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Progressive Muscle Relaxation and Benson Therapy in Reducing Anxiety in Breast Cancer Patients

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ABSTRACT

Background: Breast cancer patients often experience significant emotional distress due to the physical and psychological impact of chemotherapy. This study aimed to examine the effect of non-pharmacological therapy, specifically progressive muscle relaxation and Benson relaxation, on anxiety levels in breast cancer patients undergoing chemotherapy. Chemotherapy is known to trigger psychological disorders, including anxiety, which can negatively affect treatment outcomes. **Methods:** A pre-experimental design with a one-group pretest–posttest approach was applied, involving 43 purposively selected respondents. Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS). **Results:** The majority of respondents were aged 46–55 years, had completed high school or vocational school, were unemployed, and had undergone chemotherapy 1–6 times. The Wilcoxon signed-rank test revealed a significant reduction in anxiety scores after the intervention. **Conclusion:** These findings indicate that progressive muscle relaxation and Benson relaxation are effective in reducing anxiety among breast cancer patients undergoing chemotherapy, highlighting the importance of integrating non-pharmacological interventions into supportive oncology care.

INTRODUCTION

Breast cancer ranks among the most prevalent cancers affecting women globally and continues to be a major cause of illness and death (Della Zulfa Rifda et al., 2023). Cancer is a form of cells that grow continuously uncontrollably and irregularly which can attack tissues in various organs of the body including in women consisting of the breasts, uterus and vagina (Putri & Saputra, 2018). Breast cancer can cause several complaints or disorders felt by sufferers, one of which is excessive anxiety (Sagala et al., 2022). According to the World Health Organization (WHO), more than 2 million new cases of breast cancer were reported in 2020, with approximately 685,000 deaths globally. In Indonesia, the 2018 Basic Health Research (RISKESDAS) reported a cancer prevalence of 1.8%, with breast cancer ranking as the most prevalent type. These figures highlight that breast cancer continues to pose a major public health challenge (Taqiyah et al., 2022).

Breast Cancer sufferers have biopsychospiritual impacts, namely experiencing

helplessness, functional disability, lack of sleep, anxiety, difficulty concentrating and when it continues to cause depression. Anxiety in cancer patients is a psychological disorder caused by patients facing uncertainty, concerns about cancer treatment and fear of cancer development that can result in death (Nurlina et al., 2021) Beyond its physical burden, breast cancer has profound psychological consequences, particularly anxiety. Anxiety may arise from the moment of diagnosis and persist throughout treatment processes such as chemotherapy. If left unaddressed, this psychological distress can interfere with treatment adherence, delay recovery, and diminish patients' quality of life. Therefore, psychosocial interventions that are effective, practical, and free of side effects are urgently needed in supportive oncology care (Hikmawati et al., 2023).

Anxiety is a feeling of psychological distress, anxiety, fear, restlessness and worry is a normal response when something that threatens oneself occurs with the response that occurs in a person to a problem that causes discomfort to the person and can be life-threatening (Lutfiani & Mariyati, 2023). Anxiety can also be overcome by Benson therapy, Benson therapy is a simple therapy combining relaxation response techniques with an individual's belief system or focused on certain expressions in the form of God's name, or words that have a calming meaning and are said repeatedly (Marliana et al., 2021). Treatment with this non-pharmacological therapy is part of spiritual medicine, an effort to focus attention on a focus by repeating sentences and eliminating various disturbing thoughts so that it can reduce anxiety (Orlando et al., 2021). The advantages of relaxation technique training compared to other techniques are that it is easier to do, simple and has no side effects whatsoever.

The role of health workers as care providers in providing nursing care for individuals and groups that are holistic and comprehensive (Berliyanti & Wardaningsih, 2023). There are several efforts to deal with reducing anxiety levels in patients with breast cancer, namely by providing non-pharmacological therapy. as well as other efforts in the form of muscle relaxation, cognitive therapy, aromatherapy, and deep breathing relaxation (Benson Therapy). To relieve anxiety when experiencing stress and free from threats, you can do Benson relaxation regularly and do it correctly, then the body will relax (Agustin et al., 2020). Previous researchers said that progressive muscle relaxation is an exercise to get a relaxed sensation by calming a muscle group and stopping tension that can increase nerve activity trying to tense and relax the muscles in the body (Waryantini et al., 2021).

Management for breast cancer is by undergoing treatment such as chemotherapy or surgery. Chemotherapy is a systematic therapy by giving cytostatic drugs that aim to eliminate cancer cells that continue to grow. The purpose of chemotherapy is to control the growth of cancer cells as an inhibitor or reduce the size of the tumor and its spread over a certain period of time, commonly referred to as palliative chemotherapy (Setyani et al., 2020). Relaxation therapy has the effect and sensation of calming the limbs that spread throughout the body, changes that occur after relaxation affect the work of the autonomic nerves with a calming effect and the emotional response that arises is changing the dominant physiology and causing a calming effect. The novelty of this study lies in its comparative evaluation of PMR and Benson Relaxation in reducing anxiety among breast cancer patients undergoing chemotherapy. Few studies have directly compared or combined these two interventions within a single research design involving the same patient population. By addressing this gap, the present study aims to provide robust evidence to support the development of holistic, evidence-based nursing interventions that enhance the psychological well-being of breast cancer patients, especially in developing countries.

METHODS

This study employed a one-group pretest–posttest design, conducted in the chemotherapy room of Dr. Kariadi General Hospital Semarang over a four-week period (March–April 2024). The study population consisted of all breast cancer patients undergoing chemotherapy at the hospital, with an average of 76 patients per month. Using the Slovin formula (Nursalam, 2017), a total of 43 respondents were recruited through purposive sampling based on the inclusion criteria: diagnosed with breast cancer, undergoing chemotherapy, able to communicate verbally, and willing to participate. The intervention consisted of Progressive Muscle Relaxation (PMR) and Benson Relaxation delivered sequentially in a single session. Each respondent received the intervention three times per week for two consecutive weeks, with each session lasting approximately 30–40 minutes. PMR was conducted first by guiding patients to tense and relax specific muscle groups from head to toe, followed by Benson Relaxation, which emphasized slow, deep breathing while repeating calming words or phrases silently for 10–15 minutes. Sessions were facilitated by trained nurses who had received prior instruction and supervision from a relaxation therapy trainer to ensure standardized delivery. Adherence to therapy was monitored by recording attendance and session completion. This study adhered to research ethics principles (Napitupulu et al., 2022). This study has been registered and has received ethical clearance approval under reference number 068/I/EC/P3M/STIKES/2024, issued by the Institute for Research and Community Service (LP3M), STIKES Telogorejo Semarang. Respondents were provided informed consent and given the freedom to withdraw without coercion (autonomy). Confidentiality and anonymity were strictly maintained, interventions were designed to be beneficial (beneficence), no harm was inflicted (nonmaleficence), accurate information was provided (veracity), and all participants were treated equally (justice).

Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS) before and after the intervention. Sociodemographic characteristics (age, education, occupation, chemotherapy cycle) were also recorded. Univariate analysis was used to describe respondent characteristics and baseline anxiety scores. Bivariate analysis was performed using the Wilcoxon signed-rank test to compare pretest and posttest anxiety scores, as the data were ordinal and not normally distributed (Notoatmodjo et al., 2018). All analyses were conducted using SPSS version 30, with $p < 0.05$ considered statistically significant.

RESULTS

Age is an important demographic characteristic that can influence coping mechanisms and stress levels among individuals. In this study, respondents were categorized into several age groups to identify the dominant age range and its potential relationship with the research variables. The distribution of respondents based on age is presented in the following table.

Table 1. Age Distribution of Respondents

Age	n (43)	%
26–35 years (Early Adulthood)	5	11.6
36–45 years (Late Adulthood)	8	18.6
46–55 years (Early Elderly)	24	55.8
56–65 years (Late Elderly)	2	4.7
> 66 years (Advanced Elderly)	4	9.3

This study show that the majority of respondents' ages are 46-55 years in the early elderly, amounting to 24 respondents (55.8%), the characteristics of respondents based on education are mostly showing high school/vocational high school graduates, amounting to 16 respondents (37.2%) and the majority of respondents are not working, amounting to 35 respondents (81.4%).The results of the anxiety level test before and after the progressive muscle relaxation and Benson relaxation interventions obtained the following results:

Table 2. Frequency Distribution of Anxiety Levels in Breast Cancer Patients Undergoing Chemotherapy

Intervention	Level Anxiety	Before		After	
		n	%	n	%
Progressive Muscle Relaxation and Benson's Relaxation No anxiety	No anxiety	0	0	17	39.5
	Mild anxiety	26	60.5	23	53.5
	Moderate anxiety	16	37.2	3	7.0
	Severe anxiety	1	2.3	0	0

The results of the study showed that the level of anxiety based on the HARS score in patients undergoing chemotherapy at Dr. Kariadi Hospital before being given progressive muscle relaxation and Benson relaxation interventions had a mild level of anxiety of 26 respondents (60.5%). Then after being given the intervention, 23 respondents (53.5%) experienced mild levels of anxiety. The results of the test of the effect of providing progressive muscle relaxation and Benson relaxation interventions on the anxiety levels of breast cancer patients undergoing chemotherapy can be seen in the following table 3.

Table 3. The Effect of Progressive Muscle Relaxation and Benson Relaxation Interventions on Anxiety in Breast Cancer Patients Undergoing Chemotherapy

Variabel	Negative Ranks	Positive Ranks	*Ties*	*P-value*
Anxiety Pre - Post	29	0	14	<0.001

According to the findings of the study, the negative ranks value was 29, which means that there was a decrease in the level of anxiety of 29 respondents after being given progressive muscle relaxation and Benson relaxation. The positive ranks value was 0, which means that no respondents experienced an increase in anxiety after being given progressive muscle relaxation and Benson relaxation. While the results in this study, the Ties value was 14, which means that 14 respondents did not experience a difference in value before and after being given progressive muscle relaxation and Benson relaxation.

DISCUSSION

This study found that progressive muscle relaxation (PMR) and Benson relaxation significantly reduced anxiety levels in breast cancer patients undergoing chemotherapy. More than half of the respondents were in the early elderly age group (46–55 years), which is consistent with previous findings that breast cancer is more prevalent in women over 40 years (Marianthi, 2023). Although age-related physiological changes, such as immune decline and hormonal transition, may contribute to both cancer risk and psychological vulnerability, our study revealed that age was not significantly associated with anxiety levels. This contrasts which stated that age is a factor that can affect the level of anxiety in cancer patients. he discrepancy

may be explained by contextual differences in coping mechanisms, social support, and cultural factors influencing patients' responses to illness (Rukinah, 2021).

The results of this study showed that the characteristics of respondents based on education were mostly those who graduated from high school/vocational school, 16 respondents (37.2%). Education for each person has its own meaning, it is generally useful in changing mindsets, behavior patterns and decision-making patterns. patients with lower educational attainment may have more limited health literacy, making it harder to fully understand treatment side effects and manage anxiety effectively (Notoatmodjo et al., 2018).

A sufficient level of education will make it easier to identify stressors in oneself and also affect awareness and understanding of stimuli. A person with a high school/vocational high school education level is at risk of having a lower quality of life compared to a highly educated community, which will affect a person's mindset, which can determine knowledge about the disease they are suffering from and the actions that will be taken to overcome the physical complaints they feel (Susanti, 2018). This study is in line with Astuti's research (2021) which explains that low education is a supporting factor for anxiety. People who have higher education will give a more rational response than those with lower education. Education is generally useful in changing mindsets, behavior patterns and decision-making patterns. A sufficient level of education will make it easier to identify stressors within oneself and from outside oneself.

The results of this study indicate that most respondents are unemployed, amounting to 35 respondents (81.4%). In line with research conducted by Irman (2020) which shows that the characteristics of breast cancer patients are unemployed or housewives. The results of the study showed that the level of anxiety based on the HARS score in patients undergoing chemotherapy at Dr. Kariadi Hospital before being given progressive muscle relaxation and Benson relaxation interventions had a mild level of anxiety of 26 respondents (60.5%). Then after being given the intervention, 23 respondents (53.5%) experienced mild levels of anxiety. Supported by research by (Hafsah, 2022) that cancer patients undergoing chemotherapy had a mild level of anxiety of 26 people (52.0%). The results of this study indicate that patients undergoing chemotherapy have a mild level of anxiety due to anxiety being a part of everyday life, causing a person to be alert.

Anxiety can be reduced with several anxiety reduction therapies, namely non-pharmacological therapy. One therapy that can reduce anxiety can be overcome by using progressive muscle relaxation techniques and Benson relaxation because it can suppress the sympathetic and parasympathetic nerves that work to suppress the tension experienced by individuals so that they can achieve a calm state. The results of the study obtained a negative ranks value of 29, which means that there was a decrease in the level of anxiety of 29 respondents after being given progressive muscle relaxation and Benson relaxation. The positive ranks value was 0, which means that no respondents experienced an increase in anxiety after being given progressive muscle relaxation and Benson relaxation. While the results in this study, the Ties value was 14, which means that 14 respondents did not experience a difference in value before and after being given progressive muscle relaxation and Benson relaxation.

The results of the statistical test using the Wilcoxon test obtained a P-value of 0.000 or P-value ≤ 0.05, which means that Ha is accepted and Ho is rejected, which means that there is an effect of progressive muscle relaxation and Benson relaxation on the level of anxiety of breast cancer patients undergoing chemotherapy at Dr. Kariadi Hospital. The results of this study are then supported by the theory that

progressive muscle relaxation therapy is a component of complementary therapy used to reduce anxiety levels and provide comfort (Nova & Tumanggor, 2018). For example, muscle relaxation is often part of guided imagery. The mechanism of progressive muscle relaxation in reducing anxiety levels in an individual is an important thing to recognize is muscle tension when the muscle contracts (tense) then the stimulus will be delivered to the muscle through the afferent nerve pathway.

Several studies have shown that relaxation therapy, both in the form of Benson relaxation modification and Progressive Muscle Relaxation (PMR), has proven effective as a non-pharmacological intervention in improving patient well-being, especially in cancer and chronic disease patients. (Khasanah et al., 2024) found that Benson relaxation therapy modification was able to improve the quality of life of cancer patients undergoing chemotherapy. This therapy is considered easy to apply by nurses in the treatment room and can be taught to the patient's family. Meanwhile, (Lekatompessy & Lisum, 2024) emphasized that PMR is an independent nursing intervention that has also proven effective in improving the quality of life of patients with chronic diseases, which can be practiced directly or through media such as videos. Several other studies, such as by (Purwanti & Khoiriyah, 2024), and (Rustandi et al., 2018), showed that PMR is effective in reducing anxiety levels in cancer patients, including lung cancer, by making patients feel more relaxed and ready to undergo treatment. (Natosba et al., 2020) also noted that PMR is able to reduce pain and anxiety through the mechanism of action on the parasympathetic nervous system, thereby helping to reduce physical and psychological stress. More broadly, (Holis et al., 2024) in a systematic review concluded that PMR is an effective intervention to overcome anxiety and can be used in a holistic care approach in various health settings. In addition, (Metin et al., 2019) proved that PMR and Mindfulness Meditation were effective in reducing fatigue and improving coping strategies in early stage breast cancer patients during chemotherapy, although they did not significantly improve quality of life in the short term. These findings reinforce that relaxation therapy is a safe, inexpensive, easy to implement, and beneficial nursing intervention option in supporting the patient's healing process.

From a nursing perspective, these findings are highly relevant. Relaxation therapies are safe, low-cost, and easily integrated into routine care. Nurses can teach these techniques to patients and families, enabling continuity of practice beyond the hospital setting. Moreover, the interventions align with holistic nursing principles by addressing both physical and psychological well-being. However, several limitations should be acknowledged. The one-group pretest–posttest design lacks a control group, which reduces internal validity and limits causal inference. Adherence to relaxation practice outside supervised sessions was not objectively monitored, which may have influenced outcomes. Additionally, the study was conducted in a single hospital with a relatively small sample size, limiting generalizability. Future research using randomized controlled trials, larger multi-site samples, and long-term follow-up is recommended to confirm these findings and explore moderating factors such as age, cancer stage, and prior coping experience. Overall, this study provides important evidence that PMR and Benson relaxation are effective non-pharmacological interventions to reduce anxiety in breast cancer patients undergoing chemotherapy. Their integration into oncology nursing practice may enhance patients' psychological resilience and improve treatment experiences.

CONCLUSION

This study demonstrated that progressive muscle relaxation and Benson

relaxation significantly reduced anxiety levels among breast cancer patients undergoing chemotherapy at Dr. Kariadi General Hospital. These findings highlight the importance of integrating simple, non-pharmacological interventions into nursing practice to support the psychological well-being of oncology patients. Relaxation techniques can be applied as part of routine nursing care to help patients manage treatment-related distress and improve overall quality of life. However, as this study employed a one-group pretest–posttest design without a control group, the results should be interpreted with caution. Future research with randomized controlled trials and larger sample sizes is recommended to strengthen the evidence base.

It is recommended that progressive muscle relaxation and Benson relaxation be integrated into nursing practice as supportive, non-pharmacological interventions to help reduce anxiety in breast cancer patients undergoing chemotherapy. Patients and families may also be encouraged to practice these techniques independently at home as part of self-management strategies. Healthcare institutions should consider including relaxation therapy in psychosocial support programs to promote holistic care. Future research is needed with stronger designs, larger samples, and longer follow-up to validate the effectiveness of these interventions and explore factors that may influence patient outcomes.

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