

THESIS

**THE EFFECT OF JACOBSON'S PROGRESSIVE MUSCLE RELAXATION
(JPMR) ON ALTERATIONS IN ANXIETY AMONG CANCER PATIENTS
UNDERGOING CHEMOTHERAPY AT DR. M. YUNUS REGIONAL
GENERAL HOSPITAL, BENGKULU, IN 2026**



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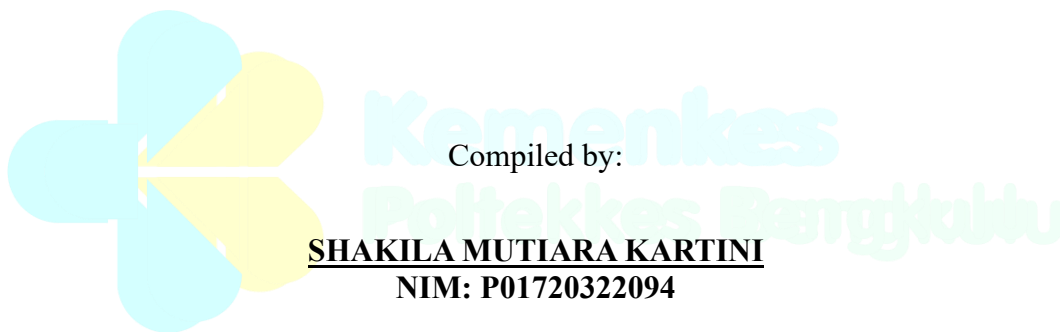
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**MINISTRY OF HEALTH OF THE REPUBLIC OF INDONESIA
HEALTH POLYTECHNIC OF THE MINISTRY OF HEALTH BENGKULU
BACHELOR OF NURSING PROGRAM
NURSING APPLICATIONS
YEAR 2026**

THESIS TITLE PAGE

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(JPMR) ON ALTERATIONS IN ANXIETY AMONG CANCER PATIENTS
UNDERGOING CHEMOTHERAPY AT DR. M. YUNUS REGIONAL
GENERAL HOSPITAL, BENGKULU, IN 2026**

Submitted as one of the requirements to obtain an Applied Bachelor of Nursing
(S.Tr.Kep) in the Applied Bachelor of Nursing Study Program, Department of
Nursing Polytechnic, Ministry of Health, Bengkulu



**MINISTRY OF HEALTH OF THE REPUBLIC OF INDONESIA
HEALTH POLYTECHNIC OF THE MINISTRY OF HEALTH BENGKULU
DEPARTMENT OF NURSING STUDY PROGRAM
BACHELOR OF APPLIED NURSING
YEAR 2026**

THESIS APPROVAL PAGE

**THE EFFECT OF JACOBSON'S PROGRESSIVE MUSCLE RELAXATION
(JPMR) ON ALTERATIONS IN ANXIETY AMONG CANCER PATIENTS
UNDERGOING CHEMOTHERAPY AT DR. M. YUNUS REGIONAL
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Declare that this Proposal is my own work (ORIGINAL), and that the content of this Proposal does not contain any work that has ever been submitted by another person to obtain an academic degree in an Educational Institution, and to the best of my knowledge there are no works or opinions that have been written and/or published by others, except those that are referred to in writing in this manuscript and mentioned in the bibliography.

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MOTTO AND PRESENTATION

"Allah does not burden a person except according to his ability; He gets (reward) from what he does and gets (punishment) from (evil) he does."

(Q.S Al-Baqarah:289)

MOTTO

" Everything you lose is a step you take "

"Life can be heavy, especially if you try to carry it all at once. Part of growing up and moving into new chapters of your life is about catch and release"

- Taylor Swift

"In the end, I'm gonna be alright

But it might take a hundred sleepless nights"

- Lany

PRESENTATION

"Bismillahirrahmanirrahim"

With full gratitude to Allah SWT for all the graces, strength, patience, and facilities that have been given, the author was finally able to reach this stage. This offering sheet is a simple space for the author to express his great gratitude to his loved ones who are always present in every step of this struggle. This thesis is presented by the author to:

- ❖ **Allah SWT**, because by His permission, grace, and mercy, the writer is always given strength, patience, help, sustenance, and ease in carrying out every process of life. Thank you for the prayers that were answered, the path that was paved, and the heart that was always strengthened in facing every test so that the writer was able to survive to this stage.
- ❖ **The Prophet Muhammad SAW**, as a role model for all mankind. Thanks to the struggle and the treatise he brought, mankind was able to come out of the dark age to an era of light, full of knowledge, and good values. May prayers and greetings always be poured out to him, his family, friends, and all his people until the end of time.

- ❖ My two beloved parents, my father and my mother. Thank you for all the prayers, love, affection, support, and sacrifices that never stop accompanying every step of the author. Thank you for being a place to go home, a source of strength, and a figure that always strengthens when the author feels tired in completing this thesis. Thank you for all the prayers offered in the invisible third of the night, but so much of meaning in every step of the writer's struggle. Every advice, sincerity, and struggle of Dad and Mom is the biggest reason for the writer to continue to persevere and step up to this point. This thesis is presented by the author as a form of gratitude and pride of the author to Father and Mother
- ❖ To my dear sister, Thank you for being one of the encouragements for the author in every process of preparing this thesis. Your presence, prayers, and support are motivations for the writer to continue learning, developing, and trying to become an older brother who can provide an example and be a source of pride for the family. Hopefully, in the future the writer can continue to accompany every step and become a good role model, both in the academic and non-academic fields.
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FOREWORD

Praise be to the presence of Allah SWT who has given His grace and grace, so that the author can complete this thesis with the title "The Effect of *Jacobson's* Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Hospital Bengkulu in 2026" The purpose of writing this thesis is as a guideline for the implementation of research on thesis preparation.

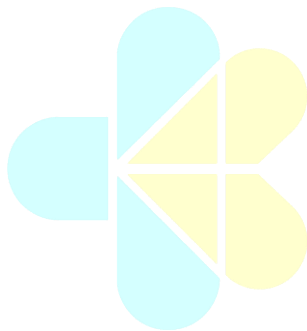
In completing this thesis, the author received a lot of material and moral assistance from various parties, for which the author would like to thank the:

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8. Both parents and all families who have prayed, supported, and given encouragement both morally and materially.
9. Comrades in law who have provided support and enthusiasm in the preparation of this thesis.

The author is aware of the inability to write a thesis; therefore, the author expects criticism and suggestions from various parties so that the author can work better and optimally in the future. The author hopes that this thesis can be useful for all parties, especially for the researcher himself, students of the Department of Nursing, and others.

Bengkulu, 01 July 2026



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**EFFECT OF JACOBSON'S PROGRESSIVE MUSCLE RELAXATION
(JPMR) ON ALTERATIONS IN ANXIETY IN PATIENTS
CANCER UNDERGOING CHEMOTHERAPY AT THE HOSPITAL
DR. M. YUNUS BENGKULU**

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ABSTRACT

Anxiety is one of the psychological problems that cancer patients who undergo chemotherapy often experience. This condition can affect the patient's physical and psychological condition and has the potential to reduce the success of treatment if not handled properly. One of the nonpharmacological interventions that can be used to reduce anxiety is *Jacobson's Progressive Muscle Relaxation* (JPMR). This study aims to determine the effect of *Jacobson's Progressive Muscle Relaxation* (JPMR) on *alterations in anxiety* in cancer patients undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital in 2026. This study uses a quantitative method with a *pre-experimental one-group pre-test-post-test* design. The research sample amounted to 90 participants who were selected using *the consecutive sampling* technique. Data collection was carried out in May–June 2026 using *the State-Trait Anxiety Inventory* (STAI) instrument. Data analysis was conducted using *the Wilcoxon Signed Rank Test*. The results showed that the average score of *alterations in anxiety* before the intervention was 38.90 and decreased to 25.43 after being given the JPMR intervention. The results of *the Wilcoxon Signed Rank Test* showed a *p-value* of 0.000 ($p < 0.05$). It was concluded that *Jacobson's Progressive Muscle Relaxation* (JPMR) had an effect on reducing *alterations in anxiety* in cancer patients undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital in 2026.

Kata Kunci: *Alterations in Anxiety; Cancer; Jacobson's Progressive Muscle Relaxation; Kemoterapi.*

**PENGARUH JACOBSON'S PROGRESSIVE MUSCLE RELAXATION
(JPMR) TERHADAP ALTERATIONS IN ANXIETY PADA PASIEN
CANCER YANG MENJALANI KEMOTERAPI DI RSUD**

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ABSTRAK

Kecemasan merupakan salah satu masalah psikologis yang sering dialami pasien cancer yang menjalani kemoterapi. Kondisi tersebut dapat memengaruhi kondisi fisik dan psikologis pasien serta berpotensi menurunkan keberhasilan pengobatan apabila tidak ditangani dengan baik. Salah satu intervensi nonfarmakologis yang dapat digunakan untuk menurunkan kecemasan adalah Jacobson's Progressive Muscle Relaxation (JPMR). Penelitian ini bertujuan untuk mengetahui pengaruh Jacobson's Progressive Muscle Relaxation (JPMR) terhadap alterations in anxiety pada pasien cancer yang menjalani kemoterapi di RSUD dr. M. Yunus Bengkulu Tahun 2026. Penelitian ini menggunakan metode kuantitatif dengan desain pre-experimental one-group pre-test-post-test. Sampel penelitian berjumlah 90 partisipan yang dipilih menggunakan teknik consecutive sampling. Pengumpulan data dilakukan pada bulan Mei–Juni 2026 menggunakan instrumen State-Trait Anxiety Inventory (STAI). Analisis data menggunakan uji Wilcoxon Signed Rank Test. Hasil penelitian menunjukkan bahwa rata-rata skor alterations in anxiety sebelum intervensi sebesar 38,90 dan menurun menjadi 25,43 setelah diberikan intervensi JPMR. Hasil uji Wilcoxon Signed Rank Test menunjukkan nilai p-value sebesar 0,000 ($p < 0,05$). Disimpulkan bahwa Jacobson's Progressive Muscle Relaxation (JPMR) berpengaruh terhadap penurunan alterations in anxiety pada pasien cancer yang menjalani kemoterapi di RSUD dr. M. Yunus Bengkulu Tahun 2026.

Kata Kunci: Alterations in Anxiety; Cancer; Jacobson's Progressive Muscle Relaxation; Kemoterapi.

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ABBREVIATION LIST

CT	: Computed Tomography
DNA	: Deoxyribonucleic Acid
ECOG	: Eastern Cooperative Oncology Group
HPV	: Human Papillomavirus
ICU	: Intensive Care Unit
JPMR	: Jacobson's Progressive Muscle Relaxation
MRI	: Magnetic Resonance Imaging
PMR	: Progressive Muscle Relaxation
RNA	: Ribonucleic Acid
STAI-T	: State-Trait Anxiety Inventory
USG	: Ultrasonographers



BAB I INTRODUCTION

A. Background

Cancer It is one of the global health problems that puts a huge burden on the number of illnesses and deaths with a trend that continues to increase every year. Epidemiological reports recorded more than 20 million new cases with nearly 10 million deaths, making it the second leading cause of death after cardiovascular disease. It was found that 1 in 5 people will experience cancer Throughout its lifetime, while about 1 in 9 men and 1 in 12 women die from this disease. Type cancer The most common ones include lung, breast, colorectal, prostate, and gastric, with variations in distribution by sex and region (WHO, 2025).

Cancer Facts & Figure report that the case cancer experiencing consistent improvement from year to year. In 2022, around 1,918,030 cases were recorded, then in 2023 it increased to 1,958,310 cases, and in 2024 it will increase to 2,001,140 cases. This data shows an increasing trend in incidents cancer in the last three years (B. Him, 2025)

Data Global Cancer Observatory (2022), Indonesia reported around 408,661 cases cancer new, with the largest number coming from cancer breast around 115,240 cases, followed by Cancer Serviks 66,610 cases, colorectal 57,210 cases, lung 28,200 cases, ovarian 24,120 cases, and prostate 17,980 cases. In 2023, the Indonesian Health Survey recorded a national prevalence of approximately 877,531 cases, with the highest rates in DI Yogyakarta (3.6%), DKI Jakarta (2.4%), West Sumatra (2.0%), and Bengkulu (0.7%) (Ferlay et al., 2022).

Data on cancer patients at M. Yunus Bengkulu Hospital, in 2023 there will be 411 cases of cancer patients, then in 2024 there will be 387 new cases and in 2025 there will be 327 cases of cancer in the period from January to July, this data describes the number of cancer patients who squirt services at the main referral hospital in Bengkulu province (M YUNUS HOSPITAL, 2025).

Causes cancer Rooted in gene mutations that disrupt the control of the cell cycle, these changes can be ignited by cigarette carcinogens, alcohol, radiation, chemicals as well as viral infections such as HPV and hepatitis as well as chronic inflammation, while hormonal factors, immune disorders, and genetic predispositions increase susceptibility. The impact is real in daily life, namely pain, fatigue that never subsides, weight loss to cachexia, anemia, infections, and organ dysfunction due to invasion or metastasis, accompanied by the accompanying psychological and social burdens (Pandey et al., 2024).

Therapy for patients cancer includes surgery, radiotherapy, chemotherapy, hormonal therapy, and immunotherapy. Chemotherapy is usually applied during illness cancer has spread systemically or is at the metastatic stage and involves administering chemical drugs in the form of pills or infusions with the aim of slowing the spread of cells cancer As well as preventing recurrence, but this treatment can also cause side effects such as nausea-vomiting, severe fatigue, decreased appetite (anorexia), hair loss (alopecia), canker sores (mucositis), indigestion (diarrhea or constipation), bone and muscle pain, skin and nail changes, decreased immunity to easy infection, and sleep disorders, anxiety, sadness, or emotional stress (National Cancer Institute, 2025).

Physical conditions that continue to weaken due to the side effects of chemotherapy often worsen the patient's psychological condition. Pain, reduced stamina, and thoughts of death can trigger the onset anxiety deep. Anxiety This arises not only from physical discomfort, but also from the emotional and social burden that the patient feels during therapy (Subsection et al., 2023).

Anxiety in patients cancer who are undergoing chemotherapy can be understood as a complex emotional response. Anxiety It usually appears in the form of excessive fear, feelings of insecurity, and a perception of helplessness. This condition often begins with concerns about the side effects of therapy, such as pain, fatigue, and hair loss. Furthermore, patients often imagine the impact of the disease and treatment on their future quality of life. Response anxiety It can be adaptive as well as maladaptive (Shalata et al., 2024).

Level anxiety experienced by patients varies, ranging from anxiety light, medium, to anxiety weight that can lead to panic attacks. Anxiety excessive not only affects the psychological aspect, but also affects comfort, stamina, up to The patient's overall quality of life, This condition can ultimately affect the patient's adherence to the treatment plan undertaken. Therefore, it is important to have non-pharmacological interventions that can help patients manage anxiety during therapy (Forbes et al., 2023).

One approach that can be used is nonpharmacological therapy. Various methods have been developed to support patients cancer in reducing taste anxiety, among which are music therapy, deep breathing relaxation therapy, mindfulness, as well as progressive relaxation therapy or Jacobson's Progressive Muscle Relaxation (JPMR). This method aims to help patients achieve emotional calm, improve mental balance, and create a more relaxed physical condition, so that patients can undergo better medical therapy (Ratnawati & Rosiana, 2020).

Jacobson's Progressive Muscle Relaxation (JPMR) is a relaxation technique developed by Edmund Jacobson in 1938 with the basic principle of systematically tightening and relaxing certain muscle groups. This technique aims to lower muscle tension and increase physical relaxation so as to have an effect on the nervous system (Fadillah & Yudiarso, 2021). JPMR has been shown to be effective in reducing anxiety, stress, pain, and lowering blood pressure in various groups of patients, including patients cancer. This is due to the ability of JPMR to activate the sympathetic nervous system, increase parasympathetic activity, and cause a feeling of relaxation that can reduce the physiological response to stress (Tapeh, Darvishpour, Besharati, & Gholami-Chaboki, 2024).

Research Paolis et al, (2019) Indicates that after the administration of the intervention Progressive Muscle Relaxation (PMR) combined with interactive guided imagery in patients cancer In the advanced stage, there is a significant decrease in pain intensity and distress. Average pain score based on Numerical Rating Scale (NRS) in the intervention group decreased from 4.11 before the intervention to 2.28 after the intervention, with a mean difference of 1.83 and the outcome was statistically significant ($p < 0.0001$). In addition, the Total score

Symptom Distress Score (TSDS) also decreased from 39.04 to 30.22, indicating a 23% decrease in distress after the intervention. These findings show that PMR combined with guided imagery is effective in reducing pain and emotional distress such as anxiety and depression in patients Cancer (Paolis et al., 2019).

Research Tapeh et al, (2024) Indicates that after the administration of the intervention Jacobson's Progressive Muscle Relaxation (JPMR) for 8 weeks, there was a statistically significant decrease in anxiety levels. The average anxiety score decreased from 10.41 before the intervention to 4.91 after the intervention, and the difference showed significant results ($p < 0.001$). In addition, the Participants' happiness levels also experienced a significant increase after the JPMR intervention, with the average score increasing from 26.59 to 37.18, and the difference was statistically significant ($p < 0.001$) (Tapeh, Darvishpour, Besharati, & Gholami-Chaboki, 2024).

Research Ahmadinia et al, (2025) It showed that after administering the Jacobson relaxation technique intervention for 12 minutes (given 1 hour before the CAA action), there was a statistically significant reduction in state anxiety. The mean anxiety score decreased from 40.69 before the intervention to 29.63 after the intervention, and the difference showed significant results ($p < 0.001$) (Ahmadinia et al., 2025).

Toqan's research, (2023) shows that the giving of progressive muscle relaxation exercise for 2 weeks had a significant effect on reducing anxiety levels in nursing students before undergoing clinical practice in the intensive care unit. In the intervention group, the average anxiety score decreased from 2.86 before the intervention to 1.15 after the intervention, and the difference was statistically significant ($p < 0.01$). In addition, after the intervention, anxiety levels in the intervention group were shown to be lower compared to the control group that did not receive relaxation exercises, with a statistically significant difference ($p < 0.01$) (Toqan & Ayed, 2023).

This study developed Jacobson's Progressive Muscle Relaxation (JPMR) intervention as a structured nonpharmacological nursing action in cancer patients undergoing chemotherapy to assess alterations in anxiety. This

approach not only assesses general anxiety levels, but also evaluates changes in cognitive, emotional, and physiological responses before and after chemotherapy.

An initial survey conducted by researchers in the chemotherapy room of Dr. M. Yunus Hospital in 2025 on 23 participants showed that as many as 6 people were in the normal category, 6 people experienced mild anxiety, 6 people were in moderate anxiety, and 5 people were included in the category of severe anxiety, which was characterized by psychological complaints such as excessive worry and anxiety as well as physical complaints such as tension, heart palpitations, cold sweats, tremors, sleep disturbances, decreased appetite, and digestive complaints in the form of abdominal discomfort or nausea, indicating that the level of anxiety in patients before undergoing chemotherapy varies from normal to severe anxiety.

Based on the background of the above problem, the researcher is interested in conducting a study on "The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at dr. M. Yunus Bengkulu Hospital in 2026".

B. Problem Formulation

Based on the background of high anxiety levels in cancer patients undergoing chemotherapy, the formulation of the problem in this study is:

"Is there an effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy at Dr. M. Yunus Hospital, Bengkulu City in 2026".

C. Research Objectives

1. General Purpose

It is known that the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy is known.

2. Special Purpose

- a. It is known that the characteristics of the participants include age, gender and occupation.
- b. It is known that anxiety scores in cancer patients undergoing chemotherapy from before Jacobson's Progressive Muscle Relaxation intervention was given to patients
- c. It is known that anxiety scores in cancer patients undergoing chemotherapy after being given Jacobson's Progressive Muscle Relaxation intervention in patients
- d. It is known that the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy at Dr. M. Yunus Hospital, Bengkulu City.

D. Research Benefits

1. For Participants

The results of this study are expected to be a reference for participants in applying Jacobson's Progressive Muscle Relaxation (JPMR) therapy as a non-pharmacological intervention to reduce anxiety levels in cancer patients, thereby helping to increase a sense of relaxation and comfort during treatment.

2. Share Hospital Installation

This research is expected to be an input for hospitals in the application of Jacobson Progressive Muscle Relaxation as a non-pharmacological intervention to help reduce anxiety and improve the comfort of cancer chemotherapy patients.

3. For Educational Institutions

The results of this study are expected to be an additional reference in the development of nursing science, especially in the field of oncology nursing and palliative nursing, and can be used as study material for students and researchers in developing non-pharmacological interventions to reduce anxiety in cancer patients.

4. Share Research

This research is expected to add insight into the influence of JPMR in reducing anxiety in cancer patients undergoing chemotherapy. The results are expected to be a reference for future research with a wider scope, different methods, and other psychological variables related to the quality of life of cancer patients.



CHAPTER II THEORETICAL OVERVIEW

A. Concept of *Cancer*

1. Definition

Cancer is a disease caused by abnormal cell growth that is uncontrolled and able to spread to other tissues. This condition begins with the disruption of the normal cycle of cell division and death, so that damaged cells remain alive and continue to divide. These abnormal cells can form tumors, both benign ones that do not spread and malignant ones that can invade surrounding tissues and metastasize to other organs (Colonna, 2025).

Salt Cancer: It differs from normal cells in that it can grow without signals, ignore the command to stop dividing, and avoid apoptosis. In addition, these cells are capable of tricking the immune system, triggering new blood vessels, and undergoing repeated genetic changes that reinforce their malignant nature. Thus, Cancer not just abnormal cell growth, but the result of complex molecular changes that allow cells to multiply and spread uncontrollably (Institute, 2024).

2. Etiology

Etiology Cancer It is mainly related to genetic mutations that alter the function of cell cycle-regulating genes. These changes can be triggered by exposure to carcinogens (cigarettes, alcohol, radiation, chemicals), certain viral infections such as HPV and hepatitis, as well as chronic inflammatory processes. Hormonal factors, immune system disorders, and genetic predispositions also play a role in increasing susceptibility (Seong) et al., 2025).

In addition to biological factors, cancer risk is influenced by age, family history, unhealthy diet, obesity, and lack of physical activity. Environmental factors, such as pollution and ultraviolet exposure, may also increase the risk of mutations. Thus, cancer etiology results from a complex interaction of genetic, environmental, and lifestyle factors that contribute to malignant processes (Karen, 2024).

3. Pathophysiology

Tumor cancer starting from the mutation in a proto-oncogene that turns it into an oncogene, so that the cell gains the urge to continue growing and dividing uncontrollably. Along with that, damage to tumor suppressor genes deactivates the function of the controller that is supposed to stop cell proliferation, while abnormalities in the *DNA* repair genes reduce the ability to repair genetic damage, so that mutations accumulate. This combination of genetic changes makes abnormal cells able to evade the mechanism of apoptosis and survive longer than normal cells (Singh et al., 2025).

To sustain its survival, the cell cancer stimulates the process of angiogenesis, which is the formation of new blood vessels that supply oxygen and nutrients to the tumor tissue. This condition not only strengthens growth, but also opens up cell proliferation pathways for cancer through the blood and lymphatic system. Over time, the accumulation of additional mutations increases the invasive properties, allowing the cells to penetrate the basal membrane, invade surrounding tissues, and metastasize to other organs. This flow illustrates how integrated molecular changes transform normal cells into aggressive and difficult-to-control malignant cells (Roger J. B. King, 2021).

In patients with cancer who underwent chemotherapy, a series of physical and psychological stressors such as pain, nausea, fatigue, changes in body image, and uncertainty about treatment results encourage the brain to interpret the situation as an ongoing threat. This information is processed by the amygdala and hypothalamus as the stress response control centers, so that the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis are overactivated. The release of catecholamines and cortisol increases, resulting in physiological changes in the form of heart palpitations, rapid breathing, difficulty sleeping, and uncontrollable anxiety. Excessive sympathetic activation also causes tension in skeletal muscles such as the shoulder-to-neck area, upper arms, and face. This constant tension sends an impulse to the central nervous system that the body is still in a dangerous situation, so the cycle of anxiety continues endlessly (Francesco *et al.*, 2021).

Jacobson's Progressive Muscle Relaxation (JPMR) breaks the cycle through a physiological approach that focuses on changes in muscle tension. By systematically tensing and relaxing muscle groups, sensory receptors send new signals to the brain that the body is becoming calmer and safer. This response suppresses sympathetic nerve activity while strengthening parasympathetic nerve function through the dominance of the vagus nerve, so that heart rate slows down, breathing is more stable, and muscle tension decreases. Decreased sympathetic activity plays a role in suppressing amygdala hyperactivity and controlling the HPA axis, resulting in a decrease in cortisol secretion and an improvement in the regulation of neurotransmitters that regulate emotional stability. These physiological changes were reflected in increased sense of relaxation, reduced fear response, and decreased anxiety levels in cancer patients undergoing chemotherapy after being given structured JPMR intervention (Torales & Higgins, 2020).

4. Klasifikasi

Based on the origin of the tissue and the cell type that underwent the transformation, cancer can be classified into several main groups, each of which has different growth characteristics, distribution patterns, and responses to therapy. The most common type of cancer is carcinoma, which originates from the epithelial cells that line the surface of the body and organs, with subtypes including adenocarcinoma, basal cell carcinoma, squamous cell carcinoma, and transitional cell carcinoma. In addition, there are sarcomas that develop from the body's supporting tissues such as bones, muscles, fat, blood vessels, and fibrous tissues, including osteosarcoma and leiomyosarcoma. Leukemia is Cancer which originates in the bone marrow and is characterized by the proliferation of abnormal white blood cells without the formation of dense tumors, thus interfering with the functioning of the hematopoietic system. Lymphoma grows from lymphocytes in the lymphatic system, consisting of Hodgkin lymphoma with Reed–Sternberg cell features and non-Hodgkin lymphoma with wide clinical variations.

Another type of cancer is multiple myeloma, which originates from plasma cells in the bone marrow and is characterized by a buildup of myeloma cells that form lesions on the bones. Melanoma originates from melanocytes, skin pigment-producing cells, and generally occurs on the skin, although it can appear in other pigmented tissues such as the eyes. In addition, there are brain and spinal cord tumors that are classified based on the type of nerve cells of origin, such as astrocytomas, and can be benign or malignant. Germ cell tumors originate from sperm-forming cells or ova and can appear in various locations of the body with benign or malignant properties. Neuroendocrine tumors develop from hormone-producing cells controlled by the nervous system and often cause symptoms due to excessive hormone production, whereas carcinoid tumors are a special form of slow-growing neuroendocrine tumors, generally occurring in the gastrointestinal tract, and can cause carcinoid syndrome (Institute, 2021).

5. Clinical Manifestations

In general, Cancer It causes manifestations due to the growth of malignant cells, invasion of surrounding tissues, impaired organ function, and the body's inflammatory response. The symptoms are often progressive and non-specific, so in many cases it is only noticed when the disease has entered an advanced stage (Pandey et al., 2024)

1) Anxiety

Anxiety is a psychological manifestation that often appears after a person is diagnosed with cancer. Information about the presence of malignant cells, disease uncertainty, and threats to survival triggers strong emotional distress. At this stage, the patient's mind is filled with worries about the future and changes in the condition of the body.

In addition to psychological factors, the biological process of cancer also gives rise to anxiety. Prolonged activation of the stress system increases stress hormones and makes the patient more sensitive to threats. This condition amplifies emotional turmoil so that anxiety becomes part of the body's biopsychological response to cancer.

Clinically, anxiety arises as a fear of the progression of the disease and uncertainty about the final outcome. Concerns about recurrence, the spread of cancer, and its impact on social roles weigh on the emotional burden. This can interfere with sleep, concentration, and the patient's readiness to undergo the disease process.

Anxiety due to cancer is also affected by changes in the way patients see themselves. Shifting roles in the family and increased dependence on others can trigger emotional discomfort.

2) Weight loss and appetite

It occurs without a clear cause and does not improve even though food intake has been attempted. Cancer cells use large amounts of energy and interfere with metabolic regulation, so fat reserves and muscle mass decrease rapidly, making patients appear thin in a relatively short time.

3) Fatigue settles in and is pale

Patients feel tired quickly, weak, and lack energy even though they do only light activities. This condition is often related to anemia, chronic inflammation, and a decrease in the body's capacity to carry oxygen, so that daily activities feel heavier and the quality of life decreases.

4) Recurrent fever without a clear focus

Body temperature can go up and down or stay slightly above normal for a long period of time. This fever arises as a result of the release of endogenous pyrogens from tumor cells and the immune response to malignancy, so it often appears as an unclear fever because even an examination of the infection does not indicate a definite source.

5) Progressive pain

Pain occurs when a tumor presses on a specific nerve, bone, or organ, and usually gets heavier as the mass increases. In some cases, the pain is more pronounced at night or during activity, interfering with the patient's overall sleep, mobility, and comfort.

6) Lumps or disorders of specific organ function

It is characterized by the presence of a hard, fixed, and non-disappearing lump, for example in the breast, neck, armpits, or testicles. In addition, organ function disorders may appear, such as nausea, vomiting, difficulty swallowing, changes in bowel patterns, long or bloody coughs, shortness of breath, and abnormal bleeding (e.g., irregular periods, recurrent nosebleeds, hematuria, or rectal bleeding).

6. Diagnostic Examination

Cancer diagnostic examination generally consists of three main stages, namely physical examination, supporting examination, and pathological examination.

a. Physical Examination

A physical examination is performed to identify clinical signs that lead to suspected malignancy. The assessment focused on the presence of petechiae, bruising without an apparent cause, spontaneous bleeding, and changes in vital signs. In addition, anemia, chest pain, shortness of breath, paleness, general weakness, glossitis, decreased appetite, indigestion, recurrent infections, and wounds that are difficult to heal can be found. The examination also includes an evaluation of the condition of the skin, mucous membranes, and neurological functions such as headaches or disorientation (Wilkinson, 2021).

b. Supporting Examinations

Supporting examinations play a role in strengthening clinical findings through laboratory and radiological examinations. This procedure includes a complete blood test, chest photo, ultrasound (USG), magnetic resonance imaging (MRI), computed tomography (CT) scans, mammography, endoscopy, laparoscopy, tumor marker assessment, and histopathological analysis (Das et al., 2024).

c. Pathology Examination

Pathological examination is a confirmation stage to establish a definitive diagnosis of cancer. This procedure is performed by

macroscopic and microscopic analysis of the biopsy results, either through fine, incisional, excisional, or biopsy techniques with the help of endoscopy or laparoscopy (Oklahoma, 2023).

7. Governance

Wolfgang Link. (2019) explained that cancer management involves various therapy modalities used according to the type and stage of the disease. In clinical practice, these methods include:

a. Chemotherapy

Chemotherapy is the main therapeutic modality in cancer, which is carried out through the administration of cytotoxic drugs specifically designed to destroy cancer cells or inhibit their division process. Chemotherapy drugs work by damaging abnormal cell RNA, disrupting the mitotic process, and preventing cancer cells from regenerating, so that tumor growth can be suppressed. This therapy is usually given in certain cycles so that the body has an optimal recovery time and drug effectiveness. Although proven to be effective, chemotherapy can cause side effects because it also affects healthy cells that divide rapidly, so regular monitoring of the patient's condition is necessary to maintain the safety and sustainability of therapy.

b. Operation

The surgery aims to remove cancer tissue by cutting and removing parts of the body that contain malignant cells.

c. Radiotherapy

Radiotherapy uses radiation exposure to kill cancer cells. This therapy can be given through a machine outside the body (external radiation therapy) or through a radiation implant placed inside the body (brachytherapy).

d. Immunotherapy

Immunotherapy, or biological therapy, aims to stimulate and strengthen the immune system to be able to attack and destroy cancer cells.

e. Targeted Treatment

This treatment is given to inhibit genetic mutations in cancer cells. Although effective, this therapy can cause side effects, one of which is a decrease in white blood cells that makes patients more susceptible to infection.

B. Concept of Chemotherapy

1. Definition

Chemotherapy is a form of treatment for cancer that uses antineoplastic drugs to stop the growth of malignant cells in the body. These drugs work by damaging the cell division mechanism, so that cells lose the ability to live and replicate. Due to its systemic nature, chemotherapy not only works on primary tumors, but is also capable of reaching cells that have spread to other networks. Chemotherapy can be given alone or in combination with other therapies, such as surgery or radiotherapy, to improve the success of treatment (Tilsed et al., 2022).

In clinical practice, chemotherapy is one of the main modalities in the treatment of various types of cancer. This therapy is given through the oral route as well as intravenously, depending on the type of medication and the patient's medical condition. Despite the potential for side effects, the benefits of chemotherapy remain significant in reducing the number of malignant cells, slowing the progression of the disease, and providing better therapeutic opportunities for patients (Anand et al., 2023)

2. Objectives of Chemotherapy

Based on an explanation from the National Cancer Institute. (2025), chemotherapy is given with several main objectives, including:

a. Healing (curative)

Chemotherapy can be used to destroy cancer cells until the disease is no longer detected. A cure can be achieved through one type of drug or a combination of several types of chemotherapy, depending on the body's response and the type of cancer.

b. Disease control

If the cancer cannot be completely cured, chemotherapy plays a role in preventing malignant cell growth from continuing to grow or spread to other parts of the body. With good control, the patient's condition becomes more stable, and organ function can still be maintained.

c. Reduce symptoms (palliative)

In advanced cancer, chemotherapy is given to shrink the tumor mass or reduce the burden of the disease. This therapy can help reduce pain, tightness, bleeding, or other bothersome complaints, so that patients feel more comfortable and quality of life is maintained.

3. Chemotherapy Indications

Chemotherapy is given to a variety of clinical conditions that require systemic treatment of cancer cells. This therapy is not only used as the main therapy, but also as a companion option before and after surgery, as well as in the advanced phase when Cancer has spread to other organs (Anand et al., 2023).

a. As primary chemotherapy

It is used when surgery or radiotherapy is not possible, either because the cancer has spread widely or is in a location that cannot be operated on.

b. Before surgery (neoadjuvant chemotherapy)

Chemotherapy is given to shrink the size of the tumor so that the surgical procedure is easier to perform and the risk of cancer cells spreading can be reduced.

c. After surgery (adjuvant chemotherapy)

Therapy is given to kill the remaining microscopic cancer cells that may still be left behind after surgery, so that the chance of recurrence is smaller.

d. In metastatic or advanced cancer.

Chemotherapy drugs are used to slow the progression of the disease, lower the tumor load, and maintain the stability of clinical conditions.

e. As a palliative measure

In certain conditions, chemotherapy functions to reduce the stiffness caused by cancer growth, such as pain or tightness, so that patients can feel comfortable and have a better quality of life.

4. Contraindications to Chemotherapy

Although chemotherapy is the main option in cancer management, there are certain conditions that make this therapy not recommended or should be postponed, because the risks are greater than the benefits. Some of the contraindications that are generally considered include:

a. Very poor general state of the patient

Chemotherapy may be contraindicated in patients with low functional status (e.g., ECOG 3-4), weak conditions, or inability to perform basic activities, as the body is not strong enough to tolerate the side effects of the drug (Xi et al., 2024).

b. Age

In elderly patients, chemotherapy is a relative contraindication because the function of the liver, kidneys, and immune system has declined, making the drug more difficult to eliminate and the risk of toxicity increases. In addition, the presence of comorbidities such as diabetes, hypertension, or heart failure can worsen side effects, so medication choice and dosage need to be considered more carefully (Loh et al., 2024).

c. Bone marrow disorders

Patients with severe anemia, neutropenia, or thrombocytopenia are at high risk of infection, bleeding, or other serious complications, so chemotherapy needs to be postponed until conditions improve (Gaumond et al., 2025).

d. Severe active infections

In serious infectious conditions, such as sepsis, chemotherapy can worsen immunosuppression and increase the risk of mortality (Nates) et al., 2024).

e. Early trimester pregnancy

Some chemotherapy drugs are teratogenic and can cause fetal abnormalities. Therefore, giving in the first trimester is generally avoided and only considered in the next trimester when the benefits are greater (Refuse) et al., 2025).

5. Manifestations of Chemotherapy Patients

Chemotherapy produces a wide impact on the body's systems due to the drug's cytotoxic properties on rapidly dividing cells. This effect affects the function of hematology, digestion, oral mucosa, and the peripheral nervous system, thereby lowering physical capacity and increasing the risk of complications. In addition, the treatment process that takes a long time, repeated medical procedures, and body changes due to therapy create emotional stress. This condition makes psychological manifestations, especially anxiety, an important aspect that needs to be considered in the treatment of chemotherapy patients (Choi et al., 2024).

a. Hematological disorders

Chemotherapy can lead to decreased bone marrow function, triggering anemia, leukopenia, and thrombocytopenia. This state reduces the body's capacity to transport oxygen, lowers immune defenses, and increases the risk of bleeding.

b. Gastrointestinal Problems

Chemotherapy drugs can damage the epithelial cells of the gastrointestinal tract, causing nausea, vomiting, anorexia, and diarrhea. These manifestations interfere with nutritional status and can lead to fluid and electrolyte imbalances if they persist.

c. Stomatitis and Disorders of the Oral Mucosa

The toxic effects of chemotherapy on mucosal tissue can lead to inflammation and ulceration in the oral cavity. This condition causes pain, difficulty eating, and increases the risk of oral infections, requiring intensive oral care.

d. Peripheral neuropathy

Some chemotherapy agents affect peripheral nerve function and give rise to sensory symptoms such as tingling, numbness, or neuropathic pain. This disorder can inhibit daily activities, decrease sleep quality, and affect motor function.

e. Anxiety

In addition to physical changes, chemotherapy also greatly affects the psychological state of patients. The long treatment process, the atmosphere of the treatment room, and repeated medical procedures can cause tension and discomfort. In circumstances like this, the appearance of anxiety is a frequent occurrence and is part of the patient's emotional response during chemotherapy.

Anxiety is a major psychological manifestation in chemotherapy patients and arises in response to a series of physical changes, therapeutic uncertainties, and emotional distress experienced during the treatment process. Physical symptoms such as nausea, hair loss, body weakness, and decreased appetite cause ongoing discomfort. Patients often feel a loss of control over their body condition, resulting in fear, worry, and emotional tension during therapy (Baker et al., 2024).

Changes in body image are also a factor that plays a big role in the formation of Anxiety. Hair loss, weight changes, or skin discoloration can lower self-confidence and cause feelings of discomfort with self-identity. Some patients feel less able to interact optimally with the social environment because these physical changes are considered to interfere with appearance and decrease a sense of psychological security. This affects the emotional well-being of patients as well as their ability to maintain motivation in undergoing therapy (Torales & Higgins, 2020).

Uncertainty about treatment outcomes further strengthens anxiety experienced. Patients often think about the possibility of therapy success, disease progression, and the risk of future recurrence. The thought of the possibility of conditions not improving and the risk of death adds to the

psychological burden. This accumulation of worries makes anxiety one of the most significant manifestations during chemotherapy, which can ultimately affect the patient's quality of life, adaptability, as well as adherence to the therapy plan (Shalata & Gothelf, 2024).

6. Complications and Side Effects of Chemotherapy

Complications and side effects of chemotherapy generally consist of physical and psychological side effects.

1) Physical side effects

a) Blood disorders (myelosuppression)

Chemotherapy drugs can suppress the work of the bone marrow so that the number of blood cells decreases. When neutrophils drop, the patient is more susceptible to infection; when hemoglobin is low, fatigue arises, and when platelets drop, the risk of bleeding increases (Gaumond et al., 2025).

b) Disorders of the gastrointestinal tract

The oral and intestinal membranes are very sensitive to cytotoxic drugs, so some patients experience canker sores, nausea, vomiting, or diarrhea. This condition decreases appetite decrease and weight decrease (Lopes-júnior et al., 2025).

c) Hair loss (alopecia)

Hair follicles are cells that divide quickly, so chemotherapy can cause hair loss on the head or eyebrows. This condition is temporary, and hair generally grows back after therapy is complete (Baker et al., 2024).

d) Peripheral nerve damage

Some medications such as cisplatin or paclitaxel can cause tingling, pain, or burning pain in the hands and feet. Complaints arise because the peripheral nerves become more sensitive or irritated (Preti & Davis, 2024).

e) Damage to certain organs

The kidneys, liver, and heart can be impaired when the drug is given in high doses or in patients with weakened organ function. Therefore, blood tests and organ function need to be monitored during therapy (Famureva et al., 2025).

2) Psychological Side Effects

a) Affective symptoms (anxiety & depression)

Affective symptoms in the form of anxiety and depression are one of the most common psychological side effects in patients with cancer who are undergoing chemotherapy. The repetitive treatment process, accompanied by a long cycle schedule and evaluation results that are not always predictable, creates a constant sense of uncertainty. Uncertainty about the effectiveness of therapy, possible disease progression, and the risk of drug toxicity (e.g., severe nausea, fatigue, hair loss) are perceived as threats by patients, triggering emotional responses such as anxiety, tension, excessive worry, and persistent feelings of sadness. Over time, some patients experience a decrease in interest and enjoyment of activities that were previously considered meaningful (anhedonia), feel hopeless, and exhibit symptoms of clinical depression that require special treatment by the health team (Almeida et al., 2023).

These affective changes not only have an impact on emotional states, but also have a direct effect on health behavior. Anxiety and depression can interfere with concentration, lower motivation, and cause psychological fatigue so that patients tend to ignore nutritional intake, experience dietary disorders, and show unwanted weight changes. In addition, high anxiety is often followed by difficulty falling asleep, frequent awakenings at night, or unrefreshing sleep quality, which ultimately worsens physical and emotional exhaustion. A combination of physical discomfort, sleep disturbances, and feelings of hopelessness can decrease adherence to a therapeutic

regimen, such as delays in coming to the next chemotherapy schedule, reluctance to continue the cycle, or lack of adherence to supportive home medications (Amiri, 2024).

b) Neurocognitive & sleep disorders

Insomnia or difficulty maintaining sleep and non-restorative sleep, and chemo brain with a decrease in focus, memory, and speed of thought processes that inhibit learning, work, and daily activity functions (Cooper et al., 2025).

c) Psychosocial distress & self-image

Changes in appearance (alopecia/weight changes) disrupt body image and self-esteem, trigger social withdrawal, financial burdens, and shifts in family roles; also reduce the quality of life, so periodic screening, education, counseling, and psycho-oncology referrals are needed if indicated (Yu et al., 2025).

C. The Concept of Anxiety

1. Definition

Taste anxiety is a form of emotional experience that arises when a person feels insecure, worried, or threatened by something that is considered to have the potential to cause harm, either real or just perceived. These feelings arise as an internal response to uncertain or uncontrollable situations (Rutkowski et al., 2021).

Psychologically, the taste anxiety is related to the mind that constantly focuses on the bad possibilities of the future, so that the individual feels restless and unsettled. Although taste anxiety can appear as a normal reaction, the condition can interfere with comfort if it occurs repeatedly for a long time (Mishra & Varma, 2023).

2. Anxiety Level

In some cases, Glorious. (2024) Anxiety can cause psychological and physiological changes, and even interfere with the course of action. To understand the impact, classify the anxiety. There are several levels:

a. Mild Anxiety

It appears when the patient feels tense, but is able to think clearly and follow instructions during the procedure. The physical changes that appear are usually minimal, such as a slightly increased heart rate or breathing, so the action can still go on without significant obstacles.

b. Moderate Anxiety

Anxiety is characterized by attention that begins to narrow, and anxiety increases. Patients appear restless, more sensitive to stimuli, and physiological signs such as breathing or a faster pulse appear.

c. Severe Anxiety

Severe anxiety occurs when fear dominates the mind so that the patient has difficulty following directions. Physical discomfort becomes more pronounced, and patients tend to withdraw or resist the action being performed.

3. Factors That Affect Anxiety

Anxiety can arise from the interaction of various aspects in the individual as well as the situational influences around him. Having two factors that play a role in strengthening or lowering anxiety in someone (Shin & Park, 2024).

a. Age

Age is one of the factors that can affect the level of anxiety. Age differences are related to emotional maturity, life experiences, and an individual's ability to deal with stressful situations. In patients with cancer, younger ages tend to experience higher anxiety due to concerns about the future, work, and family responsibilities (Goerling et al., 2023)

b. Gender

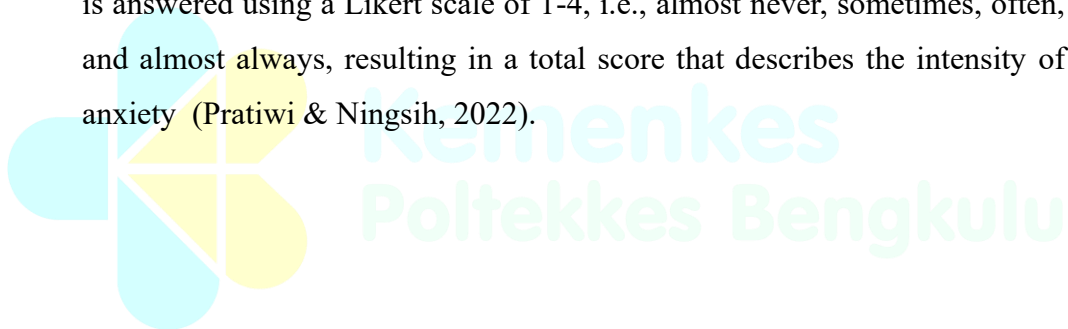
Gender is associated with differences in emotional responses to illness. Female patients tend to experience higher anxiety than men because they are more sensitive to changes in health conditions, social burdens, and hormonal factors that affect emotional regulation. Research shows that women have a chance of experiencing symptoms of anxiety about 2.4 times larger than men in patients with cancer (Paras-bravo et al., 2020).

c. Jobs

Work is one of the factors that can affect the level of anxiety in patients with cancer. Patients who are out of work or experience work disruption due to illness are likely to face greater financial stress and economic uncertainty. This condition can increase concerns about medical costs, family needs, and the future, thus contributing to the emergence of anxiety (Zhang et al., 2024).

4. Anxiety Measurement Instrument

State-Trait Anxiety Inventory-Trait (STAI-T) is an instrument used to measure the level of anxiety through statements that represent an individual's emotional response. In this version, the STAI-T consists of 20 statement items that assess how often anxiety symptoms appear in a person. Each Statement is answered using a Likert scale of 1-4, i.e., almost never, sometimes, often, and almost always, resulting in a total score that describes the intensity of anxiety (Pratiwi & Ningsih, 2022).



Skala anxiety dengan Instrumen State-Trait Anxiety Inventory-Trait(STAI-T)

Table 2. 1 STAI-T Instruments

No	Statement	Never	Sometimes	Frequent	Almost always
1	I feel happy that there is support from my family and health workers during chemotherapy				
2	I feel satisfied with myself in undergoing chemotherapy treatment				
3	I wish I could be as happy as anyone else who didn't have chemotherapy				
4	I felt relieved after undergoing chemotherapy and getting an explanation from the health workers				
5	I am a strong person in the face of cancer and the chemotherapy process				
6	I felt calm and able to control myself while facing the chemotherapy process				
7	I feel happy when I feel the progress in chemotherapy treatment				
8	I feel safe with the care and supervision of healthcare workers during chemotherapy				
9	I make decisions easily regarding medication and chemotherapy				
10	I feel satisfied with my condition and the body's response to chemotherapy				
11	I feel like a failure because of my cancer condition and the chemotherapy treatment I am undergoing				
12	I feel tense when I think about problems related to cancer and chemotherapy				
13	I feel nervous and anxious every time I go to a chemotherapy session				
14	I found the difficulties during chemotherapy to be so much that I couldn't overcome it				
15	I was too worried about something that wasn't really important related to my illness and chemotherapy				
16	I feel like I have disturbing/disturbing thoughts about my cancer and chemotherapy				
17	I feel less confident in my body condition after chemotherapy				
18	I felt not strong enough to deal with the side effects and the chemotherapy process				
19	I think about unimportant things about my illness and they bother me				
20	I responded to the disappointment regarding the results of the examination so that it was difficult to forget it				

Source : (Pratiwi & Ningsih, 2022)

Assessment of anxiety levels in participants using instruments State-Trait Anxiety Inventory (STAI-T). Each statement on the questionnaire has four answer choices, namely never, sometimes, often, and almost always, which are chosen by the participants according to the perceived conditions. Scoring is done on the condition that a score of 1 for the answer is never, a score of 2 for the occasional answer, a score of 3 for the answer frequently, and a score of 4 for the answer almost always. The total score is obtained from the sum of all the items of the Statement that have been filled in by the Participant to describe the level of anxiety experienced. The resulting range of scores is then interpreted to determine the level of anxiety. A score of 20–29 indicates a state of anxiety within normal limits, a score of 30–39 indicates mild anxiety, a score of 40–49 indicates moderate anxiety, while a score of 50–80 indicates severe anxiety that requires further attention. (Pratiwi & Ningsih, 2022).

This instrument is considered sensitive in identifying symptoms anxiety, because it includes emotional aspects such as tension, nervousness, difficulty concentrating, lack of confidence, and the appearance of intrusive thoughts. The questionnaire filling process is relatively short and does not require special tools, making it easy to apply to patients in a variety of clinical conditions. Each statement has a value of 1–4, with some items of inverse value (reverse score) to maintain the objectivity of the assessment. The total score is then used to determine the category of anxiety in participants according to the interpretation table (Toqan, D., 2025).

One approach that can be used is nonpharmacological therapy. Various methods have been developed to support patients with cancer in reducing taste anxiety, among which are music therapy, deep breath relaxation therapy, mindfulness, as well as progressive relaxation therapy or Jacobson's Progressive Muscle Relaxation (Ratnawati & Rosiana, 2020).

D. The Concept of Jacobson's Progressive Muscle Relaxation in Reducing Anxiety

1. Definition

Jacobson's Progressive Muscle Relaxation (JPMR) is a nonpharmacological relaxation technique developed by Edmund Jacobson based on the view that psychological tension is related to muscle tension. With this foundation, JPMR is understood as a relaxation method for those who reduce the physiological response due to stress by reducing nerve-muscle tension (Tapeh, Darvishpour, Besharati, & Gholami-Chaboki, 2024).

In scientific explanations, JPMR is considered to be able to reduce the activity of the sympathetic nervous system so that it gives rise to a sense of calm and comfort. Nursing studies explain that the mechanism drives the decline in anxiety, increased emotional comfort, and support for mental health (Khir, Azam, et al., 2024)

Research by Sahin & Basak, (2020) shows that after the administration of the intervention Progressive Muscle Relaxation (PMR) as many as one single session before surgery, there was a statistically significant decrease in anxiety levels in surgical patients. The average anxiety score decreased from level X before the intervention to level Y after the intervention, and the difference showed significant results ($p < 0.05$). These findings indicate that the administration of PMR only once can have an effect anxiolytic acute immediately after implementation, although the study did not apply repeated sessions for long-term measurement (Cahyanto & Suratih, 2021).

2. Manfaat Terapi Jacobson's Progressive Muscle Relaxation

Technical Jacobson's Progressive Muscle Relaxation Not only does it serve as a regular relaxation exercise, but it also provides a number of benefits that support the patient's physical and emotional comfort during treatment. Some of the benefits that can be felt include (Bucur et al., 2025).

a. Lowers anxiety levels

Lowering the level anxiety is the main purpose of the application Jacobson's Progressive Muscle Relaxation (JPMR) in patients cancer who

are undergoing chemotherapy. Anxiety In this situation, it is generally triggered by thoughts about the possibility of recurrence, concern about the results of the examination, and anticipation of the side effects of therapy. Through JPMR, patients are directed to focus on structured exercise stages and more controlled breathing arrangements. This process helps reduce the flow of negative thoughts and shift focus from anxiety leads to a sense of calm and security, so that the perception of the threat is reduced and the intensity is reduced anxiety gradually decreases (Hamed) et al., 2023).

Psychologically, patients who undergo JPMR regularly usually report reduced anxiety, panic prone, and excessive fear related to chemotherapy procedures. Patients also feel better able to control emotional reactions when facing their next course of action, so they are less dissolved in worries leading up to the day of therapy. This change is generally reflected in the results of measurements using the anxiety standard, with a decrease in the score from the category anxiety moderate or severe to the mild or normal category after the intervention. The findings suggest that JPMR plays an important role as a non-pharmacological intervention to help stabilize the response anxiety and support psychological comfort during the chemotherapy process (Tapeh, Darvishpour, Besharati, Fereshteh, et al., 2024).

b. Reduces muscle tension

When a person experiences anxiety, the brain sends signals through sympathetic nerves so that the muscles automatically tighten and feel stiff. In JPMR, the muscles are deliberately tightened and then released slowly. When the muscles are released, the parasympathetic nerves are active and signal that the body is safe. As a result, muscles become more relaxed, stiffness is reduced, and complaints are anxiety physically decreased (Ahmadinia et al., 2025).

c. Lowers the body's physical reactions

Anxiety It usually appears with physical changes such as rapid heart rate, short breathing, and blood pressure that tends to rise. When JPMR makes the muscles relax, parasympathetic activity takes over and stabilizes the body's functions. The heart rate becomes more regular, breathing returns to comfort, and the body's signals that were previously amplified anxiety gradually decreased. This calmer body response helps lower the level of anxiety (Naser et al., 2024).

d. Creating a more positive medical experience

A more relaxed body, a more stable physical response, and Anxiety which is more controlled makes the patient feel more comfortable during the medical procedure. Patients become more cooperative, less avoidant, and more prepared to undergo the next procedure, so the treatment experience feels more positive (Özyiğit & Sukut, 2025).

3. Prosedur Jacobson's Progressive Muscle Relaxation

Jacobson Progressive Muscle Relaxation (JPMR) is one of the nonpharmacological relaxation therapies that is easy to do, safe, and beneficial to reduce muscle tension, improve circulation, reduce Anxiety, as well as providing a sense of relaxation and comfort to patients. This procedure is done before chemotherapy begins (Mushtaq & Khan, 2025). There are several procedures for implementing JPMR, namely:

- 1) Clients are positioned to sit or lie down as comfortably as possible, then are asked to close their eyes and breathe in slowly three times to create a relaxed atmosphere.



Figure 2. 1 Closing your eyes and taking a breath

- 2) The exercise begins in the hand area. The client is asked to clench his right hand firmly for about 5 seconds, then release it and feel the muscles relax again for approximately 10 seconds. When finished, the same step is performed on the left hand.

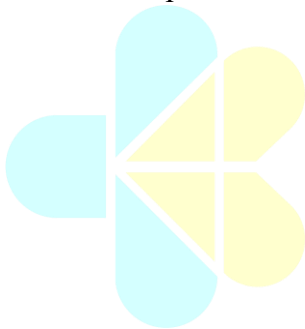


Figure 2. 2 Clenching

- 3) The next movement is done on the arm. The client is asked to bend the elbow until the upper arm is close to the shoulder, then tighten the biceps muscle for 5 seconds and relax it again for 10 seconds. After that, the client straightens the arm and tenses the triceps muscles for 5 seconds, then relaxes again for 10 seconds.



Figure 2. 3 Bending the elbows and tensing the muscles

- 4) After the arm exercise, the focus shifts to the facial muscles. The client is asked to frown vigorously for 5 seconds, then release it until it feels relaxed for 10 seconds. Next, the client closes his eyes tightly for 5 seconds and returns to relax them. The final movement is done by tightening the jaw and pressing the teeth for 5 seconds, then releasing the tension.



Figure 2. 4 Forehead wrinkles, eye closure, and Clench the jaw

- 5) The next exercise is done on the neck and shoulders. The client is asked to slowly lift his head back until he feels a muscle pull for 5 seconds, then relaxes again. After that, the head is lowered until the chin touches the chest for 5 seconds and is relaxed again. Finally, the client raises his shoulders towards the ear for a few seconds, then releases the tension.



Figure 2. 5 Looking up, head bowed and shrugging

- 6) Next, the client is asked to take a deep breath until the chest expands, then hold it for 5 seconds before exhaling slowly. At this stage, the chest and breathing are relaxed for 10 seconds so that the body feels lighter.



Figure 2. 6 Deep breathing

- 7) After that, the client is asked to tighten the abdominal muscles by pulling them inward for 5 seconds and then releasing them again for 10 seconds, while paying attention to the sensation of the muscles relaxing.



Figure 2. 7 Tightening the abdominal muscles

- 8) The following movements are performed on the back. The client is asked to arch his back away from the backrest for a few seconds, then return it and feel relaxed.



Figure 2. 8 Arching the back

- 9) The implementation then continued on the thighs and buttocks. The client is asked to tighten the thigh and buttock muscles at the same time, hold them for 5 seconds, and then release them



Figure 2. 9 Tightening the thigh and buttock muscles

- 10) Finally, the client is directed to point the toes towards the head to tighten the calf muscles for 5 seconds, then relax them. After that, the toes are directed away from the head while tightening the muscles for 5 seconds and then back to being relaxed.



Figure 2. 10 Point toes towards the head

- 11) Once all parts of the body have been done, ask to remain in a relaxed position for 1–2 minutes while breathing slowly. Once the body feels light and comfortable, the client can open his eyes, move his hands and feet slowly, and then return to normal sitting.

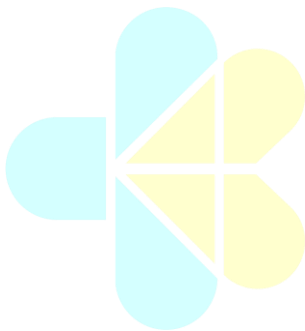


Figure 2. 11 Relaxed position

4. Jacobson's Progressive Muscle Relaxation Therapy Implementation Time

The duration of JPMR therapy is flexible and can be adjusted to the individual's physical and emotional condition, anxiety level, and response during therapy. In general, these relaxation exercises are done in a span of 5 minutes and are done before the chemotherapy action begins. The frequency and total duration of the overall are usually determined through an agreement between the therapist and the patient, taking into account the individual's comfort and readiness.

5. Pengaruh Jacobson's Progressive Muscle Relaxation.

Taste Anxiety It often appears in patients when facing medical procedures, but not all are able to express the discomfort verbally. This situation requires nurses to assess and provide safe and effective nonpharmacological interventions. One of the approaches used is Jacobson's Progressive Muscle Relaxation (JPMR), which is in line with the principles of holistic care because it combines physiological and psychological aspects to improve patient comfort (Toqan et al., 2022).

In patients with cancer who underwent chemotherapy, various physical and psychological stressors such as pain, nausea, fatigue, changes in body image, as well as concerns about the results of therapy and possible recurrence were perceived by the brain as a threat. The information is processed by stress regulatory centers, especially the amygdala as a processor of fear and anxiety emotions, as well as the hypothalamus as a stress response controller and endocrine system. The activation of these two structures stimulates the sympathetic nervous system, so that sympathetic activity increases and the body enters a state of alertness. In this phase, the hypothalamic-pituitary-adrenal (HPA) axis is also activated and triggers the release of stress hormones, especially cortisol and catecholamines, which contribute to the onset of symptoms of anxiety (Francesco et al., 2021).

The increase in sympathetic nerve activity has a direct impact on skeletal muscles, which become more tense and stiff. Tension is especially seen in the large muscles involved in posture and expression, such as the biceps brachii and triceps in the upper arms, the shoulder-to-neck muscles (trapezius), and the facial muscles (frontalis). Persistent muscle tension sends signals through sensory nerve fibers to the central nervous system that the body is still in a threatened state. This feedback maintains the activity of the amygdala and hypothalamus, so that the sympathetic nervous system remains dominant, cortisol secretion remains high, and anxiety complaints such as heart palpitations, rapid breathing, restlessness, and difficulty feeling relaxed persist (Torales & Higgins, 2020).

Jacobson's Progressive Muscle Relaxation (JPMR) works by lowering skeletal muscle tension as an entry point to modulate the stress response. Through structured relaxation contraction exercises, the muscles that are normally tense when anxious are brought to a more optimal relaxation phase. As muscle tension decreases, receptors in the muscles send information through sensory nerves to the brain that the body state becomes calmer and is no longer in high alertness. This feedback suppresses the dominance of the sympathetic nerve and amplifies the activity of the parasympathetic nerve (Purwanti & Khoiriyah, 2024).

These changes in the balance of the autonomic nervous system affect the regulation of the amygdala and hypothalamus, so that the activation of the HPA axis becomes more controlled. This condition is related to a decrease in the secretion of cortisol as the main stress hormone, and is thought to help regulate neurotransmitters such as serotonin, which play a role in calmness and emotional stability. Clinically, the combination of decreased sympathetic nerve activity, increased parasympathetic activity, reduced skeletal muscle tension, decreased cortisol, and improved serotonin regulation was reflected in an increased sense of relaxation and decreased anxiety levels in patients with cancer who are undergoing chemotherapy (Torales & Higgins, 2020).

Research Paolis et al, (2019) Indicates that after the administration of the intervention Progressive Muscle Relaxation (PMR) combined with interactive guided imagery in patients with cancer in the advanced stage, there is a significant decrease in pain intensity and distress. The average pain score based on the Numerical Rating Scale (NRS) in the intervention group decreased from 4.11 before the intervention to 2.28 after the intervention, with a mean difference of 1.83, and the outcome was statistically significant ($p < 0.0001$). In addition, the Total Symptom Distress Score (TSDS) also decreased from 39.04 to 30.22, indicating a 23% decrease in distress after the intervention. These findings show that PMR combined with guided imagery is effective in reducing pain and emotional distress such as anxiety and depression in patients with cancer (Paolis et al., 2019).

Research Ahmadinia et al, (2025) Showed that after the administration of Jacobson's relaxation technique intervention for 12 minutes (given 1 hour before the CAA action), there was a statistically significant decrease in state anxiety. The mean anxiety score decreased from 40.69 before the intervention to 29.63 after the intervention, and the difference showed significant results ($p < 0.001$) (Ahmadinia et al., 2025).

Research by Asgari Tapeh (2024) shows that after the administration of interventions, Jacobson's Progressive Muscle Relaxation (JPMR) for 8 weeks, there was a statistically significant decrease in anxiety levels. The average anxiety score decreased from 10.41 before the intervention to 4.91 after the intervention, and the difference showed significant results ($p < 0.001$). In addition, the Participants' happiness levels also experienced a significant increase after the JPMR intervention, with the average score increasing from 26.59 to 37.18, and the difference was statistically significant ($p < 0.001$) (Tapeh et al., 2024).

Pradhan's research (2020) shows that progressive muscle relaxation therapy has a meaningful effect on reducing anxiety levels in cancer patients who are undergoing treatment in the hospital. In the treatment group, there was a significant decrease in anxiety levels after 15 days of progressive muscle relaxation therapy, with statistical test results showing a very significant difference ($p < 0.001$). In contrast, in the control group that only received conventional treatment, no significant difference in anxiety levels was found ($p = 0.482$). In addition, comparisons between the treatment group and the control group after the intervention showed a statistically significant difference in anxiety levels ($p < 0.001$) (Zulinata & Pradhan, 2020).

Toqan's research (2023) shows that the giving of progressive muscle relaxation exercises for 2 weeks had a significant effect on reducing anxiety levels in nursing students before undergoing clinical practice in the intensive care unit. In the intervention group, the average anxiety score decreased from 2.86 before the intervention to 1.15 after the intervention, and the difference was statistically significant ($p < 0.01$). In addition, after the intervention, the

level of anxiety in the intervention group was shown to be lower than in the control group that did not receive relaxation exercises, with a statistically significant difference ($p < 0.01$) (Toqan & Ayed, 2023).

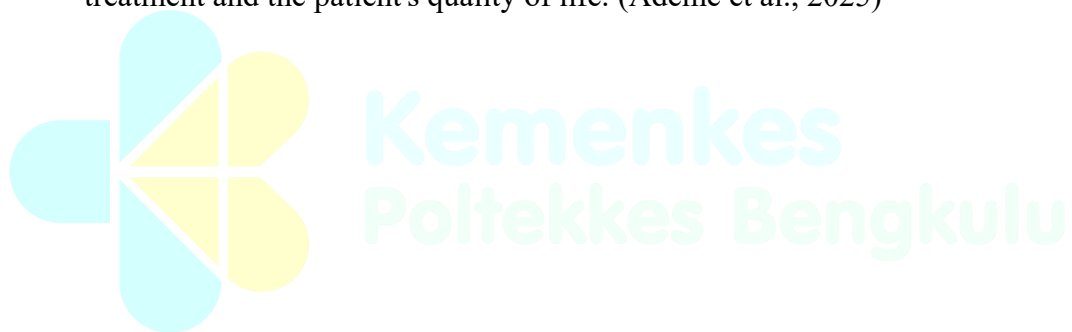
Research by Khir (2024) is consistently effective in reducing stress, anxiety, and depression in adults. A review of 46 experimental studies from 16 countries with a total of more than 3,402 participants found that most studies reported reduced stress (93%), anxiety (82%), and depression (87%) after PMR interventions, either when given as a single therapy or in combination with other interventions. The analysis also shows a range of effect size which varies from small to very large, i.e., for anxiety, confirming that PMR is a strong, measurable, and worthy non-pharmacological intervention in adult mental health promotion programs (Khir, Jonah, et al., 2024).

Self-efficacy: It is an individual's belief in his or her ability to control behavior, emotions, and actions needed to deal with a health condition or problem. In patients with cancer, self-efficacy is an important factor because it is related to the patient's ability to deal with illness, undergo treatment, and manage the side effects of therapy. Patients who have high self-efficacy tend to be more confident in coping with stress, controlling emotional responses, and performing self-care actions during the treatment process. This belief also helps patients to stay motivated in undergoing therapy and be better able to adjust to changes in health conditions experienced. Therefore, self-efficacy can help patients deal with diseases and treatment processes more adaptively (Lyu & Chen, 2022).

Family support is one of the important factors that can affect the patient's health condition with cancer. Family, as the closest people play a role in providing emotional support, assistance in treatment, and motivation during the patient's treatment process, which often takes a long and tiring time. The support provided by the family, such as accompanying during therapy, helping to meet daily needs, as well as providing information and

encouragement, can help patients feel calmer, increase confidence, and reduce anxiety during the treatment process (Gannika et al., 2025).

The patient's level of adherence to treatment is an important factor that affects the success of therapy in patients with cancer. Adherence to therapy, such as following chemotherapy schedules, taking medications as recommended by health professionals, and carrying out all recommended treatment procedures, can help achieve optimal therapy results. On the other hand, non-adherence to treatment can decrease the effectiveness of therapy, increase the risk of treatment failure, increase the likelihood of disease recurrence, and have an impact on decreasing patient life expectancy. Therefore, the level of patient compliance in following the therapy regimen is one of the important factors that plays a role in determining the success of treatment and the patient's quality of life. (Ademe et al., 2025)



E. Theoretical Framework

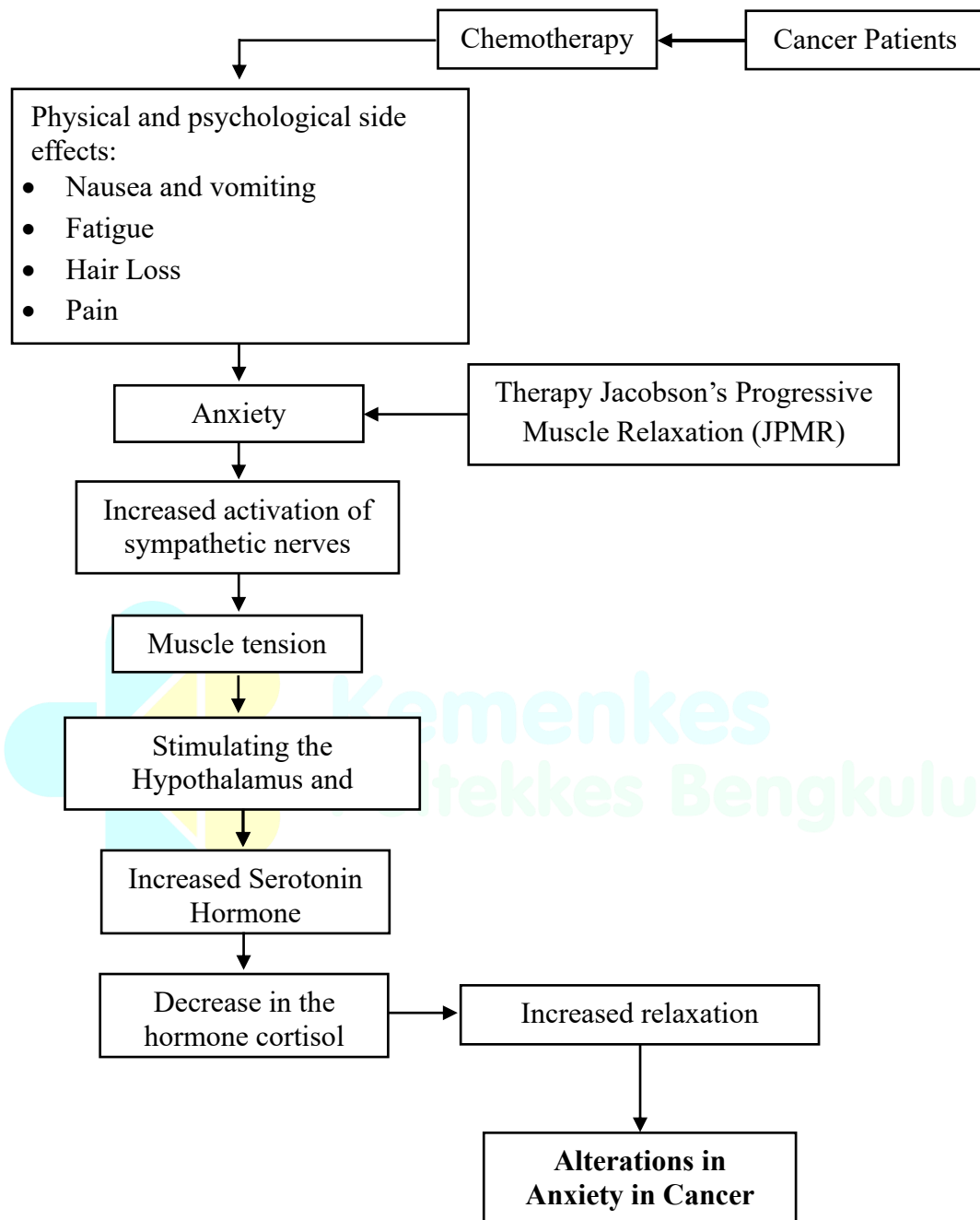


Chart 2. 1 Theoretical Framework

Source : (National Cancer Institute, 2025; Shalata & Gothelf, 2024)

CHAPTER III

CONCEPTUAL FRAMEWORK, RESEARCH HYPOTHESIS AND OPERATIONAL DEFINITIONS

A. Concept Framework

A conceptual framework is a conceptual model that is compiled to describe and explain the relationships between the variables being studied so that the direction, logic, and focus of the research become clear. This study examines the effect of Jacobson's Progressive Muscle Relaxation (JPMR) as an independent variable on alterations in anxiety in cancer patients undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital.

Based on the theoretical foundation and relevant empirical findings, the framework of the research concept is prepared as follows:

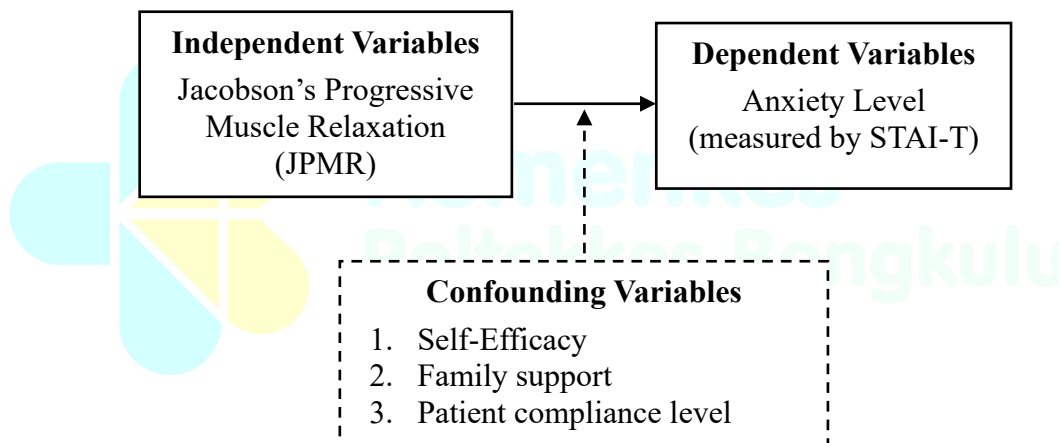
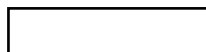
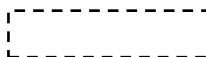


Chart 3. 1 Concept Framework

Description :



: Variables studied



: Variables are not studied in a bivariate and multivariate

B. Operational Definition

Table 3. 1 Operational Definition

Variabel	Operational Definition	Measuring Instruments	How to Measure	Measurement Results	Scale
Independent					
Jacobson's Progressive Muscle Relaxation (JPMR)	Relaxation techniques are carried out by tightening and then relaxing the muscles gradually so that the body recognizes the sensation of relaxation and reduces tension. The intervention was carried out 1 session before chemotherapy for 5 minutes, starting with a comfortable position and breathing slowly 3 times, then tightening and relaxing the muscles sequentially in the hands, arms, face, neck to shoulders, chest, abdomen, back, thighs-buttocks, and calves-feet, and ended with cooling down for 1-2 minutes.	SOP Jacobson's Progressive Muscle Relaxation (JPMR)	Observations		Nominal
Dependent					
Anxiety Level	The total score obtained by cancer patients	Questionnaire State-Trait Anxiety	Participants fill out the instrument	The average anxiety	Ratio

	undergoing chemotherapy from measurements using the JPMR pre and post-therapy STAI worksheets.	Inventory (STAI-T) (20 statement items)	according to the perceived conditions	score is expressed from 20-80	
Confounding					
Age	Participant's lifespan in a matter of years	Data collection sheet	Filling out a demographic data form	Expressed in years	Ratio
Gender	Gender of the participants recorded during the study.	Data collection sheet	Filling out a demographic data form	1 = Male 2 = Female	Nominal
Jobs	The status of the work that the Participant is doing at the time of the research.	Data collection sheet	Filling out a demographic data form	1 = Not Working 2 = Work	Nominal

C. Research Hypothesis

A hypothesis is an initial conjecture that is compiled based on theories and previous research studies, the truth of which still needs to be proven. Hypothesis testing is carried out to find out whether there is a relationship or influence between the variables being studied, so that the results of the study can be scientifically accepted.

Ha : There is an effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy.

CHAPTER IV RESEARCH METHODS

A. Research Type and Design

The type of research used is quantitative research that uses a pre-experiment with a one-group pre-test post-test design. With an intervention group, namely cancer patients undergoing chemotherapy, which aims to determine the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety.

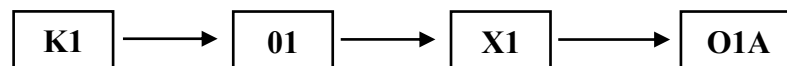


Chart 4. 1 Research Design

Description :

- K = Participant receiving the intervention (to be given JPMR)
- O = Pre-test (initial measurement using STAI-T before
intervensi Jacobson's Progressive Muscle Relaxation diberikan)
- X1 = Given Jacobson's Progressive Muscle Relaxation
- O1A = Post-test (final measurement using STAI-T after
diberikan intervensi Jacobson's Progressive Muscle Relaxation)

B. Research Variables

1. Independent Variables

The independent variable in this study was Jacobson's Progressive Muscle Relaxation (JPMR).

2. Dependent Variable

The dependent variable in this study was the level of anxiety in cancer patients undergoing chemotherapy.

C. Research Location and Time

1. Research Location

The place where this research was conducted was in the Chemotherapy room of dr. M Yunus Bengkulu Hospital.

2. Research Time

The research time was carried out from August 2025 to June 2026. Data collection was carried out for 1 month from May to June 2026,

D. Population and Sample

1. Populasi

A population is a group of individuals who have the same characteristics, which is the basis for collecting research data (Subhaktiyasa, 2024). The population in this study is all cancer patients who are undergoing chemotherapy therapy and are experiencing Anxiety in the Chemotherapy Room of Dr. M. Yunus Hospital. Population data was obtained from hospital records for the last 7 months, namely the period from January to July, with a total of 327 patients.

2. Sample

A sample can be defined as part of a population that is systematically selected or based on specific criteria to be analyzed in the study (Subhaktiyasa, 2024). In this study, the sample consisted of patients undergoing chemotherapy.

The calculation of the number of samples in this study uses the formula for the difference of one mean in pairs, namely:

$$n = \left(\frac{Z_x S}{E_x X_D} \right)^2$$

Description :

n = number of samples

Z = Z-value at 95% confidence level (1.64)

S = Standard deviation in previous studies

E = Determination relative desired (5%)

X_D = Average of previous research

Sample calculation is obtained:

$$n = \left(\frac{Z_x S}{E_x X_D} \right)^2$$

$$n = \left(\frac{1,64 \times 0,34}{0,05 \times 1,22} \right)^2$$

$$n = \left(\frac{0,55}{0,06}\right)^2$$

$$n = (9)^2$$

$$n = 81$$

To anticipate Participants who refuse to do or

Continuing the intervention, the dropout formula is used as follows

$$n = \frac{n}{1-f} = \frac{81}{1-10\%} = \frac{81}{1-0,1} = \frac{81}{0,9} = 90$$

So from the calculation of the sampling formula above, the total sample needed by the researcher was 90 cancer patients who experienced anxiety.

3. Sampling techniques

Non-probability sampling techniques are sampling methods in which members of the population do not have an equal chance of being selected as a sample. The selection of samples was carried out based on certain criteria that had been set by the researcher, not randomly. One of the sampling techniques used in this study is consecutive sampling, where all participants who meet the inclusion and exclusion criteria are taken sequentially until the required number of samples is met. The sample in this study is cancer patients undergoing chemotherapy at Dr. M. Yunus Bengkulu Hospital.

Sampling is carried out by means of Consecutive Sampling by considering inclusion and exclusion criteria, such as:

a. Criteria Inclusion

- 1) Participant's willingness to participate in the research.
- 2) An outpatient cancer patient who is undergoing chemotherapy in the Chemotherapy room of M Yunus Bengkulu Hospital.
- 3) Cancer patients who experienced anxiety with an anxiety value of 30-80 after being measured.

b. Exclusion Criteria

- 1) Participants who calm down before being given an intervention.
- 2) Participants cannot focus.
- 3) Participants who do not want to complete therapy.

E. Data Collection

1. Data Source

a. Data Primer

In this study, researchers obtained data on the anxiety levels of cancer patients undergoing chemotherapy using the State-Trait Anxiety Inventory (STAI) instrument given to participants before and after Jacobson's Progressive Muscle Relaxation (JPMR) intervention.

b. Data Seconds

In this study, the secondary data used was in the form of data on the number of cancer patients undergoing chemotherapy and participant characteristics data obtained from medical records and reports of the chemotherapy room of Dr. M. Yunus Bengkulu Hospital.

2. Data Collection Tools

The data collection tools used in this study are:

- a. Form A : Application sheet for prospective Participants
- b. Form B : Sheet Informed Consent
- c. Form C : Participant consent sheet
- d. Form D : Demographic format sheet
- e. Form E : Lembar Format State-Trait Anxiety Inventory
- f. Form F : SOP Sheet Jacobson's Progressive Muscle Relaxation

3. Test Data Collection Tools

Measurement of anxiety levels in cancer patients who are undergoing chemotherapy with the State Trait Anxiety Inventory Trait (STAI-T) has been tested for feasibility in the study by (Pratiwi & Ningsih, 2022) in 33 chemotherapy patients at a hospital that has an inpatient facility. The diagnostic test showed an STAI-T sensitivity of 94%, a specificity of 95%, with a positive predictive value (PPV) of 82% and a negative predictive value (NPV) of 75%, so that this instrument was able to identify patients who were really experiencing anxiety and those who were not anxious with a good level of accuracy. In addition, the charging time is relatively short ($\pm 3-7$ minutes) and can be practically applied in the treatment room. Based on these findings,

STAI-T was declared valid and feasible to be used as an instrument for measuring anxiety in patients with cancer who underwent chemotherapy in nursing practice and clinical research.

4. Data Collection Procedure

- a. Data on the characteristics of the participants were collected through two methods, namely interviews and filling out questionnaires.
- b. The intervention was carried out using a standard procedure sheet (SOP) that had been set, namely Jacobson's Progressive Muscle Relaxation, to measure Participants' anxiety, which was carried out using the State Trait Anxiety Inventory (STAI-T) sheet.
- c. A State Trait Anxiety Inventory (STAI-T) instrument sheet is given to Participants before the intervention to measure the initial level of anxiety, and after the intervention to assess the alterations in anxiety that occur. This instrument consists of 20 statements, which include 10 positive statements number 1 to 10 and 10 negative statements number 11 to 20 with four answer choices, namely never, sometimes, often, and almost always. In positive statements, scoring is done on the condition that never is worth 1, sometimes is worth 2, often is worth 3, and almost always is worth 4. Meanwhile, in negative statements, reverse scoring is carried out to facilitate data processing, which is never worth 4, sometimes worth 3, often worth 2, and almost always worth 1. The scores obtained were then summed to illustrate the Participant's anxiety level.

F. Data Processing

According to Heryana (2024) data processing is a series of processes that are carried out from the input of data into storage media until the data is completely ready for analysis, so that the quality and validity of research results are maintained. In the study "The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Bengkulu Hospital in 2025", data processing was carried out through the following stages:

1. Editing

The editing stage was carried out to check the completeness and consistency of the data that had been collected, including the characteristics of the participants (age, gender, and occupation) as well as anxiety scores measured with the STAI-T instruments before (pre-test) and after (post-test) interventions. The audit was carried out to ensure that there were no blank, illogical, duplication, or writing errors on the participants' characteristics sheet, STAI-T questionnaire, and JPMR implementation records.

2. Coding

Each variable is numerically coded to facilitate the entry and analysis process. For example, gender (1 = male, 2 = female), occupation (1 = not working, 2 = working). STAI-T scores were recorded for pre- and post-intervention measurements.

3. Data Entry

The encoded data were entered into SPSS software version 25 and grouped by study category, namely Jacobson's Progressive Muscle Relaxation (JPMR) pretest and posttest anxiety levels. The data entry process is carried out carefully to avoid data input errors.

4. Storage (Saving)

Data is stored in digital format via Microsoft Excel and SPSS, and backed up on other storage media to prevent data loss.

5. Tabulasi (Tabulating)

The data that has been collected is presented in several tables to facilitate the process of analyzing research results. A univariate table is used to describe the characteristics of Participants by age, gender, and occupation. The bivariate table shows differences in anxiety levels before and after the administration of Jacobson's Progressive Muscle Relaxation (JPMR). In addition, a State-Trait Anxiety Inventory (STAI) score table before and after the intervention was presented, containing the mean values, standard deviation, minimum, and maximum. Comparison of pretest and posttest STAI

scores was used to assess changes in patients' anxiety levels after being given JPMR interventions.

G. Data analysis

1. Univariate Analysis

The univariate analysis aimed to provide an overview of the characteristics of participants and levels of anxiety in the study. Numerical data in the form of State-Trait Anxiety Inventory (STAI) scores before and after the intervention were analyzed using descriptive statistics, which included mean, median, standard deviation, minimum, maximum, and 95% CI mean. Meanwhile, categorical data such as age, gender, and occupation were analyzed using frequency and percentage distributions. The data presentation of each variable is arranged in the form of a table and interpreted according to the results obtained. The percentage interpretation refers to the following criteria: 0% (none), 1–44% (a small part), 45–49% (almost partially), 50% (partial), 51–69% (more than half), 70–89% (mostly), 90–99% (almost entirely), and 100% (entirely).

2. Bivariate Analysis

The bivariate analysis aimed to determine the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on anxiety levels in cancer patients undergoing chemotherapy. Before the analysis, the data were first tested for normality using the Kolmogorov-Smirnov test because the number of research samples was more than 50 participants. The results of the normality test were used to determine the type of statistical test to be used.

Based on the results of the normality test, the research data showed an abnormal distribution. Therefore, the analysis of differences in anxiety levels before and after the administration of the intervention was carried out using the Wilcoxon Signed Rank Test. Decision-making was conducted at a confidence level of 95% with a significance level (α) of 0.05. If a p-value of < 0.05 is obtained, H_0 is rejected, and H_1 is accepted, which means that there is an effect of Jacobson's Progressive Muscle Relaxation (JPMR) on anxiety levels in cancer patients undergoing chemotherapy.

H. Research Procedures and Flows

1. Research Procedure

a. Pre-research

This research began after the researcher obtained a letter of recommendation for a research implementation permit from various related agencies, including the Bengkulu Province Investment and One-Stop Integrated Services Office (DPMPTSP), the Health Research Ethics Commission of the Bengkulu Ministry of Health, and Dr. M. Yunus Bengkulu Hospital as the research location. After obtaining a research permit, the researcher coordinated with the head of the chemotherapy room regarding the timing of the research and the mechanism of recruitment of participants.

b. Research

After obtaining permission from educational institutions and Dr. M. Yunus Bengkulu Hospital, the researcher coordinated with the chemotherapy room officer regarding the implementation of the research. Participant recruitment was carried out using a consecutive sampling technique, namely all cancer patients who underwent chemotherapy and met the inclusion criteria and did not meet the exclusion criteria were recruited sequentially until the required number of samples was met.

Before the intervention, the researcher measured the participants' anxiety levels using the State-Trait Anxiety Inventory (STAI) instrument as a pretest data. After the initial measurement was taken, participants were given Jacobson's Progressive Muscle Relaxation (JPMR) intervention for approximately 5 minutes before undergoing chemotherapy in accordance with the standard operating procedure that had been set.

After the participants completed the chemotherapy session, the researcher again measured the level of anxiety using the STAI instrument as posttest data. The results of the pretest and posttest

measurements were then used to assess changes in anxiety levels after the administration of Jacobson's Progressive Muscle Relaxation (JPMR) intervention.

c. Post-Research

The next stage after data collection is data processing, which includes checking data completeness (editing), coding (coding), data grouping (data entry), and compiling data in the form of tables (tabulation). The data were then computerized using the SPSS version 25 program to test the research hypothesis and determine the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on anxiety levels in cancer patients undergoing chemotherapy.



2. Research Flow

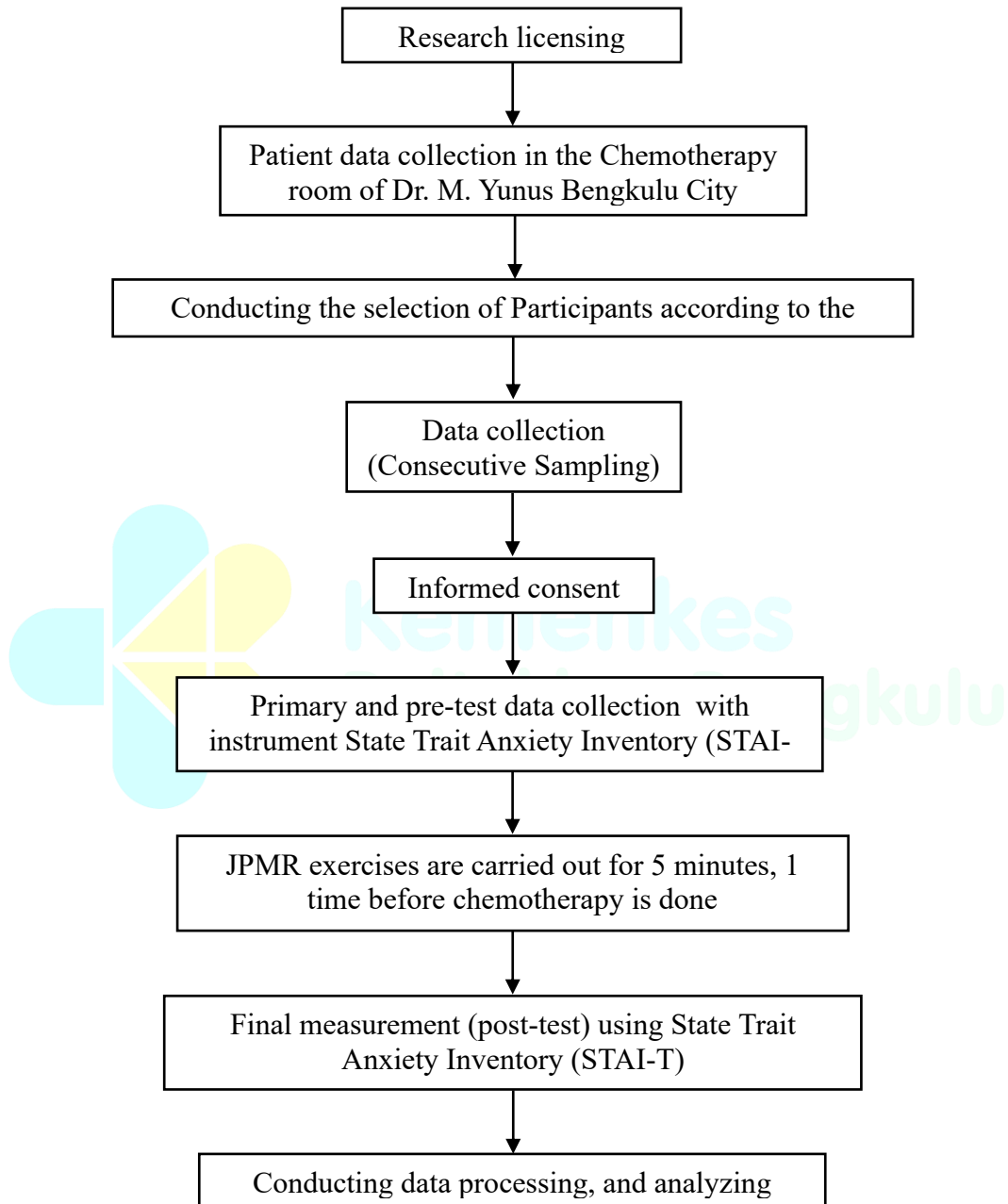


Chart 4. 2 Research flow

I. Research Ethics

In the implementation of this study, the researcher has obtained ethical feasibility approval from the Health Research Ethics Commission of the Ministry of Health of the Ministry of Health of Bengkulu with ethics number No. KEPK. BKL/299/04/2026. This research was carried out by paying attention to the following research ethical principles:

1. Right to Participate/Not to Participate (Self-Determination)

In this study, participants were given the freedom to determine their participation in the study without any coercion. Participants have the right to refuse or withdraw from the study at any time without any consequences to the health services they receive.

2. Anonymity

The researcher did not include the full names of the participants on the data collection sheet. The participant's identity is replaced with a participant code or number to maintain data privacy and confidentiality. The participant's signature is only included on the informed consent sheet.

3. Kerahasiaan (Confidentiality)

All information and data obtained from Participants are guaranteed confidentiality and are only used for research purposes. Research data is stored in the form of a soft file on the researcher's device and will not be disseminated to other parties without the Participant's permission.

4. Keadilan (Justice)

Researchers treated all participants fairly regardless of age, gender, cancer type, social status, or other characteristics. All participants received equal treatment and opportunities during the research process.

5. Beneficence Principle

The administration of Jacobson's Progressive Muscle Relaxation (JPMR) intervention is expected to provide benefits for participants, namely helping to reduce anxiety levels and increase psychological comfort during chemotherapy.

6. Nonmaleficence

The researcher ensured that the entire research procedure did not cause any danger, discomfort, or harm to the participants either physically or psychologically. Jacobson's Progressive Muscle Relaxation (JPMR) intervention is a relaxation technique that is safe, non-invasive, and is carried out according to the established procedure.



J. The Course of Research Activities

Table 4. 1 The Course of Research Activities

NO		Moon											
		9	10	11	12	1	2	3	4	5	6	7	8
1	Completion of Research Proposals												
2	Research Proposal Seminar Exam												
3	Revision of Thesis Proposal and Endorsement												
4	Collection of Thesis Proposals to Study Programs												
5	Ethical Clearance Management												
6	Management of Introduction and Research Permit												
7	Initial Survey												
8	Implementation of research and data collection												
9	Data Entry, Analysis and Interpretation												
10	Preparation for Writing Results Report												
11	Thesis Exam												
12	Thesis Revision												
13	Thesis Validation with Examiners and Head of Study Program												
14	Thesis Collection to Study Program												
15	Drafting Manuscripts												
16	Submit Manuscripts to Scientific Journals												
17	Submitting the Publication LOA to the Study Program												
18	Collection of Articles That Have Been Published to Study Programs												

CHAPTER V RESEARCH RESULTS

A. The Course of Research

This study was carried out in the Chemotherapy Room of Dr. M. Yunus Hospital, Bengkulu Province with the aim of determining the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy. The characteristics of the participants observed in this study included age, gender and occupation as well as anxiety levels before and after the intervention.

This research has received ethical approval from the Ethics Commission of the Ministry of Health of the Ministry of Health of Bengkulu with the number No.KEPK.BKL/299/04/2026 dated April 03, 2026. Furthermore, the researcher obtained a research permit recommendation letter from the Bengkulu Province Investment and One-Stop Integrated Services Office (DPMPTSP) on April 22, 2026, then obtained a research permit from the Education and Training Section (Diklat) of Dr. M. Yunus Hospital, Bengkulu Province on May 6, 2026.

Data collection was carried out from May 6 to June 06, 2026 in the Chemotherapy Room of Dr. M. Yunus Hospital, Bengkulu Province. Based on hospital medical record data, in 2025 there will be 327 cases of cancer in the period from January to July. The data describes the number of cancer patients who receive chemotherapy services at the referral hospital.

The research process began by screening cancer patients who would undergo chemotherapy before chemotherapy activities took place. Screening was conducted to identify patients who met the inclusion and exclusion criteria of the study. The sampling technique used is consecutive sampling. Based on the criteria that have been set, as many as 90 participants who are qualified and willing to participate in the research were obtained.

Before the implementation of the research, the researcher provides an explanation to the Participant about the objectives, benefits, research procedures, and rights of the Participant while participating in the research. The researcher also explained that all data and identity of the Participant is kept confidential and the Participant's participation is voluntary. Participants who were willing to

participate in the study were then asked to sign an informed consent sheet as proof of written consent.

After obtaining the consent of the participants, the researcher collected data on the characteristics of the participants which included age, gender and occupation. Furthermore, the initial anxiety level measurement (pre-test) was carried out using the State-Trait Anxiety Inventory (STAI-T) instrument. Pre-test measurements were taken before the participant received the intervention and before undergoing chemotherapy.

After the initial measurements were completed, the researcher administered Jacobson's Progressive Muscle Relaxation (JPMR) intervention directly to participants according to the Standard Operating Procedures (SOP). Participants are positioned to sit or lie down as comfortably as possible in a calm and conducive environment. Therapy begins with deep breathing exercises, then continues with gradual relaxation exercises of muscle groups that include the muscles of the hands, arms, face, neck and shoulders, chest and breathing, abdomen, back, thighs and buttocks, as well as calves and legs. Each muscle group is tense for a few seconds, then relaxed again until the participant feels a more relaxed body condition. After all stages are completed, the therapy ends with the final cooling and relaxation phase. The implementation of JPMR lasted for approximately 5-10 minutes.

After the intervention was completed, participants underwent chemotherapy procedures according to the hospital's service schedule. Measurement of final anxiety levels (post-test) was performed immediately after participants completed the chemotherapy procedure using the same State-Trait Anxiety Inventory (STAI-T) instrument. Post-test measurements were carried out to determine changes in anxiety levels after the intervention was given.

During the research process, all participants participated in the series of research until it was completed so that there were no dropouts. After all the data is collected, an editing process is carried out to check the completeness of the data, followed by coding, data entry, tabulation, and data cleaning to ensure there are no errors or duplicate data. The complete data were then analyzed using the

SPSS program, including univariate analysis, normality test, and Wilcoxon Signed-Rank Test to determine the effect of intervention on participants' anxiety levels.

B. Overview of Univariate Analysis

Univariate analysis was used to describe the characteristics of the participants and the variables of the study. Participant characteristics including age, gender and occupation were analyzed using frequency and percentage distributions. Meanwhile, age variables and anxiety levels before (pretest) and after (posttest) of intervention administration were analyzed using central tendency measures which included mean, median, standard deviation, minimum value, and maximum value at a confidence level of 95% (confidence interval). The results of the analysis are presented in the form of a table as follows:

1. Overview of Participant Characteristics by Age, Gender, and Occupation

Table 5. 1 Characteristics of Participants by Age

Variabel	Value					
Age	n	Red	Median	Min	Max	SD
	90	46.17	44.00	34	67	10.095

*Descriptive statistical analysis Mean, Median, Min, Max, SD

Table 5.1 shows that the average age of participants undergoing chemotherapy at Dr. M. Yunus Bengkulu Hospital was 46.17 years with a median of 44 years. Participants ranged in age from 34 to 67 years, with a standard deviation of 10.095. This shows that the participants in this study have a fairly diverse age range, but in general they are in the adult to elderly age group.

Table 5. 2 Characteristics of Participants by Gender and Occupation(n=90)

Variabel	Frequency (Percentage)
Gender	
Male	5 (5.6%)
Women	85 (94.4%)
Jobs	
Work	17 (18.9%)
Not Working	73 (81.1%)

*Descriptive statistical analysis of frequency (n) and percentage (%)

Table 5.2 shows that out of a total of 90 Participants, the majority of Participants were female as many as 85 people. Based on work, the majority

of non-working participants are 73 people, while 17 working participants are employed.

2. Average Overview of Anxiety in Cancer Patients Undergoing Chemotherapy Before and After Intervention

Table 5. 3 Gambaran Anxiety Before and After Done Jacobson Progressive Muscle Relaxation (JPMR) In Patients Cancer Who Undergoes Chemotherapy

Variabel	n	Mean	SD	Min	Max
Before Treatment (pre)					
	90	42.58	6.230	34	59
After the Treatment (post)					
	90	29.12	6.515	20	48

***Descriptive statistical analysis of sample count(s), Mean, SD, Min, Max**

Table 5.3 shows that the mean anxiety value in cancer patients who underwent chemotherapy before being given Jacobson's Progressive Muscle Relaxation (JPMR) intervention was 42.58 with a standard deviation of 6.230, a minimum score of 34 and a maximum score of 59. After being given Jacobson's Progressive Muscle Relaxation (JPMR) intervention, the mean anxiety decreased to 29.12 with a standard deviation of 6.515, a minimum score of 20 and a maximum score of 48. The results showed that there was a decrease in the average anxiety score by 13.46 points from before the intervention of 42.58 to 29.12 after the intervention. In addition, there was a decrease in the minimum score from 34 to 20 and the maximum score from 59 to 48, indicating that anxiety levels in cancer patients undergoing chemotherapy tended to decrease after being given the Jacobson's Progressive Muscle Relaxation (JPMR) intervention.

C. Bivariate Analysis Overview

Bivariate analysis was conducted to determine the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on anxiety in cancer patients undergoing chemotherapy. Based on the results of the normality test, the significance value of the pre-test data was 0.000, and the post-test was 0.000, so the significance value was less than 0.05. Thus, the data are not distributed normally. Therefore,

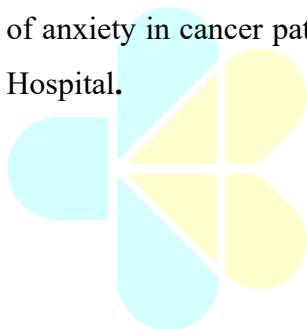
to determine the influence between pre-test and post-test values, the Wilcoxon Signed-Rank Test with a significance level of 5% ($p\text{-value} < 0.05$) was used.

Table 5. 4 Influence of Jacobson's Progressive Muscle Relaxation (JPMR) Against Alterations in Anxiety in Patients with Cancer who underwent chemotherapy at Dr. M. Yunus Bengkulu Hospital

Variabel	Median	Min	Max	Z	p-value
Anxiety Pretest	39.00	34	59	- 8.241	0,000
Anxiety Posttest	28.00	20	48		

***Uji Wilcoxon Signed Rank Test

Table 5.4 The results of the statistical test of the Wilcoxon table show a p-value of 0.000. Because the value ($p < 0.05$), there was a significant difference between the level of anxiety before and after the intervention. Thus, it can be concluded that Jacobson's Progressive Muscle Relaxation (JPMR) affects the level of anxiety in cancer patients undergoing chemotherapy at Dr. M. Yunus Bengkulu Hospital.



Kemenkes
Poltekkes Bengkulu

CHAPTER VI DISCUSSION

A. Interpretation and Discussion of Results

1. Participant Characteristics

a. Age

Based on the results of the descriptive analysis, it is known that the average age of the participants is 46.17 years with a median of 44 years. The youngest age of the Participant was 34 years old, and the oldest age was 67 years old, with a standard deviation of 10.095. These results show that the participants in this study are dominated by the middle adult to early elderly age group. This age characteristic is one of the factors that need to be considered because it can affect the patient's anxiety level during chemotherapy.

Research Marsaid et al., (2022) which shows that the majority of cancer patients undergoing chemotherapy are in the middle adult age group. Research Goodbye et al., (2023) It was also found that most of the patients who underwent chemotherapy were in adulthood and showed that age was one of the characteristics related to the patient's psychological condition during the treatment process. In addition, Goerling et al., (2023) It is reported that most cancer patients are in the age groups of 56–65 years and 66–75 years. The study also showed that the highest prevalence of anxiety was found in the age group of 36–45 years, so age is one of the characteristics that need to be considered in understanding the psychological condition of patients during therapy.

The findings are supported by Amiri (2024), who explains that age is one of the factors that can affect the appearance of anxiety symptoms in cancer patients. Individuals in middle adulthood generally still have various responsibilities towards family, work, and social life, so they tend to experience greater anxiety when undergoing treatment. These concerns can be related to the continuity of work, family conditions, the treatment process, or the hope of recovery, which ultimately has the potential to increase anxiety levels. This is supported

by Vital et al. (2024), which states that demographic factors, including age, contribute to variations in anxiety and depression levels in patients undergoing chemotherapy. In addition, Yue Zhang et al. (2026) explained that age is one of the factors related to the level of anxiety in cancer patients. Differences in developmental stages and responsibilities in each age group cause the psychological response to the disease and the treatment process to be different, so the level of anxiety experienced by patients can also vary.

Based on the results of the study and supported by previous research, the dominance of participants in the middle adult age group in this study showed that this age group had the potential to experience anxiety during chemotherapy. This is because they are still in a productive phase of life, have various responsibilities in family and work, and have to adapt to changes in health conditions and the treatment process undergone. Therefore, providing psychological support during chemotherapy is important to help patients manage anxiety so that they can improve their adaptability to the treatment they are undergoing.

b. Gender

The results showed that almost all participants were female, while a small number of participants were male. These results show that women are the group that underwent the most chemotherapy in this study. The results of this study are in line with the research By et al. (2020), who reported that the majority of patients undergoing chemotherapy who experienced anxiety were women, with a proportion of 76.5% of the total participants experiencing anxiety. This research is also in line with Goerling et al. (2023), who found that women dominated the patient group with cancer who experienced psychological disorders during treatment. In addition, Vital et al. (2024) report that the patient Cancer Women have higher levels of anxiety and depression than men. The findings show that women are the most common group in the

patient population Cancer and have a higher susceptibility to various psychological impacts during treatment.

In line with the results of the study, Belov et al., (2022) explained that women tend to be more prone to experiencing anxiety than men due to differences in biological, hormonal, and psychological factors. Hormonal changes that occur in women can affect emotional regulation and response to stress, increasing susceptibility to anxiety. In addition, Vital et al., (2024) stated that women are more likely to experience symptoms of anxiety and depression during the chemotherapy journey because they are more sensitive to changes in health conditions, side effects of treatment, and changes in body image caused by the disease and the therapy undergone. This is supported by Unger et al., (2022) which reported that women tend to experience more severe side effects of cancer treatment than men, so it can increase the physical and psychological burden during chemotherapy. In addition, women are known to have a higher susceptibility to anxiety disorders than men. These vulnerabilities are related to biological differences, particularly the influence of reproductive hormones such as estrogen and progesterone that play a role in regulating the activity of neurotransmitters, including serotonin and γ -aminobutyric acid (GABA), which are related to the regulation of emotions and responses to stress. These hormonal fluctuations can cause women to experience mood swings more easily, be more sensitive to stress, and be more prone to anxiety, especially when facing health-threatening conditions such as cancer diagnosis and chemotherapy processes. Thus, the dominance of female participants in this study is not only related to the high incidence of cancer in women, but is also influenced by biological and psychological factors that cause women to be more susceptible to experiencing anxiety during chemotherapy.

c. Jobs

Based on the results of the distribution of the frequency of participants by occupation, it is known that most of the participants are not working, while a small percentage of the participants are still working. These results show that the majority of patients who underwent chemotherapy in this study are no longer employed or are no longer actively working. These conditions can occur due to physical limitations, side effects of chemotherapy, and changes in health conditions that affect the patient's ability to carry out work activities. Employment status is one of the factors that can affect the psychological condition of patients, because losing their job or no longer being able to work often raises concerns about economic conditions, changes in roles in the family, and uncertainty about the future, which can ultimately increase anxiety levels during chemotherapy.

The results of this study are in line with the research Chimienti et al., (2023) which suggests that cancer patients undergoing treatment, especially chemotherapy, are at higher risk of experiencing changes in employment status, including losing their job or not being able to return to work after undergoing therapy. These conditions are affected by physical limitations, decreased functional ability, and side effects of treatment that inhibit the patient's ability to maintain work activities. In addition, the research Read et al., (2024) found that patients who experienced job loss or unemployment after a cancer diagnosis had a higher risk of psychological distress than patients who remained employed. Research Faneca et al., (2025) It also explains that patients who undergo chemotherapy often experience physical limitations, fatigue, anxiety, and stress, so they have difficulty maintaining their jobs. These findings support the results of this study, which shows that most patients who undergo chemotherapy no longer work during treatment.

In theory, conditions not working in patients undergoing chemotherapy can be affected by the impact of the disease and the side effects of treatment that degrade functional ability. Farmer et al., (2023) Explains that cancer, the therapy undergone, fatigue, and impaired cognitive function are factors associated with poor work output in cancer survivors. In addition, American Cancer Society, (2022) Explains that cancer treatment often leads to physical limitations, decreased productivity, and financial problems that can hinder the patient's ability to stay at work. In line with this, Moorish et al., (2021) Stating that cancer therapy can cause functional limitations that interfere with the ability to work, so that many patients experience job loss, prolonged absenteeism, and decreased productivity. Therefore, the high proportion of non-working participants in this study can be influenced by the impact of the disease Cancer and chemotherapy processes that cause a decrease in physical ability and productivity, so that patients prefer or are forced to stop work activities while undergoing treatment.

Based on the results of the study and supported by previous research, employment status is one of the factors related to the level of anxiety in patients undergoing chemotherapy. The dominance of non-working participants in this study suggests that the cessation of work activities during treatment can increase the psychological burden of patients. In addition to having to deal with the chemotherapy process and changes in health conditions, patients are also faced with concerns about economic conditions, the sustainability of roles in the family, and uncertainty about the future. Therefore, employment status needs to be one of the aspects that are considered in the psychological assessment of patients so that health workers can provide appropriate support to help reduce anxiety during chemotherapy.

2. The effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital.

The results of the study showed that there was an effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy at Dr. M. Yunus Bengkulu Hospital. The results of the statistical test showed a value of $p = 0.000$ ($p < 0.05$), so it can be concluded that there is a significant difference between the level of alterations in anxiety before and after the JPMR intervention. The results of this study show that JPMR can be one of the effective non-pharmacological interventions in helping to reduce anxiety in cancer patients undergoing chemotherapy.

A decrease in anxiety after the administration of JPMR can occur because this technique involves the process of systematically tightening and relaxing muscle groups, thus helping to reduce the physical tension that often arises in response to stress and anxiety. When the body is in a more relaxed state, the activity of the sympathetic nervous system that plays a role in the "fight or flight" response decreases, while the activity of the parasympathetic nervous system increases. This condition can cause a sense of calm, reduce muscle tension, slow down the heart rate, and help patients control negative thoughts related to illness and chemotherapy procedures. Thus, the patient becomes more able to adapt to the situation at hand so that the level of anxiety felt is reduced.

This research is in line with research by Hasani (2026), which indicates that giving Progressive Muscle Relaxation significantly lowers anxiety in patients with cancer and improves the quality of the patient's sleep ($p < 0.001$). PMR has been proven to be able to reduce death anxiety that patients often experience during cancer treatment. This research is also in line with the research Exam et al., (2023) Who found that a combination of musical intervention and Progressive Muscle Relaxation provides greater reductions in anxiety, depression, and stress in patients cancer who underwent chemotherapy compared to the control group. In addition, the

patients' quality of life also improved after the intervention was given. The results of this study are also supported by research by Toqan & Ayed (2023), which shows that the exercise Progressive Muscle Relaxation Exercise was able to significantly reduce anxiety in the intervention group compared to the control group ($p < 0.05$). Furthermore, in a systematic literature review by Hamudi et al. (2022), it was reported that Progressive Muscle Relaxation was effective in reducing psychological symptoms in the form of anxiety, stress, and depression, as well as improving the patient's coping skills, comfort, and quality of life in patients who are undergoing chemotherapy. The findings suggest that PMR has consistent benefits in helping patients reduce the various psychological disorders that arise during the treatment process.

In line with the results of the study, Tapeh et al., (2024) explains that Jacobson's Progressive Muscle Relaxation is a relaxation technique that is carried out by systematically contracting and relaxing muscle groups so as to produce a state of physical and mental relaxation. JPMR works on the principle that muscle relaxation will result in peace of mind (muscle relaxation brings peace of mind), so it can help reduce anxiety. It is supported by Khir et al., (2024) which states that Progressive Muscle Relaxation is an effective intervention in lowering stress, anxiety, and depression because it helps individuals distinguish tense and relaxed muscle conditions so that the body's stress response can be reduced. In addition, Dullness & Prime, (2020) explained that PMR is a technique of stretching and relaxing muscles that is carried out continuously and systematically until the whole body reaches a relaxed state. These relaxation conditions can improve the patient's psychological state, reduce anxiety, depression, stress, and improve the patient's quality of life.

According to the researchers, the decrease in anxiety in this study occurred because during the implementation of JPMR, participants were trained to focus on the process of contraction and muscle relaxation gradually. These exercises help reduce muscle tension that arises due to

stress and anxiety so that the body becomes more relaxed. The relaxation conditions created will decrease the activation of the sympathetic nervous system related to the stress response and increase the activity of the parasympathetic nervous system which causes a feeling of calm and comfort. In cancer patients undergoing chemotherapy, this situation is especially serious because anxiety often arises due to side effects of treatment, uncertainty of the disease prognosis, and concerns about the health conditions experienced. Therefore, JPMR can be used as one of the effective non-pharmacological nursing interventions to help reduce alterations in anxiety in cancer patients undergoing chemotherapy.

B. Research Limitations

The study entitled "The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Bengkulu Hospital" has several limitations in the research process, including:

1. The research design used was a one-group pre-test-post-test design, so there was no control group for comparison of anxiety changes that occurred after the administration of Jacobson's Progressive Muscle Relaxation (JPMR) intervention.
2. Data collection in this study was carried out in a relatively short time, considering that pretest measurements must be carried out before chemotherapy administration begins. This time limitation causes the data collection process to be carried out efficiently so as not to interfere with the implementation of chemotherapy procedures.

Although there are some limitations of the study as mentioned above, the results of the study can still provide an overview of the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy. In addition, the implementation of research, the use of instruments, and statistical analysis have been carried out in accordance with the established research procedures, so that the results of this research can still be scientifically accounted for.

CHAPTER VII CONCLUSION

A. Conclusion

Based on the results of research and discussion on the effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Bengkulu Hospital, it can be concluded that:

1. Participant characteristics showed that the median age value of cancer patients undergoing chemotherapy was 46.17 years, with the youngest age being 34 years and the oldest age being 67 years. Most of the participants were female (94.4%) and unemployed (81.1%).
2. The average alterations in anxiety in cancer patients who underwent chemotherapy before being given Jacobson's Progressive Muscle Relaxation (JPMR) intervention were 42.58, while after being given the intervention decreased to 29.12.
3. There was an effect of Jacobson's Progressive Muscle Relaxation (JPMR) on alterations in anxiety in cancer patients undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital with a p-value = 0.000 ($p < 0.05$). These results show that the administration of JPMR is effective in reducing alterations in anxiety in cancer patients undergoing chemotherapy.

B. Suggestions

Based on the results of the research that has been conducted, the researcher provides the following suggestions:

1. For Participants

Jacobson's Progressive Muscle Relaxation (JPMR) research is expected to be an alternative as one of the nonpharmacological therapies in helping to reduce alterations in anxiety. This relaxation technique can be done independently as an effort to reduce anxiety, increase calmness, and help patients adapt during chemotherapy.

2. For Dr. M. Yunus Bengkulu Hospital

Dr. M. Yunus Bengkulu Hospital is advised to consider the application of Jacobson's Progressive Muscle Relaxation (JPMR) as one of the non-pharmacological nursing interventions in nursing care for patients undergoing chemotherapy. In addition, nurses can provide education and assistance to patients on how to perform these relaxation techniques independently.

3. For Nursing Education Institutions

Nursing education institutions are advised to use the results of this study as a reference in the learning process regarding non-pharmacological nursing interventions, especially in the management of anxiety in patients undergoing chemotherapy. The results of this research can also be used as a basis for the development of research and community service activities in the field of nursing.

4. For the Next Researcher

Researchers are then advised to use a research design involving a control group so that the effectiveness of the intervention can be compared more objectively. In addition, research can be conducted with a larger sample size and a wider scope of research locations so that the research results have better generalization. Researchers are also advised to make modifications to the research instruments, especially in the use of language and the preparation of statements, so that they are simpler, easier to understand by patients, and minimize errors in filling out questionnaires.

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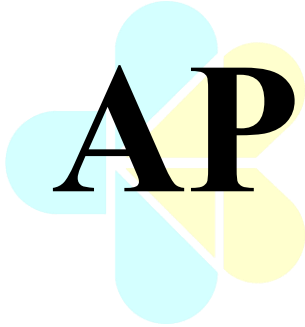
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APPENDIX

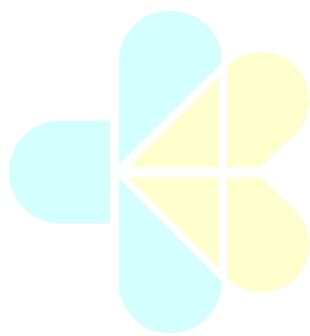
Kemendik
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Appendices 1 Table Master

No	Name	Age	Gender	Jobs	Pretest	Posttest	Groups
1	S	64	Women	Not Working	37	34	1
2	E	43	Women	Not Working	39	37	1
3	R	56	Women	Not Working	35	29	1
4	S	34	Women	Not Working	36	35	1
5	S	59	Women	Not Working	38	26	1
6	T	66	Women	Not Working	39	33	1
7	A	53	Women	Not Working	37	24	1
8	8	36	Women	Not Working	39	28	1
9	D	42	Women	Not Working	38	23	1
10	M	48	Male	Not Working	35	22	1
11	R	42	Women	Not Working	35	26	1
12	D	45	Male	Work	39	38	1
13	A	41	Women	Work	38	37	1
14	S	57	Women	Not Working	38	21	1
15	I	62	Women	Not Working	39	33	1
16	S	48	Women	Not Working	34	31	1
17	I	67	Women	Work	38	32	1
18	E	42	Women	Not Working	39	27	1
19	J	63	Women	Work	38	37	1
20	E	56	Women	Not Working	38	27	1
21	Y	34	Women	Not Working	38	21	1
22	D	38	Women	Not Working	38	27	1
23	R	39	Women	Not Working	37	21	1
24	L	45	Male	Not Working	38	24	1
25	S	34	Women	Not Working	39	24	1
26	R	39	Women	Work	39	28	1
27	P	48	Women	Work	37	25	1
28	M	65	Women	Not Working	35	28	1
29	N	38	Women	Not Working	37	22	1
30	N	54	Women	Not Working	39	31	1
31	S	40	Women	Not Working	38	35	1
32	Y	37	Women	Work	38	37	1
33	L	53	Women	Not Working	39	29	1
34	T	36	Women	Not Working	36	29	1
35	M	52	Women	Not Working	38	20	1
36	D	58	Women	Not Working	39	26	1
37	M	36	Women	Not Working	39	32	1
38	E	34	Women	Not Working	39	30	1
39	E	51	Women	Not Working	37	25	1
40	I	34	Women	Not Working	36	28	1

41	S	48	Women	Not Working	38	22	1
42	S	52	Male	Not Working	38	24	1
43	Z	38	Women	Not Working	38	23	1
44	P	65	Women	Not Working	39	23	1
45	Y	44	Women	Not Working	35	29	1
46	S	48	Women	Not Working	36	26	1
47	A	49	Women	Not Working	36	29	1
48	S	62	Women	Not Working	45	23	1
49	E	65	Women	Not Working	48	25	1
50	B	46	Women	Work	46	31	1
51	H	39	Women	Not Working	45	36	1
52	W	48	Women	Work	49	25	1
53	L	66	Women	Not Working	49	41	1
54	Y	50	Women	Not Working	42	33	1
55	N	44	Women	Work	47	28	1
56	Z	60	Women	Not Working	47	42	1
57	S	40	Women	Not Working	44	22	1
58	L	41	Women	Work	43	32	1
59	M	38	Women	Not Working	45	24	1
60	S	44	Women	Not Working	49	24	1
61	Y	65	Women	Not Working	45	39	1
62	Z	45	Male	Not Working	43	40	1
63	W	39	Women	Work	48	28	1
64	A	64	Women	Not Working	47	36	1
65	S	36	Women	Not Working	42	24	1
66	T	36	Women	Not Working	49	26	1
67	R	45	Women	Not Working	48	30	1
68	F	35	Women	Not Working	46	26	1
69	I	40	Women	Not Working	46	33	1
70	A	57	Women	Not Working	45	29	1
71	H	35	Women	Work	44	28	1
72	S	39	Women	Not Working	49	28	1
73	M	36	Women	Not Working	43	29	1
74	L	38	Women	Not Working	48	24	1
75	H	34	Women	Not Working	43	21	1
76	M	62	Women	Work	42	26	1
77	S	45	Women	Not Working	40	24	1
78	R	44	Women	Not Working	56	34	1
79	E	41	Women	Not Working	53	20	1
80	A	35	Women	Not Working	50	48	1
81	W	35	Women	Not Working	54	45	1
82	Y	39	Women	Not Working	59	23	1

83	S	45	Women	Not Working	54	46	1
84	N	36	Women	Not Working	52	25	1
85	T	37	Women	Not Working	51	25	1
86	E	40	Women	Not Working	54	48	1
87	I	40	Women	Not Working	55	20	1
88	R	57	Women	Work	55	28	1
89	S	45	Women	Work	52	35	1
90	S	34	Women	Work	55	29	1



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Appendices 2 Output SPSS

OUTPUT SPSS

A. A UNIVARIATE ANALYSIS

1. Participant Characteristics

		Statistics		
		Usia	Jenis Kelamin	Pekerjaan
N	Valid	90	90	90
	Missing	0	0	0

Usia					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	34	7	7.8	7.8	7.8
	35	4	4.4	4.4	12.2
	36	7	7.8	7.8	20.0
	37	2	2.2	2.2	22.2
	38	5	5.6	5.6	27.8
	39	6	6.7	6.7	34.4
	40	5	5.6	5.6	40.0
	41	3	3.3	3.3	43.3
	42	3	3.3	3.3	46.7
	43	1	1.1	1.1	47.8
	44	4	4.4	4.4	52.2
	45	7	7.8	7.8	60.0
	46	1	1.1	1.1	61.1
	48	6	6.7	6.7	67.8
	49	1	1.1	1.1	68.9
	50	1	1.1	1.1	70.0
	51	1	1.1	1.1	71.1
	52	2	2.2	2.2	73.3
	53	2	2.2	2.2	75.6
	54	1	1.1	1.1	76.7
	56	2	2.2	2.2	78.9
	57	3	3.3	3.3	82.2
	58	1	1.1	1.1	83.3
	59	1	1.1	1.1	84.4
	60	1	1.1	1.1	85.6
	62	3	3.3	3.3	88.9
	63	1	1.1	1.1	90.0
	64	2	2.2	2.2	92.2
	65	4	4.4	4.4	96.7
	66	2	2.2	2.2	98.9
	67	1	1.1	1.1	100.0
	Total	90	100.0	100.0	

Jenis Kelamin					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki-laki	5	5.6	5.6	5.6
	Perempuan	85	94.4	94.4	100.0
	Total	90	100.0	100.0	

Pekerjaan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tidak Bekerja	73	81.1	81.1	81.1
	Bekerja	17	18.9	18.9	100.0
	Total	90	100.0	100.0	

2. Average Overview of Anxiety in Cancer Patients

Case Processing Summary

		Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
Pretest	1	90	100.0%	0	0.0%	90	100.0%
Posttes	1	90	100.0%	0	0.0%	90	100.0%

Descriptives

Kelompok			Statistic	Std. Error
Pretest	1	Mean	42.58	.657
		95% Confidence Interval for Mean	Lower Bound	41.27
			Upper Bound	43.88
		5% Trimmed Mean	42.26	
		Median	39.00	
		Variance	38.808	
		Std. Deviation	6.230	
		Minimum	34	
		Maximum	59	
		Range	25	
		Interquartile Range	9	
		Skewness	.753	.254
		Kurtosis	-.522	.503
Postes	1	Mean	29.12	.687
		95% Confidence Interval for Mean	Lower Bound	27.76
			Upper Bound	30.49
		5% Trimmed Mean	28.66	
		Median	28.00	
		Variance	42.446	
		Std. Deviation	6.515	
		Minimum	20	
		Maximum	48	
		Range	28	
		Interquartile Range	9	
		Skewness	.993	.254
		Kurtosis	.671	.503

B. BIVARIATE ANALYSIS

1. Normality

Tests of Normality

	Kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pretest	1	.239	90	.000	.899	90	.000
Posttes	1	.152	90	.000	.923	90	.000

a. Lilliefors Significance Correction

2. Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy

Ranks

		N	Mean Rank	Sum of Ranks
Posttes - Pretest	Negative Ranks	90 ^a	45.50	4095.00
	Positive Ranks	0 ^b	.00	.00
	Ties	0 ^c		
	Total	90		

a. Posttes < Pretest

b. Posttes > Pretest

c. Posttes = Pretest

Test Statistics^a

	Posttes - Pretest
Z	-8.241 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Appendices 3 JPMR Intervention Documentation





Appendices 4 Respondent's Application Letter

PARTICIPANT APPLICATION LETTER

Dear Sir.

Prospective Participants

Respectfully,

I am the undersigned:

Name : Shakila Mutiara Kartini

**Students : Department of Nursing Undergraduate Study Program
Applied Nursing and Nurse Profession**

**Address : Perumahan Permata Griya Asri Block G, No.01 Kec.
Sungai Serut, Bengkulu City**

Hp No. : 08984894992

Students of the Bengkulu Ministry of Health Polytechnic who are carrying out research. The purpose of this study is to find out "**The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Bengkulu Hospital in 2026**". The researcher (I) will provide this consent sheet and explain that your involvement in the study is voluntary.

In this study, I will maintain the confidentiality of the participants in this study. The patient's name will not be recorded anywhere. Involvement in this study can provide direct benefits to Participants; the results of this study can be useful to increase Participants' knowledge about the Effect of Jacobson's Progressive Muscle Relaxation on Alterations in Anxiety. If after being involved in this research, the Participant still has a Statement, the Participant can contact me at the number above.

If you agree, then I ask for your willingness to sign the consent sheet as a research respondent. I thank you for your attention, cooperation, and willingness to become a participant.

Sincerely,

Shakila Mutiara Kartini

Appendices 5 Informed Consent

INFORMED CONSENT DAN RESEARCH EXPLANATION

Dear Sir.

Prospective Participants

Respectfully,

I am the undersigned:

Name : Shakila Mutiara Kartini

**Students : Department of Nursing Undergraduate Study Program
Applied Nursing and Nurse Profession**

Nim : P01720322094

Hp No. : 08984894992

I am a student of the Bengkulu Ministry of Health Polytechnic who is carrying out research entitled "**The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients Undergoing Chemotherapy at dr. M. Yunus Bengkulu Hospital in 2026**". The purpose of this study is to increase knowledge in the management of non-pharmacological therapies in alterations in anxiety in cancer patients undergoing chemotherapy.

In this study, participants will be given observation sheets to assess anxiety during chemotherapy. This study did not cause harm to participants and may cause mild side effects such as fatigue. If you are late to become a Participant and incriminating things occur, then it is allowed to report to the researcher, or you can immediately withdraw from this study by contacting the researcher at the phone number listed above. Participants will be compensated for the time spent filling out these observation sheets, as determined by the researcher.

The confidentiality of all information provided will be maintained and will only be used for research purposes. All results of participants' records or data will be stored at the Bengkulu Ministry of Health Polytechnic. After reading the information and understanding the objectives of the research and the expected role in this study, please be willing to sign the consent sheet as a Participant in this study.

Bengkulu, 2026

(Shakila Mutiara Kartini)

Appendices 6 Respondent Consent

LETTER OF APPROVAL PARTICIPANTS

I am the undersigned

Name :

Age :

Gender :

Address :

I am hereby willing to participate as a participant in research conducted by Sister Shakila Mutiara Kartini, an Applied Bachelor of Nursing Student at the Health Polytechnic of the Ministry of Health Bengkulu, with the title "The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Alterations in Anxiety in Cancer Patients undergoing chemotherapy at Dr. M. Yunus Bengkulu in 2026"

This research will not harm me or have a bad effect on me and my family, so I am willing to become a Participant. Thus, I made this letter of approval to be used as it should.

Bengkulu, 2026

Researcher

Participants

(Shakila Mutiara Kartini)

()

Appendices 7 Demographic Data Collection

COLLECTION OF PARTICIPANT DEMOGRAPHIC DATA

Participant No. :

1. Participant's name (initial) :

2. Gender : ☐ Male

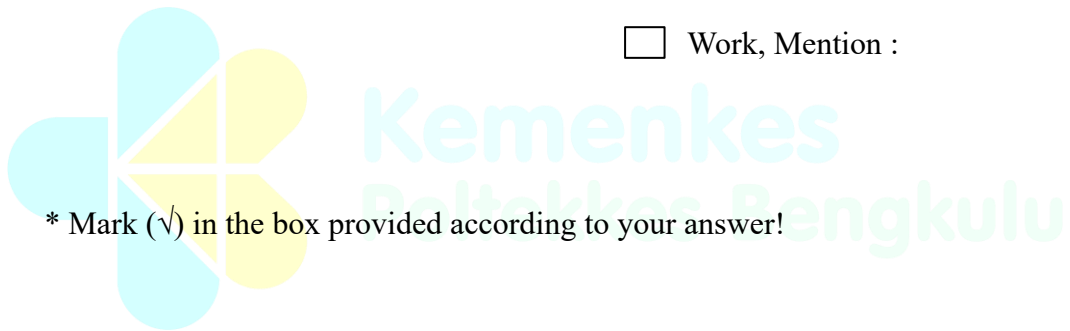
☐ Women

3. Age : Year

4. Jobs : ☐ Not Working

☐ Work, Mention :

* Mark (√) in the box provided according to your answer!



Appendices 8 Lembar Instrumen State-Trait Anxiety Inventory

FORMAT INSTRUMEN *STATE-TRAIT ANXIETY INVENTORY* (STAI)

Name :

Gender :

Age :

Address :

Technician instructions:

Give a sign ✓ on the score of each item, adjusted to the patient's condition and the information under the statement, in order to determine the quality of the patient's sleep.

Yes	Statement	Never	Sometimes	Frequent	Almost always
1	I feel happy that there is support from my family and health workers during chemotherapy				
2	I feel satisfied with myself in undergoing chemotherapy treatment				
3	I wish I could be as happy as anyone else who didn't have chemotherapy				
4	I felt relieved after undergoing chemotherapy and getting an explanation from the health workers				
5	I am a strong person in the face of <i>cancer</i> and the chemotherapy process				

6	I felt calm and able to control myself while facing the chemotherapy process				
7	I feel happy when I feel the progress in chemotherapy treatment				
8	I feel safe with the care and supervision of healthcare workers during chemotherapy				
9	I make decisions easily regarding medication and chemotherapy				
10	I feel satisfied with my condition and the body's response to chemotherapy				
11	I feel like a failure because of my <i>cancer condition</i> and the chemotherapy treatment I am undergoing				
12	I feel tense when I think about problems related to <i>cancer</i> and chemotherapy				
13	I feel nervous and anxious every time I go to a chemotherapy session				
14	I found the difficulties during chemotherapy to be so much that I couldn't overcome it				
15	I was too worried about something that wasn't really				

	important related to my illness and chemotherapy				
16	I feel like I have disturbing/disturbing thoughts about my <i>cancer</i> and chemotherapy				
17	I feel less confident in my body condition after chemotherapy				
18	I felt not strong enough to deal with the side effects and the chemotherapy process				
19	I think about unimportant things about my illness and they bother me				
20	I responded to the disappointment regarding the results of the examination so that it was difficult to forget it				

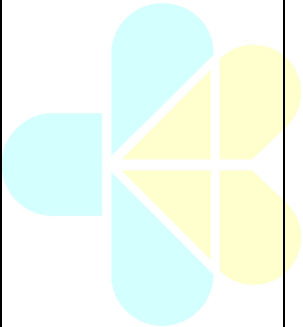
Source : (Pratiwi & Ningsih, 2022)

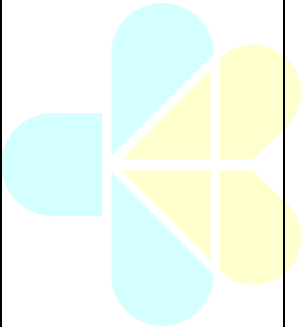
Appendices 9 Lembar SOP Jacobson's Progressive Muscle Relaxation

**STANDARD OPERATING PROCEDURES
JACOBSON'S PROGRESSIVE MUSCLE RELAXATION**

	STANDARD OPERATING PROCEDURES JACOBSON'S PROGRESSIVE MUSCLE RELAXATION
Definition	Relaxation techniques are performed by tensing and then gradually relaxing muscle groups to reduce physical tension and anxiety and increase a sense of relaxation.
Purpose	To reduce muscle tension and anxiety, promote physical and mental relaxation; fiber helps patients feel calmer and more comfortable during treatment.
Preparation of tools/materials and training conditions	1. Quiet, comfortable place, enough lighting 2. Safe and comfortable sitting or lying position 3. Stopwatch 4. Exercise for 5-10 minutes 5. Exercises are done before chemotherapy
So, Interaxis	1. Studying participants' initial data 2. Preparing research tools and instruments 3. Prepare yourself professionally 4. Explain your goals and plan of action
Onboarding Phase	1. Greet and introduce yourself 2. Evaluation of the Participant's initial data validation 3. Informed consent (describes the type of action, objectives, benefit of risk, time, procedure, consent to the action (oral/written))
Work Phase	Patient preparation

	1. The patient is positioned to sit or lie down as comfortably as possible according to the condition. 2. Ensure the client is cooperative Prepare the environment 1. Make sure the room is quiet, safe, with enough light Tool preparation 1. Prepare a stable and comfortable chair or bed 2. Set up a stopwatch/clock to estimate the duration of the relaxation tension Preparation of officers a. Hand washing treatment before making contact with clients
Implementation of action procedures	i. Early relaxation a. The patient breathes in slowly through the nose and exhales through the mouth b. Do it 3 times until you relax 2. Exercises on the hands a. The patient is asked to clench his hands firmly for 5 seconds b. Release your fist and feel the hand muscles relax for 10 seconds c. The same step is repeated on the left hand 3. Exercises on the arm a. The patient is asked to bend the elbow of the upper arm close to the shoulder, tense the biceps muscles for 5 seconds b. Tension is released, and the arm is rested for 10 seconds c. The arm is then straightened to tighten the triceps muscle for 5 seconds, then relaxed again for 10 seconds

	4. Exercises on the facial muscles a. Have the patient frown vigorously for 5 seconds b. The forehead is relaxed, and the client is asked to feel a sense of relaxation for 10 seconds c. The patient is asked to close the eyes tightly for 5 seconds and then relax them again d. The jaw is tightened by pressing the teeth for 5 seconds and then released until it feels relaxed 5. Exercises on the neck and shoulders a. The patient slowly raises his head back until he feels a pull of the neck muscles for 5 seconds, then returns to the starting position. b. The head is lowered until the chin is close to the chest for 5 seconds and then returned to its original position. c. The patient raises his shoulders toward his ears for a few seconds, then lowers them while feeling the shoulders relax. 6. Chest and breathing exercises a. The patient takes a deep breath through the nose until the chest expands. b. The breath is held for approximately 5 seconds. c. The breath is exhaled slowly through the mouth, and the client is asked to feel the chest and breathing becoming more relaxed for about 10 seconds. 7. Exercises on the abdominal muscles a. The patient tightens the abdominal muscles by pulling the abdomen inward for 5 seconds.
--	---

	b. Tension is released, and the patient is asked to pay attention to the sensation of the abdominal muscles relaxing for 10 seconds. 8. Exercises on the back a. The patient slightly arches his back away from the back of the chair or bed for a few seconds according to tolerance. b. The back is then returned to its original position and the client is asked to feel a more relaxed back. 9. Exercises on the thighs and buttocks a. The patient tenses the thigh and buttock muscles simultaneously for approximately 5 seconds. b. The tension is released, and the muscles are allowed to relax while the patient feels lightness in the thighs and buttocks. 10. Exercises on the calves and legs a. The patient points the toes towards the head so that the calf muscles feel tense for 5 seconds. b. The legs are then relaxed for about 10 seconds. c. The toes are directed away from the head for 5 seconds to tighten the muscles, then back to relax. 11. Cooling a. Patients are asked to remain in a comfortable position for 1–2 minutes while breathing slowly and regularly. b. Patients are asked to feel their whole body feeling lighter and relaxed. c. The patient is then directed to open his eyes slowly, move his hands and feet slowly, and then return to a normal sitting position safely.
--	---

Source : (Toqan & Ayed, 2023)

Appendices 10 Research Permit



Kementerian Kesehatan
Direktorat Jenderal
Sumber Daya Manusia Kesehatan
Politeknik Kesehatan Bengkulu
Jalan Indragiri No.3 Padang Harapan
Bengkulu 38225
(0736) 341212
<https://www.poltekkesbengkulu.ac.id>

08 Agustus 2025

Nomor : PP.06.02/F.XXIII.1/ ~~6324~~ /2025
Perihal : Izin Pra Penelitian

Yth.
Direktur Rumah Sakit M Yunus Provinsi Bengkulu
di
Tempat

Sehubungan penyusunan tugas akhir dalam bentuk Skripsi Mahasiswa Program Studi Keperawatan Program Sarjana Terapan Jurusan Keperawatan Politeknik Kesehatan Kemenkes Bengkulu Tahun Akademik 2025/2026, dengan ini mohon Bapak/Ibu dapat memberikan izin pengambilan data, Pra Penelitian pada mahasiswa dibawah ini :

Nama Mahasiswa : Shakila Mutiara Kartini
Nim : P01720322094
Tempat : RSUD M YUNUS KOTA BENGKULU
Judul : Pengaruh Jacobson's Progressive Muscle Relaxation (JPMR) Terhadap Alterations In Anxiety Pada Pasien Cancer Yang Menjalani Kemoterapi Di RSUD M Yunus Bengkulu Tahun 2025
No Handphone : 08984894992

Demikianlah, atas perhatian dan kerjasamanya kami mengucapkan terimakasih.

Wakil Direktur I Bidang Akademik

Septiyanti, S.Kep, Ners, M.Pd

Appendices 11 Letter from UPTD Dr. M. Yunus Hospital



Yth. Kepada
Kabid. Pelayanan Keperawatan
di-
Tempat

Nama : SHAKILA MUTIARA KARTINI

Ruangan : Kemoterapi

INSTALASI RAWAT INAP
RUANG KEMOTERAPI
RSUD Dr M. Yusa Bengkulu

Ms. Namay, 2/Kep

Appendices 12 Ethical Exemption



Kementerian Kesehatan
Poltekkes Bengkulu

Jalan Indragiri No. 3 Padang Harapan
Bengkulu 38225
(0736) 341212
<https://poltekkesbengkulu.ac.id>

KETERANGAN LAYAK ETIK
DESCRIPTION OF ETHICAL EXEMPTION
"ETHICAL EXEMPTION"

No.KEPK.BKL/299/04/2026

Protokol penelitian versi 1 yang diusulkan oleh :
The research protocol proposed by

Peneliti utama : Shakila Mutiara Kartini
Principal In Investigator

Nama Institusi : Poltekkes Kemenkes Bengkulu
Name of the Institution

Dengan judul:
Title
"Pengaruh Jacobson's Progressive Muscle Relaxation (JPMR) Terhadap Alterations in Anxiety pada Pasien Cancer yang menjalani kemoterapi di RSUD Dr. M. Yunus Bengkulu tahun 2026"

"The Effect of Jacobson's Progressive Muscle Relaxation (JPMR) on Anxiety Alterations in Cancer Patients Undergoing Chemotherapy at Dr. M. Yunus Regional General Hospital, Bengkulu, in 2026"

Dinyatakan layak etik sesuai 7 (tujuh) Standar WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan Beban dan Manfaat, 4) Risiko, 5) Bujukan/Eksploitasi, 6) Kerahasiaan dan Privacy, dan 7) Persetujuan Setelah Penjelasan, yang merujuk pada Pedoman CIOMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya indikator setiap standar.

Declared to be ethically appropriate in accordance to 7 (seven) WHO 2011 Standards, 1) Social Values, 2) Scientific Values, 3) Equitable Assessment and Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Informed Consent, referring to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standard.

Pernyataan Laik Etik ini berlaku selama kurun waktu tanggal 03 April 2026 sampai dengan tanggal 03 April 2027.

This declaration of ethics applies during the period April 03, 2026 until April 03, 2027.



April 03, 2026
Chairperson,



apt. Zamharira Muslim, M.Farm

00272/EE/2026/0064221771

Appendices 13 DPMPTSP Research Recommendations



PEMERINTAH PROVINSI BENGKULU
DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU SATU PINTU
Jalan Batang Hari No.108, Kelurahan Tanah Patah, Kecamatan Ratu Agung, Kota Bengkulu
Website: <https://dpmtsp.bengkuluprov.go.id> | Email: dpmtsp@bengkuluprov.go.id
BENGKULU 38224

REKOMENDASI

Nomor : 503/82.650/723/DPMPTSP-P.4/2026

TENTANG PENELITIAN

- Dasar :
1. Peraturan Gubernur Bengkulu Nomor 13 Tahun 2022 Tentang Pendelegasian Wewenang Penyelenggaraan Pelayanan Perizinan Berusaha Berbasis Resiko dan Non perizinan Kepada Kepala Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu.
 2. Surat Wakil Direktur I Bidang Akademik Poltekkes Kemenkes Bengkulu
Nomor : PP. 01.01/F.XXIII.1/4664/2026, Tanggal 2 Juni 2026 Perihal Rekomendasi Penelitian.
Permohonan diterima tanggal 3 Juni 2026.

Nama / NPM	: SHAKILA MUTIARA KARTINI/P01720322094
Pekerjaan	: Mahasiswa
Maksud	: Melakukan Penelitian
Judul Proposal Penelitian	: Pengaruh <i>Jacobson's Progressive Muscle Relaxation</i> (JPMR) terhadap <i>Alterations in Anxiety</i> pada Pasien <i>Cancer</i> yang Menjalani Kemoterapi di RSUD Dr. M. Yunus Bengkulu Tahun 2026
Daerah Penelitian	: Rumah Sakit Umum Daerah Dr. M. Yunus Bengkulu
Waktu Penelitian/Kegiatan	: 7 Juni 2026 s.d 7 Juli 2026
Penanggung Jawab	: Wakil Direktur I Bidang Akademik Poltekkes Kemenkes Bengkulu

Dengan ini merekomendasikan penelitian yang akan diadakan dengan ketentuan :

- a. Sebelum melakukan penelitian harus melapor kepada Gubernur/Bupati/Walikota Cq.Kepala Badan Kesatuan Bangsa dan Politik atau sebutan lain setempat.
- b. Harus mentaati semua ketentuan Perundang-undangan yang berlaku.
- c. Selesai melakukan penelitian agar melaporkan/menyampaikan hasil penelitian kepada Kepala Badan Kesatuan Bangsa dan Politik Provinsi Bengkulu.
- d. Apabila masa berlaku Rekomendasi ini sudah berakhir, sedangkan pelaksanaan penelitian belum selesai, perpanjangan Rekomendasi Penelitian harus diajukan kembali kepada instansi pemohon.
- e. Rekomendasi ini akan dicabut kembali dan dinyatakan tidak berlaku, apabila ternyata pemegang surat rekomendasi ini tidak mentaati/mengindahkan ketentuan-ketentuan seperti tersebut di atas.

Demikian Rekomendasi ini dikeluarkan untuk dapat dipergunakan sebagaimana mestinya



Ditetapkan di : Bengkulu
Pada tanggal : 03 Juni 2026

KEPALA DINAS PENANAMAN MODAL DAN
PELAYANAN TERPADU SATU PINTU
PROVINSI BENGKULU



KHIRDES LAPENDO PASJU, S.STP.,M.Si
Pembina Utama Muda (IV/c)
NIP. 198112282000121001

Tembusan disampaikan kepada Yth :

1. Kepala Badan Kesatuan Bangsa dan Politik Provinsi Bengkulu
2. Direktur Poltekkes Kemenkes Bengkulu
3. Wakil Direktur I Bidang Akademik Poltekkes Kemenkes Bengkulu
4. Yang Bersangkutan

Appendices 14 Research Permit



Kementerian Kesehatan
Direktorat Jenderal
Sumber Daya Manusia Kesehatan
Politeknik Kesehatan Bengkulu
Jalan Indragiri No.3 Padang Harapan
Bengkulu 38225
(0736) 341212
<https://www.poltekkesbengkulu.ac.id>

16 April 2026

Nomor : PP. 01.01/F.XXIII.1/3262/2026
Perihal : Izin Penelitian

Yth,
Direktur RSUD dr. M Yunus Provinsi Bengkulu
di
Tempat

Sehubungan penyusunan tugas akhir mahasiswa dalam bentuk Skripsi Program Studi Keperawatan Program Sarjana Terapan Jurusan Keperawatan Politeknik Kesehatan Kemenkes Bengkulu Tahun Akademik 2025/2026, dengan ini kami mohon Bapak/Ibu dapat memberikan izin pengambilan data untuk penelitian kepada:

Nama : SHAKILA MUTIARA KARTINI
NIM : P01720322094
Tempat Penelitian : Rumah Sakit Umum Daerah dr. M Yunus Provinsi Bengkulu
Waktu Penelitian : 1 Mei - 31 Mei 2026
Judul : Pengaruh Jacobson's Progressive Muscle Relaxation (JPMR) Terhadap Alterations in Anxiety Pada Pasien Cancer yang Menjalani Kemoterapi di RSUD Dr. M. Yunus Bengkulu Tahun 2026
No Handphone : 08984894992

Demikianlah, atas perhatian dan kesediaan Bapak/Ibu diucapkan terimakasih.

a.n. Direktur Poltekkes Kemenkes Bengkulu

Wakil Direktur I Bidang Akademik

Septiyanti, S.Kep, Ners, M.Pd



Appendices 15 Research Permit for UPTD RSUD dr. M. Yunus



PEMERINTAH PROVINSI BENGKULU
DINAS KESEHATAN
UPTD KHUSUS RSUD dr. M. YUNUS
Jl. Bhayangkara Bengkulu 38229 Telp. (0736) 52004 – 52006 Fax (0736) 52007



Bengkulu, 06 Mei 2026

Nomor : 074/ 230 /BID-DIK/V/2026 Yth. Kepada
Lampiran : - Kabisd. Pelayanan Keperawatan
Perihal : Permohonan Izin Penelitian di-
Bengkulu

Menindaklanjuti surat dari Poltekkes Kemenkes Bengkulu Nomor :
PP.01.01/F.XXIII.1/3262/2026, Perihal penelitian

Nama : SHAKILA MUTIARA KARTINI
NIM : P01720322094
Prodi : D4 Keperawatan
Judul Penelitian : Pengaruh Jacobson's Progressive Muscle Relaxation (JPMR)
Terhadap Alterations In Anxiety Pada Pasien Cancer Yang
Manjalani Kemoterapi di RSUD dr. M. Yunus Bengkulu.
Ruangan : Kemoterapi

Bersama ini kami mohon kesediaan unit bersangkutan untuk memberikan
izin terhitung mulai 06 Mei s.d 06 Juni 2026. Setelah melakukan penelitian yang
bersangkutan wajib melaporkan kembali hasil penelitian ke Bidang Pendidikan.

Demikian kami sampaikan, atas perhatian dan kerjasamanya diucapkan
terima kasih.

KEPALA BIDANG PENDIDIKAN

Bengkulu, 06 Mei 2026
Kabisd Pelayanan Keperawatan

44

Ns. FOURNI ARDIANSYAH, M.Kep
NIP. 19710604 199803 1 009

ATMAN GUSMADI, SKM
Pembina Tk I/IV.B
NIP. 19730809 199303 1 003

INSTALASI RAWAT INAP
RUANG KEMOTERAPI
RSUD dr. M. Yunus Bengkulu
Ns. Nurma Wati, S. Kep

Appendices 16 Research Completion Letter



**PEMERINTAH PROVINSI BENGKULU
DINAS KESEHATAN
UPTD RSUD dr. M. YUNUS**

Jl. Bhayangkara Bengkulu 38229 Telp. (0736) 52004 – 52006 Fax. (0736) 52007
BENGKULU 38229



SURAT KETERANGAN

Nomor : 074/ 359 /BID-DIK/VI/2026

Yang bertandatangan dibawah ini :

- a. Nama : **LENI MARLINA, S.Si, Apt., M.Si**
b. Jabatan : Wakil Direktur Penunjang Medik dan Kependidikan

dengan ini menerangkan bahwa :

- a. Nama : **SHAKILA MUTIARA KARTINI**
b. NIM : P01720322094
c. Prodi : D4 Keperawatan
d. Institusi : Poltekkes Kemenkes Bengkulu
e. Judul Penelitian : Pengaruh *Jacobson's Progressive Muscle Relaxation* (JPMR) terhadap *Alterations In Anxiety* pada Pasien Cancer yang Menjalani Kemoterapi di RSUD dr. M. Yunus Bengkulu
f. Ruang Penelitian : Kemoterapi
g. Maksud : Telah Selesai Melaksanakan Penelitian Dari Tanggal 06 Mei s.d 06 Juni 2026

Demikian Surat Keterangan ini dibuat untuk dipergunakan seperlunya.

Bengkulu, Juni 2026
Wakil Direktur Penunjang Medik & Kependidikan

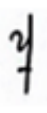
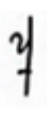
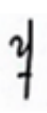


LENI MARLINA, S.Si, Apt., M.Si
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Appendices 17 Guidance Consul Sheet

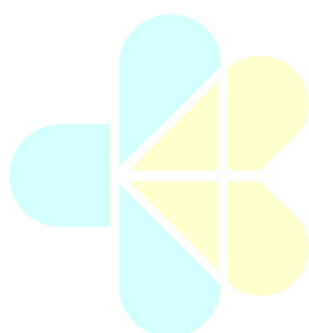
LEMBAR KONSULTASI SKRIPSI
PRODI SARJANA TERAPAN KEPERAWATAN
JURUSAN SARJANA TERAPAN KEPERAWATAN
JURUSAN KEPERAWATAN POLTEKKES KEMENKES BENGKULU
TAHUN AJARAN 2025

Nama : Shakila Mutiara Kartini
 Nim : P01720322094
 Judul : Pengaruh *Jacobson's Progressive Muscle Relaxation* (JPMR) Terhadap *Alterations in Anxiety* pada Pasien *Cancer* yang menjalani kemoterapi di RSUD M. Yunus Bengkulu tahun 2026
 Pembimbing I : Ns. Erni Buston, SST., M. Kes.

NO	HARI/ TANGGAL	TOPIK	SARAN	PARAF PEMBIMBING
1	Jumat, 01 Agustus 2025	Konsul judul	- Cari masalah terkait penelitian yang diminati - Alasan mengenai pengambilan judul	
2	Senin, 04 Agustus 2025	Konsul judul	- ACC judul - Perbanyak referensi terkait judul yang diminati - Lakukan studi lapangan - Perbaiki Penulisan BAB I	
3	Kamis, 18 September 2025	Daftar pustaka dan BAB IV	- Perbaiki penulisan - Perbaiki latar belakang - Tambahkan sumber BAB I	

4	Senin, 22 September 2025	Konsul perbaikan BAB IV dilanjutkan BAB III	• Perbaiki BAB I • Perbaiki kerangka teori • Tambahkan materi BAB II • Hapus materi yang tidak perlu • Perbaiki tabel dan bagan	27
5	Senin, 03 November 2025	Konsul BAB I, BAB II, BAB III dan BAB IV	• Perbaiki kalimat overlapping • Perbaiki kerapihan isi • Perbaiki variabel perancu	27
6	Kamis, 06 November 2025	Konsul perbaikan BAB I, BAB II, BAB III dan BAB IV	• Perbaiki definisi operasional • Perbaiki populasi dan sampel penelitian • Perbaiki hipotesis	27
7	Kamis, 13 November 2025	Konsul perbaikan BAB I, BAB II, BAB III, BAB IV	• Perbaiki cara penulisan daftar pustaka • Perbaiki penulisan kutipan • Perbanyak sumber materi	27
8	Rabu, 19 November 2025	Konsul perbaikan BAB I, BAB II, BAB III, BAB IV dan Lampiran	• Perbaiki BAB I • Perbaiki populasi dan sampel penelitian • Perbaiki hipotesis	27
9	Kamis, 27 November 2025	Konsul BAB I, BAB II, BAB III, BAB IV dan Lampiran	• ACC proposal dan lanjut ujian proposal	27
10	Rabu, 10 Juni 2026	Konsul BAB V	• Perbaiki kalimat dengan menghapus	

			kalimat yang berulang • Buat lebih terperinci lagi tentang alur penelitian	2/7
11	Kamis, 11 Juni 2026	Konsul perbaikan Alur penelitian dan tabel hasil BAB V	• Perbaiki cara penulisan • Perbaiki tabel hasil karakteristik responden • Perbaiki susunan interpretasi data dari tabel	2/7
12	Senin, 22 Juni 2026	Konsul perbaikan dan ACC skripsi	• ACC perbaikan skripsi • Persiapkan semua dokumen untuk syarat seminar hasil	2/7



Kemenkes
Poltekkes Bengkulu

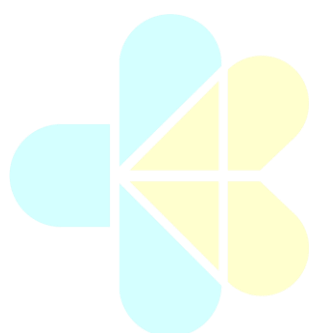
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TAHUN AJARAN 2025

Nama : Shakila Mutiara Kartini
 Nim : P01720322094
 Judul : Pengaruh *Jacobson's Progressive Muscle Relaxation* (JPMR) Terhadap *Alterations in Anxiety* pada Pasien *Cancer* yang menjalani kemoterapi di RSUD M. Yunus Bengkulu tahun 2026
 Pembimbing II : Ns. Husni, S.Kep., M.Pd.

NO	HARI/ TANGGAL	TOPIK	SARAN	PARAF PEMBIMBING
1	Jumat, 01 Agustus 2025	Konsul judul	- Cari masalah terkait penelitian yang diminati - Alasan mengenai pengambilan judul	
2	Senin, 11 Agustus 2025	Konsul judul	- ACC judul - Perbanyak referensi terkait judul yang diminati - Lakukan studi lapangan - Perbaiki Penulisan BAB I	
3	Jumat, 19 September 2025	Daftar pustaka dan BAB IV	- Perbaiki penulisan - Perbaiki latar belakang - Tambahkan sumber BAB I	
4	Rabu, 01 Oktober 2025	Konsul perbaikan BAB IV	- Perbaiki BAB I - Perbaiki kerangka teori	

		dilanjutkan BAB III	• Tambahkan materi BAB II • Hapus materi yang tidak perlu • Perbaiki tabel dan bagan	
5	Rabu, 08 Oktober 2025	Konsul BAB I, BAB II, BAB III dan BAB IV	• Perbaiki kalimat overlapping • Perbaiki kerapihan isi • Perbaiki variabel perancu • Perbaiki definisi operasional	
6	Kamis, 13 November 2025	Konsul perbaikan BAB I, BAB II, BAB III, BAB IV	• Perbaiki cara penulisan daftar pustaka • Perbaiki penulisan kutipan • Perbanyak sumber materi	
7	Senin, 01 Desember 2025	Konsul BAB I, BAB II, BAB III,, BAB IV dan Lampiran	• ACC proposal dan lanjut ujian proposal	
8	Senin, 16 Juni 2026	Konsul BAB V	• Perbaiki Tabel SPSS • Perbaiki data output SPSS • Perbaiki kalimat dengan menghapus kalimat yang berulang	
9	Selasa, 17 Juni 2026	Konsul Perbaikan BAB V	• Perbaiki susunan kalimat alur penelitian • Tambahkan jurnal untuk pembahasan dari hasil	

			interpretasi hasil SPSS	
			• Buat abstrak skripsi	
10	Kamis, 19 Juni 2026	Konsul BAB V dan VI	• Menambahkan langkah-langkah dari intervensi di alur penelitian • Perbaiki susunan tabel SPSS	GP.
11	Jumat, 20 Juni 2026	Konsul Perbaikan	• Perbaiki susunan tabel SPSS	GP.
12	Senin, 22 Juni 2026	Konsul perbaikan dan ACC skripsi	• ACC perbaikan skripsi • Siapkan dokumen untuk syarat seminar • Daftar seminar hasil	GP.



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