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## The Effect of Progressive Muscle Relaxation (PMR) Therapy on Anxiety Levels in Patient Families in the Intensive Care Unit of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City

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**Abstract** Anxiety is a collection of emotions that arise as a result of physical and emotional stress. One therapy that can overcome anxiety is Progressive Muscle Relaxation (PMR) Therapy. The purpose of this study was to determine the Effect of PMR Therapy on Anxiety Levels in Patient Families in the Intensive Care Unit. This study used a pre-experimental design. The variables in this study consisted of the independent variable Progressive Muscle Relaxation and the dependent variable the level of anxiety of the patient's family. The sampling technique was purposive sampling with a sample of 30 respondents. The instrument in this study used the Hamilton Anxiety Rating Scale (HARS) questionnaire and data analysis using the Wilcoxon test. The results of the study showed that the level of anxiety of the patient's family before being given PMR therapy was moderate anxiety as many as 25 respondents (83.3%) and mild anxiety as many as 5 respondents (16.7%). After being given PMR therapy, the level of anxiety of the patient's family was mild anxiety as many as 25 respondents (83.3%) and not anxious as many as 5 respondents (16.7%) which means that there is an effect of PMR therapy on the level of anxiety of the patient's family in the intensive care unit of Prof. Dr. Soetomo Hospital. H. Aloei Saboe Gorontalo City ( $p < 0.000$ ). This study is expected to provide input for hospitals by making PMR therapy a way to overcome anxiety in patient families or patients.

### Introduction

Intensive care is a form of inpatient care aimed at treating critical conditions of patients, or those who are deteriorating and life-threatening and must immediately require intensive, comprehensive care, and require continuous monitoring (1).

The condition of patients who are attached to devices such as ventilators, ECG (Electro Cardio Graph), catheters and other devices attached to the patient's body is the most severe stressor for the patient's family, because the family will think about the terminal condition that the patient will experience (2). When one of the family

members is sick, of course it will have an impact on the family. They will feel like they have failed in carrying out their duties and functions as a family which can cause psychological stress. One of the psychological stresses that often appears in families is anxiety (3).

Family anxiety of patients in the intensive care unit is an emotional condition characterized by feelings of worry, fear, and tension felt by family members of patients who are being treated in the intensive care unit. This often occurs because of the patient's critical condition, uncertainty of prognosis, and the intensive care unit environment which

tends to be foreign and stressful. This anxiety can affect the psychological well-being of the family, so it needs special attention in patient care management (4).

Prevalence data from WHO (2023) states that depression and anxiety are common mental disorders with the highest prevalence. More than 200 million people worldwide (3.6% of the population) suffer from anxiety. Based on data from the Ministry of Health throughout 2020, as many as 18,737 people experienced anxiety disorders in the patient's family (6).

Anxiety that occurs in the families of patients who receive intensive care can be caused by the assumption that the intensive care unit is a scary place where decision-making greatly influences the survival of their loved ones (7). The impact of anxiety will affect thoughts and motivation so that the family is unable to develop their roles and functions that support the healing and recovery process of their family members who are being treated in the intensive care unit (8).

Anxiety can be overcome by providing pharmacological and non-pharmacological interventions. Non-pharmacological therapies such as distraction techniques, deep breathing relaxation, listening to music, massage therapy, and Progressive Muscle Relaxation (PMR) therapy. Of the several non-pharmacological therapies, PMR therapy is believed to be the most effective for overcoming anxiety problems because PMR therapy is a therapy that combines deep breathing relaxation therapy with muscle tensing and relaxing activities in sequence and focuses attention on the difference in feelings experienced between when the muscles are relaxed and when the muscles are tense (9).

PMR therapy is a complementary approach used to reduce anxiety (10). PMR therapy is a method of relaxation technique that combines deep breathing exercises and a series of muscle contractions and relaxations that are very easy and practical because the movements are easy and can be done anytime and anywhere which is done by relaxing or resting the muscles, mind and mental and aims to reduce anxiety (11).

Based on the results of a preliminary study on 6 families of patients in one of the intensive care units of RSUD. Prof. Dr. H.

Aloei Saboe on August 3, 2024, researchers conducted interviews with 6 families of patients, 5 families of patients said they had difficulty sleeping and were often sad because of family members, one family said they were very sad and very worried because the patient being treated was their own child and had been undergoing treatment in the ICU for a very long time, while 1 family of patients said they already trusted the doctors and nurses in the ICU. At the time of the interview, all respondents had not received treatment and did not know how to deal with the anxiety they were experiencing.

Based on the background that has been described, researchers are interested in conducting research on the effect of PMR therapy on anxiety levels in families of patients in the intensive care unit of RS. Prof. Dr. H. Aloei Saboe, Gorontalo City.

## Method

This study was conducted at Prof. Dr. H. Aloei Saboe Regional Hospital, Gorontalo City on November 11-30, 2024. This study used a one group pre-test - post-test design. The sampling technique in this study used Purposive sampling with a population of 41 respondents and for the sample in this study as many as 30 families of patients treated in the intensive care unit. The instrument in this study used a questionnaire.

## Results

### Research Result

Table 1. Results of Univariate Analysis of Respondent Frequency Distribution Based on the Level of Anxiety of Patient Families Before Being Given PMR Therapy

Pre-Test	Frequenc y (N)	Presentatio n (%)
Mild Anxiety	5	16.7
Moderatel y Anxiety	25	83.3
<b>Total</b>	<b>30</b>	<b>100</b>

Source : Primary Data, 2024

Table 2. Results of Univariate Analysis of Respondent Frequency Distribution Based on the Level of Anxiety of Patient Families After Being Given PMR Therapy

Post-Test	Frequency (n)	Presentation (%)
Not Anxiety	5	16.7
Mild Anxiety	25	83.3
<b>Total</b>	<b>30</b>	<b>100</b>

Source : Primary Data, 2024

Tabel 3. The Effect of PMR Therapy on the Anxiety Level of Patient Families in the Intensive Care Unit.

Variable	Category	n	Mean	Median
Patient Family Anxiety Level	Before	30	23.07	23.50
	After	30	14.03	14.00
	<b>Difference</b>		<b>9.04</b>	<b>9.5</b>

Source : Data SPSS Versi 26

## Discussion

### Level of Anxiety of Patient's Family Before Being Given PMR Therapy

Based on the results of the study, it was found that before being given PMR therapy to 30 respondents in the intensive care room of Prof. Dr. H. Aloei Saboe Hospital, 25 respondents experienced moderate anxiety. This is based on the results of filling out the HARS questionnaire from 25 respondents who experienced moderate anxiety, there were 18 respondents who answered that they felt more than half of the symptoms of anxiety that the respondents experienced, namely feelings of anxiety or restlessness, having a bad feeling, and being afraid of their own thoughts. This is in accordance with the theory put forward by Peplau in (11) that moderate anxiety is a psychological condition characterized by selective attention, where individuals are able to focus on important things while ignoring others. Physical symptoms include shortness of breath, increased heart rate, and restlessness, while cognitive symptoms include difficulty concentrating, having a bad feeling and feeling afraid of their own thoughts.

Based on the results of the study, the anxiety of respondents in the intensive care unit was reviewed from the signs and symptoms of feelings of tension, such as feeling tense, lethargic, unable to rest peacefully, restless, crying easily and trembling. This is based on the results of filling out the HARS questionnaire from 25 respondents who experienced moderate anxiety, there were 17 respondents who answered that they felt half the symptoms of feelings of tension such as restlessness, unable to rest peacefully, and feeling lethargic. The theory of Lazarus and Folkman in (12) states

that the patient's family faces pressure because they have no control over the patient's situation, so the body reacts with

tension and anxiety. One of the factors influencing anxiety is the age of the respondents. The results of this study showed that the respondents aged 26-35 years (early adulthood) experienced the

most moderate anxiety, amounting to 12 respondents. This is in accordance with the opinion expressed by (14), who stated that early adulthood often experiences higher anxiety, due to lack of experience and mental readiness. Conversely, older ages tend to experience lower anxiety, due to emotional maturity and better life experience in dealing with stress. The age factor of the patient also affects the anxiety of the respondents. The results of this study showed that the respondents who experienced anxiety were those who took care of patients aged 0-5 years (Toddlers) amounting to 11 respondents, and most of them experienced moderate anxiety, amounting to 8 respondents. This is in accordance with the opinion of Imardiani., (2020) that families who take care of young patients aged 0-25 years (Toddlers-Early Adults) tend to be more anxious because families often hope that young patients have a greater chance of recovery so that critical situations in the intensive care unit feel more surprising. In addition, families of young patients often have future responsibilities (education, work, or family) which add to the family's anxiety burden.

In the results of this study, it was also found that the respondents' anxiety affected their sleep patterns. This is based on the results of filling out the HARS questionnaire from 25 respondents who experienced moderate

anxiety, there were 22 respondents who felt half of the symptoms that affected their sleep patterns such as difficulty starting to sleep, often waking up at night, not sleeping well and waking up feeling lethargic. One of the factors that influences their anxiety is gender. From the results of this study, it was found that the most respondents who experienced moderate anxiety were female respondents, as many as 21 respondents. This is in line with the opinion put forward by (15), that gender affects the anxiety of the patient's family, especially in women. Women tend to experience higher levels of anxiety than men. This is due to hormonal factors, where the hormone estrogen in women can increase the emotional response to stress and anxiety. In addition, women are more likely to suppress emotions and experience mood disorders, which can disrupt their sleep patterns. In contrast, men usually have better coping mechanisms and tend to respond to stress in a more adaptive way.

Based on the results of the study, it was also found that anxiety experienced by the patient's family affects heart and blood vessel symptoms. This is based on respondents who answered the HARS questionnaire from 25 respondents who experienced moderate anxiety, there were 15 respondents who answered that they felt half of the heart and blood vessel symptoms such as a fast heartbeat, palpitations, and chest pain. Another factor that influences their anxiety is work. The results of this study found that 15 respondents worked as housewives. This is in accordance with the opinion put forward by (16) showing that housewives often face high emotional stress and responsibility in caring for family members, which can increase anxiety. Limited access to information and social support also worsens the situation, making housewives more susceptible to physical symptoms such as chest pain or palpitations. In addition, the financial burden due to health care can increase anxiety, especially if the housewife does not have a steady source of income to support

Based on the results of the study, previous studies, and existing theories, the researcher assumes that before being given PMR therapy, the level of anxiety of the patient's family in the intensive care unit of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City is in the range of mild to moderate

anxiety. This is supported by the presence of signs and symptoms of mild to moderate anxiety, feelings of anxiety, tension, difficulty starting sleep, rapid heartbeat, and loss of interest as measured using several indicators on the HARS anxiety scale. This condition is influenced by several factors including age, gender, occupation, and relationship with the patient.

### **Anxiety Level of Patient Families After Being Given PMR Therapy**

Based on the results of the study, it was found that after being given PMR therapy to 30 patient families in the intensive care unit of Prof. Dr. H. Aloei Saboe Hospital, 25 respondents experienced mild anxiety. This is based on the results of filling out the HARS questionnaire from 25 respondents who experienced mild anxiety after being given PMR therapy, there were 24 respondents who answered that they felt a decrease in symptoms of anxiety, a decrease in negative thoughts, and an increase in the ability to deal with difficult situations. This is in accordance with the theory put forward by Jacobson in (19), when the body's muscles relax, the nervous system sends signals to the brain to reduce stress and anxiety levels. This creates a positive cycle between physical and mental relaxation. This theory is in line with the results of research conducted by (20) with the results of the study showing that Progressive Muscle Relaxation (PMR) therapy is effective in reducing the level of anxiety of patient families from moderate to mild on the HARS anxiety indicator. Before the intervention, many respondents were in the moderate anxiety category, but after being given PMR therapy, the anxiety score dropped significantly. In one study, the average anxiety score of respondents before PMR was 2.24, while after therapy it dropped to 1.50, with a p-value of 0.000 indicating significant results. From the results of the study, there was a change in the level of anxiety in the families of patients in the intensive care unit of RSUD. Prof. Dr. H. Aloei Saboe, Gorontalo City.

In this study, before the researcher provided PMR therapy to the respondents, the first stage that the researcher did was to identify the level of anxiety of the respondents using the Hamilton Anxiety Rating Scale (HARS) anxiety level measurement scale, after

which the researcher entered the second stage, namely providing therapy preceded by providing deep breathing relaxation exercises which are also the initial stage of providing PMR therapy. Providing deep breathing relaxation exercises aims to make respondents feel calmer and able to control increasing emotions. Deep breathing relaxation that is done properly can stimulate the body to release endorphin hormones which can then provide comfort. Research conducted by (21) stated that deep breathing relaxation therapy is effective in reducing anxiety by increasing lung ventilation and blood oxygenation, which has an impact on reducing emotional tension. This is also in line with research conducted by (22) which states that deep breathing relaxation therapy is a breathing technique that aims to reduce stress and improve mental health. With a breathing frequency of 10 times per minute, this technique helps lower blood pressure, reduce anxiety, and increase lung ventilation. The steps include creating a calm environment, taking a deep breath through the nose, holding the breath for a moment, and exhaling slowly through the mouth. This therapy is effective in relaxing muscles and improving overall well-being.

The next stage is the provision of PMR therapy consisting of 11 muscle movement exercises including forehead and eye muscle movement exercises, cheek muscle movement exercises, mouth and jaw muscle movement exercises, neck and nape muscle movement exercises, shoulder muscle movement exercises, arm muscle movement exercises, chest muscle movement exercises, abdominal muscle movement exercises, back muscle movement exercises, buttocks muscle movement exercises, leg muscle movement exercises, by paying attention to individual conditions, the environment so that it remains comfortable and safe for respondents. According to research conducted by (23) where the sympathetic and parasympathetic nerves work in opposition to each other, when the muscles are relaxed, they can normalize the functions of the body's organs. In addition, this PMR therapy movement can stimulate the release of endorphin hormones which provide a sense of happiness and comfort to the body. This hormone can function as a natural sedative produced in the brain and spinal cord. This opinion is in line with the findings of a

study conducted by (24) that after progressive muscle relaxation therapy was carried out, there was a decrease in anxiety with the criteria of moderate anxiety as many as (70%) respondents, a small portion had no anxiety as many as 1 (10%) respondents, and other anxiety as many as 3 (30%) respondents.

### **The Effect of PMR Therapy on the Level of Anxiety of Patient Families in the Intensive Care Unit of Prof. Dr. Aloei Saboe Hospital**

Based on the results of the Wilcoxon Signed Ranked Test, a p value of 0.000 ( $p < 0.05$ ) was obtained. These results indicate that there is an effect of Progressive Muscle Relaxation therapy on the level of anxiety of patient families in the intensive care unit of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City. After being given PMR therapy, the results showed that 30 respondents had an average level of anxiety before being given therapy of 23.97 (95% CI = 21.95-24.18) with a standard deviation of 2.993 and after being given PMR therapy, the average level of anxiety was 14.03 (95% CI = 13.16-14.91) with a standard deviation of 2.341. Thus, the difference in the average value of the mean level of anxiety of patient families before and after being given PMR therapy was 9.04. In this study, anxiety level measurements were carried out three times, namely before being given PMR therapy, after being given PMR therapy on the first day and after being given PMR therapy on the second day. Before being given PMR therapy, the average mean value was obtained, namely 23.07, the average mean value after being given PMR therapy on the first day was 18.73, and the average mean value after being given PMR therapy on the second day was 14.03. From these results, the difference in the average mean value between the anxiety level of the patient's family before being given PMR therapy and after being given therapy on the first day was 4.34, while a significant difference was seen in the average mean value before being given PMR therapy and after being given PMR therapy on the second day, namely 9.04.

There are several factors that support the decrease in the level of anxiety experienced by the patient's family after being given PMR therapy, namely the intensity of the application of PMR therapy. PMR therapy, if carried out routinely, can reduce the anxiety

experienced by the patient's family. This is what underlies the researcher to take data on the second day's post-test because in the first post-test there was no significant decrease in the level of anxiety. There was a decrease only in the form of a score but there was no decrease in terms of categorization. From the results of the interview on the second day, as many as 5 respondents who were no longer experiencing anxiety often did PMR therapy after taking care of patients. This is in line with research conducted by (25) which states that Progressive Muscle Relaxation (PMR) Therapy can reduce anxiety if done routinely. Research shows that PMR is effective in reducing anxiety, especially in patients experiencing psychological stress, such as pre-operative patients and stroke patients. Routinely doing PMR for 30 minutes every day can increase relaxation and reduce anxiety levels significantly. With consistent repetition, its positive effects on mental health can increase, making it a non-pharmacological therapy that is useful for reducing anxiety.

The results of this study are in line with the results of (26) entitled "The Effect of Progressive Muscle Relaxation on the Anxiety Level of Patient Families in the ICU Room of Ulin Banjarmasin Hospital" with the results that there is a difference between the level of anxiety of patient families in the ICU with the provision of progressive muscle relaxation therapy using the Mann Withney test with a sig. value of 0.001 ( $p < 0.05$ ) which states that there is a difference between the level of family anxiety in the control group and the intervention group in the ICU of Ulin Banjarmasin Hospital. Another study that is also in line is the study conducted by (27) entitled "Combination of Progressive Muscle Relaxation and Autogenic Exercise on the Anxiety of Families of Patients Undergoing Intensive Care: Quasi-Experimental Research with a Controlled Group" with the results of the study showing that the combination of progressive muscle relaxation and autogenic exercise has an effect on reducing family anxiety, and statistically the difference in the average anxiety in the intervention group and the control group is 14.5 with a P value of 0.000.

PMR therapy is to prevent the formation of anxiety responses, especially in the nervous system and hormones. Ultimately,

progressive muscle relaxation techniques can help prevent and minimize physical symptoms due to anxiety when the body is overworked. PMR therapy is a self-management technique based on how the sympathetic and parasympathetic nervous systems work, in addition, when the muscles are relaxed, it will normalize the functions of the body's organs against the disease suffered. After someone does relaxation, it can help their body relax, thereby improving aspects of their physical and psychological health (27). This is in accordance with the theory that PMR therapy can reduce anxiety levels in a person because PMR therapy has a calming and relaxing effect on the body. So that the use of PMR therapy can be applied because it is easy to do, this relaxation only involves the muscle system without the need for other tools and can be done when resting, so it is easy to do at any time (28).

## **Conclusion**

Based on the results of the study, it was concluded that the level of anxiety of the patient's family before being given PMR therapy, most respondents experienced moderate anxiety, namely 25 respondents (83.3%) and those who experienced mild anxiety were 5 respondents (16.7%). The level of anxiety of the patient's family after being given PMR therapy, most respondents experienced mild anxiety, namely 26 respondents (86.7%) and those who were not anxious were 4 respondents (13.3%). From the results of data analysis with the Wilcoxon test using the SPSS version 26 program, the p-value (0.000) was obtained which was smaller than  $\alpha = 0.05$  or p-value  $< \alpha$  value so that it can be concluded that H1 is accepted, meaning that there is an Effect of PMR Therapy on the Level of Anxiety of Patient Families in the Intensive Care Unit of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City.

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