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Original Article

Effects of a Nonviolent Communication Education Program on Empathy, Interpersonal Relationships, Stress, and Resilience among Korean Nursing Students

#Jung-Ha Park [1], ***#Heeyoung Jung*** [2], ****Yeon Hee Lee*** [3], ****Young Chul Choi*** [4], ***Ki-Hyok Youn*** [5]

1. *Department of Nursing, Dongseo University, Busan, Republic of Korea*
2. *Department of Nursing, Busan Women's College, Busan, Republic of Korea*
3. *Department of Nursing, Dong-Eui University, Busan, Republic of Korea*
4. *Department of Liberal Art, Busan Women's College, Busan, Republic of Korea*
5. *Department of Social Welfare, Tongmyong University, Busan, Republic of Korea*

#The first two authors contributed equally to this work

***Corresponding Authors:** Emails: vandi@deu.ac.kr, cyc18324@gmail.com

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Abstract

Background: This randomized and controlled pre- and post-test experimental study investigated the effects of a nonviolent communication education program on empathy, interpersonal relationships, stress, and resilience among Korean nursing students.

Methods: We included 51 Korean nursing students from a university in Busan Metropolitan City, Republic of Korea, with 26 in the experimental group and 25 in the control group. Data were collected from May to August 2024, and the nonviolent communication education program was conducted for 8 hours daily. To confirm program effectiveness, the participants were asked to practice nonviolent communication during the 5 weeks of participation in the program, and a reflection journal was to be written daily. The collected data were analyzed using descriptive statistics, $\chi 2$-tests, independent *t*-tests, and a repeated-measures analysis of variance.

Results: The over-time change in empathy and interpersonal relationship scores in the experimental group was significantly different from those in the control group ($F=8.540$, $P<0.001$ and $F=3.654$, $P=0.029$, respectively). However, the over-time change in stress and resilience scores in the experimental group was not significantly different from those in the control group ($F=0.366$, $P=0.851$ and $F=0.256$, $P=0.775$, respectively).

Conclusion: The nonviolent communication education program was effective in promoting empathy and interpersonal relationships among nursing students. However, its effects on stress and resilience were not significant. Periodic implementation of the program coupled with stress-relief strategies may be effective. A long-term program must be implemented to verify changes in nursing students' self-understanding. Moreover, further research is needed on the sustainability of the program's effects.

Keywords: Education program; Empathy; Interpersonal relationships; Nonviolent; Nursing students; Stress

Introduction

People cannot live alone, and thus they form social relationships. In order to have stable relationships, they must understand themselves, comprehend the thoughts and actions of others, and share their feelings. It is also important to express their own and others' feelings in appropriate words (1). This is particularly salient for nurses, who must form close relationships with various people in clinical settings and meet their needs. Conversation and communication are essential skills for nurses to perform their duties.

Nonviolent communication is a communication framework developed by Rosenberg that is based on humanism and existentialism and helps one communicate and connect with oneself and others from the heart (2). Nonviolent communication consists of speaking and listening, more specifically "speaking specifically" and "listening with empathy." This speaking and listening involves four processes: observing, identifying feelings, identifying desires, and making requests. Above all, nonviolent communication emphasizes self-empathy and empathy for others (2).

Empathy refers to understanding others and making them feel that they are understood and not alone (1,2). Expressed through verbal and nonverbal behavior, empathy is a core element of supportive relationships and leads to altruistic behaviors (3). This, in turn, promotes the formation of a positive support system and strong interpersonal relationships (3). Nurses must communicate with patients, their guardians, as well as with other healthcare professionals in clinical settings. Being empathetic is a crucial competency for them, as it helps them form therapeutic relationships with patients and perform nursing interventions successfully (4). Studies have shown that communication based on empathy improves relationships with patients and positively affects treatment outcomes (5). However, in clinical settings, many patients do not receive the level of empathy they desire from nurses. This suggests that nursing students must focus on improving their empathy (6). Empathy can be improved through training and education, which makes it requisite for nursing education courses (7). In South Korea, nursing education is largely provided through theory-centered lectures (8). This suggests that nursing education in South Korea must focus on improving nursing students' interpersonal skills through empathy. This will help them form positive relationships with patients, guardians, and colleagues in clinical nursing practice.

Nursing students experience not only the academic stress that general college students experience but also stress related to clinical nursing practice. This degree of stress can negatively affect their academic performance, psychological stability, and clinical practice (9,10). The stress and psychological anxiety experienced by nursing students reportedly increases over time, and interventions are needed to improve their mental health (9,10). Considering that nursing students are responsible for future healthcare services, their stress management can have a significant impact on the quality of healthcare services provided. This makes it necessary to develop intervention methods and to educate nursing students so that they can positively cope with stress (11).

Resilience refers to the personal, social, and psychological characteristics that enable one to fight adversity and adapt and grow. More specifically, it refers to the ability to overcome stressful situations or difficulties (12). Nursing students experience difficulties in adapting to unfamiliar environments during clinical practice training and maneuvering through uncertain clinical situations. This can make it difficult to build resilience, and they may find it challenging to balance uncertainty and self-awareness, make sound decisions, and manage difficult situations (13). Nursing students must possess high levels of resilience to maintain a positive attitude when faced with stressors (14). When resilience is high, one tends to use positive emotions to recover from stressful experiences, and communication skills play a crucial role in effectively expressing these emotions (15). There-

fore, we conducted a nonviolent communication education program among nursing students and examined its effects on their empathy, interpersonal relationships, stress, and resilience. With this objective, this study aimed to seek methods for developing competencies that help nursing students perform duties efficiently in the future. Accordingly, we hypothesized the following:

Hypothesis 1: The over-time change in empathy scores in the experimental group will be significantly different from the change in the control group.

Hypothesis 2: The over-time change in interpersonal relationship scores in the experimental group will be significantly different from the change in the control group.

Hypothesis 3: The over-time change in stress scores in the experimental group will be significantly different from the change in the control group.

Hypothesis 4: The over-time change in resilience scores in the experimental group will be significantly different from the change in the control group.

Materials and Methods

Design

This randomized and controlled pre- and post-test experimental study was conducted to investigate the effects of a nonviolent communication education program on empathy, interpersonal relationships, stress, and resilience of nursing students.

Participants

The participants were college students aged 20 years or older enrolled in the nursing department in Busan Metropolitan City, Republic of Korea, who understood the purpose of the study and voluntarily agreed to participate from May to August 2024. Those who were on medication for a psychiatric diagnosis were excluded. Both the experimental and control group participants were given small rewards for their participation in the study. The nonviolent communication program workshop was conducted on May 25, 2024 in the experimental group and on July 1, 2024 with the control group. In both groups, a pretest was conducted 1 week before the workshop, the main test was conducted on the day of the workshop (after it concluded), and a post-test was conducted 5 weeks after the workshop. The experimental group was instructed to write daily reflection journals using a workbook for 5 weeks following the nonviolent communication program workshop, while the control group only participated in the workshop.

The required sample size was calculated using the G* Power software (G* Power 3.1.9.2, Heinrich-Heine-University, Düsseldorf, Germany). Based on a previous study on a communication education program for nursing students (16), the number of groups was set to two, the significance level was set at 0.05, power (1-β) was set at 0.95, the effect size was set at 0.25, and sphericity assumption was set at 1.00 in the repeated-measures analysis of variance. For these metrics, the required sample size was 44, with 22 participants in each group. After considering a 30% dropout rate, the required sample size was 29 in each group. Sixty participants were recruited in this study. Their assignment to either the experimental or the control group was based on a toss using a coin. Four participants in the experimental group withdrew their participation from their study. Five participants in the control group were excluded due to incomplete questionnaires. Consequently, 51 participants were included in the final analysis, with 26 participants in the experimental group and 25 participants in the control group. Fig. 1 presents a flowchart of how the participants were enrolled in the study.

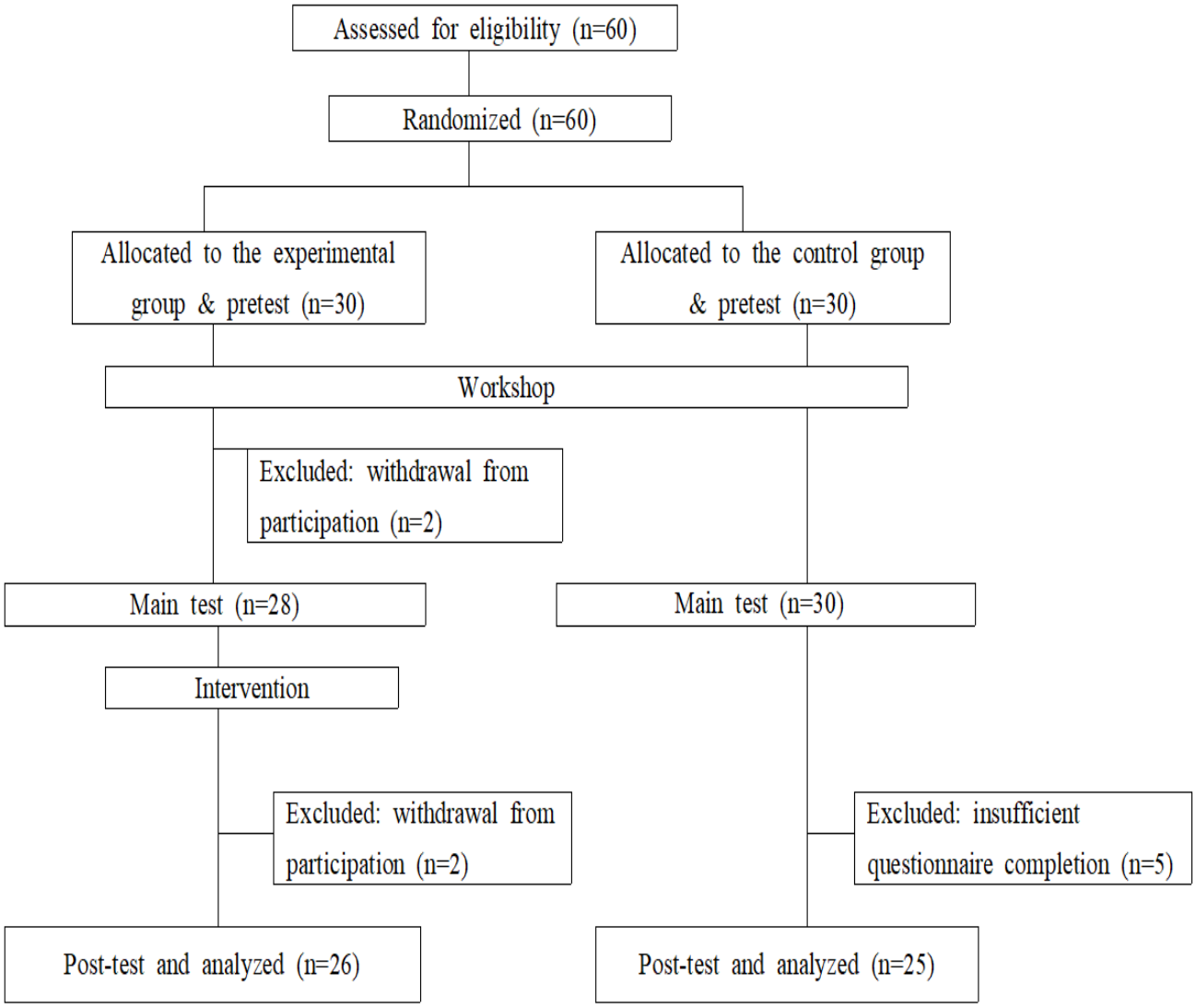

Fig. 1: Flowchart of participant enrolment

Nonviolent communication education program

The nonviolent communication education program faithfully followed the contents of nonviolent communication by referring to Rosenberg's nonviolent communication (2) and the nonviolent communication workbook (17). The program was conducted over 6 hours in a single day, after which participants were instructed to write a daily reflection journal for 5 weeks using a workbook. The first session provided an introduction to nonviolent communication. Sessions 2 to 6 covered the elements of nonviolent communication. The seventh session concluded the program. Table 1 presents the specific contents of the education program. The experimental group was also asked to write a reflection journal daily during the 5 weeks of the education program using a workbook that was designed for them to practice nonviolent communication in daily life (18).

Table 1: Contents of the nonviolent communication education program implemented in this study

Session	Time (minutes)	Theme	Contents	Method
1	30	Introduction to nonviolent communication	General overview of the program and each session Self-connection meditation Ice breaking The principles of nonviolent communication Hindrances in conversation	Meditation Lecture
2	50	Understanding observations	Distinguishing between observation and judgment Expressing oneself through observation Practicing differentiating between observation and judgment	Lecture Discussion Practice
3	60	Identifying feelings Expressing feelings honestly Understanding one's needs and those of others	Understanding words to express feelings Practicing differentiating between feelings and thought Recognizing one's feelings and needs Connecting one's feelings and needs Practicing identifying one's needs	Lecture Practice Roleplay Activity
4	75	Making requests in communication and behavioral language	Understanding requests Practicing differentiating between requesting and compelling Requesting others to respect your feelings and needs	Lecture Practice Roleplay
5	70	Telling frankly Listening with empathy	Understanding empathy Empathetic communication: self-empathy, empathy for others Express empathy applying to the four elements of nonviolent communication factors	Lecture Practice Roleplay
6	50	Expressing gratitude	Express gratitude applying to the four elements of nonviolent communication factors	Lecture Practice
7	25	Self-reflection	Sharing thoughts or feelings on nonviolent communication Providing guidance on practicing nonviolent communication	Group discussion Reflection
Total	360			

Instruments

Empathy

Empathy encompasses showing nonverbal empathy through listening, touch, and body movements and verbal empathy through reflection and paraphrasing based on respect and consideration for the other person (19). Empathy was measured using the Interpersonal Reactivity Index developed by Davis (3). This tool comprises 28 items across two sub-factors: cognitive and emotional empathy. All items were rated on a Likert scale ranging from 1 ("strongly disagree") to 5

("strongly agree"), and higher scores indicated higher levels of empathy. The Cronbach's α of the subscales ranged from 0.70 to 0.78 in Davis's (3) study. In this study, the overall tool demonstrated a Cronbach's α of 0.73.

Interpersonal relationships

Building interpersonal relationships refers to the ability to understand thoughts and emotions, resolve conflicts, and cooperate with the words, actions, and behaviors of others (20). Interpersonal relationships were measured using the relationship change scale developed by Schlein and Guerney (21). This tool consists of 25 items that assess satisfaction with interpersonal relationships (four items), communication (four items), trust (three items), friendliness (three items), sensitivity (two items), openness (five items), and understanding (four items). All items are rated on a Likert scale ranging from 1 ("not at all") to 5 ("always"), and higher scores indicate better interpersonal relationships. The Cronbach's α of the tool was 0.88 at the time of its development (21) and 0.90 in this study.

Stress

The measurement of stress involves quantifying the stress accumulated in the body by synthesizing changes in pulse diversity, conducting a detailed analysis of heart rate distribution, and examining autonomic nervous system balance. In this study, stress was measured using a uBio pulse meter (uBio Clip v70, Biosense Creative Co. LTD, Seoul, Republic of Korea) after having the participant sit in a certain place and rest for 10 minutes. The uBio pulse meter is a portable autonomic nervous system measuring device that can be connected to a personal computer, laptop, tablet, or smartphone. When a finger is inserted into the insertion port of the meter, an LED light coming from the direction of the meter passes through the blood vessels in the finger and generates heart-rate-related data. Stress values of 35 or less denote temporary stress, 35–45 denote initial stress, 45–60 denote tolerance, and 60 or more denote chronic stress (22).

Resilience

Resilience refers to social and psychological characteristics that allow one to adapt to adversity and grow in such situations (12). Resilience was measured using the resilience tool developed by Yang et al (23) for nursing students. The tool comprises 24 items across seven sub-areas: self-confidence (three items), positivity (four items), coping ability (two items), emotional regulation ability (four items), organizational style (three items), relationships (four items), and social support (four items). All items are rated on a 5-point Likert scale ranging from 1 ("not at all") to 5 ("very much"). The total score ranges from 24 to 120, and higher scores indicate higher levels of resilience. The Cronbach's α of the tool was 0.84 at the time of its development (23) and 0.85 in this study.

Data analyses

The collected data were analyzed in the following manner. First, the general characteristics of the participants were analyzed using descriptive statistics, such as frequencies, percentages, means, and standard deviations. Second, $\chi 2$ tests or independent *t*-tests were performed to verify the homogeneity of participants' general characteristics and the research variables between the experimental and control groups. Third, the hypotheses were tested using a repeated-measures analysis of variance. Data were analyzed using a two-tailed test with statistical significance set at $P=0.05$. All statistical analyses were performed using the IBM SPSS Statistics software (version 28.0; IBM Co., Armonk, NY, USA).

Ethical considerations

This study was approved by the Institutional Review Board of Dongseo University, Busan, Republic of Korea (IRB No. 2024-006-HR-01; April 29, 2024). It was conducted in accordance with the principles outlined in the Declaration of Helsinki, and written informed consent was obtained from all participants.

Results

General characteristics of the participants and homogeneity testing

Table 2 presents the general characteristics of the participants. None of the variables differed significantly between the experimental and control groups (P>0.05), and the homogeneity of the study variables at baseline was confirmed.

Table 2: Results of testing the homogeneity of participants' general characteristics and the dependent variables between the experimental and control groups (n=51)

Variable	Categories	Experimental group (n=26)	Control group (n=25)	χ^2 or t	P
Age (years)		25.85±7.16	24.44±4.02	-0.868	0.390
Religion	Christianity	5 (19.2)	8 (32.0)	1.980	0.576
	Catholicism	5 (19.2)	6 (24.0)		
	Buddhism	7 (26.9)	6 (24.0)		
	None	9 (34.6)	5 (20.0)		
Satisfaction with one's major	Satisfied	16 (61.5)	16 (64.0)	0.030	0.543
	Dissatisfied	10 (38.5)	9 (36.0)		
Empathy (points)		3.30±0.33	3.47±0.30	1.937	0.059
Interpersonal relationship (points)		3.59±0.51	3.73±0.28	1.195	0.238
Stress (points)		34.82±10.75	34.84±6.24	0.006	0.995
Resilience(points)		3.62±0.49	3.62±0.38	0.013	0.990

Data are expressed as n (%) or mean±standard deviation.
Tested using χ^2 test or independent t-test.

Hypothesis testing

As shown in Table 3, the over-time change in empathy scores in the experimental group was significantly different from the change in the control group (F=8.540, P<0.001), thus supporting Hypothesis 1. The over-time change in interpersonal scores in the experimental group was significantly different from the change in the control group (F=3.654, P=0.029), thus supporting Hypothesis 2. However, the over-time change in stress scores in the experimental group was not significantly different from the change in the control group (F=0.366, P=0.694), rejecting Hypothesis 3. Similarly, the over-time change in resilience scores in the experimental group was not significantly different from the change in the control group (F=0.256, P=0.775), thus rejecting Hypothesis 4.

Table 3: Comparison of dependent variables between the experimental and control groups over time (n=51)

Variable	Time	Experimental group (n=26)	Control group (n=25)	Source	F	*P*
Empathy	Pretest (1 week before)	3.30±0.33	3.47±0.30	Group	0.017	0.896
	Main test	3.51±0.42	3.41±0.32	Time	3.274	0.042*
	Post-test (5 weeks after)	3.47±0.34	3.43±0.28	Interaction	8.540	<0.001 ***
Interpersonal relationships	Pretest (1 week before)	3.59±0.51	3.73±0.28	Group	0.334	0.566
	Main test	3.67±0.51	3.79±0.34	Time	4.610	0.012*
	Post-test (5 weeks after)	3.82±0.43	3.75±0.38	Interaction	3.654	0.029*
Stress	Pretest (1 week before)	34.82±10.75	34.84±6.24	Group	0.320	0.574
	Main test	35.25±9.63	34.10±9.00	Time	0.064	0.938
	Post-test (5 weeks after)	36.38±10.33	33.97±10.15	Interaction	0.366	0.694
Resilience	Pretest (1 week before)	3.62±0.49	3.62±0.38	Group	0.066	0.798
	Main test	3.62±0.48	3.62±0.40	Time	1.749	0.186
	Post-test (5 weeks after)	3.76±0.47	3.68±0.46	Interaction	0.256	0.775

Data are expressed as mean±standard deviation.
*P<0.05, ***P<0.001; tested using repeated-measures analysis of variance

Discussion

There was a significant difference in the over-time change in empathy scores between the experimental and control groups. This finding aligns with the findings of Cunico et al (1), who found that a nonviolent communication education program improves the empathy skills of nursing students. Therefore, future research should focus on fine-tuning the program to increase its application and usability. Bang et al. (24) conducted a study among clinical nurses and found that nurses with insufficient empathy experience high levels of job stress and increased burnout. Considering that nonviolent communication emphasizes self-empathy and empathy for others, if a nonviolent communication education program is systematically organized and applied to clinical nursing practice education, it may improve nurses' empathy skills, reduce stress and burnout, and even create a positive organizational culture (2).

In this study, the over-time change in interpersonal relationship scores significantly differed

between the experimental and control groups, indicating that the nonviolent communication education program promoted interaction among nursing students and improved their understanding of others and cooperative skills. Nurses must provide nursing care to patients and guardians of different backgrounds and collaborate with numerous healthcare professionals. Nursing students are constantly learning processes to perform their duties as nurses and provide efficient nursing care in the future. A nonviolent communication education program can help them prepare for their role by helping them build strong interpersonal relationships.

The improvement in empathy and interpersonal relationship scores is thought to be the result of applying various teaching methods, such as lectures, discussions, demonstrations, and role-playing, in a small group and training in nonviolent communication in daily life (by asking the participants to write in the reflection journal daily for 5 weeks). A previous study applied a nonviolent communication education program to nursing students (17). Following that study, we created a workbook to make nonviolent communication a habit and provide structured guidance so that students could reflect on their conversations. Future studies should incorporate questions that evaluate the level of reflective thinking in self-reflection activities (25). As the nonviolent communication education program improved empathy and interpersonal relationship skills, it can be utilized as a continuing educational program to further improve the nursing competency of nurses in clinical practice.

There was no significant difference in the overtime change in stress scores between the experimental and control groups. This finding aligns with the results of Sim et al. (26), who found no significant difference in the levels of nurses' stress before and after the implementation of a nonviolent communication program. Although the job stress experienced by nurses is caused by various factors, it changes based on the environment or system, not through a nonviolent communication program. For instance, the level of job stress may change when work is not completed during working hours and is passed on to the next worker (27) or when one performs high-tension physical work (28). Considering the results of previous studies, there are limitations to changes in nurses' communication styles and learning-induced changes (29). Given that nursing students face not only the academic stress experienced by general college students but also stress related to clinical nursing practice, appropriate intervention methods must be developed, and nursing students must be taught to cope with stress with positivity. Furthermore, our results showed that the stress score of the experimental group increased after the intervention, which could be attributed to the psychological burden of writing in the reflection journal daily for 5 weeks. Therefore, the program should be designed from a long-term perspective, and it must be able to induce voluntary motivation and relieve stress.

There was no significant difference in the overtime change in resilience scores between the experimental and control groups. The core essence of resilience is positively accepting adversity and difficulties and using them as opportunities to leap forward, with personal, social, and psychological characteristics playing a salient role (13). In this study, it is possible that participants' personal circumstances might have made it difficult to bring about a change in resilience over the short time period. In addition, the complexity of clinical practice and the uncertainty of clinical situations experienced by nursing students can be obstacles to building resilience. Therefore, a long-term, multifaceted approach is required to strengthen their resilience.

This study has the following limitations. First, because this study was conducted among Korean nursing students at a local university, care must be taken in generalizing the results across the entire country. Second, the research period was short (5 weeks) to observe changes in communication. Third, the research tools used in this study were self-report questionnaires, which have inherent limitations. Nevertheless, this study is salient because it identified the effects of a nonviolent communication education program on

empathy, interpersonal relationships, stress, and resilience of nursing students and provided foundational data for the development of programs that strengthen the core competencies required for nursing. Additionally, this study stands out for quantitatively measuring the outcomes and effects of a nonviolent communication education program rather than relying on qualitative assessments. Through this process, non-verbal communication was emphasized and taught.

Conclusion

The nonviolent communication education program improved empathy and interpersonal relationship skills in nursing students. However, it had limited effects on their stress and resilience levels. The periodic application of such programs along with stress-relief strategies may prove useful. Future studies should assess changes in the self-understanding of nursing students when they continue writing a reflection journal. Additionally, further research must be conducted on the sustainability of the program's effects.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of Interest

The author declares no conflicts of interest.

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