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EFFECTIVENESS OF IMPLEMENTING DEEP BREATHING RELAXATION IN EFFORTS TO REDUCE ANXIETY IN PREGNANT WOMEN WITH HYPERTENSION

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ABSTRAK

Hypertension during pregnancy is a serious health issue that poses potential complications for both the mother and the fetus. One of the common psychological impacts accompanying this condition is anxiety, which, if left unaddressed, can worsen hypertension and negatively affect the overall well-being of pregnant women. This study aims to analyze the effectiveness of deep breathing relaxation techniques in reducing anxiety levels among pregnant women with hypertension. This research employed a quantitative method with a pre experimental one-group pretest-posttest design. The sample consisted of 20 pregnant women with hypertension, selected using purposive sampling based on inclusion criteria. The intervention was carried out over seven consecutive days, twice daily, using deep breathing relaxation techniques performed independently by the respondents after training. Anxiety levels were measured using the Depression Anxiety Stress Scales (DASS 42) questionnaire before and after the intervention. Data analysis using the Wilcoxon test revealed a significant decrease in anxiety scores from an average of 12.2 (moderate category) to 8.4 (mild category), with a p-value of 0.001 ($p < 0.05$). These results indicate that deep breathing relaxation is effective in reducing anxiety. This technique works by stimulating the parasympathetic nervous system, which induces a calming and relaxing effect, thereby lowering blood pressure and physiological stress. The advantages of this method include its simplicity, low cost, lack of need for special equipment, and its flexibility to be practiced anytime and anywhere. Therefore, deep breathing relaxation can be recommended as part of non-pharmacological interventions in antenatal care services, particularly for pregnant women at risk of hypertension and high anxiety. The role of healthcare providers is essential in delivering education and continuous support for the practice of this relaxation technique.

INTRODUCTION

Hypertension in pregnancy is one of the obstetric complications that can increase the risk of morbidity and mortality in both the mother and the fetus. Hypertension in pregnant women can cause preeclampsia, eclampsia, and even death if not treated properly (Wang et al., 2021). Data from the World Health Organization (WHO) in 2020 showed that hypertension in pregnancy contributed around 14% of all maternal deaths in the world (Alvionita et al., 2022). In Indonesia, hypertension in pregnant women is included in the top three causes of maternal death along with bleeding and infection (Norlita & Safitri, 2019). Based on the 2018 Riskesdas, the prevalence of hypertension in Indonesia reached 34.1%, with an increasing trend from year to year. In the health service environment, hypertension in pregnant women is one of the focuses of monitoring because it has a major impact on pregnancy outcomes (Rizqiya & Ningrum, 2023). Around 11.5% of hypertensive patients aged 30–59 years in Indonesia experience general mental health problems, and 7% show symptoms of depression. This condition requires special attention, especially to the accompanying psychological aspects (Agustiya et al., 2024).

Maternal health during pregnancy is not only determined by physical factors alone, but is also greatly influenced by psychological conditions, including the level of anxiety experienced. Pregnant women with high anxiety tend to experience sleep disorders, changes in eating patterns, and lack of involvement in pregnancy care which have a direct impact on pregnancy outcomes. In the context of gestational hypertension, the psychological burden is even heavier due to concerns about serious complications such as preeclampsia, premature labor, and risks to fetal safety. Therefore, attention to psychological aspects, especially anxiety, is very important in strategies for preventing pregnancy complications (Asiyah & Aini, 2021).

Recent studies have shown that untreated emotional stress during pregnancy can disrupt hormonal regulation, including increased levels of the stress hormone cortisol. This condition not only affects blood pressure but also has an impact on uteroplacental circulation, which can inhibit fetal growth. In the long term, children born to mothers with high levels of anxiety during pregnancy are at greater risk of experiencing developmental and mental health disorders. Therefore, interventions for anxiety are not only important for the mother, but also for the well-being of the child since in the womb (Cholis, 2025; Hilmiati & Saparwati, 2019). Currently, non-pharmacological approaches are starting to be widely developed as a safe, easy, and effective alternative to dealing

with anxiety during pregnancy. One method that has proven effective is the deep breathing relaxation technique, which not only reduces anxiety but also plays a role in stabilizing blood pressure. This method is very relevant to be applied in various health facilities, including at the primary care level, because it does not require special equipment and can be trained simply. Thus, the integration of this technique in antenatal services is a strategic step in providing holistic pregnancy care that is responsive to the psychological needs of pregnant women (Ahmad et al., 2023; Hariadini et al., 2022; Rumandani & Haniyah, 2023).

Anxiety is one of the most common psychological reactions experienced by pregnant women, especially those diagnosed with hypertension. Anxiety in pregnancy can affect blood pressure and affect fetal growth and pregnancy continuity (Husieva, 2024). Studies show that 52.3% of pregnant women with hypertension experience high levels of anxiety. Untreated anxiety can worsen hypertension and increase the risk of complications (Siallagan & Lestari, 2018).

Increased stress hormones such as cortisol in pregnant women who experience anxiety will trigger activation of the sympathetic nervous system, thereby increasing blood pressure. In addition, anxiety also reduces sleep quality, appetite, and can cause unwanted uterine contractions (Farhat et al., 2024a). Therefore, interventions to reduce anxiety in pregnant women with hypertension are an important aspect of pregnancy care. One non-pharmacological intervention that has been proven effective is the deep breathing relaxation technique (Rinda Ica Ayuni et al., 2023).

Deep breathing relaxation technique is a simple method that can be done independently by pregnant women to reduce anxiety and blood pressure. This technique works by activating the parasympathetic nervous system, thereby creating a sense of calm and relaxation. Various studies have shown that deep breathing relaxation can significantly reduce anxiety levels, heart rate, and blood pressure in patients with hypertension. The effectiveness of this technique makes it a safe and side-effect-free alternative intervention for pregnant women (Ibrahim et al., 2024; Kusmaryati et al., 2024).

Deep breathing relaxation has also been shown to increase oxygen supply and improve blood circulation, which is very important for pregnant women with blood pressure disorders. Training in this technique can be done in a short time and does not require special equipment, making it easy to implement in primary health care facilities. Another advantage of this technique is its preventive and promotive nature, supporting the role of midwives in providing holistic care. Thus, deep breathing relaxation can be

included in prenatal care programs widely (Abera et al., 2024; Ade Reza Dwi Friskia et al., 2024).

Several previous studies have proven the success of relaxation techniques in reducing anxiety in various patient groups. However, there is still limited research that specifically examines the effect of deep breathing relaxation on anxiety in pregnant women with hypertension. Therefore, an empirical study is needed to measure the effectiveness of this technique in this context. This study aims to determine the effectiveness of applying deep breathing relaxation in efforts to reduce anxiety in pregnant women with hypertension.

RESEARCH METHODS

This study is a quantitative study with a pre-experimental design using a one group pretest-posttest approach. Measurements were carried out twice, namely before the intervention (pretest) and after the intervention (posttest), using a standard instrument in the form of the Depression Anxiety Stress Scales (DASS 42) questionnaire. Deep breathing relaxation techniques were carried out twice a day for seven consecutive days. The population in this study were all pregnant women in the second and third trimesters who were diagnosed with hypertension and underwent examinations in the Sei Mencirim Health Center Work Area during February to March 2025. Samples were taken using a purposive sampling technique, namely based on inclusion criteria such as gestational age 20–36 weeks, blood pressure ≥140/90 mmHg, and no severe psychological disorders or other comorbidities. The number of samples used in this study was 20 respondents. Data were analyzed using the Wilcoxon test to determine differences in anxiety levels before and after the intervention.

RESULTS AND DISCUSSION

This study involved 20 pregnant women with hypertension who met the inclusion criteria. Respondent characteristics were reviewed based on age, gestational age, and last level of education. The majority of respondents were in the age range of 26–35 years (60%), with gestational age in the third trimester (55%). In terms of education, most respondents had secondary education (high school/equivalent), which was 12 people (60%) (Table 1). After the deep breathing relaxation intervention was carried out for seven days, there was a decrease in anxiety levels in most respondents. Before the intervention, the average anxiety score based on the DASS 42 scale was 12.2 which was included in the moderate

anxiety category. After the intervention, the average score decreased to 8.4 which was included in the mild anxiety category. The Wilcoxon test showed a significance value of p = 0.001 (p <0.05), which means there was a significant difference between anxiety levels before and after the intervention. These results indicate that the deep breathing relaxation technique is effective in reducing anxiety levels in pregnant women with hypertension (Table 2).

Table 1. Respondent characteristics (n=20)

Characteristics	n	%
Age		
17-25 Years	6	30
26-35 Years	12	60
> 35 Years	2	10
Gestational Age		
Trimester II (20–27 Weeks)	9	45
Trimester III (28–36 Weeks)	11	55
Last education		
Elementary School	2	10
Junior High School	4	20
High School	12	60
College	2	10

Table 2. Effectiveness of applying deep breathing relaxation in efforts to reduce anxiety in pregnant women with hypertension (n = 20)

Variables	Measurement	Mean± SD	Average Difference	P Value*
Anxiety	Pretest	12,2 ± 3,5	3,8	0,001
	Posttest	8,4 ± 2,8		

*Uji wilcoxon

The results of this study indicate that deep breathing relaxation techniques are effective in reducing anxiety levels in pregnant women with hypertension. The average anxiety score decreased from 12.2 (moderate category) to 8.4 (mild category) after seven days of intervention. This decrease was statistically significant with a p value = 0.001, indicating that this technique can be an effective non-pharmacological intervention in managing anxiety in pregnant women. The significant decrease in anxiety scores in this study indicates that deep breathing relaxation techniques can contribute positively to the emotional balance of pregnant women (Nugrahani et al., 2024; Yanti, 2022; Yuliani et al., 2018). The process of breathing regularly, deeply, and consciously provides an opportunity for the body to slow down sympathetic activity and activate the parasympathetic nervous system. Activation of this system stimulates the body's relaxation response, such as decreased heart rate, blood pressure, and muscle tension, so

that pregnant women feel calm. This is in line with the psychophysiological principle that slow and deep breathing can regulate emotions through neurohormonal mechanisms (Septeria et al., 2024).

Another important factor influencing the success of this intervention is the consistency of the practice. For seven consecutive days, respondents were taught to do this technique in a disciplined manner, which allows for physiological and psychological adaptation to stress (Antaiwan Bowo Pranogyo SE et al., 2022; Nurya Viandika et al., 2021). Repeated practice can form positive habits in responding to anxiety. In addition, the participatory approach and empowerment of mothers in relaxation practices strengthen its therapeutic effects, especially because mothers feel in control of their condition (Santy & Arief, 2023). The ease of implementing this technique is also a significant added value. Unlike pharmacological therapy which requires close monitoring of side effects, deep breathing relaxation techniques are safe, inexpensive, and do not cause negative effects on the mother or fetus (Meihartati et al., 2018; Saputri & Prodi III, 2017). In the context of primary health care, this technique is very suitable for midwives to implement as part of health education and promotion during pregnancy. Thus, this approach is in line with the principle of holistic midwifery services that focus not only on the physical but also the psychological aspects of pregnant women (Muzdalia et al., 2022). In the context of clinical practice, these findings can be used as a basis for developing a guide or module for deep breathing relaxation that is integrated into antenatal visits. Routine training for health workers, especially midwives, on this technique will improve service capacity and the quality of interactions with patients. In addition, the success of this technique shows the need for interdisciplinary collaboration between midwifery personnel, psychologists, and nurses in efforts to manage stress during pregnancy, so that an environment that supports maternal well-being is created as a whole.

This finding is in line with research by Dianaurelia and Hardayati (2024), which showed that deep breathing relaxation techniques can reduce anxiety levels from moderate to mild in pregnant women in the third trimester. Another study by Abdullah et al. (2021) also supports these results, showing a significant decrease in anxiety levels in pregnant women with hypertension after applying deep breathing relaxation techniques.

The mechanism of action of deep breathing relaxation techniques involves activating the parasympathetic nervous system, which helps reduce stress and anxiety responses. By regulating breathing patterns, this technique can reduce levels of stress

hormones such as cortisol, which contributes to lower blood pressure and increased feelings of relaxation in pregnant women (Abdullah et al., 2021; Jerath et al., 2006).

However, several studies have shown different results. research by Kusyati et al. (2018) found that the combination of deep breathing relaxation with lavender aromatherapy average systolic blood pressure before the intervention was 148.38 mmHg, and diastolic blood pressure 92.00 mmHg with a p-value of 0.000, while the average systolic blood pressure after the intervention was 145.54 mmHg, and diastolic blood pressure 90.54 mmHg with a p-value of 0.000. Deep breathing relaxation and lavender aromatherapy are effective in lowering blood pressure.

Deep breathing relaxation, as part of relaxation techniques, has been shown to be effective in reducing anxiety in pregnant women with hypertension. Several studies have shown that the application of relaxation techniques, including deep breathing relaxation and Benson's relaxation technique, significantly reduced anxiety levels in the intervention group compared to the control group that only received routine care. For example, the application of relaxation techniques twice a day for 14 days resulted in a statistically significant decrease in anxiety in pregnant women with hypertension, while the control group showed no significant changes (Rosyadah et al., 2024). In addition, Benson's relaxation technique has also been shown to be effective in reducing blood pressure and anxiety in women with pregnancy-induced hypertension, with significant differences between before and after the intervention (Farhat et al., 2024b). The implementation of educational programs on relaxation techniques, including deep breathing, also increased knowledge and physiological parameters, as well as reduced blood pressure and stress levels in pregnant women with mild hypertension (Soliman et al., 2017). These results confirm that deep breathing relaxation can be an effective and easy-to-implement non-pharmacological intervention to reduce anxiety in pregnant women with hypertension, and is recommended to be included in routine care for pregnancies at risk of hypertension (Farhat et al., 2024b; Rosyadah et al., 2024; Soliman et al., 2017). The application of deep breathing relaxation techniques also has practical advantages, because they are easy to teach and do not require special equipment. This allows this technique to be widely applied in various health care settings, including in areas with limited resources. In addition, this technique can be done independently by pregnant women, which increases their independence and empowerment in managing mental health during pregnancy (Tragea et al., 2014; Tri Restu Handayani & Deby Meitia Sandi, 2025).

CONCLUSION AND SUGGESTIONS

Deep breathing relaxation techniques have been proven effective in reducing anxiety levels in pregnant women with hypertension, as indicated by a significant decrease in anxiety scores after the intervention. This technique is simple, inexpensive, and can be done independently, making it worthy of being used as part of non-pharmacological interventions in pregnancy services, especially for mothers at risk of hypertension. For further researchers, it is recommended to conduct research with a stronger experimental design, such as a randomized controlled trial (RCT).

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