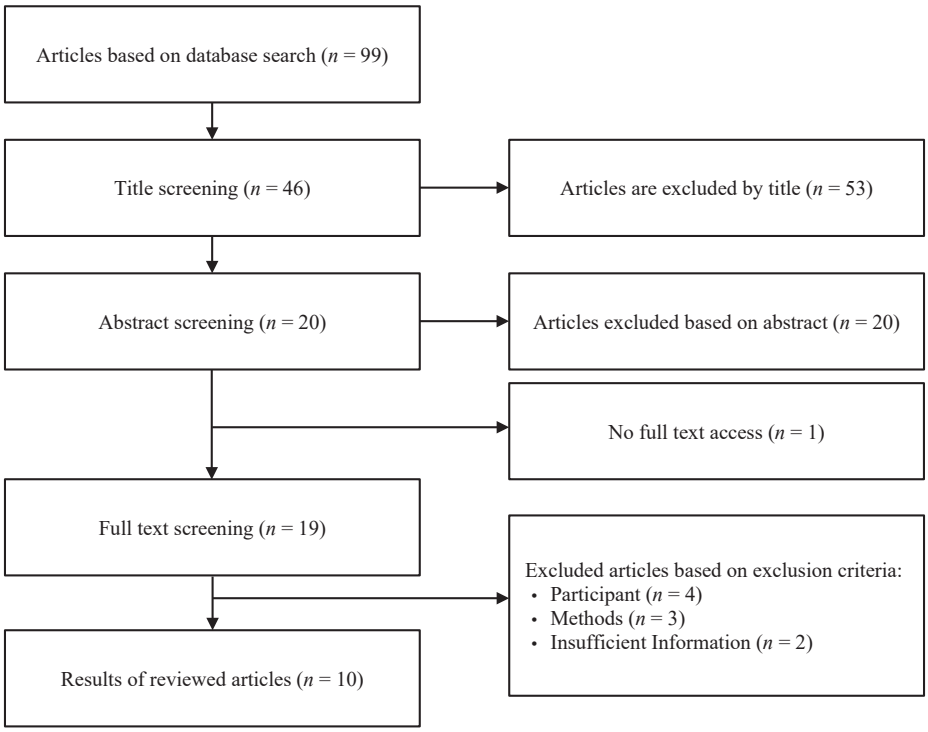

Figure 1. PRISMA flow diagram of study selection for the systematic review.

3. Results

The systematic search yielded 99 articles from both databases. Following the selection process, a total of ten studies met the inclusion and exclusion criteria and were then reviewed collectively (Figure 1). Nearly half of the studies were conducted in China (n = 4), and the majority involved undergraduate nursing students (n = 8). Most studies employed a quasi-experimental design (n = 9), with outcomes primarily assessed using the Jefferson Scale of Empathy–Health Profession Student version (JSE-HPS) (n = 4) (Table 1).

3.1. Participants

Participants in the study were generally undergraduate nursing students (n = 8) (Table 1). A total of 1031 participants were involved in the empathy intervention, with a mean sample size of n = 103.1 (range: 32–250).

3.2. Instrument

Four different empathy instruments were used in total, including English instruments that have been translated into Chinese, Spanish, Arabic, and Turkish (Table 1). All instruments are well-established measurements (not new tools developed by researchers), with evidence of previous reliability, and some reported reliability results from current research. The following are the details of the empathy instruments used:

- The Jefferson Empathy Scale (JSENS) consists of 18 items rated on a 5-point Likert scale.
- The JSE-HPS version, also known as The Jefferson Scale of Empathy-Health Providers (JSE-HPs), consists of 20 items rated on a 7-point Likert scale that assesses perspective taking, compassionate care, and standing in the patient's shoes.
- The Jefferson Physician Empathy Scale has 20 items. Cognitive empathy is measured using a 7-point Likert scale.
- The Kiersma-Chen Empathy Scale (KCES) has 20 items and is rated on a 7-point Likert scale, used to assess cognitive and affective empathy.
- The Empathic Skill Scale Form B (ESS–B) assesses empathic skills by presenting six problems that must be answered based on the 12 options provided.

3.3. Research question

"*Does the empathy intervention method for nursing students deliberate its impact on three domains (cognitive, affective, and behavior)?*"

To answer the research question, researchers evaluated whether the interventions implemented in each piece of literature measured their impact on empathy dimensions. Based on a review of the ten extracted journal articles, nine interventions showed increases in empathy, while one intervention did not show such outcomes.[45] Four studies discussed the impact of interventions on the empathy dimension, while the remaining five only explained the impact of the intervention on empathy in general.[46–49]

The Structured Empathy Educational Model (EEM), an intervention technique used by Yang et al.,[46] was based on the Delphi Technique and was able to significantly improve empathy levels. The findings also revealed a significant increase in three empathy subscales: perspective taking, compassionate care, and standing in the patient's shoes (Table 2).

HFS training, the intervention method used by Arrogante et al.,[47] was shown to significantly increase empathy. The findings also revealed a significant increase in three empathy subscales: perspective taking, compassionate care, and standing in the patient's shoes. According to the analysis of each dimension's effect size, the perspective taking dimension showed the highest effect size, followed by the medium dimension of

Variables	Number of studies
Design	
Experimental	1
Quasi-experimental	9
Participant	
Undergraduate nursing student	8
Pediatric nursing student	1
Nurse	1
Location	
Turkey	2
China	5
Spain	1
Australia	1
Palestine	1
Instrument	
JSENS	1
JSE-HPs	1
JSE-HPS version	4
Jefferson Physician Empathy Scale	1
KCES	2
ESS–B	1

Note: ESS–B, Empathic Skill Scale Form B; JSE-HPS, Jefferson Scale of Empathy Health Profession Student; JSE-HPs, Jefferson Scale of Empathy-Health Providers; JSENS, Jefferson Empathy Scale; KCES, Kiersma-Chen Empathy Scale.

Table 1. Descriptive data.

Study	Aim/design	Participant	Intervention	Measurement	Result
Gür and Yilmaz (2020)[4]	**Aim:** Investigating the effectiveness of the MBET program on empathy and age discrimination in nursing students **Design:** Two-group experimental design. **Data collection:** Pre-test and post-test with an 8-week intervention (no follow-up)	Undergraduate nursing students at the faculty of health sciences	MBET	– DIF – JSENS – ADAS	– Following the training, there was a significant increase in student empathy. – There was no significant difference in student age discrimination after training. – The Negative Discrimination Towards Elderly subscale, on the other hand, shows a significant difference
Yang et al. (2022)	**Aim:** Improving the empathy competence of nursing undergraduate internship students using the Structured Empathy Educational Program **Design:** Two-group quasi experimental design. **Data collection:** Pre-test and post-test with an 2-week intervention (no follow-up)	Undergraduate nursing internship students	Structured EEM based on Delphi Technique	– Demographic Questionnaire – The JSE-HPs	– After participating in the program, students' empathy increased significantly. – There was a significant increase in three empathy subscales: *perspective taking*, *compassionate care*, and *standing in the patient's shoes*
Arrogante et al. (2022)[42]	**Aim:** To assess the impact of HFS training toward older people and empathy. **Design:** One-group quasi experimental design. **Data collection:** Pre-test and post-test with a 2.5-month intervention (no follow-up)	Undergraduate nursing students	HFS training	– KAOP – JSE-HPS version	– After participating in the program, students' empathy and attitudes toward older people improved significantly. – There was a significant increase in three empathy subscales: perspective taking, compassionate care, and standing in the patient's shoes. – According to dimensional analysis, the perspective taking dimension had the largest effect size, the compassionate care dimension had a low effect size, and standing in the patient's shoes dimension had a medium effect size
Ding et al. (2020)[49]	**Aim:** Develop and evaluate the effectiveness of an empathy learning module. **Design**: Two-group quasi experimental design. **Data collection**: Pre-test and post-test with an 7-month intervention (no follow-up)	Pediatric nursing students	KSS module	– JSE-HPS version – CCCS – PIS	After training, there was a significant increase in empathy in the experimental group, indicating the effectiveness of SSC training toward empathy
Peng et al. (2020)	**Aim:** To evaluate the effect of VDT toward empathy, and provide practical reasons to optimize dementia treatment for future use. **Design:** One-group quasi experimental design. **Data collection:** Pre-test and post-test with a 1-month intervention (no follow-up)	Undergraduate nursing students	Watch a movie called Still Alice and VDT simulation	– Jefferson Scale of Empathy-Health Professional Students (Chinese version) – Semi-structured interviews	Students' empathy increases after watching movies and participating in the VDT simulation

(*Continued*)

Continued

Study	Aim/design	Participant	Intervention	Measurement	Result
Heidke et al. (2018)	**Aim:** Evaluating the impact of educational innovations that incorporate the patient's voice and perspective on empathy **Design:** One-group quasi experimental design. **Data collection:** Pre-test and post-test with a 12-week intervention (no follow-up)	Undergraduate nursing students	Redesign learning to include the voices and perspectives of various patients from various population groups.	KCES	Following the given learning design resulted in an increase in empathy levels
Cingol et al. (2021)	**Aim:** To investigate the impact of the INC on cultural sensitivity and empathy levels. **Design:** Two-group quasi experimental design. **Data collection:** Pre-test and post-test with a 6-month intervention (no follow-up)	Undergraduate nursing students	INC	ESS–B	There was no significant difference in students' levels of empathy or cultural sensitivity after the intervention
Ayed et al. (2021)	**Aim:** The purpose of this study was to evaluate how HFS affected self-awareness, empathy, and PCC **Design:** One group quasi experimental design. **Data collection:** Pre-test and post-test with an 4-week intervention (no follow-up)	Undergraduate nursing students	HFS	– Self-Consciousness Scaled Revised – KCES – Patient Practitioner Orientation Scale – Demographic data questionnaire	After participating in the intervention program, there was a significant increase in self-awareness, empathy, and PCC
Shao et al. (2018)[43]	**Aim:** The purpose of this study was to determine whether simulation-based empathic communication training improves nurses' ability to recognize and respond to parents' emotions with empathy. **Design:** One-group quasi experimental design. **Data collection:** Pre-test and post-test with an 3-month intervention (no follow-up)	NICU nurses	Simulation-based empathic communication training	– Participants' Satisfaction Questionnaire – Confidence Questionnaire – Attitude Questionnaire – Jefferson Physician Empathy Scale – Global Rating Scale	Nurses' understanding of empathy improved. After attending training, nurses' empathic communication skills improved
Lee et al. (2018)[44]	**Aim:** To evaluate situated teaching programs designed to increase empathy **Design:** Two-group quasi experimental design. **Data collection:** Self-reported data from pre-test and post-test, and also post-test observation (no follow-up)	Undergraduate nursing students	Situated teaching program (based on experiential learning)	– JSE-HPS version – OSCE	There was a significant increase in students' empathy after participating in the program, both subjectively (based on self-report) and objectively (objective empathy) (assessed by selected lecturers and patients)

Note: ADAS, Age Discrimination Attitude Scale; CCCS, Clinical Communication Competence Scale; DIF, Descriptive Information Form; EEM, Empathy Educational Model; ESS–B, Empathic Skill Scale Form B; HFS, High-Fidelity Simulation; INC, Intercultural Nursing Course; JSE-HPS, Jefferson Scale of Empathy Health Profession Student; JSE-HPs, Jefferson Scale of Empathy-Health Providers; JSENS, Jefferson Empathy Scale; KAOP, Kogan's Attitude toward Old People; KCES, Kiersma-Chen Empathy Scale; KSS, Knowledge, Simulation, and Sharing; MBET, Mindfulness-Based Empathy Training; NICU, Neonatal Intensive Care Unitl OSCE, Objective Structured Clinical Examination; PCC, patient-centered care; PIS, Professional Identity Scale; VDT, Virtual Dementia Tour.

Table 2. Characteristics of included studies and the educational outcomes for empathy.

standing in the patient's shoes, and the lowest for the dimension of compassionate care (Table 2).

The intervention method used by Shao et al.,[48] Simulation-Based Empathic Communication Training, had a significant and positive impact on empathy. As the study specifically targeted cognitive empathy, the outcomes measured focused on this dimension.

Lee et al.[49] found that The Situated Teaching Program (based on experiential learning) can significantly increase empathy. The findings revealed a significant increase in students after participating in the program, both in self-reported (subjective empathy) and objective assessments (assessed by selected lecturers and patients). Further examination of the findings revealed a greater impact in students' cognitive empathy (Table 2).

4. Discussion

The present study discovered that four out of nine interventions were able to demonstrate a positive effect on empathy, and these studies discussed the impact of their intervention on the dimensions of empathy (cognitive, affective, and behavioral), while the other five only discussed the impact of the intervention on empathy in general. The intervention with the Situated Teaching Program and the EEM shows the results of measuring the dimensions of empathy. This shows that researchers evaluated the impact of the intervention on the dimensions of empathy.

Evaluation is important because there needs to be a balance between dimensions of empathy. A balance between the dimensions of empathy is required because it may have a negative impact on the individual if only one dimension most dominant, i.e., cognitive empathy. Individuals will more likely to manipulate the behavior of others if it is only dominated by cognitive processes, and this may raise potential issues if it occurs in individuals who serve in the health sector.[31,32]

Research has consistently found that cognitive empathy is associated with higher levels of aggressiveness, whereas affective empathy serves as a protective factor against such behavior. However, when both cognitive and affective empathy are present, they jointly contribute to reducing aggressive tendencies.[50,51] When affective empathy dominates, a person lacks sufficient self-control in capturing and sharing emotions with others.[38] This cognitive domain distinguishes empathy from other similar concepts, such as sympathy and compassion, which can help individuals understand the experiences of others without evoking personal emotional responses, allowing them to be less emotionally affected by their suffering.[52,53] However, these two domains will be more complementary or augmented when they are followed by appropriate behavior; that is, the ability to communicate and determine appropriate behavior based on one's understanding of other people's circumstances.[39]

The importance of balance between the empathy domains ensures a careful examination of how interventions may affect each of these domains. This is due to the fact that each domain necessitates a different training approach, so nursing educators must recognize the various obstacles they might face and provide targeted training in order to increase nurses' ability to express empathy both during the study period and directly in healthcare practice.[48] According to research on the impact on specific empathy domains, interventions can improve the cognitive domain more than other domains, particularly for interventions that used experiential learning and simulation.[47,49]

None of the studies that looked further into the empathy domains found that the interventions were effective in increasing affective empathy. The intervention using the Simulation-Based Empathic Communication Training method only focuses on cognitive empathy. Then, the intervention using HFS training showed the lowest increase in affective-related dimensions compared to other dimensions. In contrast, Japanese researchers discovered a decrease in affective empathy in health students when compared to cognitive empathy.[54] However, the behavior domain is also important, particularly for final-year students who have been directly involved in active service through internship programs. In this case (when dealing directly with patients), students must be able to translate their understanding of others into appropriate actions such as empathic communication or decision-making that takes the patient's condition into account.[48,55]

Further intervention research can consider the year of study for nursing students in determining whether that year requires a more specific domain of empathy or not, so that the intervention method chosen is in accordance with what the students require. Research can also be used to develop intervention methods that specifically increase nursing students' affective empathy and behavior. In general, the reviewed studies indicated that there is a need for additional follow-up on the impact of these interventions over time. However, if the exact empathy domain and year of study are identified, it can be compiled into an independent curriculum or included in the learning.

5. Conclusions

This review examined ten empathy intervention studies targeting nursing students, with nine demonstrating

effectiveness and one showing no significant impact. Four studies examined the impact of the nine intervention types on the cognitive, affective, and behavioral domains of empathy, while the other study did not. The Simulation-Based Empathic Communication Training intervention was found to be effective in increasing cognitive empathy, while The Situated Teaching Program (based on experiential learning) and HFS training interventions were found to be effective in increasing cognitive empathy compared to other domains. The Structured EEM intervention based on the Delphi Technique was found to be effective in increasing all three domains of empathy. The findings of this study suggest that future research on empathy interventions for nursing students should focus on developing methods that specifically enhance affective empathy and empathic behavior. Furthermore, the year of study that requires enrichment for a specific empathy domain can be taken into account in order to choose the suitable and effective intervention method.

Limitations

Researchers found numerous variations of the word empathy (empath, empathic, or empathetic) during the selection process, which were excluded in this process; thus, this is considered as the study limitations. Methodological bias in this review may stem from the predominance of quasi-experimental designs, inconsistent sample sizes, and the contextual influence of local cultures on nursing practice. In order to enhance the sources collected, additional database might be taken into consideration, such as journals on interventions and nursing.

Ethical approval

Ethical issues are not involved in this paper.

Conflicts of interest

All contributing authors declare no conflicts of interest.

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