

Progressive Muscle Relaxation as an Effort in Reducing Anxiety for Patients with Asthma Attacks

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Abstract: Anxiety occurs in a patient with acute asthma, worsens the symptoms and the conditions and can be at risk of death if not well controlled. The Progressive Muscle Relaxation (PMR) technique reduces anxiety levels in asthmatics patients. This study aimed to analyze the effect of giving PMR on the anxiety level of asthma patients in the Emergency Room (ER). **Methods:** This quantitative study uses a pre-experimental design with a group pretest-posttest. Samples were obtained through the purposive sampling of 26 adult patients who experienced acute asthma attacks and came to the ER. The instrument used was a Beck Inventory Anxiety (BAI) questionnaire, and the study was analyzed with the Wilcoxon Signed Rank Test. **Results:** A pre-test intervention found that 46.15% of patients experienced severe anxiety, 46.15% with moderate anxiety, and 7.69% with mild anxiety. After being given the intervention, it changed to 57.69% of patients experienced mild anxiety, 42.31% with moderate anxiety, and none experienced severe anxiety. PMR reduced the anxiety level of asthma attack patients with a p-value of 0.001 (p-value <0.05) and a Z-value of -4.134. **Conclusion:** PMR can be given as an effort to reduce the anxiety level of patients experiencing asthma attacks. Further research with larger samples is recommended.

Keywords: Anxiety Level, Asthma Attack, Emergency, Progressive Muscle Relaxation (PMR)

INTRODUCTION

Asthma is a condition of shortness of breath due to excessive activity from several stimuli that cause inflammation and narrowing of the airways that supply oxygen to the lungs and chest cavity (Hallett, 2018). In Indonesia, asthma is one of the top ten disease causes of death. According to WHO (2018), the prevalence of asthma in Indonesia is 2.4 percent consisting of 56.1% of men and 43.9% of women. According to the Sukoharjo District Health Office, cases of asthma in Sukoharjo in 2018 were recorded at 7,376 cases, with details of 3,291 cases (44.62%) in primary health centers and 4,085 cases (55.38%) in hospitals.

According to Platini et.al. (2018), asthma management usually uses the pharmacological action of drugs with inhalers, however the pharmacological actions of drugs and inhalers are not sufficient for asthma patients as they face it chronically. In addition, Anisah (2021) stated that psychosocial treatment is less in the spotlight in the treatment of patients in hospitals, even though psychosocial influences patient outcomes. Several research show that complementary therapies and respiratory self-management include the upright Sitting Position or the Upright Sitting Posture (USP), Pursed Lips Breathing (PLB), and Progressive Muscle Relaxation (PMR) reduce spasms in asthmatic patients (Mohamed, 2018). Asthma management is to control asthma symptoms well, minimize the risk of death, prevent disease exacerbations, deal with prolonged restricted airflow, and minimize the side effects of long-term medication (GINA, 2019).

The PMR is a technique to relax muscles that are done by stretching the muscles and being able to relax them (Tsitsi, Charalambous, & Papastavrou, 2017). According to Yilmaz & Kapucu, (2017) progressive relaxation exercises are applied to reduce dyspnea, fatigue, and sleep disturbances in patients with moderate and advanced chronic obstructive pulmonary disease (COPD). Patients with

COPD who use PMR have less fatigue. Reduction of fatigue in asthmatics with regular PMR improves respiratory function, oxygen saturation, and sleep quality, decreases severe dyspnea, anxiety, and depression, lowers stress levels, and reduces physical and mental stress by ensuring skeletal muscle relaxation with an obstructive effect on sympathetic nerves. According to George (2018), PMR is an effective way to relax and reduce anxiety levels, reduce muscle tension, neck pain, and back pain. Conversely, if asthmatics do not perform PMR, the patient will experience anxiety which can stimulate the sympathetic nerves such as muscle tension, increased pulse rate, and the onset of respiration (Manurung, 2016).

Based on a one-week preliminary study in the ER, several patients reported that they already knew about several respiratory therapies that had been applied at home, but this therapy was not felt to relieve anxiety when an asthma attack occurred. Their asthma symptoms got worse and required hospital treatment. In addition, patients do not know that there is PMR therapy can be used to treat mild asthma attacks at home. This study aimed to determine the effectiveness of PMR therapy in the management of anxiety in patients who are experiencing asthma attacks in the ER.

METHOD

The research was a pre-experimental study with a one-group pretest-posttest design. Samples were obtained through the purposive sampling of 26 adult patients. The criteria for the sample were adult patients with full consciousness who came to the ER with an asthmatic attack. The patients were assessed their vital sign and after arrival they been given a sitting position (90°), oxygenation on arrival, and pursed lips breathing (PLB). After 10 minutes arrival, they were given the PMR procedure for 10 minutes. Only patients who signed the informed consent were included in the sample. Patients with decreased consciousness and worsening condition were being excluded.

This study uses the Beck Anxiety Inventory (BAI) questionnaire which is a valid instrument with a value of $r = 0.51$, and reliable with Cronbach's $\alpha = 0.92$. The BAI questionnaire was designed by Beck et al. (1988) and consisted of 21 items on a 4-point Likert scale, including ratings: not at all (0), mild: not too bothersome (1), moderate: sometimes unpleasant (2), and severe: very annoying (3). Interpretation of the questionnaire into three categories, namely mild anxiety (score 0 - 21), moderate anxiety (score 21 - 35), and severe anxiety (score > 36). Data analysis in this study used an univariate test to determine the percentage of respondents' characteristics, and the mean of respondents' anxiety before and after being given the PMR. Normality test with Kolmogorov-Smirnov was used in this study. Then, the data were analyzed with the Wilcoxon Signed-Rank Test because the distribution was not normal.

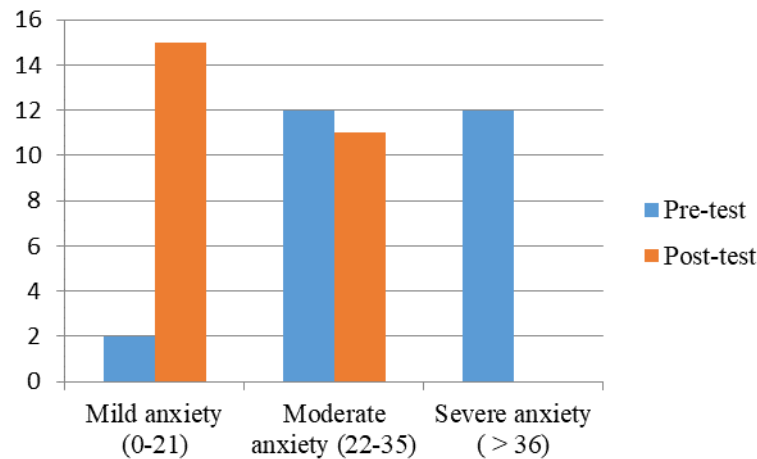
RESULTS

This study involved 26 respondents. Most of respondents were in the age range of 60-74 years with 42.3%, and 61.5% of the total respondents were female (Table 1).

Table 1. Characteristic of Respondents (N = 26)

No	Characteristic	Frequency (f)	Percentage (%)
Gender			
1	Male	10	38.5
	Female	16	61.5
Age (Years old)			
2	Pre adult (26 – 35)	5	19.2
	Late adult (36 – 45)	5	19.2
	Middle adult (46 – 59)	3	11.5
	Elderly (60 – 74)	11	42.3
	Late elderly (75 – 90)	2	7.7

The results of the pre-test of 26 respondents showed differences in the patient's level of anxiety during an asthma attack. Of the total respondents, 46.15% of patients experienced moderate anxiety and 46.15% experienced severe anxiety, and only 7.69% of patients experienced mild anxiety. After being given PMR for about 10 minutes, the respondent's anxiety changed. There were 42.31% experienced moderate anxiety, 57.69% patients experienced mild anxiety, while no patient experienced severe anxiety (Figure 1).



Picture 1. The result of asthma patients' anxiety levels between pre-test and post-test

The results of Wilcoxon signed-rank test showed significant results with p-value 0.001 and Z-value -4.134. The p-value indicates that there is a significant difference between the pre-test and post-test after PMR was performed in patients with acute asthma attacks. Meanwhile, a negative Z value indicates that PMR therapy has succeeded in reducing the anxiety level of asthma attack (Table 2).

Table 2. Wilcoxon Signed-Rank Test Results

No	Group	Minimum	Maximum	Mean	Std. Deviation	p-value ± Z-value
1	Pre-test	22	49	33.62	6.753	
2	Post-test	7	32	18.50	6.439	0.001 ± -4.134*

*significant p-value < 0.05; CI: 95%

DISCUSSION

The findings of this study are relevant to Dursun et al. (2015), who stated that the prevalence of asthma is more common in women than men. Decreased immune due to reduced hormone function in women is considered to be a factor that triggers the occurrence of asthma in women. If the role of the hormone estrogen is disturbed, it will affect the body's growth and development of immunity. Changes in hormone levels in women are usually associated with the time when women are menstruating. Women still experiencing menstruation are traditionally more prone to asthma attacks due to a more sensitive and unstable immune system (Fuseini & Newcomb, 2017; Koper, Hufnagl, & Ehmann, 2017).

Progressive Muscle Relaxation (PMR) has effectively reduced anxiety levels and improved sleep quality in Covid-19 patients (Liu et al., 2020). In addition, PMR has been successfully used to reduce anxiety levels in patients with prostate cancer (Isa et al., 2013) and reduce anxiety levels in CHF patients (Sulastini et al., 2019). The findings of this study are relevant to Georga (2019) who stated that PMR reduces stress caused by asthma.

The success of PMR in this study was also supported by the provision of other therapies before PMR was given, such as the sitting position, oxygenation, and PLB therapy. Setyohadi dan Kushriyadi

(2011) stated that the PMR technique reduces muscle tension, anxiety, neck and back pain, high blood pressure, and heart rate and controls metabolic rate. In addition, according to Essa et al. (2017), the decrease in anxiety levels could be due to the effect of PMR in lowering stress hormone activity, increasing blood flow to the body's muscles, reducing muscle tension, reducing chronic pain, increasing concentration and mood, reducing fatigue, and reducing anger and frustration. Kirthika (2018) and Mustafa (2019) also recommend PMR as an effective way to relax and reduce anxiety. This study involved only a small sample size and came from one hospital and not all clinical conditions are restricted.

CONCLUSION

Progressive muscle relaxation (PMR) techniques given after sitting position, oxygenation, and pursed lips breathing have reduced anxiety levels in patients with asthma attacks. PMR can be an option for reducing patient anxiety. Therefore it allows the patient's condition not to worsen and reduces mortality. Further research with a larger sample size is recommended to make the results more generalizable.

ACKNOWLEDGMENT

We express our deepest gratitude for the support of LPMPP UMS and the School of Nursing, Faculty of Health Sciences UMS, who have provided funds and permits to carry out this research. We also appreciate RSUD Ir Soekarno Sukoharjo, who has permitted this research can be carried out. We also thank Riska Cahyani Zahra for supporting administratively in this research.

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