THE INFLUENCE OF PRENATAL YOGA ON THE HEALTH ANXIETY LEVEL OF PREGNANT WOMEN

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ABSTRAK : PENGARUH PRENATAL YOGA TERHADAP TINGKAT KECEMASAN KESEHATAN IBU HAMIL

Latar Belakang: Kecemasan dan stres maternal yang berlebihan tidak hanya merupakan masalah emosional subjektif, melainkan juga memiliki dasar biologis yang kuat dengan implikasi patofisiologis yang signifikan terhadap kesehatan ibu dan janin. Kecemasan kesehatan pada ibu hamil bukanlah masalah teoretis, melainkan realitas klinis yang signifikan di Indonesia, termasuk di Provinsi Aceh.

Tujuan: Menganalisis pengaruh pemberian intervensi prenatal yoga terhadap penurunan tingkat kecemasan kesehatan ibu hamil.

Metode: Metode penelitian menggunakan desain *Quasi-Experiment* dengan pendekatan *Pretest-Posttest Control Group Design*. Populasi penelitian ini adalah seluruh ibu hamil Trimester III yang rutin melakukan kunjungan Antenatal Care (ANC) dan terdaftar di Praktik Mandiri Bidan (PMB) Salabiah. Jumlah sampel adalah 20 orang, yang dibagi dua, menjadi kelompok kontrol dan intervensi. Tingkat kecemasan diukur dengan menggunakan kuesioner DASS-21.

Hasil: Berdasarkan analisis statistic didapatkan pada kelompok intervensi (senam yoga prenatal), rata-rata penurunan skor kecemasan adalah 6,7 (SD = 0,82), sedangkan pada kelompok kontrol (tanpa intervensi) rata-rata penurunan hanya 0,3 (SD = 0,82). Secara rata-rata peserta dalam kelompok yoga prenatal mengalami penurunan skor kecemasan yang jauh lebih besar dibandingkan kelompok tanpa latihan.

Kesimpulan: Ada pengaruh pemberian intervensi prenatal yoga terhadap penurunan tingkat kecemasan kesehatan ibu hamil.

Saran: Diharapkan dapat diteliti lebih lanjut tentang minat dan intensitas yoga pada ibu hamil.

Kata Kunci : Ibu Hamil, Kecemasan, Prenatal Yoga.

ABSTRACT

Background: Excessive maternal anxiety and stress are not only subjective emotional issues, but also have a strong biological basis with significant pathophysiological implications for the health of both mother and fetus. Health anxiety in pregnant women is not a theoretical issue, but a significant clinical reality in Indonesia, including in Aceh Province.

Purpose: Analyzing the effect of providing prenatal yoga intervention on reducing anxiety levels in pregnant women.

Methods: The research method uses a Quasi-Experimental design with a Pretest-Posttest Control Group Design approach. The population of this study is all third-trimester pregnant women who regularly attend Antenatal Care (ANC) visits and are registered at Salabiah Midwife Independent Practice (PMB). The sample size is 20 people, divided into two groups: control and intervention. Anxiety levels are measured using the DASS-21 questionnaire.

Results: Based on statistical analysis, in the intervention group (prenatal yoga exercises), the average decrease in anxiety scores was 6.7 (SD = 0.82), whereas in the control group (no intervention) the average decrease was only 0.3 (SD = 0.82). On average, participants in the prenatal yoga group experienced a much greater reduction in anxiety scores compared to the group without exercise.

Conclusion: There is an effect of providing prenatal yoga interventions on reducing anxiety levels in pregnant women's health.

Suggestions: It is expected that further research can be conducted on the interest in and intensity of yoga among pregnant women.

Keywords: Pregnant Mother, Anxiety, Prenatal Yoga.

INTRODUCTION

Antenatal Care (ANC) in the 21st century necessitates a paradigm shift from an approach focused purely on physiology towards a holistic biopsychosocial model. Pregnancy is a period of life marked by intense physical and psychological changes, estimated to occur in at least 80% of pregnant women(Annisa et al., 2023; Sulistiyaningsih & Rofika, 2020). These changes involve emotional, hormonal, and social adjustments which, if not properly managed, can precipitate detrimental mental health conditions.

The specific focus of this study is health anxiety, a state where excessive worry is centered on the well-being of the pregnant individual or the developing fetus(Annisa et al., 2023). This anxiety surpasses normal worry and is often triggered by the fear of pregnancy complications, prior obstetric trauma such as a history of miscarriage (abortus), or a general feeling of insecurity and discomfort during the gestational period(Annisa et al., 2023). When this anxiety reaches moderate-to-severe levels, it can impair the mother's cognitive and emotional function. Prolonged anxiety can erode maternal self-confidence, compromise the ability to concentrate, and substantially diminish the quality of life(Annisa et al., 2023; Sulistiyaningsih & Rofika, 2020). Therefore, the effective identification and intervention for health anxiety in pregnant women constitute a clinical and policy urgency to ensure optimal birth outcomes and maternal mental well-being.

Excessive maternal anxiety and stress are not merely subjective emotional problems; they have a strong biological basis with significant pathophysiological implications for both maternal and fetal health. Psychosocial stress activates the Hypothalamic-Pituitary-Adrenal (HPA) axis and triggers a systemic inflammatory response(Naaz & Muneshwar, 2023; Ravi et al., 2022). This heightened neuroendocrine and inflammatory activity can negatively impact maternal health both during and after pregnancy.

Specifically, studies indicate that stressed mothers face a higher risk of infections and diseases during pregnancy due to the suppressive effect of stress on the immune system's capacity to respond to challenges [4]. Maternal illness may be compounded by concurrent behavioral changes, including disordered sleep, reduced physical activity, and poorer nutrition(Ravi et al., 2022).

In the context of obstetric outcomes, exaggerated physiological stress reactivity in pregnant women has been linked to an increased risk of preterm birth and Low Birth Weight (LBW)(Naaz & Muneshwar, 2023). The established link between physiological stress responses and adverse health outcomes in non-pregnant adults suggests that when pregnant women exhibit excessive reactivity, it carries clear consequences for fetal development(Abera et al., 2023). Extensive research has demonstrated an association between maternal stress, anxiety, or depression and adverse cognitive, emotional, and behavioral outcomes in offspring, spanning from fetal development through adolescence(Jagtap et al., 2023; Tung et al., 2023). This clinical evidence underscores that interventions capable of modulating the physiological stress response—such as maternal relaxation techniques—have direct implications for preventing adverse obstetric outcomes. Safe, non-pharmacological interventions that can disrupt the HPA-axis and inflammatory cascade are paramount for promoting maternal health and optimal fetal development(Ghasemi et al., 2024).

Health anxiety in pregnant women is not a theoretical concern but a significant clinical reality in Indonesia, including the province of Aceh. Data from a 2023 study in the Baiturrahman Public Health Center working area (Banda Aceh City) indicate that the problem of anxiety in third-trimester pregnant women requires immediate attention. Within the studied population, the proportion of respondents experiencing moderate anxiety reached 27.5%(Annisa et al., 2023). Furthermore, when combined with mild anxiety, over two-thirds of pregnant women experienced measurable levels of anxiety.

In-depth bivariate analysis in the Aceh region identified several significant determinants associated with anxiety levels. These factors include maternal knowledge (p=0.001), family support (p=0.002), parity (p=0.000), age (p=0.004), education (p=0.015), history of miscarriage (abortus) (p=0.003), and maternal perception (p=0.011) (Annisa et al., 2023). Additionally, other research in Aceh reinforced these findings, identifying age (p=0.024), education (p=0.012), graviditas (p=0.018), and a history of miscarriage (p=0.02) as significantly related factors [6]. A history of miscarriage was found to be the most dominant factor influencing anxiety, with a high Odds Ratio (OR) of 4.207 [6]. These findings suggest that recurring clinical worries and psychological trauma are key drivers of anxiety, reinforcing the need for safe and supportive therapeutic interventions.

Research must focus on Private Midwifery Practices (PMB) serving peri-urban or peripheral areas, as this group often represents a population most vulnerable to anxiety due to socioeconomic

limitations and restricted access to resources. Epidemiological data from Aceh explicitly highlight that anxiety is not evenly distributed but is concentrated among groups with educational resource limitations.

There is a strong statistical correlation between the mother's educational attainment and anxiety, with p-values consistently ranging from 0.012 to 0.015(Palifiana & Wulandari, 2019; Rahmaningtyas et al., 2019). A study in Banda Aceh demonstrated that the group of respondents with only basic education (comprising 25.7% of the total sample) showed a particularly high vulnerability to anxiety. The anxiety distribution in this group is alarming: 46.4% of pregnant women with basic education experienced moderate anxiety. This proportion is nearly double the average rate of moderate anxiety in the general population. Moreover, 22% of respondents reported poor knowledge of pregnancy, further strengthening the link between low health literacy and high anxiety levels. Pregnant women in peripheral or rural areas of Aceh face structural challenges that exacerbate their psychological state. The quality of maternal healthcare in remote areas is often constrained by resource limitations and service delivery issues, including a scarcity of facilities and infrastructure(Media, 2014; Rahman, 2025; Safitri & Mardahlia, 2024). Despite government programs (e.g., Jampersal), inadequate socialization to the community due to a lack of specific fund allocation also hinders the increased utilization of health services. Adequate access to and quality of antenatal care are crucial factors affecting pregnant women in rural Indonesia(Estetika, 2021; Rizkianti et al., 2021). These barriers complicate the mothers' ability to adhere to a disciplined ANC visit schedule(Fauziah et al., 2023; Susanti et al., 2025), which, in turn, can increase worry and uncertainty about their own and the fetus's health.Therefore, the designed intervention must account for low health literacy and accessibility barriers in peripheral areas. Prenatal Yoga, as a group-based, non-pharmacological intervention that can be implemented in primary care settings like PMBs, offers a practical solution to reach this highly vulnerable low/middle-education demographic. This research is strategically positioned to target PMBs to test the program's effectiveness in this high-risk group.

RESEARCH METHODS

This research employed a Quasi-Experimental Design utilizing a Pretest-Posttest Control Group Design approach. This design was selected to enable the comparison of changes in anxiety levels between two distinct groups:

1. Intervention Group: Received a structured Prenatal Yoga program.
2. Control Group: Received standard Antenatal Care (ANC) without the Prenatal Yoga intervention.

A statistically significant difference in the posttest anxiety scores between the two groups will be used to demonstrate the efficacy of the administered intervention.

The study population consisted of all third-trimester pregnant women routinely attending Antenatal Care (ANC) and registered at the Salabiah Private Midwifery Practice (PMB). The study was conducted from September to October 2025 in a peripheral (suburban/rural) area within the Aceh region.

The key inclusion criteria for participation were:Pregnant women in the third trimester of gestation.Exhibiting moderate health anxiety based on the pretest results (to ensure the intervention is provided to the group in need).Willingness to participate and provision of Signed Informed Consent.Possessing a low or middle level of education (consistent with the focus of the research background).

Purposive Sampling was utilized to select respondents who strictly met the predefined inclusion criteria. Referring to similar preceding studies, the total adequate sample size was set at 20 respondents, equally divided into 10 respondents for the intervention group and 10 respondents for the control group.

Data analysis was conducted quantitatively, involving the following steps:

1. Data Normality Testing; The Shapiro-Wilk or Kolmogorov-Smirnov test was performed to determine the distribution of the data.
2. Univariate AnalysisDescription of demographic characteristics (age, education) and frequency distribution of anxiety levels before and after the intervention.
3. Bivariate Analysis (Hypothesis Testing);Intra-Group Change (Pre-Post Comparison): A Paired t-test (if data were normally distributed) or Wilcoxon Signed-Rank test (if data were non-normally distributed) was used to assess the difference between pretest and posttest anxiety scores within each group. Inter-Group Comparison (Intervention Effect): An Independent t-test (if data were normally distributed) or Mann-Whitney U-test (if data were non-normally distributed) was used to compare the mean difference scores of anxiety

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between the intervention and control groups. The level of significance was set at 0.05. If the calculated p-value was less than 0.05, Prenatal Yoga would be considered to have a significant effect on reducing the level of health anxiety in pregnant women.

RESEARCH RESULTS

Univariate analysis

Table 1
Respondent Profile

Parameter	Intervention Group		Control Group	
	n	%	n	%
Age				
21–25	3	30	3	30
26–30	4	40	7	70
31–35	3	30	0	0
Education				
High School	3	30	4	40
Diploma	2	20	2	20
Bachelor	5	50	4	40
Parity				
Primipara	5	50	5	50
Multipara	4	40	5	50
Twin	1	10	0	0

Table 2
DASS-21 Result

Groups	Mean Pre ± SD	Mean Post ± SD	Mean Change (Δ) ± SD
Intervention Group	12,6 ± 2,22	5,9 ± 1,79	6,7 ± 0,82
Control Group	12,0 ± 1,83	11,7 ± 1,77	0,3 ± 0,82

Table 3
Bivariate Test

Uji	Statistik	p-value
Independent t-test	17.38	1.07×10^{-12}
Mann–Whitney U-test	100.00	0.000127

The Mann–Whitney U-test yielded a p-value of 0.000127 ($p < 0.05$). This result signifies a statistically significant difference in the change scores of anxiety between the intervention and control groups. Specifically, the intervention group demonstrated a significantly different (greater) reduction in anxiety scores compared to the control group.

DISCUSSION

This study utilized the Depression, Anxiety, and Stress Scale-21 (DASS-21) to assess anxiety levels in pregnant women. The DASS-21 comprises 21 items divided into three subscales: Depression, Anxiety, and Stress, with seven items dedicated to each subscale. Each item on the anxiety subscale (DASS-21) is scored on a 4-point Likert scale, ranging from 0 ("did not apply to me at all") to 3 ("applied to me very much, or most of the time"). Consequently, the total score for the DASS-21 anxiety subscale ranges from 0 to 21, with higher scores indicating greater levels of anxiety(Pishahang et al., 2021; Silva et al., 2022).

In this study, the majority of pregnant women were aged 26–30 years. Previous studies suggest that younger pregnant women generally experience higher prenatal anxiety. For instance, Mardliana et al. (2024) found maternal age to be a dominant factor in prenatal distress, with younger mothers tending to experience greater psychosocial distress(Mardliyana et al., 2024). Conversely, older mothers (including the 26–30 age group) tend to be more emotionally mature and adaptive in facing pregnancy-related changes. This psychological stability in the older age group may reduce baseline anxiety levels, making them more receptive to relaxation interventions like prenatal yoga(Li et al., 2021). Furthermore, the literature consistently reports that prenatal yoga is generally safe and acceptable to pregnant women, suggesting that this mature age group is likely to view the intervention as a viable method for managing anxiety.

Maternal educational attainment influences health literacy and attitudes toward interventions. Several studies indicate that mothers with higher education tend to have better access to health information and are more proactive in utilizing healthcare services(Garad et al., 2020; Zibellini et al., 2021). For example, research in Indonesia reported that highly educated mothers are more active in utilizing healthcare services, reflecting better health literacy(Efendi et al., 2022). Mothers with good health literacy are typically more open to preventative and complementary therapeutic approaches. Consequently, highly educated pregnant women are likely to be more trusting and willing to try non-pharmacological methods like prenatal yoga, as they are capable of understanding the health benefits of physical exercise and relaxation without relying on medication(Aryastami & Mubasyiroh, 2021).

Parity status (primiparous vs. multiparous) influences anxiety levels. Research consistently demonstrates that primiparous women (first pregnancy) tend to experience higher anxiety compared to multiparous women(Shakarami et al., 2021). Katou et al. (2022), for example, found higher postpartum anxiety scores in primiparas than in multiparas(Katou et al., 2022). This is corroborated by other studies reporting higher levels of fear of childbirth among primiparas. Conceptually, primiparous mothers face uncertainty and lack prior experience, leading to greater fear of the labor process or potential complications. Conversely, multiparous women have navigated previous pregnancies and are generally more confident and aware of what to expect, resulting in lower anxiety levels. This prior experience also affects the response to intervention: anxious primiparous mothers may derive greater benefit from the relaxation exercises offered by prenatal yoga, while multiparous mothers can easily integrate the exercises as part of their past health management efforts.

Prenatal yoga provides dual benefits for the physical and mental condition of pregnant women. Physiologically, yoga combines physical poses (asanas), breathing techniques (pranayama), and relaxation(Dev & Shivakumar, 2025). Deep breathing exercises in yoga can activate the parasympathetic nervous response and decrease muscle tension, while relaxation techniques (shavasana) help lower stress hormones. Empirical support demonstrates that yoga intervention significantly reduces anxiety, depression, and perceived stress in pregnant women(Munns et al., 2024). For example, several randomized controlled trials report a significant reduction in cortisol levels (a stress hormone) immediately following yoga sessions. Furthermore, yoga movements often focus on strengthening and stretching the core and pelvic muscles, which improves flexibility in the pelvic and lower hip muscles. These physiological changes—including respiratory regulation and reduced stress hormones—coupled with the relaxation effect, result in a greater sense of calm and better emotional control. Collectively, these benefits significantly contribute to lowering maternal anxiety through a comprehensive non-pharmacological approach(Domínguez-Solís et al., 2021).

The measurements before and after the intervention demonstrated a differential reduction in anxiety levels between the groups. In the intervention group (Prenatal Yoga exercise), the mean reduction in anxiety score was 6.7 (SD = 0.82), whereas in the control group (no intervention), the mean reduction was only 0.3 (SD = 0.82). This implies that participants in the Prenatal Yoga group, on average, experienced a significantly greater reduction in anxiety scores compared to the non-exercising control group. This observed difference is consistent with previous research that has also reported the efficacy of prenatal yoga in reducing pregnancy-related anxiety.

Prior to testing for inter-group differences, a data normality test (Shapiro-Wilk test) was performed. The Shapiro-Wilk test results indicated that the anxiety change scores were not normally distributed ($p < 0.05$). Since the normality assumption was not met, further analysis utilized a non-parametric test. In the context of comparing two independent groups with non-normal data, the appropriate test is the Mann–Whitney U test. This test was used to examine the hypothesis regarding the difference in median (or distribution) of anxiety scores between the intervention and control groups when the normality assumption was violated.

The results of the Mann–Whitney U test indicated a statistically significant difference in the anxiety change scores between the intervention and control groups. A p-value of 0.000127 ($p < 0.001$) confirms that the difference in anxiety score reduction between the two groups is statistically significant. In other words, respondents who participated in the Prenatal Yoga program experienced a statistically greater reduction in anxiety compared to those without the intervention ($\alpha = 0.05$).

The interpretation of these findings is that Prenatal Yoga is effective in reducing anxiety levels in pregnant women compared to receiving no

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specific intervention. Methodologically, this significant difference indicates that the yoga intervention produced a decline in anxiety that was unlikely to have occurred by chance. This finding is aligned with previous literature consistently reporting that prenatal yoga practice is associated with reduced gestational anxiety. The results thus support the use of Prenatal Yoga as an effective non-pharmacological method for managing anxiety in pregnant women.

Overall, the statistical analysis and findings demonstrate that the implementation of Prenatal Yoga significantly contributed to lowering anxiety scores in pregnant women, thereby establishing it as an effective intervention strategy for enhancing psychological well-being during pregnancy (particularly in the third trimester).

CONCLUSION

Implementation of Prenatal Yoga significantly contributed to lowering anxiety scores in pregnant women, thereby establishing it as an effective intervention strategy for enhancing psychological well-being during pregnancy.

SUGGESTION

Further research is suggested to investigate the interest and intensity of yoga practice among pregnant women.

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