

Journal Educational of Nursing (JEN)

Vol. 8 No. 1 – January – June 2025; page 34-42

p-ISSN: 2655-2418; e-ISSN: 2655-7630

journal homepage: <https://ejournal.akperrspadjakarta.ac.id>

DOI : [10.37430/jen.v8i1.251](https://doi.org/10.37430/jen.v8i1.251)

Article history:

Received: June 7th, 2025

Revised: June 9th, 2025

Accepted: June 12nd, 2025

The Effect of Progressive Muscle Relaxation on Anxiety Levels Facing Labor in Pregnant Women in the Third Trimester

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Abstract

Anxiety is one of the psychological disorders that can occur among third-trimester pregnant. Progressive muscle relaxation therapy represents a potential intervention for alleviating anxiety. This research aimed to determine the impact of this therapy on anxiety levels in expectant mothers in the third trimester. This study is a pre-experimental study with a one-group pre and post- test design. The sample used was 28 pregnant women in the third trimester chosen through a purposive sampling technique. The variables studied were anxiety level in facing childbirth and progressive muscle relaxation. The measuring instruments used were the SOP progressive muscle relaxation and the Perinatal Anxiety Screening Scale (PASS) questionnaire. The hypothesis test used was Wilcoxon in IBM SPSS Statistic 26. Prior to the intervention, the majority of respondents (71.4%, n=20) reported experiencing moderate anxiety. Following the intervention, a substantial shift was observed, with nearly all respondents (89.3%, n=25) exhibiting mild anxiety. There was a decrease in anxiety scores from 24.61 to 15.5. Based on the Wilcoxon analysis, there was an effect of progressive muscle relaxation on anxiety in facing childbirth with an Asymp. Sig. (2-tailed) value of 0.000 (<0.05). The efficacy of progressive muscle relaxation in alleviating childbirth-related anxiety among pregnant women has been conclusively demonstrated. Each progressive muscle relaxation movement provides a relaxing effect on every muscle in the body. Pregnant women can apply this therapy independently to reduce anxiety.

Keywords: Progressive muscle relaxation, anxiety, pregnant women in the third trimester.

Introduction

Anxiety is a mental condition filled with feelings of worry and fear about what may happen or what has not yet occurred. Anxiety is one of the psychological disorders that can occur in pregnant women in the third trimester. They will feel increasingly worried about their health and condition; they worry that the baby may be born at any moment in a non-normal condition and that something

might happen to the baby. Third-trimester anxiety in expectant mothers is generally characterized by a tripartite structure, comprising: fear of the birthing process itself, worry about potential fetal abnormalities, and anxieties about changes in personal appearance [1]. Pregnant women in the third trimester indicate that the delivery day is getting closer; they will prepare for all necessities and sometimes think about the

possibilities that may occur. This condition can also increase the anxiety of pregnant women in the third trimester [2].

The World Health Organization (WHO) states that about 13% of pregnant women experience anxiety worldwide, with higher rates in developing countries at 15.6%. In Indonesia, approximately 28.7% of pregnant women experience anxiety when facing the childbirth process [3]. In East Java, it is shown that 31.4% of pregnant women experience severe anxiety, 12.9% experience moderate anxiety. The rest of the pregnant population in the region is free from anxiety or is in a normal state [4].

Based on preliminary study conducted in early December 2023 in the Work Area of the Mojopanggung Health Center in Banyuwangi, samples were obtained from 10 pregnant mothers in their third trimester. The interview results showed that 7 pregnant mothers experienced moderate anxiety and 3 pregnant mothers experienced mild anxiety when facing the delivery process. The preliminary study can be concluded that a majority of third-trimester pregnant mothers experience anxiety, with a percentage of 70%.

Some research findings also indicate the presence of a relationship that becomes a factor causing anxiety in pregnant women in the third trimester, namely age, education, employment, parity, obstetric status, gestational age, family support, health behavior, ANC history, and husband support [5].

Efforts to address anxiety in pregnant mothers include practicing relaxation techniques. One of the relaxation techniques used is progressive muscle relaxation, which is performed by tensing and then relaxing the muscles, focusing on each muscle group. During relaxation, there will be a decrease in physical responses such as a reduction in pulse, heart rate, and respiration, followed by a more even distribution of blood flow,

leading to smoother circulation which can help reduce anxiety [6].

Method

The research conducted from August 1 to September 1 in the work area of the Mojopanggung Health Center, Banyuwangi, is a pre-experimental study with a one-group pre-test and post-test design. The sample in this study consisted of 28 third-trimester pregnant women who were selected through purposive sampling and met the inclusion criteria: willing to be respondents.

The exclusion criteria included third-trimester pregnant women with pregnancy complications such as preeclampsia, antepartum hemorrhage, and general weakness. The research instrument used a Perinatal Anxiety Screening Scale (PASS) questionnaire. The PASS questionnaire used is a standardized questionnaire and serves as a valid and reliable measurement tool for anxiety in pregnant women. The validity of the Perinatal Anxiety Screening Scale instrument is indicated by a Cronbach's Alpha value of $0.95 > 0.05$ [7].

Data collection was conducted door-to-door at the respondents' homes, where the researcher provided informed consent, and if the respondents agreed, they were given the PASS questionnaire to measure anxiety levels before undergoing progressive muscle relaxation. The intervention was carried out with a duration of 30 minutes and a frequency of application once over 3 days. After 3 days, the PASS questionnaire was provided again to measure anxiety levels after the intervention. The collected data was analyzed using the Wilcoxon test. This study has passed ethical review by the Health Research Ethics Committee of STIKes Banyuwangi No. 317/01/KepK-STIKesBWI/VII/2024, dated July 29, 2024.

Results and Discussion

Result

Table 1 Characteristics of The Respondents (n= 28)

Characteristics	n	%
Age		
<20 years	2	7
20-35 years	26	93
>35 years	0	0
Education		
Low	0	0
Medium	25	89
High	3	11
Job		
Working	10	36
Not Working	18	64
Parity		
Primigravida	15	54
Multigravida	13	46
Grandemultigravida	0	0
ANC Frequency		
2x	7	25
3x	6	21
4x	7	25
5x	5	19
6x	3	10

Source: Primary Data 2024

The majority of the research respondents are women of productive age (20-35 years) with secondary education, mostly unemployed, and with pregnancy status either primigravida or multigravida with a diverse frequency distribution of ANC, yet the majority made at least 2

ANC visits during their pregnancy. These characteristics are important to consider in the interpretation of the research results, especially in the context of progressive muscle relaxation interventions and anxiety levels facing childbirth.

Table 2. The level of anxiety in facing childbirth of respondents before and after being given progressive muscle relaxation (n=28)

Anxiety	Mild		Moderate		Severe		p-value
	n	%	n	%	n	%	
Before the intervention	8	29	20	71	0	0	0,000
After the intervention	25	89	3	11	0	0	

Source: Primary Data 2024

Before the progressive muscle relaxation (PMR) intervention was given, prior to the intervention, most respondents (71%, n=20) reported experiencing moderate anxiety. Following the intervention, a significant shift was

observed, with almost all respondents (89%, n=25) exhibiting mild anxiety. The Wilcoxon test indicated a p-value of 0.000 < 0.05, indicating the administration of the progressive muscle relaxation intervention is significantly effective in

reducing anxiety levels among pregnant women preparing for childbirth.

Discussion

The Wilcoxon analysis test show that the negative ranks value is 26, which means that out of 28 respondents, 26 respondents (92.8%) experienced a decrease in anxiety scores from pre-test to post-test. The positive ranks value is 1, meaning that out only one respondent (3.6% of 28 participants) experienced an increase in anxiety scores from pre-test to post-test, while another single respondent (3.6%) showed no change. With an Asymp. Sig. (2-tailed) value of 0.000 ($p < 0.05$), the study's hypothesis is accepted. This indicates a significant effect of progressive muscle relaxation on reducing anxiety levels in third-trimester pregnant women facing childbirth within the Mojopanggung Community Health Center's service area in Banyuwangi.

Anxiety in pregnant women during the third trimester is a reaction of the pregnant mother to changes in herself and her environment that brings feelings of displeasure or discomfort caused by the assumption of danger or frustration that threatens or jeopardizes the sense of safety, balance, or life of an individual or their social group. The anxiety experienced by pregnant women is caused by an increase in the production of the hormone progesterone. An increase in progesterone concentration directly impacts the psychological well-being of pregnant women. This hormonal shift is associated with both the onset of anxiety and the development of mood disturbances, which frequently manifest as pronounced fatigue [8]. Anxiety in pregnant women during the third trimester is manifested as fear during pregnancy regarding the occurrence of miscarriage, anxiety about fetal abnormalities, and concern about not being able to be a good mother. This feeling of anxiety increases as the labor process approaches, because

pregnant women fear they will not be able to endure the pain during labor [9].

In this study, the anxiety level of the respondents decreased from moderate to mild category. The decrease in anxiety levels is due to progressive muscle relaxation being able to provide a relaxing effect on the respondents' psychological condition. Pregnant women who regularly practice progressive muscle relaxation will experience a significant reduction in anxiety. All respondents participated in the progressive muscle relaxation process regularly, with a total of 3 sessions, each lasting 30 minutes. During the therapy process, pregnant women are asked to carefully follow and fully engage in the movements of progressive muscle relaxation so that the effects can truly be felt.

This study's findings regarding the efficacy of progressive muscle relaxation in mitigating childbirth-related anxiety are well-supported by previous research. Mulyati et al. (2021) similarly concluded that progressive muscle relaxation effectively reduces anxiety in pregnant women during their third trimester as they approach labor [10]. Complementary to this, the work of Putra et al. (2022) also indicated that providing progressive muscle relaxation influences a reduction in anxiety levels among third-trimester pregnant women preparing for childbirth. Similar research was also conducted by Qodri (2022), which indicated that the application of progressive muscle relaxation can reduce anxiety in pregnant women. Each movement of progressive muscle relaxation provides a relaxing effect for pregnant women so that the feeling of anxiety can be alleviated [6].

Progressive muscle relaxation can be performed to reduce anxiety levels, as the emphasis on the sympathetic nerves can alleviate tension felt by pregnant women, which can lower tension and anxiety. The practice of progressive muscle relaxation

induces a tranquilizing effect on the body, characterized by feelings of lightness and widespread warmth. This therapeutic technique prompts a physiological change, shifting the body's autonomic nervous system from sympathetic dominance to parasympathetic dominance. In this parasympathetic state, there is a decrease in the excessive release of catecholamines and cortisol, coupled with an increase in beneficial parasympathetic hormones and neurotransmitters, including DHEA, dopamine, and endorphins. This rebalancing of the nervous system is crucial for achieving a calming effect and diminishing anxiety in pregnant women [3].

Factors that influence anxiety in pregnant women in the third trimester include age, education level, the mother's occupation, gestational age, parity, frequency of ANC during the third trimester, and family support during pregnancy [11]. Younger pregnant mothers are more vulnerable to experiencing anxiety than older pregnant mothers. In this study, there are 2 pregnant mothers aged under 20 years who experience moderate anxiety. Anxiety can be observed from various psychological and physiological aspects felt by pregnant mother ([12]). A pregnant mother's experience of anxiety is contingent upon a range of interconnected factors, including her personal maturity, her comprehension and approach to challenges, her self-esteem, the extent of family support and social support networks, her developed coping mechanisms, and her inherent defense mechanisms for managing anxiety. Pregnant mothers who are relatively young tend to easily experience anxiety because they feel experiences between life and death and are anxious about the health condition of their fetus. As the age of the pregnant mother increases, her

reactions and expressions toward pain increase.

A pregnant woman's educational attainment can influence her anxiety levels during pregnancy, particularly in the third trimester. A study found that nearly all 25 respondents, who predominantly had a secondary education, exhibited moderate anxiety. The last educational level of pregnant women is related to the anxiety they experience ([13]) Education level affects the mother's ability to digest and absorb new information, which can influence the formation of attitudes and knowledge in the pregnant mother. Adequate knowledge of pregnant women can help them obtain extensive information about pregnancy and the changes experienced during pregnancy, thereby allowing mothers to feel calm in facing pregnancy.

The educational level of mothers indirectly affects the frequency of Antenatal Care (ANC) visits during pregnancy, especially in the third trimester. A study by [14] shows that there is a significant relationship between anxiety and ANC visits. Antenatal care is one of the activities that connects pregnant women with health workers, where it is expected that this service is provided in a quality manner and according to standards. Pregnant women should have ANC at least 6 times during their pregnancy, with at least 2 visits in each trimester. This frequency of ANC corresponds to this finding. By understanding the health conditions of pregnant women through ANC, it is hoped that it can enhance the physiological preparedness of mothers as they approach labor. The more mothers are educated through ANC visits, the lower anxiety level they experience when facing childbirth.

Maternal employment status significantly influences anxiety levels during pregnancy. Research by Halil

(2023) indicates a notable association, revealing that pregnant women who are primarily homemakers tend to experience greater anxiety compared to those employed outside the home. This disparity may stem from working mothers' enhanced opportunities for knowledge acquisition, which can foster a sense of calmness. Furthermore, external employment exposes individuals to diverse social interactions and environmental stimuli, providing different information and experiences that can positively reshape their perspectives on managing and coping with anxiety, a benefit less accessible to pregnant women who remain at home.

Parity is related to the anxiety levels of mothers, especially primigravida mothers. Research conducted by [15] shows that parity is linked to the anxiety levels of pregnant mothers, particularly for those who are primigravida. The anxiety among third-trimester primigravida mothers is greater than that experienced by mothers who have given birth before. The anxiety in first-time pregnant mothers or primigravida is largely caused by their fears about frightening events that may occur as they approach childbirth. Primigravida mothers experience anxiety and fear regarding several things that they have not yet done and feel anxious about the possibility of unwanted events during pregnancy until the childbirth process. The anxiety in primigravida mothers differs from that of multigravida mothers, as multigravida mothers have prior childbirth experience.

Based on the research results and existing theories, progressive muscle relaxation is capable of reducing muscle tension and also able to decrease anxiety, making the body more relaxed. When in a relaxed condition, blood flow will be evenly distributed, resulting in smooth blood circulation. Physical relaxation will

also lead to psychological relaxation, which can lower the anxiety level faced during childbirth in third-trimester.

Conclusions

Based on the available research results, progressive muscle relaxation (PMR) has been shown to be effective in reducing anxiety levels in third-trimester pregnant women facing childbirth. Before the PMR intervention, most respondents experienced moderate anxiety with a proportion of about 71.4%, while after the PMR, almost all respondents experienced mild anxiety, amounting to 89.3%. This indicates a significant reduction in anxiety following the PMR intervention. Statistical evidence supports the significant impact of PMR on anxiety with an Asymp. Sig. (2-tailed) value of 0.000 (< 0.05), indicating that this effect is highly statistically significant. Other research also supports these findings, where PMR significantly reduces anxiety scores in third-trimester pregnant women and increases calmness and readiness for the childbirth process. This technique is considered a safe alternative therapy, easy to perform independently, and has minimal side effects, making it recommended for pregnant women in the third trimester as an effort to reduce anxiety. Overall, PMR helps reduce anxiety through progressive muscle relaxation, positively impacting the physical and psychological condition of pregnant women, making them calmer and more prepared for childbirth.

Acknowledgement

The researchers thank Puskesmas Mojopanggung for granting permission to conduct the research.

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