



Effects of Five-Finger Relaxation on Stress, Pain, and Anxiety in Breast Cancer Patients Undergoing Treatment

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Article Info

Article History:

Received:

29 April 2026

Revised:

16 June 2026

Accepted:

22 August 2026

Published:

30 September 2026

Keywords:

Anxiety

Breast Cancer

Five Finger Relaxation

Pain

Stress

Abstract

Complications and side effects of breast cancer and its treatment include psychological distress, pain, fatigue, and gastrointestinal problems. The five-finger relaxation technique is a complementary therapy that may help alleviate these symptoms. This study examined the effect of the five-finger relaxation technique on stress, pain, and anxiety among breast cancer patients undergoing chemotherapy. A quasi-experimental pre-test–post-test control group study was conducted from August 2024 to February 2025. Forty breast cancer patients undergoing their first cycle of chemotherapy were recruited and assigned to intervention (n = 20) and control (n = 20) groups. The intervention group practiced the five-finger relaxation technique three times daily for three consecutive days (10–15 minutes/session), while the control group received standard care. Stress, pain, and anxiety were measured using the Depression Anxiety Stress Scale (DASS), Brief Pain Inventory (BPI), and Generalized Anxiety Disorder-7 (GAD-7). Data were analyzed using paired- and independent-sample t-tests. Significant differences were found between the intervention and control groups in stress ($p < 0.001$, Cohen's $d = 5.314$), pain ($p < 0.001$, Cohen's $d = 5.452$), and anxiety ($p < 0.001$, Cohen's $d = 1.194$). The intervention demonstrated substantial reductions in all three outcomes. The five-finger relaxation technique may be an effective complementary intervention for reducing stress, pain, and anxiety among breast cancer patients undergoing chemotherapy. However, the findings should be interpreted cautiously due to the quasi-experimental design and relatively small sample size.

Citation:

Dewi, R., Budhiana, J., Melinda, F., Waliyu, R.P., & Trianasari, N. (2026). Effects of Five-Finger Relaxation on Stress, Pain, and Anxiety in Breast Cancer Patients Undergoing Treatment. *MEDICA (International Medical Scientific Journal)*, 8(9), 1008–1020. <https://doi.org/10.53770/medica.v8i9.992>

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1. INTRODUCTION

Worldwide, cancer is the primary disease that lead to sickness and death with more than 19 million of the world's breast cancer patients account for 11.7%. The most prevalent malignancy among women is breast cancer. Besides lung cancer, the cancer with the highest incidence and risk of harm in women is breast cancer. There are 390 thousands cancer cases with a mortality rate of 140 person per 100,000 patient, especially in Indonesia, breast cancer is the most ordinary cancer with more than 65,000 cases (Dewi et al., 2022; Giaquinto et al., 2022). Breast cancer is a tumor that primarily develops from epithelial cells lining the breast organs and tissues, and grows uncontrollably in one or both breasts. Swelling of all or part of the breast, orange peel-like skin, dimple-like skin, breast or nipple pain, inverted nipple, red, dry, flaky skin or thicker skin on the nipple, and discharge from the nipple on the outside, swollen lymph nodes under the arm or near the collarbone and breast milk (Febriani et al., 2024).

Currently available clinical treatments for breast cancer include endocrine therapy, local radiation, systemic chemotherapy, and surgery. Gastrointestinal problems, fatigue, pain, and emotional instability are among the side effects and complications associated with cancer and its treatment. Additionally, patients with breast cancer frequently experience mental disorders such worry, stress, and despair. For patients with breast cancer, complementary therapy is an alternative non-pharmacological treatment that can assist manage emotional problems like stress, anxiety, and depressed symptoms as well as lessen pain (Dewi et al., 2022; Liu et al., 2022).

Previous studies have demonstrated the effectiveness of various relaxation-based interventions in reducing psychological distress among breast cancer patients. A systematic review and meta-analysis by Sinha et al. (2021) reported that progressive muscle relaxation and guided imagery significantly reduced anxiety, stress, and psychological distress while improving quality of life among women with breast cancer. Similarly, a recent systematic review by Ding et al. (2024) found that several non-pharmacological interventions, including mindfulness-based interventions, yoga, cognitive-behavioral stress management, relaxation training, and self-regulation techniques, were effective in reducing perceived stress among breast cancer patients. These findings support the growing role of mind-body interventions as complementary approaches in comprehensive cancer care.

The beneficial effects of relaxation-based interventions can be explained through several physiological and psychological mechanisms. Relaxation techniques are believed to reduce sympathetic nervous system activity, enhance parasympathetic activation, decrease cortisol secretion, and improve emotional regulation. These responses may reduce psychological distress and alter pain perception through cognitive distraction, increased self-control, and improved coping abilities. Consequently, relaxation-based approaches have become increasingly important in helping patients cope with the physical and psychological challenges associated with cancer treatment (Ding et al., 2024).

One additional therapy to counteract the negative effects of breast cancer treatment is the five-finger relaxation technique. The guided imagination dictation method, which includes the five-finger relaxation technique, helps patients visualize and concentrate on positive concepts in order to gradually forget and divert their attention from the issue. Five-finger relaxation works well to eliminate emotional problems in the subconscious, where they are processed. The five-finger technique, which involves recalling pleasurable former experiences, is a popular relaxation technique. By guiding the subconscious mind back to enjoyable memories, five-finger relaxation creates a calming and comfortable sensation that immediately lessens pain, tension, anxiety, and other emotional issues (Probowati et al., 2024).

Although previous studies have reported the effectiveness of various relaxation-based interventions, evidence regarding the five-finger relaxation technique among breast cancer patients remains limited. Furthermore, existing studies have generally focused on a single outcome, such as anxiety, stress, or pain, whereas breast cancer patients frequently experience multiple concurrent symptoms during chemotherapy. To date, limited evidence is available regarding the effectiveness of the five-finger relaxation technique in simultaneously reducing stress, pain, and anxiety among breast cancer patients undergoing chemotherapy. Therefore, this study aimed to determine the effect of the five-finger relaxation technique on stress, pain, and anxiety among breast cancer patients.

2. METHODS

A quasi-experimental approach was chosen to assess changes in stress, pain, and anxiety before and after the intervention. With a control group design and a pre-test/post-test, this study was quasi-experimental. This study was conducted from August 2024 to February 2025. The inclusion criteria in this study were patients who could communicate verbally, underwent cycle 1 chemotherapy, experienced mild to moderate levels of stress, pain, and anxiety, and were willing to become respondents. The exclusion criteria included patients who had decreased consciousness and a history of chronic insomnia. Participants were recruited consecutively from eligible breast cancer patients undergoing chemotherapy during the study period. The sample size consisted of 40 participants who met the eligibility criteria and agreed to participate in the study. Twenty participants were allocated to the intervention group and twenty to the control group. Consecutive sampling was employed until the required sample size was achieved.

This study involved 40 breast cancer patients who were divided into intervention and control groups of 20 people each. Three weeks were dedicated to the data collection procedure, which began on November 18, 2024, and ended on December 8, 2024. All data collection and intervention implementation were carried out directly by the researcher. Participants were allocated to either the intervention group or the control group using an odd-even assignment procedure based on the order of recruitment, whereby participants with odd recruitment numbers were assigned to the control group and those with even recruitment numbers were assigned to the intervention group. Because no formal random sequence generation or allocation concealment was employed, the study was classified as a quasi-experimental study rather than a randomized controlled trial.

Before the intervention, respondents completed informed consent forms and baseline assessments, including demographic characteristics and questionnaires measuring stress, pain, and anxiety. The intervention group underwent five-finger relaxation three times a day for three consecutive days, with each session lasting approximately 10–15 minutes, while the control group received routine care without any structured relaxation intervention. Following completion of the intervention period, both groups completed the same questionnaires as a post-test assessment.

The Depression Anxiety Stress Scale (DASS) is the stress questionnaire utilized in this investigation. The 42-item DASS is a tool used to gauge the severity of three negative emotional states: stress, anxiety, and depression. The 14 items on the stress-focused DASS are scored on a 4-point Likert scale, with 0 denoting "does not apply to me at all" and 3 denoting "applies to me very much or most of the time." Severe levels are indicated by stress subscale scores more than 25. With a Cronbach alpha of 0.91 for the stress variable, the DASS showed strong internal consistency and reliability along with good convergent and discriminant validity (Lovibond & Lovibond, 1995). The Brief Pain Inventory (BPI) was the pain questionnaire employed in this investigation. The 16 pain-

related questions that make up the BPI ask about the many aspects of pain throughout the course of a day. The BPI is a multifaceted, validated pain assessment instrument with excellent validity and reliability. Four pain scores (present, mean, worst, and end) and seven items measuring how pain affects everyday activities, emotions, walking, work, relationships, sleep, and life satisfaction are included in the five to fifteen minute BPI exam. A numerical scale ranging from 1 to 10 is used to rate each part (Dewi, 2021). The General Anxiety Disorder-7 (GAD-7) is the anxiety questionnaire utilized in this investigation. With seven items and giving scores ranging from 0 to 3, the GAD-7 is a preliminary screening test for generalized anxiety disorder. The GAD-7 that provide scores of 0, 1, 2, and 3, respectively, indicating how frequently the patient has experienced various forms of anxiety over the previous two weeks. A fair cut-off point for additional identification is a score of 8 or above. The GAD-7's Cronbach alpha of 0.92 indicates that it has great internal consistency (Spitzer et al., 2006).

Researchers identified eligible participants according to the inclusion and exclusion criteria. Participants were then allocated into the intervention and control groups using an odd-even assignment procedure based on the order of recruitment. Prior to group allocation, informed consent was obtained from all participants, and baseline demographic data as well as stress, pain, and anxiety assessments were collected. The intervention group received the five-finger relaxation technique three times daily for three consecutive days, with each session lasting approximately 10–15 minutes. To ensure intervention fidelity, all intervention sessions were delivered directly by the principal researcher using a standardized intervention protocol. Participants received identical instructions, duration, and frequency of intervention throughout the study period. The control group received routine care and did not participate in any structured relaxation intervention. Following completion of the intervention period, post-test assessments of stress, pain, and anxiety were conducted using the same instruments administered at baseline.

The analysis in this study was conducted using SPSS version 27.0 from IBM Corp. Frequency, percentage, mean, and standard deviation were used to examine univariate data. The bivariate analysis used in this study included both independent sample t-tests and paired sample t-tests. A paired sample t-test was used to evaluate changes in stress, pain, and anxiety before and after the intervention within each group. The independent sample t-test was used to determine differences in stress, pain, and anxiety between the intervention group and the control group. Statistical significance was established at $p < 0.05$.

With ethical number 002110/KEP STIKES SUKABUMI/2024, Sukabumi College of Health Sciences granted ethical approval for this investigation. Informed consent was obtained from all participants prior to data collection. Participants' confidentiality and anonymity were maintained throughout the study. There were no known risks associated with participation, and the study was conducted in accordance with established ethical guidelines.

3. RESULTS AND DISCUSSION

Table 1. Respondent Characteristics (n=40).

Characteristics	Intervention (n=20)	Control (n=20)
	n (%)	n (%)
Age (Mean $\pm$ SD)	46.50 $\pm$ 6.692	45.55 $\pm$ 6.013
Education		
Elementary School	14 (70.0)	15 (75.0)

Junior High School	4 (20.0)	3 (15.0)
Senior High School	2 (10.0)	2 (10.0)
Work		
Employed	2 (10.0)	7 (35.0)
Not Working	18 (90.0)	13 (65.0)
Marriage		
Unmarried	1 (5.0)	1 (5.0)
Divorced	2 (10.0)	2 (10.0)
Married	17 (85.0)	17 (85.0)

Table 1 shows that respondents in the intervention group had an average and standard deviation of age of 46.50 ± 6.692 and most of the respondents in the intervention group had elementary school education as many as 14 people (70.0%), did not work as many as 18 people (90.0%), and were married as many as 17 people (85.0%). Meanwhile, respondents in the control group had an average and standard deviation of age of 45.55 ± 6.013 and most of the respondents in the control group had elementary school education as many as 15 people (75.0%), did not work as many as 13 people (65.0%), and were married as many as 17 people (85.0%). The characteristics of respondents in the intervention and control groups were relatively similar, particularly in terms of age, education, occupation, and marital status. Consequently, comparing outcomes between the groups is more valid, as differences in outcomes are more likely to be due to the intervention rather than to disparities in the respondents' baseline characteristics.

Table 2. Univariate analysis.

Variables	Intervention Group				Control Group			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Stress								
Pre-test	16	30	23.20	3.792	18	30	23.95	3.052
Post-test	10	23	16.35	3.631	14	26	21.10	3.227
Pain								
Pre-test	4.8	6.8	5.560	0.6236	5.0	6.5	5.655	0.3591
Post-test	3.5	5.0	4.060	0.4524	4.8	6.0	5.395	0.3120
Anxiety								
Pre-test	7	17	12.15	2.681	9	16	12.20	2.167
Post-test	4	12	8.55	2.212	8	14	10.30	1.720

Table 2 shows that the pretest and posttest results of the intervention group decreased the mean value of stress from 23.20 (3.792) to 16.35 (3.631). In addition, the pretest and posttest results of the intervention group decreased the mean value of pain from 5.560 (0.6236) to 4.060 (0.4524). The pretest and posttest results of the intervention group also decreased the mean value of anxiety from 12.15 (2.681) to 8.55 (2.212). Table 2 also shows that the pretest and posttest results of the control group decreased the mean value of stress from 23.95 (3.052) to 21.10 (3.227). In addition, the pretest and posttest results of the control group decreased the mean value of pain from 5.655 (0.3591) to 5.395 (0.3120). The pretest and posttest results of the control group also decreased the mean value of anxiety from 12.20 (2.167) to 10.30 (1.720). Both groups experienced a reduction in average stress, pain, and anxiety levels, but the reduction was greater in the intervention group than in the control group. This suggests that the five-finger relaxation technique has greater potential for helping to reduce psychological and physical symptoms in breast cancer patients.

Table 3. Differences in stress, pain, and anxiety of breast cancer patients before and after in the control group.

Variables	Mean	Mean Difference	SD	t	p-value	d	95% CI	
							Lower	Upper
Stress								
Pre-test	23.95	2.850	1.496	8.517	< 0.001	1.904	1.152	2.639
Post-test	21.10							
Pain								
Pre-test	5.655	0.260	0.1603	7.255	< 0.001	1.622	0.939	2.287
Post-test	5.395							
Anxiety								
Pre-test	12.20	1.900	1.021	8.324	< 0.001	1.861	1.119	2.585
Post-test	10.30							

Table 3 shows that there was a significant difference in stress among breast cancer patients before and after in the control group ($p < 0.001$) with an effect size of 1.904, indicating a very large effect size. This is evidenced by a decrease in the mean stress score from 23.95 to 21.10 with a mean difference of 2.850. The 95% confidence interval ranged from 1.152 to 2.639, indicating a statistically significant reduction in stress scores. In addition, there was a significant difference in pain before and after in the control group ($p < 0.001$) with an effect size of 1.622, indicating a very large effect size. This is evidenced by a decrease in the mean pain score from 5.655 to 5.395 with a mean difference of 0.260. The 95% confidence interval ranged from 0.939 to 2.287, indicating a statistically significant reduction in pain scores. Furthermore, there was a significant difference in anxiety before and after in the control group ($p < 0.001$) with an effect size of 1.861, indicating a very large effect size. This is evidenced by a decrease in the mean anxiety score from 12.20 to 10.30 with a mean difference of 1.900. The 95% confidence interval ranged from 1.119 to 2.585, indicating a statistically significant reduction in anxiety scores. The control group also showed a reduction in stress, pain, and anxiety, but the magnitude of the changes was smaller than in the intervention group. This suggests that routine care alone is not entirely sufficient, so relaxation interventions can serve as a beneficial adjunct in alleviating patients' symptoms.

Table 4. Effect of five finger relaxation technique on stress, pain, and anxiety of breast cancer patients in the intervention group.

Variables	Mean	Mean Difference	SD	t	p-value	d	95% CI	
							Lower	Upper
Stress								
Pre-test	23.2	6.85	0.489	62.6	< 0.001	13.998	9.560	18.426
Post-test	16.35							
Pain								
Pre-test	5.56	1.5	0.269	24.891	< 0.001	5.566	3.752	7.369
Post-test	4.06							
Anxiety								
Pre-test	12.15	3.6	1.188	13.556	< 0.001	3.031	1.972	4.075
Post-test	8.55							

Table 4 shows that there was an effect of the five-finger relaxation technique on stress among breast cancer patients in the intervention group ($p < 0.001$) with an effect size of 13.998, indicating a very large effect size. This is evidenced by a decrease in the mean stress score from 23.20 to 16.35 with a mean difference of 6.85. The 95%

confidence interval ranged from 9.560 to 18.426, indicating a statistically significant reduction in stress scores. In addition, there was an effect of the five-finger relaxation technique on pain among breast cancer patients in the intervention group ($p < 0.001$) with an effect size of 5.566, indicating a very large effect size. This is evidenced by a decrease in the mean pain score from 5.56 to 4.06 with a mean difference of 1.50. The 95% confidence interval ranged from 3.752 to 7.369, indicating a statistically significant reduction in pain scores. Furthermore, there was an effect of the five-finger relaxation technique on anxiety among breast cancer patients in the intervention group ($p < 0.001$) with an effect size of 3.031, indicating a very large effect size. This is evidenced by a decrease in the mean anxiety score from 12.15 to 8.55 with a mean difference of 3.60. The 95% confidence interval ranged from 1.972 to 4.075, indicating a statistically significant reduction in anxiety scores. The results of the table indicate that the five-finger relaxation technique has a significant effect on reducing stress, pain, and anxiety in the intervention group. Consequently, this technique can be considered a simple, inexpensive, and easily implementable nonpharmacological intervention in nursing care.

Table 5. Differences in stress, pain, and anxiety of breast cancer patients in the intervention group and control group.

Variables	Mean	Mean Difference	t	p-value	d	95% CI	
						Lower	Upper
Stress							
Intervention Group	6.85	2.550	16.805	< 0.001	5.314	-6.647	-3.964
Control Group	4.30						
Pain							
Intervention Group	1.505	1.2150	17.239	< 0.001	5.452	-6.812	-4.074
Control Group	0.290						
Anxiety							
Intervention Group	3.60	1.350	3.777	< 0.001	1.194	0.513	1.863
Control Group	2.25						

Table 5 shows that there was a significant difference in stress between breast cancer patients in the intervention group and the control group ($p < 0.001$), with an effect size of 5.314, indicating a large effect size. This is evidenced by the greater reduction in the mean stress score in the intervention group (6.85) compared to the control group (4.30), resulting in a mean difference of 2.550. The 95% confidence interval ranged from -6.647 to -3.964, indicating a statistically significant difference between groups, as the confidence interval did not include zero. In addition, there was a significant difference in pain between breast cancer patients in the intervention group and the control group ($p < 0.001$), with an effect size of 5.452, indicating a large effect size. This is evidenced by the greater reduction in the mean pain score in the intervention group (1.505) compared to the control group (0.290), resulting in a mean difference of 1.2150. The 95% confidence interval ranged from -6.812 to -4.074, indicating a statistically significant difference between groups, as the confidence interval did not include zero. Furthermore, there was a significant difference in anxiety between breast cancer patients in the intervention group and the control group ($p < 0.001$), with an effect size of 1.194, indicating a very large effect size. This is evidenced by the greater reduction in the mean anxiety score in the intervention group (3.60) compared to the control group (2.25), resulting in a mean difference of 1.350. The 95% confidence interval ranged from 0.513 to 1.863, indicating a statistically significant difference between groups, as the confidence interval did not include zero. The differences in reductions in stress, pain, and anxiety between the

intervention and control groups indicate that the intervention group achieved better outcomes. Consequently, the five-finger relaxation technique is more effective than standard care alone and should therefore be integrated as part of therapeutic support for breast cancer patients. The results showed that there was an effect of the five-finger relaxation procedure on the stress level of breast cancer patients. The same thing was conveyed by (Dewi et al., 2022; Elenia et al., 2024) which explains that five-finger relaxation is effective in reducing the stress level of cancer patients. When a person experiences physical, psychological, or environmental changes but they are unable to respond positively to adaptation, the individual may suffer from stress (Brewin et al., 2025). Patients diagnosed with breast cancer tend to suffer from emotional burdens such as shock, anxiety about the future and fear for their survival, resulting in stress (Dewi et al., 2022; Tao et al., 2024). In reducing the symptoms experienced, breast cancer patients need to undergo various chemotherapy treatments that are repetitive, tedious and ambiguous in their success rate (Devoogdt & De Groef, 2024), this condition further increases the stress experienced. One of the complementary therapy that can reduce stress is the five-finger relaxation technique. The five-finger relaxation procedure can optimise body awareness through breathing so as to bring the body and mind to a relaxed and calm state (Ahmed Thabet et al., 2023). The process of relaxation techniques such as open finger movements and systematic breathing will help calm the nervous system, help the release of various hormones, stabilise the heart rate, and give indicators to the brain to relax and ignore the stressors it is experiencing (Probowati et al., 2024). Besides the simple steps and concepts, this technique plays an important role in maintaining a solid emotional state, thereby reducing stress levels.

This is in line with research Adiningtya & Prasetyorini (2024) and Dewi et al. (2023) which explains that five-finger relaxation is powerful and efficient in decreasing the pain level of cancer patients. The 5-finger relaxation technique helps control discomfort by preventing defence systems along the central nervous system block the pain impulse action system. When a defence is closed, pain impulses are suppressed, and when a defence is opened, pain impulses are conveyed. When a patient is in pain, this shutting mechanism is observable (Ardinata et al., 2023). As one of the symptoms often experienced by breast cancer patients, pain can stem from a variety of things such as post-OP, chemotherapy or radiation and breast pain (Johnson et al., 2024). To control the pain experienced, individuals need a calm and comfortable condition as possible this is in line with the five-finger relaxation procedure, which can draw full attention to the sensations caused when each finger is alternately developed and relaxed (Dewi et al., 2022). In addition, the five-finger relaxation procedure is considered to help relax the muscles because a calm state will support the maximum spread of oxygen so that it results in a decrease in pain receptors and perceptions. Moreover, the procession can stimulate the release of endorphins, which act as pain relievers, increase happiness and the immune system (Jayanti et al., 2022).

Results of the study explain that five-finger relaxation can reduce anxiety in the intervention group. The five-finger relaxation procedure is part of the guided imagination dictation technique, which is a method where the client imagines a pleasant picture and focuses on the picture, gradually releasing attention from problems such as pain or other emotional problems. This technique can reach the subconscious mind, where emotional issues are processed, thereby removing emotional blocks that exist in the subconscious mind. As a form of general relaxation, this technique involves recalling pleasant experiences. Through five-finger relaxation, the subconscious mind is directed to return to pleasant memories, which results in feelings of comfort and relaxation, as well as lowered levels of anxiety and other emotional problems (Probowati et al., 2024).

The five-finger relaxation procedure spur the work of psychosomatic nerves, which are responsible for triggering the relaxation (trophotropic) response. The trophotropic hormone can reduce muscle tension and signalling all the body's cells to relax, which in turn reduces stress (Dewi et al., 2023). Five-finger relaxation is also a distraction procedure that can lower pulse and respiration and thus reduce metabolic rate. This technique causes a change in person's perception by reducing the negative response that the family should have when receiving stress or anxiety. This change in perception will eventually lead to the body's ability to adapt to changes in its environment.. The process is accomplished by moving the fingers on command, which helps to create a calmer state of body and mind (Dewi et al., 2022).

The results showed that there were differences in stress in breast cancer patients in the control and intervention groups. The lessen of the mean stress in the control group may occur because most of the respondents were aged 46-55 years. Intuitively, older breast cancer patients tend to feel less threatened by death as they are better able to cope with major medical crises. Also, when compared to younger patients, older patients have a lower level of fear of recurrence. The timing of symptom onset and duration also differed between these two groups, with younger respondents experiencing the fear grow over at the beginning of the first year, while older respondents have a more solid emotional state for the first 6 months and then a decrease in fear (Dinapoli et al., 2021).

Davis & McKay said that, Five-finger relaxation is considered to be able to maintain emotional and mental stability which ultimately helps individuals to reduce negative psychological responses through the power of their own mind through simple finger movements. The technique works by creating inner communication involving the five human senses, which results in a relaxed state of mind and can reduce stress. When the mind and body are in a relaxed state, the brain will increase the secretion of hormones such as endorphins, melatonin, and serotonin which serve to lower the level of stress experienced by the patient (Dewi et al., 2024). The feeling of calmness created will be passed on to the hypothalamus, which then produces Corticotropin Releasing Hormone (CRH) and activates the anteriopituitary to secrete enkephalins and endorphins. These two hormones act as neurotransmitters that affect mood, making it relaxed and happy. In addition, the five-finger relaxation technique can affect various physiological aspects, such as breathing, heart rate, pulse, and blood pressure. Moreover, regular application can improve memory, relax muscles, harmonise limbs and increase work efficiency as it stabilises stress hormones in the process (Dewi et al., 2024). The findings demonstrated that individuals with breast cancer in the both group saw significantly different changes in their pain levels. Both groups experienced a decrease in stress scores (22.22 versus 17.28). In the control group, there was no structured effort to cope with pain or physical tension, so the perceived pain did not change much. The control group tended to rely more on the body's natural mechanisms to cope with pain, which in some cases were not effective enough.

This significant difference suggests that the five-finger relaxation procedure also proven to be an effective method in reducing pain levels, especially for breast cancer patients. By involving relaxation of the body and mind, this technique is able to distract from the pain and facilitate the healing process (Allam et al., 2023). The five-finger relaxation procedure helps someone achieve a state of relaxation. Patients performing this technique generate alpha waves. In the alpha state, we can feel the position of the body clearly and remain in control without focusing on the pain experienced (Dewi et al., 2022; Hunt et al., 2021). Individuals who regularly practice the five-finger relaxation technique will find it easier to relax when experiencing pain or psychological problems by affecting the limbic system that can block pain (Widiyawati et al., 2024).

Results illustrates that there is a difference in anxiety between the two groups. This is indicated by the difference in the mean value of anxiety in the intervention group is more significant (3.60) contrast to the control group (2.25). The five-finger relaxation procedure treatment was not given to the control group to reduce anxiety, so patients responded with answers that tended to be similar. When faced with anxiety on many occasions, patients complain that it is difficult to control anxiety and rely on their body strength as a support in reducing anxiety according to their respective characteristics. Five-finger relaxation will act as self-hypnosis that will signal the limbic system to deliver emotion-controlling hormones that lead to decreased anxiety (Badrujamaludin et al., 2018). Several studies have also provided evidence five-finger relaxation should be considered as one of the therapies to combat anxiety. In addition, a person who applies five-finger relaxation will be taken to recall a pleasant memory that has been buried, resulting in the release of the hormone dopamine, which will help combat anxiety.

This study has several limitations. The quasi-experimental design limits causal inference, while the relatively small sample size and single-center setting may restrict the generalizability of the findings. In addition, potential confounding factors, such as cancer stage, treatment modality, and comorbidities, were not controlled and may have influenced the outcomes. Future studies using larger samples, multicenter recruitment, and randomized controlled designs are recommended to strengthen the evidence regarding the effectiveness of the five-finger relaxation technique in breast cancer patients.

4. CONCLUSION

This study demonstrated that the five-finger relaxation technique was effective in reducing stress, pain, and anxiety among breast cancer patients. This finding is supported by the significant differences observed between the intervention and control groups, with greater reductions in stress, pain, and anxiety scores in the intervention group. Therefore, the five-finger relaxation technique may be considered a complementary nursing intervention that can be independently implemented by nurses to help manage psychological and physical symptoms in breast cancer patients undergoing chemotherapy. However, these findings should be interpreted with caution due to several limitations, including the quasi-experimental design, relatively small sample size, and short-term outcome evaluation. Future studies should involve larger multicenter samples, randomized controlled designs, and longer follow-up periods to further evaluate the effectiveness and sustainability of the intervention. In clinical practice, the five-finger relaxation technique may be incorporated into supportive care programs because it is simple, low-cost, and easy to implement according to patient characteristics and available healthcare resources.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Roslina Dewi contributed to conceptualization, methodology, data collection, data analysis, and writing the original draft. Johan Budhiana contributed to conceptualization, methodology, supervision, and critical review of the manuscript. Fera Melinda contributed to data collection, data curation, and validation. Rakanda Putra Waliyu contributed to data collection, data analysis, and manuscript preparation. Nurvita Trianasari contributed to literature review, interpretation of results, and writing, review, and editing. All authors reviewed and approved the final version of the manuscript.

ACKNOWLEDGEMENT

For their willingness to engage in this study, the authors would like to thank the breast cancer patients in the Manggis 1 Room at Sayang Hospital in Cianjur Regency. The Sukabumi College of Health Sciences' for Research and Community Service Institute (LP PM) is also acknowledged by the authors for supporting this study.

FUNDING

This research received no external funding.

DECLARATION OF ARTIFICIAL INTELLIGENCE USE

The authors declare that artificial intelligence (AI) tools were used solely to assist with language editing, grammar checking, and improving the clarity and readability of the manuscript. AI tools were not used to generate research data, conduct data analysis, interpret the study findings, or make scientific conclusions. The authors take full responsibility for the accuracy, originality, integrity, and final content of the manuscript and have carefully reviewed and verified all AI-assisted text before submission.

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