

THE EFFECT OF PRENATAL EDUCATION ON DEEP BREATHING TECHNIQUE ON ANXIETY IN THIRD-TRIMESTER PREGNANT WOMEN FACING CHILDBIRTH

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ABSTRACT

Maternal anxiety in facing childbirth may negatively affect the delivery process and maternal well-being. This study aimed to determine the effect of deep breathing technique education on anxiety among third-trimester pregnant women facing childbirth at Puskesmas Kuala Kampar in 2025. This study employed a quantitative approach with a quasi-experimental one-group pretest-posttest design. The study involved 34 third-trimester pregnant women selected using total sampling. Anxiety levels were assessed before and after the provision of education on the deep breathing technique. Data were analyzed using univariate and bivariate analyses, with a statistical test performed at a significance level of $\alpha = 0.05$. Before the intervention, all respondents (100%) experienced severe anxiety. Following the intervention, most respondents experienced mild anxiety (82.4%), while 14.7% experienced moderate anxiety and 2.9% remained severely anxious. The analysis showed a significant difference in anxiety levels before and after the intervention ($p = 0.001$; $p < 0.05$). These findings indicate that education on the deep breathing technique can reduce anxiety among third-trimester pregnant women facing childbirth. Integrating deep breathing education into routine prenatal care may support mothers in developing better psychological readiness for childbirth.

Keywords: Deep Breathing, Anxiety, Childbirth

INTRODUCTION

Pregnancy and childbirth are physiological processes, but the anticipation of childbirth can generate considerable anxiety, particularly during the third trimester. Anxiety related to childbirth may affect maternal psychological well-being and has been associated with adverse experiences during labor, including increased perception of pain and difficulties in coping with the delivery process (Putri et al., 2022). Globally, anxiety and other mental health problems during pregnancy remain important maternal health concerns. The World Health Organization (WHO, 2023) reported that more than

10% of pregnant women in developing countries experience mental health disorders, including anxiety and depression.

Anxiety in late pregnancy may be influenced by fear of pain, concerns about maternal and fetal safety, fear of complications, and inadequate knowledge about the childbirth process. Psychological stress may also activate physiological responses involving stress hormones, which can interfere with maternal relaxation and coping during labor (Maimunah & Ayuningtyas, 2021). Therefore, interventions that are simple, safe, inexpensive, and feasible to implement during prenatal care are needed to support pregnant women's psychological readiness for childbirth.

Prenatal education is one approach that can improve women's knowledge and preparedness for childbirth. Among non-pharmacological approaches, deep breathing is particularly relevant because it is simple to learn, does not require special equipment, and can be practiced independently by pregnant women. Controlled deep breathing may promote relaxation and reduce physiological arousal associated with anxiety. Integrating deep breathing education into prenatal care may therefore provide pregnant women with a practical strategy for managing anxiety when approaching childbirth.

Previous studies have reported anxiety among third-trimester pregnant women in several regions of Indonesia. In Pekanbaru, Zakiyah (2022) reported anxiety among third-trimester pregnant women, with fear of complications, limited social support, and inadequate information identified as contributing factors. Similarly, Heryanti et al. (2022), in a study involving 40 primigravida women in the third trimester in the working area of Puskesmas Sei Jang, Tanjungpinang, found that 45% experienced anxiety related to childbirth. These findings indicate that anxiety before childbirth remains relevant in the Riau Islands and highlight the need for practical interventions that can be incorporated into routine prenatal education.

Although previous studies have examined factors associated with childbirth anxiety and various non-pharmacological approaches to reduce anxiety, evidence regarding the implementation of structured prenatal education specifically focused on deep breathing techniques among third-trimester pregnant women remains limited, particularly in the Riau Islands context. In addition, studies examining changes in anxiety before and after a structured deep breathing education

intervention are still needed to provide context-specific evidence for midwifery practice.

The present study contributes by examining the change in anxiety among third-trimester pregnant women following prenatal education on deep breathing techniques. The intervention is designed as a practical component of prenatal care that can be taught by midwives and subsequently practiced by pregnant women independently. This approach may provide an accessible strategy to strengthen psychological preparation for childbirth at the primary healthcare level.

Therefore, this study aimed to determine the effect of prenatal education on deep breathing techniques on anxiety among third-trimester pregnant women facing childbirth.

RESEARCH OBJECTIVES

To determine the effect of *Deep Breathing* technique education on anxiety in third-trimester pregnant women facing childbirth at Puskesmas Kuala Kampar.

RESEARCH METHODS

This research method uses a quasi-experimental approach with a one-group pretest-posttest design. The study will be conducted at Puskesmas Kuala Kampar in August–September 2025. The study included 34 third-trimester pregnant women recruited using total sampling. The inclusion criteria were pregnant women with a gestational age of ≥ 28 weeks, willing to participate, able to communicate and complete the questionnaire, and able to follow the deep breathing intervention. Women with medical or obstetric complications requiring referral, severe mental health disorders, or incomplete pretest/posttest data were excluded. All eligible participants in the target population were included, resulting in a final sample of 34 participants; the intervention was carried

out and the results of the study were analyzed using SPSS.

The characteristics of respondents based on frequency distribution, the anxiety of third-trimester mothers before education was provided, and the anxiety of third-trimester pregnant women after education was provided. Meanwhile, bivariate analysis

was conducted to determine the effect between the independent and dependent variables using the t-test with a significance level of $p < 0.05$. These research findings illustrate the extent to which education on the *Deep Breathing* technique affects anxiety in third-trimester pregnant women facing childbirth.

RESEARCH RESULTS

Univariate Analysis

The univariate analysis in this study consists of the frequency distribution of subjects for the variables in the study, presented in the following table:

Table .1 Frequency Distribution Based on Respondent Characteristics: The Effect of Deep Breathing Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth

No.	Variable	Frequency (n)	Percentage (%)
1.	Age		
	- 11 – 20 Years	4	11,8
	- 21 – 30 Years	14	41,2
	- 31 – 40 Years	16	47,1
2.	Education		
	- High School	18	52,9
	- Diploma (D3)	12	35,3
	- Bachelor's/D4	4	11,8
3.	Occupation		
	-Unemployed	26	76,5
	-Employed	8	23,5
Total		34	100

Source:

Primary Data, 2025

Table 1 shows the frequency distribution based on respondent characteristics from 34 respondents; the majority of mothers were aged 31-40 years, totaling 16 people (47.1%), the majority had a high school education, totaling 18 people (52.9%), and the majority were unemployed, totaling 26 people (76.5%).

Table 2 Frequency Distribution of Anxiety Before Deep Breathing Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth

Anxiety	Frequency (f)	Percentage (%)
Mild Anxiety	0	0

Moderate Anxiety	0	0
Severe Anxiety	34	100,0
Total	34	100,0

Table 2 shows the distribution of anxiety before *Deep Breathing* technique education was provided on anxiety in third-trimester pregnant women facing childbirth; of the 34 respondents, all 34 (100.0%) experienced severe anxiety.

Table 3 Frequency Distribution of Anxiety After Deep Breathing Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth

Anxiety	Frequency (f)	Percentage (%)
Mild Anxiety	28	82,4
Moderate Anxiety	5	14,7
Severe Anxiety	1	2,9
Total	34	100,0

Table 3 shows the distribution of anxiety after *Deep Breathing* technique education was provided; of the 34 respondents, 28 (82.4%) experienced mild anxiety, 5 (14.7%) experienced moderate anxiety, and 1 (2.9%) experienced severe anxiety.

Bivariate Analysis

Based on the normality test results for the Effect of *Deep Breathing* Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth at Puskesmas Kuala Kampar among 34 respondents, the following results were obtained:

Table 4 Deep Breathing Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth

		Anxiety						Total
		Mild Anxiety	%	Moderate Anxiety	%	Severe Anxiety	%	
Educatio n	Before	0	0	0	0	34	100	34
	After	28	82,4	5	14,7	1	2,9	34

Table 4 shows anxiety before and after deep breathing technique education was provided; the results show that before education was provided, 34 third-trimester pregnant women (100%) experienced severe anxiety. After education was provided, the mothers' anxiety decreased: 28 women (82.4%) experienced mild anxiety, 5 women (14.7%) experienced moderate anxiety, and 1 woman (2.9%)

Table 5 The Effect of Deep Breathing Technique Education on Anxiety in Third-Trimester Pregnant Women Facing Childbirth

		N	Mean	SD	P value
Anxiety	Before	34	3,00	0,000	0,001
	After	34	1,21	0.479	0,001

Based on the analysis results, the respondents' anxiety level before the intervention showed a mean value of 3.00 with a standard deviation of 0.001. After the intervention, the respondents' mean anxiety level decreased to 1.21 with a standard deviation of 0.479. The statistical test results showed a significant difference between anxiety levels before and after the intervention, with a p-value = 0.000 ($p < 0.05$). These findings indicate that education on the deep breathing technique can reduce anxiety among third-trimester pregnant women facing childbirth.

DISCUSSION

This study aims to determine whether there is an effect of the *deep breathing* technique on anxiety in third-trimester pregnant women facing childbirth. Based on the results of the univariate and bivariate analysis of 34 respondents at Puskesmas Kuala Kampar, the results showed that anxiety before *deep breathing* technique education was given, 34 third-trimester pregnant women (100%) experienced severe anxiety. After education was given, the mothers' anxiety decreased: 28 women (82.4%) experienced mild anxiety, 5 women (14.7%) experienced moderate anxiety, and 1 woman (2.9%) experienced severe anxiety. The statistical test results showed a significant difference between anxiety levels before and after the intervention, with a p-value = 0.000 ($p < 0.05$). This indicates that the intervention provided was effective in reducing the respondents' anxiety level.

Anxiety is an emotional response to a situation perceived as threatening or that creates uncertainty. In pregnant women, especially as childbirth approaches, anxiety can be triggered by various factors, including fear of pain, worry about the safety of themselves and the fetus, lack of family support, and limited knowledge about the delivery process (Putri et al., 2022).

The anxiety experienced by pregnant women can have physiological effects, such as increased blood pressure, heart rate, and muscle tension, all of which can worsen the course of the

delivery process (Yuliani & Ningsih, 2020). Several studies have shown that anxiety levels among pregnant women are quite high. Maimunah & Ayuningtyas (2021) found that 28.7% of pregnant women in Indonesia experienced moderate to severe anxiety. Meanwhile, a study in Palu showed that 62% of pregnant women experienced moderate-level anxiety and 12% experienced severe-level anxiety (Zamriati et al., 2023).

The *deep breathing* breathing technique can provide positive benefits for the body and mind, including improving effective and efficient breathing, lowering blood pressure, reducing anxiety and stress levels, relieving muscle tension, and helping improve focus and concentration. By regularly practicing the *deep breathing* breathing technique, a person can improve sleep quality and address sleep disorders such as insomnia, boost immune function and speed up the healing process, and help address mental health issues such as depression and anxiety (Kuswaningsih, 2020).

The results of this study are consistent with the results of research conducted by Sari, et al. (2022); this quantitative study used a *quasi experiment* design involving 50 third-trimester pregnant respondents. An intervention in the form of breathing technique and relaxation education was provided for two weeks. The results showed a significant decrease in the anxiety level of pregnant women after the intervention ($p < 0.001$).

The researcher assumes that providing *deep breathing* breathing technique education has a positive impact on the readiness of third-trimester pregnant women to face the delivery process. The researcher believes that providing information, education, and relaxation training can help mothers reduce their anxiety.

CONCLUSION

Based on the results of research conducted on 34 third-trimester pregnant respondents at Puskesmas Kuala Kampar, several key points can be concluded as follows:

1. Determining the anxiety before *Deep Breathing* technique education on anxiety in third-trimester pregnant women facing childbirth at Puskesmas Kuala Kampar of the 34 respondents, all 34 (100.0%) experienced severe anxiety
2. Determining the anxiety after *Deep Breathing* technique education was provided on anxiety in third-trimester pregnant women facing childbirth; of the 34 respondents, 28 (82.4%) experienced mild anxiety, 5 (14.7%) experienced moderate anxiety, and 1 (2.9%) experienced severe anxiety.
3. The effect of education on the *Deep Breathing* technique on anxiety in third-trimester pregnant women facing childbirth at Puskesmas Kuala Kampar, obtained a *p-value* = 0.000 (*p value* < 0.05), which means there is an effect of *Deep Breathing* Technique education on Anxiety in Third-Trimester Pregnant Women facing childbirth

RECOMMENDATIONS

1. For Puskesmas Kuala Kampar

It is recommended that healthcare workers routinely and systematically provide information not only focused

on medical information but also covering relaxation training, stress management, and mental preparation for childbirth. Midwives are also expected to be able to create a supportive atmosphere so that mothers feel more comfortable and confident. For Third-Trimester Pregnant Women Mothers are expected to actively attend ANC visits and childbirth preparation and to participate in pregnant women's classes as a means of learning and sharing experiences. Mothers' involvement in pregnant women's classes can help reduce anxiety and improve mental readiness before the delivery process.

2. For Future Researchers

It is recommended that future researchers use a qualitative approach to explore other factors that influence anxiety in pregnant women in greater depth. In addition, the effectiveness of specific interventions such as hypnobirthing in reducing anxiety, or prenatal yoga in addressing anxiety in third-trimester pregnant women, could also be studied.

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