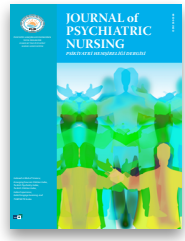
JOURNAL OF
PSYCHIATRIC NURSING

DOI: 10.14744/phd.2025.62558
J Psychiatric Nurs 2025;16(3):195-203



Original Article

Moderating role of CBT-based art and expressive eclectic nursing interventions on anger and assertiveness: An interventional study

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Abstract

Objectives: This study aimed to examine the effects of eclectic nursing interventions on functional anger and assertiveness in young adults.

Methods: The cross-sectional interventional pretest–posttest design study sample consisted of 16 undergraduate nursing students who were at risk for anger and had above-average scores on the Trait Anger subscales of the State–Trait Anger Expression Inventory. The intervention was prepared by integrating the basic principles of cognitive behavioral theory with psychodramatic-directed warm-up games and expressionist art interventions. Ten sessions of the eclectic intervention program were implemented, and pretest, posttest, and follow-up data were collected using the Rathus Assertiveness Inventory and the State-Trait Anger Expression Inventory.

Results: Repeated measurements between the dependent groups after the program revealed a statistically significant difference in total and sub-dimension anger and assertiveness scores ($p<0.05$). This difference, observed as a result of the intervention program, remained significant in the long term.

Conclusion: The present study suggests that brief art-integrated psychotherapeutic nursing interventions may be helpful in promoting assertiveness and regulating anger in undergraduate students. CBT-based art and expressive eclectic courses may be incorporated into undergraduate curricula for health promotion and may therefore contribute to well-being and protect against burnout.

Keywords: Anger; assertiveness; communication; nursing students

It is important to express anger clearly, productively, and assertively, using good communication skills to maintain one's well-being. Assertiveness, as a skill and functional communication attitude, is one of the main components of social interactions. Relevant studies have shown that communication skills affect young adults both personally and professionally.[1–7] Despite this, it has been reported that nurses and nursing students, as young adults, require anger regulation support.[8,9] When intra/interpersonal conflicts are not resolved, feelings of anger occur frequently,[10,11] which, if not managed properly, can negatively affect individuals, their interpersonal communication, and interactions.[3,12,13] Therefore, having good communication skills that enable one to express anger clearly, productively, and assertively is important.[11]

This study was presented at 5th Horatio World Festival of Psychiatric Nursing in the Copenhagen, Denmark May 9–12, 2019.

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Submitted Date: December 30, 2024 **Revised Date:** June 25, 2025 **Accepted Date:** July 28, 2025 **Available Online Date:** October 07, 2025
Journal of Psychiatric Nursing - Available online at www.phdergi.org

It has been emphasized that assertiveness is a skill that should be learned and acquired by candidate nurses during their undergraduate education.[7,14] In this context, this study investigates the effects of an education program planned with consideration of current research on empowering communication skills on anger, anger expression style, and assertiveness levels of student nurses.

In this study, the effects of cognitive-behavioral theory (CBT)-based art and expressive eclectic interventions on functional anger and assertiveness in young adults were examined. The statistical significance of the short- and long-term changes in the State-Trait Anger Expression Inventory (STAXI) scores—specifically the Trait Anger, Anger Control, Anger-In, and Anger-Out sub-dimensions—and Rathus Assertiveness Inventory (RAI) scores after undergoing communication skills training were tested. The hypotheses of this research were:

H1a: There will be a statistically significant difference in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI across the three time points (pre-test, post-test, follow-up).

H1b: There will be a statistically significant difference in the RAI (assertiveness) scores across the three time points (pre-test, post-test, follow-up).

H1c: There will be a statistically significant increase in RAI (assertiveness) scores in the short term (post-test vs. pre-test).

H1d: There will be a statistically significant increase in RAI (assertiveness) scores in the long term (follow-up vs. pre-test).

H1e: There will be a statistically significant reduction in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI in the short term (post-test vs. pre-test).

H1f: There will be a statistically significant reduction in the Trait Anger, Anger-In, Anger-Out, and Anger Control sub-dimension scores of STAXI in the long term (follow-up vs. pre-test).

H1g: The changes in RAI and STAXI scores after the intervention will significantly predict each other in the short term.

H1h: The changes in RAI and STAXI scores after the intervention will significantly predict each other in the long term.

This research is expected to contribute to the development of communication-oriented emotional regulation skills in nursing students by examining the effects of CBT-based art and expressive eclectic interventions. It may serve as a guiding model for integrating short-term, cost-effective, and evidence-based intervention programs into undergraduate nursing education. Moreover, the outcomes of this study may provide insights for improving the emotional well-being, patient communication, and professional resilience of future nurses. By enabling nursing students to manage intra- and interpersonal conflicts more effectively, this program has the potential to enhance patient care quality and reduce professional burnout.

What is presently known on this subject?

- Anger management and assertiveness are skills that nursing students are required to develop.

What does this article add to the existing knowledge?

- The communication skills program conducted with an eclectic approach improves assertiveness and reduces anger in nursing students.

What are the implications for practice?

- The research offers a short-term, cost-effective program for nursing students and nurses.

Materials and Method

Study Design

The research had an interventional pretest–posttest design with follow-up measurements. This manuscript was prepared in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines (Appendix 1).[15]

Setting and Sample

The research was conducted with second-year nursing students at a nursing faculty in Izmir, Türkiye—the country's third-largest city by population. This location was chosen because the theoretical effective communication skills course and the practice module, wherein the student nurses would work with patients for the first time, were both included in the second-year curriculum.

The universe of the research consisted of second-year nursing students in a nursing faculty (N=297). The inclusion criterion of the study was the frequent feeling of anger, according to the STAXI. The STAXI was administered to the universe to determine the target group, and 25 student nurses who had above-average scores (min: 25.00, max: 33.00) on the Trait Anger subscale were identified.

The sample of the study consisted of 16 student nurses from the target group who met the inclusion criteria of the research, participated in at least eight of the intervention sessions, and completed the posttest and follow-up measurements (n=16). The inclusion and exclusion criteria are as follows:

Inclusion Criteria

Student nurses who were determined to be in the risk group of trait anger by objective measurement tools and volunteered to participate in the research.

Exclusion Criteria

Student nurses who suffered from a sensory organ disability and were unable to comply with the intervention sessions due to their living conditions.

Table 1. The content of CBT-based art and expressive eclectic communication skills program

Session	Content
1. Session	Providing information on communication skill training.
2. Session	Session Name: Introducing self and accepting.
	Session Objective: Initiating the self-awareness study for student nurses with appropriate questions and guidance.
3. Session	Session Name: Recognition and expression of emotions.
	Session Objective: Being aware of your own feelings.
4. Session	Session Name: Expressing cases causing anger, identifying cases where anger cannot be controlled.
	Session Objective: Experiencing anger (in vivo) in the group setting.
5. Session	Session Name: What is the problem? Is that a real problem? Identifying cognitive distortions.
	Session Objective: Being able to recognize the real problem, establish the connection between affect-behavior-cognition, and identifying cognitive distortions.
6. Session	Session Name: Use of "I Language", breathing and relaxation exercise, systematic desensitization (imagination).
	Recognizing the preparatory elements in the development of anger (anterior processes) as well as individual responses in an anger situation.
	Being aware of effective ways to express your anger and developing an action plan for yourself.
7. Session	Session Name: Use of "I Language" in anger, breathing and relaxation exercise, systematic desensitization (imagination).
	Session Objective: Expressing anger assertively using I language, Being able to apply breathing relaxation exercises for anger management.
8. Session	Session Name: The use of sense of humor in anger and environmental control.
	Session Objective: To determine the tendency of nursing students to use humor in anger management.
	Increasing the functionality of nurse students' use of humor.
	Developing future plans associated with potential humor intellection.
9. Session	Session Name: Old me - new me, evaluating personal change.
	Session Objective: Comparing the levels of anger management and assertiveness at the start of training to the present levels.
10. Session	Session Name: Final assessment.
	Session Objective: Application of post-tests (STAXI and RAI).

CBT: Cognitive-behavioral theory; STAXI: The State-trait anger expression inventory; RAI: Rathus assertiveness inventory.

To determine the power of the study, computed achieved power post hoc analysis was performed. The G*Power 3.1.9.2 program was used at the end of the practice; assertiveness scores were examined with an error rate of 0.05. The data obtained at three repeated measurements in independent groups were analyzed using ANOVA (within factors). The effect size was found to be 0.93 (Cohen's f); the alpha value was 0.05; and power was calculated as 0.99.

Variables

The means of the STAXI and RAI scores constituted the dependent variables of the study. The descriptive characteristics of the participants and the CBT-based art and expressive eclectic interventions constituted the independent variables.

Intervention

In this study, the "Communication Skills Training Program" was developed by integrating the core principles and techniques of Cognitive Behavioral Therapy (CBT) with psychodrama-based warm-up games and expressionist art therapy activities, and was implemented in the form of group sessions. The sessions were structured to help individuals recognize themselves and their emotions—particularly anger—identify their anger and expression styles, become aware of cognitive distortions, and initiate change in these areas. The CBT-based eclectic interventions incorporating art and expressive methods are presented in Table 1.

The sessions were conducted in the university's Mental Health Skills Laboratory. Held once a week, each session lasted approximately 90–120 minutes. All developers and implementers of the program were specialist psychiatric nurses. Among them, five were certified cognitive behavioral therapists (Author 2, 3, 4, 5, 6), one was a psychodramatist and dance therapist (Author 1), and two were practitioners of art therapy (Author 3, 6). The intervention with participating students was carried out outside of class hours, and during the program period, these students did not attend any courses conducted by the project team.

Instruments

Introductory Information Form

It is a nine-question form that evaluates information regarding the participants' age, gender, employment status in a health institution, place of residence, participation in regular activities, continuation of any personal development or therapy program, and diagnosis of physical or mental illness.

Rathus Assertiveness Inventory (RAI)

The scale, originally developed by Rathus in 1973, was adapted into Turkish and its validity and reliability were studied by Voltan. Voltan determined the alpha consistency coefficient of the inventory as 0.70 and the test–retest reliability as 0.92. [16] The inventory can be applied to adolescents and adults, and consists of 30 items: 17 with negative expressions and 13 with positive expressions. Those who score "+10" and below are considered non-assertive, and those who score above "+10" are considered assertive.[16,17] The scale was found to be moderately reliable for this sample (Cronbach's α=0.66).

State-Trait Anger Expression Inventory (STAXI)

The scale was developed by Spielberger et al.[18] and adapted into Turkish by Özer.[18,19] It is a 4-point Likert-type scale consisting of two subscales (State - Trait Anger and Anger Expression), three sub-dimensions, and 34 items in total. The Anger Expression subscale consists of three sub-dimensions: Anger Control, Anger-In, and Anger-Out. Trait anger indicates that anger is experienced as a general emotion with high frequency; Anger Control indicates that anger is under control; Anger-Out indicates that anger is easily expressed; and Anger-In indicates that anger is often suppressed (as cited in Öner).[20] The reliability coefficients of the Turkish version of the scale were 0.79 for Trait Anger, 0.84 for Anger Control, 0.78 for Anger-Out, and 0.62 for Anger-In.[20] In this research, the sub-dimensions of Trait Anger and Anger-In were found to be sufficiently reliable (0.62 and 0.63, respectively), whereas the Anger Control and Anger-Out sub-dimensions showed high reliability (0.86 and 0.81, respectively). In accordance with these findings, STAXI was accepted as a valid and reliable measurement tool for this study.

Public data sharing is applicable to this article (doi:10.17632/8g72y2z7hp.1).

Data Collection/Procedure

To identify the target group in the study, the Introductory Information Form, STAXI, and RAI were administered face-to-face to students in the classroom during breaks. Students who met the inclusion criteria and were deemed suitable for group work were invited to participate via telephone. At the end of the intervention, the posttest and follow-up assessments, conducted six months after completion of the intervention, were also administered face-to-face using the STAXI and RAI. Each data collection session took approximately 15 minutes. Written and verbal informed consent was obtained from the students.

Data Analysis

The Shapiro–Wilk test was used to determine the fitness of data to the normal distribution. The difference in repeated measurements of mean STAXI scores at different times in the same group was examined using Levene's variance homogeneity test and Mauchly's sphericity test, within the scope of repeated variance analysis. The multivariate test from repeated variance analysis was used for scale sub-dimensions that did not meet Mauchly's sphericity test. Bonferroni correction was applied for advanced analyses to determine from which group the significant difference originated. Friedman's test was used to test the significance of differences between dependent groups in repeated measurements of mean RAI scores at different times. Paired group comparisons were carried out for further analyses. The correlation between RAI and STAXI was examined by dual linear regression analysis, and autocorrelation and linearity were tested. Statistical significance was accepted as $p<0.05$.

Ethical Permissions

This research involving humans was approved by the Ege University Institutional Review Board (26/04/2016, ID:158) and conducted in accordance with national and international standards. Participants were informed about the purpose of the study, that their identities would be kept confidential, that participation was voluntary, and that the data would not be used for any other purposes. Informed consent was obtained from all participants. Any potential conflicts of interest were disclosed. The research team included certified art-based psychosocial specialists, CBT therapists, and a psychodrama therapist. The study was conducted in compliance with the principles of the Declaration of Helsinki.

Results

Of the 16 student nurses included in the study, 14 were women; half of them lived in a student dormitory (31.2% lived with their families, 18.8% lived in a student apartment). The mean age of the student nurses was 20.50±0.73 years (min=20.0, max=22.0).

According to the health histories of the students, one was determined to have a history of a genetic physical disease (Mediterranean anemia). No student nurse had been diagnosed with a psychiatric disorder. Two student nurses were found to have previously received training on anger or assertiveness, while one was determined to have participated in activities for personal development. These activities were provided by the students' faculties and non-governmental organizations for young individuals.

Changes in the STAXI and the RAI Scores

Between the dependent groups, repeated measurements after intervention revealed a statistically significant difference in the student nurses' total STAXI and sub-dimension scores and mean RAI scores (Table 2, $p<0.05$). This difference, observed as a result of the training, was significant in the long term. However, it was found that there was no significant change in the anger scores in the long term.

Table 2. Distribution of student nurses according to mean STAXI and RAI scores (n=16)

Mean scale scores	Pre-test mean±SD	Post-test mean±SD	Follow-up mean±SD	Statistical significance
Mean STAXI scores				
Trait Anger	24.44±5.91	19.25±4.82	22.94±4.65	F=12.080[a] p<0.01
Anger expression				
Anger control	21.00±4.07	23.56±3.52	22.31±2.65	F=3.347[b] p<0.05
Anger out	17.93±3.32	15.50±2.89	16.19±3.12	F=6.884[b] p<0.01
Anger in	19.56±3.50	15.75±4.34	18.00±5.28	F=5.390[b] p<0.05
Mean RAI scores	14.69±16.99	9.19±8.91	22.25±27.76	X^2=17,238[c] p<0.001

[a]: Repeated measures anova; [b]: Multivariate mesures; [c]: Friedman test. STAXI: State-trait anger expression inventory; RAI: Rathus assertiveness inventory; SD: Standart deviation.

In the analyses performed for the change in the mean STAXI and RAI scores after the intervention, it was found that anger and assertiveness scores did not predict each other in terms of short-term changes after the intervention, and that the difference that occurred in the independent variables after the intervention could not be explained by the increase or decrease in each other (p>0.05).

When the findings obtained from the follow-up measurements were examined, a statistically significant regression was found between the mean follow-up scores of RAI and the STAXI Anger-In sub-dimension (F(1,14)=13.710; p<0.05). A total of 49.5% of this statistically significant change in the RAI follow-up scores can be explained by the change in STAXI Anger-In follow-up measurement scores (Table 2).

Hypotheses H1a, H1b, H1c, H1d, and H1e were supported by the findings. Hypotheses H1f and H1g were rejected based on the lack of statistically significant long-term change in STAXI scores and the absence of short-term predictive relationships between RAI and STAXI. Hypothesis H1h was partially supported, as a significant predictive relationship was found specifically between the follow-up RAI scores and STAXI Anger-In scores (Table 3).

Discussion

The statistical significance regarding the short- and long-term changes in the STAXI Trait Anger, Anger Control, Anger-In, and Anger-Out sub-dimension scores and in the RAI scores after the communication skills training was tested in the research.

Short-term Moderating Roles of CBT-based Art and Expressive Eclectic Interventions on Anger and Assertiveness

Repeated measurements revealed a statistically significant difference in students' total STAXI sub-dimension scores and mean RAI scores (p<0.05). It was determined that Trait Anger, Anger-In, and Anger-Out scores decreased, while Anger Control scores increased in the posttest measurements. According to the regression analysis, it was determined that communication skills training had an effect on this change. All the null hypotheses of the study were rejected for all the scales' total and sub-dimensions for the short term. This difference observed as a result of the training was significant in the long term. However, it was found that there was no significant change in the anger scores in the long term (p>0.05).

In the training, art-based practices and concretization and expression of feelings and thoughts,[21] effective regulation of anger with cognitive-behavioral techniques, and assertive expression were emphasized. In other words, not only did the invisible become visible, but the change was also investigated. It is possible that short-term emotional relaxation and awareness were experienced when the participants paid attention to their own and their peers' anger, and that anger was experienced and recognized in different forms. In the research, it was determined that anger outcomes did not last long. Therefore, it can be considered open for improvement in terms of providing permanence through behavior change. For this, various practices with similar realistic experience (i.e., homework) can be recommended.

Long-term Moderating Roles of CBT-based Art and Expressive Eclectic Interventions on Anger and Assertiveness

Effects on Trait Anger and Anger Expression

In the follow-up test, it was determined that this change did not remain for the long term. The hypothesis is that Communication Skills Training provided in the research causes statistically significant changes in the student nurses' anger styles and expression scores in the short term and in assertiveness scores in both the short and long terms.

Table 3. Correlation between mean STAXI and RAI scores (n=16)

Variables	1	2	3	4	5	6	7	8	9	10
[1]STAXI trait anger post-test		rho=0.624[a]	rho=-0.467	rho=-0.763[a]	rho=0.585[b]	rho=0.401	rho=0.347	rho=0.456	rho=0.090	rho=-0.027
		p=0.010	p=0.068	p=0.001	p=0.017	p=0.124	p=0.188	p=0.076	p=0.739	p=0.920
[2]STAXI trait anger follow-up	rho=0.624[a]	rho=-0.237		rho=-0.478	rho=0.302	rho=0.050	rho=0.270	rho=0.490	rho=-0.199	rho=-0.017
	p=0.010	p=0.377		p=0.061	p=0.255	p=0.854	p=0.312	p=0.054	p=0.459	p=0.950
[3]STAXI anger control post-test	rho=-0.467	rho=-0.237		rho=0.465	rho=-0.703[a]	rho=-0.628[a]	rho=-0.113	rho=0.007	rho=-0.072	rho=-0.241
	p=0.068	p=0.377		p=0.069	p=0.002	p=0.009	p=0.678	p=0.978	p=0.792	p=0.368
[4]STAXI anger control follow-up	rho=-0.763[a]	rho=-0.478	rho=0.465		rho=-0.489	rho=-0.397	rho=-0.497[b]	rho=-0.537[b]	rho=-0.334	rho=0.391
	p=0.001	p=0.061	p=0.069		p=0.054	p=0.128	p=0.050	p=0.032	p=0.206	p=0.134
[5]STAXI anger out post-test	rho=0.585[b]	rho=0.302	rho=-0.703[a]	rho=-0.489		rho=0.783[a]	rho=0.244	rho=0.064	rho=0.058	rho=0.068
	p=0.017	p=0.255	p=0.002	p=0.054		p<0.001	p=0.362	p=0.813	p=0.831	p=0.804
[6]STAXI anger out follow-up	rho=0.401	rho=0.050	rho=-0.628[a]	rho=-0.397	rho=0.783[a]		rho=-0.034	rho=-0.035	rho=-0.174	rho=0.261
	p=0.124	p=0.854	p=0.009	p=0.128	p<0.001		p=0.900	p=0.898	p=0.519	p=0.329
[7]STAXI anger in post-test	rho=0.347	rho=0.270	rho=-0.113	rho=-0.497[b]	rho=0.244	rho=-0.034		rho=0.701[a]	rho=0.222	rho=-0.745[a]
	p=0.188	p=0.312	p=0.678	p=0.050	p=0.362	p=0.900		p=0.002	p=0.208	p=0.001
[8]STAXI anger in follow-up	rho=0.456	rho=0.490	rho=0.007	rho=-0.537[b]	rho=0.064	rho=-0.035	rho=0.701[a]		rho=-0.033	rho=-0.643[a]
	p=0.076	p=0.054	p=0.978	p=0.032	p=0.813	p=0.898	p=0.002		p=0.905	p=0.007
[9]RAI mean post-test	rho=0.090	rho=-0.199	rho=-0.072	rho=-0.334	rho=0.058	rho=-0.174	rho=0.222	rho=-0.033		rho=-0.334
	p=0.739	p=0.459	p=0.792	p=0.206	p=0.831	p=0.519	p=0.208	p=0.905		p=0.207
[10]RAI mean follow-up	rho=-0.027	rho=-0.017	rho=-0.241	rho=0.391	rho=0.068	rho=0.261	rho=-0.745[a]	rho=-0.643[a]	rho=-0.334	
	p=0.920	p=0.950	p=0.368	p=0.134	p=0.804	p=0.329	p=0.001	p=0.007	p=0.207	

[a]: Strong (0.60–0.79); [b]: Moderate (0.40–0.59), rho: Spearman correlation; STAXI: The state-trait anger expression inventory; RAI: Rathus assertiveness inventory.

It is seen in the literature that cognitive-behavioral techniques are frequently used in interventional studies.[13,22,23] Similar to the research, the awareness of emotions progresses toward the functional regulation of anger.[23,24] When the studies conducted with university students were examined, Özmen reported that training on coping with anger based on selection theory and reality therapy (15 in the interaction group, 15 in the placebo group, 15 in the control group) was effective in reducing inner anger.[25] In the study conducted by Özkamalı and Buğa, eight sessions of anger control training were given to 28 university students (14 in the experimental group, 14 in the control group).[26] At the end of the training, which included topics such as relaxation techniques, communication skills, and cognitive distortions, it was determined that there was a decrease in the Trait Anger levels of the students and that this decrease was permanent, based on the follow-up test performed after three months. Karahan et al.[27] conducted an 11-session focus group discussion-based study with 32 university students (16 in the experimental group, 16 in the control group), and it was found that anger control levels improved at the end of the cognitive-behavioral therapy-based program. It was concluded that the implemented program had a long-term effect, according to the follow-up tests. In the study conducted by Bilge and Keskin, in which they provided psychoeducation on anger using psychodrama techniques, it was found that the anger levels of 28 health school students decreased and that their anger control skills increased.[12]

Various concepts, such as coping with anger, controlling, and examining anger, are used in applied studies in the literature. However, all of them can be considered theory-based skills development programs. This study contributed to the literature with art-based practices in addition to cognitive-behavioral therapies, which are frequently used in anger studies. It can be said that the research conducted by Ekitli and Özgür is one of the unique examples of CBT-based art and expressive eclectic interventions similar to ours. They demonstrated evidence-based short- and long-term effects of eclectic CBT-based musical interventions in nursing students with risky anger traits.[28] In their study, the newly developed eclectic interventions reduced the students' tendencies to experience inappropriate expressions of anger more effective-

ly and were shown to have a stronger effect than non-eclectic ones. It can be suggested that this diversity enriched the therapeutic effect of training as well as learning, and that multifaceted approaches reinforced the interest of participants in the continuation of a long-term (such as ten-session) training program.

This study is in line with the literature, both in terms of training content and the number of sessions. In terms of the follow-up test, it was found that there were no long-term changes in Trait Anger and anger expression styles, and results different from those in the literature were obtained. In contrast, although it was not statistically significant, Trait Anger, Anger-Out, and Anger-In scores were lower in the follow-up test findings than those in the pretest, and the mean Anger Control was higher. This could be explained by the fact that the study was carried out with a group with high anger scores and that no intervention was made for individual problems of the students other than anger.

Effects on Assertiveness

It was ascertained in this study that the participants who were considered to be non-assertive according to the RAI started to achieve positive values after the CBT-based art and expressive eclectic interventions, that they had increased assertiveness, and that this increase was long-lasting. This means that after communication skills training, the nursing students achieved positive behavioral changes regarding their assertiveness. It was determined that the short-term change (posttest) was the result of communication skills training and that the best predictor of the long-term change in the follow-up test was the Anger-In score. Assertiveness can be increased if inner anger is regulated effectively. Thus, it can be suggested that inner anger can be reduced with an increase in assertiveness. It is possible that instead of experiencing anger, the ability to assertively express oneself was achieved.

It was established from various studies that the assertiveness levels of university students can be increased after 9 to 14 intervention sessions.[7,29–31] Adana et al.[32] found that a three-session communication skills program increased the level of assertiveness in nurses (n=103) and provided a behavior change. It is known that conducting assertiveness training with different teaching techniques improves the effectiveness of the intervention.[5] Tavangar and Yazdkhasti stated that they had a positive effect in the short and long term on the self-assertiveness levels of students by using psychodrama and cognitive restructuring techniques.[33] Albal et al.[34] mentioned that emotional communication skills could be improved through psychodrama. Our research is similar to other studies in terms of using different teaching techniques. Accordingly, the training program developed in this study may be considered in line with their objectives. However, this research differs in terms of the theoretical background of the training (art-based, cognitive-behavioral techniques) and the fact that assertiveness and anger were investigated together. In addition, due to the limited number of existing studies with follow-up tests and evaluations of the long-term impact, this study contributes to the relevant literature.

Limitation & Implication

The absence of a control group in the study negatively affects the study's strength. In addition, it reveals the effect of the nursing interventions only within the duration of the study.

Implications for Nursing Practice

It is seen that this program, created by psychiatric nurses with an eclectic approach, has an effect on increasing anger management and assertiveness skills in nursing students. Programs created with an eclectic approach supporting anger management and assertiveness skills in nursing education and in-service training of nurses can protect and increase nurse well-being. The program created in this study contributes to the field in terms of being structured, short-term, and cost-effective.

Conclusion

It was determined that the Trait Anger, Anger-In, and Anger-Out scores of the study participants decreased in the posttest measurements, and that Anger Control scores increased. This effect was found to be directly associated with the communication skills training, and it was determined through the follow-up tests that the effect did not remain in the long term. In contrast, there were both long-term and short-term positive changes in assertiveness levels. It may be necessary to increase and consolidate such CBT-based art and expressive eclectic interventions to ensure a long-term effect. Since this study involved university students, it indicates that courses to improve these skills should be incorporated into undergraduate curricula for health promotion.

This research contributed to the literature with its original practices, because the study was conducted with student nurses—a group of subjects on whom a limited number of studies have previously been done. Based on the findings of the newly developed eclectic communication skills training program, the following recommendations are made:

- CBT-based art and expressive eclectic courses to improve communication skills should be incorporated into undergraduate curricula for health promotion.
- The content of the communication skills training program should be determined in such a way that the introverted dimension of anger is emphasized to support permanence.
- The interventions should be repeated for lasting effectiveness.
- Studies must be conducted with control groups.
- The causes of change should be investigated using a qualitative research methodology.

Ethics Committee Approval: The study was approved by the Ege University Ethics Committee (no: 158, date: 26/04/2016).

Informed Consent: Written and verbal informed consent was obtained from the students.

Conflict of Interest Statement: The authors declare that there is no conflict of interest.

Funding: This research was funded by Ege University Scientific Research Projects Coordination as a scientific project. Funding source has no role in research design. Grant numbers: 2016 – HYO-006.

Use of AI for Writing Assistance: No AI technologies utilized.

Authorship Contributions: Concept – M.O.Ç., Ş.D., E.Ö.T., G.B.E., H.D., E.M.T.; Design – M.O.Ç., Ş.D., E.Ö.T., G.B.E., H.D., E.M.T.; Supervision – M.O.Ç., Ş.D.; Funding – E.Ö.T., G.B.E., H.D., E.M.T.; Data collection &/or processing – E.Ö.T., G.B.E., H.D., E.M.T.; Analysis and/or interpretation – E.Ö.T., G.B.E., H.D., E.M.T.; Literature search – E.Ö.T., G.B.E., H.D., E.M.T.; Writing – E.Ö.T., G.B.E., H.D., E.M.T.; Critical review – M.O.Ç., Ş.D.

Acknowledgments: Our we thank Ege University Scientific Research Projects Coordination funded this study.

Peer-review: Externally peer-reviewed.

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Appendix 1. STROBE statement—checklist of items that should be included in reports of cross-sectional studies

	Item no	Recommendation	Page no
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	3
Methods			
Study design	4	Present key elements of study design early in the paper	3
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	3–4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	3–4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5–6
Bias	9	Describe any efforts to address potential sources of bias	6
Study size	10	Explain how the study size was arrived at	3–4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4,5–6
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	6
		(b) Describe any methods used to examine subgroups and interactions	–
		(c) Explain how missing data were addressed	4
		(d) If applicable, describe analytical methods taking account of sampling strategy	–
		(e) Describe any sensitivity analyses	4,5–6
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	3,6
		(b) Give reasons for non-participation at each stage	None
		(c) Consider use of a flow diagram	No need
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6
		(b) Indicate number of participants with missing data for each variable of interest	none
Outcome data	15*	Report numbers of outcome events or summary measures	6–7
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6–7
		(b) Report category boundaries when continuous variables were categorized	–
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	–
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6–7
Discussion			
Key results	18	Summarise key results with reference to study objectives	7–10
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	10
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7–10
Generalisability	21	Discuss the generalisability (external validity) of the study results	11,12
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	11

*: Give information separately for exposed and unexposed groups. An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.