# NURSING CARE IMPLEMENTATION OF PROGRESSIVE MUSCLE RELAXATION (PMR) INTERVENTION ON REDUCING ANXIETY LEVELS IN CERVICAL CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN THE TULIP ROOM OF ARIFIN ACHMAD REGIONAL HOSPITAL, RIAU PROVINCE

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**Abstract**

Cervical cancer is a major global health problem that not only affects patients physically but also psychologically, particularly during chemotherapy. Anxiety is one of the most common psychological responses experienced by cervical cancer patients due to uncertainty about prognosis and treatment procedures. This study aimed to implement an Evidence-Based Practice (EBP) approach using Progressive Muscle Relaxation (PMR) to reduce anxiety in cervical cancer patients undergoing chemotherapy. A case study design was applied to two patients treated in the Tulip Ward of Arifin Achmad Regional Hospital. The intervention was conducted over three consecutive days, approximately 30 minutes per session, before chemotherapy. Anxiety levels were measured using the Zung Self-Rating Anxiety Scale (ZSAS) developed by William W. K. Zung before (pre-test) and after (post-test) the intervention. Data were analyzed descriptively by comparing changes in anxiety scores and categories. The results showed a clinically significant reduction in anxiety levels. Mrs. E's score decreased from 62 (severe anxiety) to 43 (mild anxiety), while Mrs. C's score decreased from 58 (moderate anxiety) to 44 (mild anxiety). Subjectively, both patients reported feeling calmer, more comfortable, and better prepared for chemotherapy. Objectively, they appeared more relaxed, with improved breathing patterns and stable vital signs. In conclusion, Progressive Muscle Relaxation is an effective, safe, and practical non-pharmacological nursing intervention for reducing anxiety in cervical cancer patients undergoing chemotherapy. Its consistent application can enhance emotional stability and overall quality of life, supporting comprehensive oncology nursing care.

**Keyword:** Cervical cancer 1; Anxiety 2; Chemotherapy 3; Progressive Muscle Relaxation (PMR) 4, vidence-Based Nursing Practice 5.

## INTRODUCTION

Cervical cancer is a malignant tumor that develops in the cervix and is generally caused by persistent Human Papillomavirus (HPV) infection. This disease can be detected through early screening, thus increasing the chances of successful treatment (Erlani, Seriani, 2020). Globally, cervical cancer remains one of the most common cancers affecting women. The (WHO, 2018) reported approximately 570,000 new cases and over 300,000 deaths in 2018, making it the fourth most common cancer among women worldwide.

In Indonesia, the burden of cervical cancer is also quite high. Data from the 2018 Basic Health Research (Riskesdas) showed a cancer prevalence of 1.79 per 1,000 population (Sung et al., 2021). Data from Arifin Achmad Regional Hospital, Riau Province, recorded 1,167 cases of cervical cancer in 2022, ranking first among gynecological diseases. Meanwhile, 444 cases were recorded between January and June 2023, with peak incidences in February and March, each with 81 cases (Arifin Achmad Regional Hospital, Riau Province, 2023, cited in Ayatul &

Rieh, (2025). This data indicates that cervical cancer remains a health problem that requires serious attention, particularly in Riau Province.

One of the main treatments for cervical cancer is chemotherapy. Chemotherapy is a systemic treatment that works by destroying cancer cells, including those that have metastasized. However, this therapy often causes physical side effects such as nausea, vomiting, diarrhea, hair loss, bone marrow depression, anemia, and a suppressed immune system. In addition to the physical impacts, patients often experience psychological disorders such as anxiety, fear, and panic Yudono, (2020). Decreased physical condition and changes in self-concept due to illness and therapy contribute to the emergence of anxiety (Nguyen et al., 2023)

Research by Syukuriyah & Alfiyanti (2023) showed that the majority of cervical cancer patients experienced moderate levels of anxiety, while others experienced severe to extremely severe anxiety. This confirms that anxiety is a significant psychological problem and requires appropriate intervention. Anxiety management can be carried out through pharmacological and non-pharmacological approaches. Anti-anxiety medications such as benzodiazepines are effective in the short term but carry the risk of dependence. Therefore, non-pharmacological interventions are a safer alternative and can be performed independently.

One relaxation technique that has proven effective is Progressive Muscle Relaxation (PMR). PMR involves tensing and then gradually relaxing muscle groups, stimulating the body's relaxation response. Its mechanism involves activating the hypothalamus, which decreases sympathetic nervous system activity and increases parasympathetic activity, thereby reducing muscle tension and anxiety (Deswita & Hanifa, 2024). Research by Burhan et al., (2022) and Pazira et al., (2024) shows that implementing PMR in nursing care is effective in reducing anxiety levels and improving coping skills in cervical cancer patients.

Based on this phenomenon, the implementation of Progressive Muscle Relaxation (PMR) interventions in nursing practice is expected to help reduce anxiety levels, increase self-control, manage stress, and improve patients' quality of life during chemotherapy. Therefore, researchers are interested in conducting a study entitled: "Nursing Care Implementation of Progressive Muscle Relaxation (PMR) Interventions to Reduce Anxiety Levels in Cervical Cancer Patients Undergoing Chemotherapy in the Tulip Ward of Arifin Achmad Regional Hospital, Riau Province."

## RESEARCH METHODS

This study used an Evidence-Based Practice (EBP) approach, implementing a Progressive Muscle Relaxation (PMR) intervention to reduce anxiety in cervical cancer patients undergoing chemotherapy in the Tulip Ward of Arifin Achmad General Hospital. Two patients were purposively selected based on inclusion criteria (conscious, cooperative, and having undergone ≥2 cycles of chemotherapy). The intervention was conducted over three consecutive days, approximately 30 minutes before chemotherapy, under the direct guidance of a nurse. Anxiety levels were measured using the Zung Self-Rating Anxiety Scale (ZSAS) developed by Zung & William (1971) before (pre-test) and after (post-test) the intervention.

Descriptive quantitative analysis was conducted by comparing pre- and post-test scores and changes in anxiety categories. The intervention was considered successful if ≥60% of patients experienced a reduction in anxiety levels..

## RESEARCH RESULTS

### A. NURSING ASSESSMENT

Patient Assessment 1 (Mrs. C)Mrs. E, 44 years old, was admitted to the Tulip Ward of Arifin Achmad Regional Hospital with a medical diagnosis of stage IVB cervical cancer (Ca

cervix) accompanied by anemia and thrombocytopenia. The patient was conscious and compos mentis (GCS E4 M6 V5). She complained of weakness, cold hands and feet, and dizziness upon positional changes. She appeared pale, had anemic conjunctiva, CRT >2 seconds, and cold extremities. Vital signs: BP 99/60 mmHg, N/A 65 beats/minute, RR 20 breaths/minute, S 36°C. Pain scale VAS 3 (mild).

Laboratory: Hb 9.6 g/dL, leukocytes 6.59 x10³/µL, platelets 85,000/µL; urea and creatinine within normal limits. A 0.9% NaCl infusion of 1500 cc/24 hours was administered. Weight 42 kg, height 150 cm (BMI 18.6 kg/m²). A transfusion of 1 bag of packed red blood cells (PRC) and 10 bags of TC was planned, along with a fourth course of chemotherapy (August 28, 2025). Drug therapy: Buscopan 3x1 tablet and Omeprazole 2x1 tablet. Psychologically, the patient appeared tense and anxious, expressing anxiety about the transfusion and chemotherapy, difficulty sleeping, experiencing heart palpitations, and cold hands while awaiting treatment. He was seen frequently taking deep breaths and clutching his hands. His ZSAS score was 62 (severe anxiety).B. Nursing diagnoses

Nursing diagnoses for Mrs. E and Mrs. C were established based on major and minor data obtained during the assessment. In Mrs. E, complaints included cold hands, palpitations, pallor, anemic conjunctivae, CRT >2 seconds, cold extremities, blood pressure of 99/60 mmHg, and a hemoglobin level of 9.6 g/dL. Stage IVB cervical cancer, accompanied by anemia, causes a decrease in hemoglobin levels, reducing oxygen supply to the tissues. This triggers a compensatory mechanism in the form of peripheral vasoconstriction, characterized by pallor and cold extremities. Based on these data, a nursing diagnosis of **ineffective peripheral tissue perfusion** related to decreased hemoglobin concentration was established. Furthermore, the patient expressed anxiety and fear of transfusions and chemotherapy, difficulty sleeping, palpitations, and a tense and restless expression. Sympathetic nervous system activation due to situational stress supports the diagnosis of anxiety (severe anxiety).

In Mrs. C, complaints of weakness and fatigue supported by objective data such as pallor, anemic conjunctiva, CRT >2 seconds, cold extremities, and Hb 8.6 g/dL. A history of long-term chemotherapy and possible chronic bleeding contributed to the anemia, resulting in decreased peripheral perfusion. Therefore, a diagnosis of ineffective peripheral tissue perfusion was also made in this patient. Psychologically, the patient expressed anxiety about his condition, fear of being a burden on his family, anxiety before chemotherapy, and difficulty sleeping. Objective data showed a sad expression and teary eyes. These conditions led to a diagnosis of anxiety related to a situational crisis due to the disease and prolonged treatment. Based on problem priority, the primary diagnoses in both patients were ineffective peripheral tissue perfusion related to decreased hemoglobin concentration and anxiety related to a situational crisis .

Patient Assessment 2 Mrs. C, 58, was admitted to the Tulip Ward of Arifin Achmad Regional Hospital with a diagnosis of cervical cancer and underwent six months of chemotherapy. The patient was conscious and compos mentis (GCS E4 M6 V5), appeared weak but cooperative. She expressed anxiety about her persistent illness and worry about being a burden on her family. Prior to chemotherapy, the patient felt restless and had difficulty sleeping. Physical examination: pale appearance, anemic conjunctiva, CRT >2 seconds, cool extremities. Vital signs: BP 116/70 mmHg, N/A 78 beats/minute, RR 18 breaths/minute, S 36°C. Pain scale: VAS 2 (mild). Weight 36 kg, height 146 cm. Laboratory findings: Hb 8.6 g/dL, leukocytes 7,720/mm³, platelets 156,000/mm³ (mild anemia). Urea level 44.3 mg/dL and creatinine level 1.41 mg/dL (requires kidney function monitoring). Transfusion of 3 PRBC flasks and a third round of chemotherapy are planned based on the results of the supporting examinations. ZSAS score 58 (moderate anxiety).

**B. Nursing interventions**

The nursing interventions provided to both patients focused on the diagnosis of anxiety related to a situational crisis. The expected outcome refers to the Indonesian Nursing Outcome Standards (SLKI), namely Anxiety Level (L.09093), with the target being a reduction in anxiety levels after 3 x 8 hours of intervention. Outcome criteria include a decrease in verbalization of confusion and worry about the situation, a reduction in restless and tense behavior, a decrease in complaints of dizziness and pallor, improved sleep patterns, stabilization of pulse and respiratory rates, and increased eye contact during interactions. The interventions implemented refer to the Indonesian Nursing Intervention Standards (SIKI), namely Anxiety Reduction (I.09314). During the observation phase, nurses identify changes in anxiety levels based on the condition, time, and triggering stressors, monitor for verbal and nonverbal signs of anxiety, and assess the patient's decision-making ability.

During the therapeutic phase, nurses create a conducive and empathetic atmosphere to build a trusting relationship, employ a calm and reassuring approach, and accompany patients throughout the treatment process. Nurses also explore triggers for anxiety, actively listen to complaints, provide distraction, and facilitate non-pharmacological techniques such as Progressive Muscle Relaxation (PMR) and deep breathing exercises to help reduce muscle tension and physiological responses to anxiety. Discussions regarding the planned course of action and upcoming events are conducted realistically to enhance patient preparedness.

In the educational aspect, nurses explain the procedures to be undertaken and the sensations they might experience, provide factual information regarding the diagnosis, therapy, and prognosis, and encourage family involvement as a support system. Patients are also trained to use adaptive coping mechanisms and relaxation techniques independently to manage anxiety during chemotherapy.

**C. Nursing Implementation**

Nursing care for Mrs. E and Mrs. C was implemented over three consecutive days (August 26–28, 2025) in the Tulip Room at Arifin Achmad Regional Hospital. The intervention used Progressive Muscle Relaxation (PMR) techniques, lasting approximately 30 minutes per session, in accordance with the stages of the nursing process, which include assessment, planning, implementation, and evaluation. Initially, a general assessment and anxiety level were conducted using the Zung Self-Rating Anxiety Scale (ZSAS) developed by William W. K. Zung as pre-test data, and vital signs were monitored to ensure the safety of the procedure. Next, the patient and family were educated about their condition, chemotherapy procedures, and the importance of anxiety management through non-pharmacological approaches. After obtaining informed consent, PMR therapy was administered by positioning them comfortably, creating a calm environment, and guiding them through systematic deep breathing and muscle contraction-relaxation exercises.

Following the session, an evaluation of physiological responses and a re-measurement of anxiety levels (post-test) were conducted to assess the effectiveness of the intervention. All actions are documented, and patients are given a PMR guide leaflet so they can continue the exercises independently as part of anxiety management during chemotherapy.f. Nursing Evaluation. After implementation, the researcher conducted an evaluation (SOAP) of the patient. This evaluation was assessed after therapy.

**D. Nursing Evaluation**

The evaluation was conducted by comparing pre-post anxiety scores using the Zung Self-Rating Anxiety Scale (ZSAS) developed by William W. K. Zung, and based on subjective and objective data during nursing care. Mrs. E experienced a decrease in her score from 62

(severe anxiety) to 43 (mild anxiety), a difference of 19 points. Mrs. C experienced a decrease from 58 (moderate anxiety) to 44 (mild anxiety), a difference of 14 points. These decreases indicate a clinically significant change in anxiety levels after receiving Progressive Muscle Relaxation (PMR).

Subjectively, both patients reported feeling calmer, more comfortable, and more prepared to undergo treatment. Objectively, the patients appeared more relaxed, less anxious, had a more regular breathing pattern, and had stable vital signs. Thus, PMR is an effective non-pharmacological intervention for reducing anxiety in cervical cancer patients undergoing chemotherapy.

## DISCUSSION

Cervical cancer is a malignant disease that not only impacts the physical condition but also the psychological, social, and spiritual aspects of patients. Lengthy treatment processes such as chemotherapy, coupled with side effects such as nausea, weakness, pain, and changes in reproductive function, often trigger uncertainty and a perceived threat to life. These conditions contribute to anxiety, especially in patients with advanced stages. Nurkayatun & Fitriani (2021)) stated that impaired self-concept and changes in physical condition in cervical cancer patients are predisposing factors for significant anxiety. In this case study, a comprehensive assessment was conducted through interviews, observations, and physical examinations. Both patients showed relatively stable physiological conditions despite anemia, but their psychological responses differed. Measurements using the Zung Self-Rating Anxiety Scale (ZSAS), developed by William W. K. Zung, showed that Mrs. E scored 62 (severe anxiety) and Mrs. C scored 58 (moderate anxiety). These differences in anxiety levels indicate that emotional responses do not always align with clinical conditions, but are instead influenced by individual perception, previous experiences, coping mechanisms, and available social support.

The nursing diagnosis of anxiety is based on the Indonesian Nursing Diagnosis Standards (IDHS), with indicators including excessive worry, sleep disturbances, muscle tension, and physiological manifestations such as palpitations and cold extremities. Pathophysiologically, anxiety occurs due to activation of the sympathetic nervous system, which increases the secretion of stress hormones such as adrenaline and cortisol, resulting in physical responses such as increased heart rate, respiratory rate, and muscle tension. If persistent, this condition can worsen the patient's quality of life and hinder readiness for therapy (Vera Novalia, 2023) Therefore, interventions must be able to effectively and safely suppress this stress response. The nursing intervention chosen was Progressive Muscle Relaxation (PMR), as part of an evidence-based non-pharmacological approach. PMR works through systematic muscle contraction and relaxation, stimulating the activation of the parasympathetic nervous system, thereby decreasing sympathetic activity and creating a relaxation response. Physiologically, this technique reduces muscle tension, stabilizes the heart rate, and slows the respiratory rate. Psychologically, the patient experienced an increased sense of calm, reduced negative thoughts, and improved emotional control.

Implementation was carried out over three consecutive days, with each session lasting approximately 30 minutes. Evaluation results showed a clinically significant decrease in anxiety scores. In Mrs. E's case, the score decreased from 62 to 43–48 (mild category), while in Mrs. C's case, it decreased from 58 to 44–45 (mild category). In addition to quantitative data, changes were also observed subjectively and objectively. The patient reported feeling more relaxed, improved sleep quality, and better preparedness for chemotherapy procedures. Observationally, the patient appeared more cooperative, had a calmer facial expression, and showed no signs of anxiety as before. These findings are consistent with research by Syarif &

Putra (2014), Nurkayatun & Fitriani (2021) and Pazira et al (2024), which found progressive muscle relaxation to be effective in reducing anxiety in cancer patients undergoing chemotherapy. This effectiveness is related to the activation of the relaxation response through the parasympathetic nervous system, which suppresses both physiological and psychological stress responses. Furthermore, family involvement in the education process and therapy implementation contributes to the success of the intervention, as emotional support increases patient motivation and a sense of security.

However, PMR does not directly address physical symptoms such as nausea and vomiting caused by chemotherapy, as these symptoms are related to the pharmacological effects of cytotoxic drugs. Therefore, progressive muscle relaxation should be positioned as a complementary therapy combined with pharmacological management and other supportive interventions for optimal results. Overall, the results of this study confirm that Progressive Muscle Relaxation is an effective and applicable evidence-based nursing intervention in reducing anxiety levels in cervical cancer patients undergoing chemotherapy. Consistent application of this technique can improve patient comfort, emotional stability, and quality of life holistically, making it suitable for integration into comprehensive nursing care in the oncology room.

## CONCLUSION

Based on the results of the assessment and evaluation of nursing care for Mrs. E and Mrs. C with cervical cancer undergoing chemotherapy, it can be concluded that the main problems that emerged were anxiety related to situational crises, uncertainty about prognosis, and therapeutic procedures. This anxiety impacted psychological and physiological aspects, such as sleep disturbances, muscle tension, and decreased comfort. The implementation of a non-pharmacological intervention, Progressive Muscle Relaxation (PMR), conducted over three days, proved effective in reducing anxiety levels. This was demonstrated by a decrease in the Zung Self-Rating Anxiety Scale (ZSAS) score, developed by William W. K. Zung, from moderate to mild, as well as improvements in the patient's subjective and objective responses.

These findings confirm that PMR is an evidence-based nursing intervention that is effective, safe, and easy to implement as part of comprehensive nursing care to help reduce anxiety and improve the quality of life of cervical cancer patients undergoing chemotherapy.

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