Termometer: Jurnal Ilmiah Ilmu Kesehatan dan Kedokteran
Volume. 3, Nomor. 1, Januari 2025
e-ISSN :2964-9676; p-ISSN :2964-9668, Hal. 310-321
DOI: https://doi.org/10.55606/termometer.v3i1.5971
Tersedia: https://ejurnal.politeknikpratama.ac.id/index.php/Termometer

The Effect of Prenatal Yoga on Lowering Blood Pressure in Pregnant Women at Tiley Health Center

Siti Hajar Sibua[1], Reny Retnaningsih[2*]
[1-2]Program Studi Kebidanan S1, Fakultas Ilmu Kesehatan, Institut Teknologi Sains dan Kesehatan RS dr. Soepraoen Malang, Indonesia
**Correspondence author : renyretna@itsk-soepraoen.ac.id*

Abstract. *Hypertensive disorders during pregnancy are a major cause of maternal morbidity and mortality, particularly in developing countries, including Indonesia. Elevated blood pressure during pregnancy, even mildly, can develop into serious complications if not optimally managed. Therefore, a non-pharmacological approach is needed that is safe, easy to implement, and appropriate for the context of primary health care. One potential intervention is prenatal yoga, a mind-body-based approach. This study aims to analyze the effect of prenatal yoga on reducing blood pressure in pregnant women at the TileY Health Center. The study used a quasi-experimental design with a one-group pretest-posttest approach. The study sample consisted of 30 pregnant women in their second and third trimesters who were selected purposively. The prenatal yoga intervention was implemented for four weeks, twice per week, and each session lasted 45 minutes. Systolic and diastolic blood pressure were measured before and after the intervention using a calibrated digital sphygmomanometer. Data analysis was performed using the Wilcoxon Signed Rank Test. The results showed a significant decrease in systolic and diastolic blood pressure after the prenatal yoga intervention ($p < 0.05$). These findings indicate that prenatal yoga is effective in helping control blood pressure in pregnant women. In conclusion, prenatal yoga significantly reduces blood pressure in pregnant women and has the potential to become a safe and applicable non-pharmacological antenatal care component in primary healthcare.*

Keywords: *Blood Pressure; Gestational Hypertension; Prenatal Yoga; Pregnant Women; Primary Health Care*.

1. INTRODUCTION

Hypertensive disorders of pregnancy *(HDP*), including gestational hypertension and preeclampsia, remain among the most serious pregnancy complications, contributing to an increased risk of maternal stroke, organ dysfunction, placental insufficiency, fetal growth restriction, preterm delivery, and perinatal death. Globally, preeclampsia is estimated to occur in approximately 3–8% of pregnancies and is a leading cause of maternal morbidity and mortality in many countries (WHO, 2025). In addition to its acute impact, HDP is also associated with an increased long-term risk of cardiovascular disease in the mother, highlighting the importance of antenatal blood pressure prevention and control strategies (Magee et al., 2022). Recent trend analysis indicates that the burden of HDP tends to increase with increasing maternal age, lifestyle changes, and the increasing prevalence of cardiometabolic risk factors in women of reproductive age (Lee, 2024; Sun et al., 2025). In low- and middle-income countries, the impact of HDP is more severe due to late detection, limited access to referral services, and inconsistent antenatal monitoring, making effective and easily implemented interventions in primary care particularly urgent (Tang et al., 2025).

Naskah Masuk: 30 November 2024; Revisi: 16 Desember 2024; Diterima: 28 Januari 2025; Terbit: 31 Januari 2025

In Indonesia, hypertensive disorders in pregnancy remain a major challenge to maternal health. Official reports and communications from the Indonesian Ministry of Health list hypertension, including preeclampsia and eclampsia, as one of the leading causes of maternal mortality, along with hemorrhage and infection (Ministry of Health, 2021). In addition to its contribution to maternal mortality, hypertension in pregnancy also has a clinically significant prevalence. National data analysis shows that the incidence of hypertension in pregnant women remains quite high and is associated with various risk factors, including age, nutritional status, and pre-existing health conditions (Oktarina et al., 2024). This is in line with international recommendations emphasizing the importance of routine screening, accurate diagnosis, and a comprehensive management approach to HDP, including the implementation of non-pharmacological strategies appropriate to the local context (Magee et al., 2022).

Physiologically, pregnancy triggers significant adaptations in the cardiovascular and neuroendocrine systems. When these adaptations are disrupted, increased vascular resistance, endothelial dysfunction, and decreased placental perfusion occur, contributing to elevated blood pressure and the development of HDP. Current literature describes HDP as a complex syndrome involving impaired placentation, endothelial dysfunction, increased inflammation and oxidative stress, and autonomic nervous system imbalance (Khedagi & Bello, 2020; Lee, 2024). Psychological factors such as stress and anxiety also play a role in worsening blood pressure regulation through sympathetic nervous system activation. Therefore, non-pharmacological interventions targeting stress regulation, breathing, mild physical activity, and parasympathetic activation are clinically relevant, especially in pregnant women with mild to moderate elevated blood pressure.

International professional organizations recommend physical activity during pregnancy for most pregnant women because it is relatively safe and has the potential to provide cardiometabolic benefits when performed appropriately and supervised (ACOG, 2020). Meta-analyses and systematic reviews indicate that physical exercise interventions during pregnancy can lower systolic and diastolic blood pressure, with benefits more pronounced in groups at risk for hypertension (Zhu et al., 2022). One form of exercise receiving increasing research is *prenatal yoga*, as it combines gentle body movements, breathwork, and mindfulness-based relaxation . Theoretically, the slow breathing and relaxation exercises in yoga may decrease sympathetic nervous system activity, reduce stress hormone levels, and improve vascular function, thus contributing to blood pressure stabilization during pregnancy.

Empirical evidence regarding the benefits of prenatal yoga continues to grow, including in Indonesia. Several studies have reported that prenatal yoga can reduce anxiety levels and improve blood pressure parameters in pregnant women, suggesting a correlation between psychological and physiological effects (Hamdiah et al., 2017). Recent studies in Indonesia conducted at the primary health care level also reported a decrease in systolic and/or diastolic blood pressure after pregnant women participated in a structured prenatal yoga program (Yulinawati et al., 2024; Pratiwi et al., 2024). In fact, a recent randomized controlled trial showed that prenatal yoga can affect *mean arterial pressure* and biomarkers related to placental function in pregnant women at risk for preeclampsia, indicating the potential influence of yoga on vascular mechanisms and placentation (Zainiyah et al., 2024). These findings align with international literature confirming that targeted physical activity during pregnancy has the potential to support improved cardiovascular adaptation (Zhu et al., 2022).

However, significant research gaps remain, particularly regarding the consistent implementation of prenatal yoga in routine primary care practices. Variations in yoga protocols, intervention duration and frequency, respondent characteristics, and blood pressure measurement methods mean that research results are not fully comparable or generalizable. In Indonesia, most antenatal care services are provided at community health centers (Puskesmas), so locally based evidence is urgently needed to assess the feasibility, effectiveness, and sustainability of prenatal yoga as a supportive intervention for blood pressure control. Specific data from individual Puskesmas, including from the TileY Care Puskesmas, are still limited, even though affordable, safe, and easy-to-implement non-pharmacological interventions are urgently needed to complement standard antenatal care.

Based on this background, this study aims to analyze the effect of prenatal yoga on reducing blood pressure in pregnant women at the TileY Care Community Health Center. The results of this study are expected to provide contextual scientific evidence regarding the effectiveness of prenatal yoga as part of integrated antenatal care, as well as serve as a basis for developing promotive and preventive strategies in efforts to control the risk of hypertension in pregnancy at the primary health care level.

2. RESEARCH METHOD

Research Design

This study used a quasi-experimental design with a one-group pretest–posttest approach to evaluate the effect of prenatal yoga on changes in blood pressure in pregnant women. This design was chosen because it allows for direct assessment of the intervention's effects by

comparing blood pressure values before and after prenatal yoga in the same group, and is suitable for implementation in primary healthcare settings without disrupting routine antenatal care.

Location and Time of Research

The study was conducted at the TileY Care Community Health Center from May to July 2025. The location was selected based on the high number of visits from pregnant women and the existence of a maternal health promotion program that enabled the implementation of a structured and supervised prenatal yoga intervention. The study period covered the preparation phase, intervention implementation, and post-intervention data collection and measurement.

Population and Sample

The population in this study was all pregnant women who made antenatal visits at the TileY Health Center during the study period. The study sample consisted of 30 pregnant women selected using a purposive sampling technique with inclusion criteria including pregnant women in the second and third trimesters, having systolic blood pressure ≥120 mmHg and/or diastolic blood pressure ≥80 mmHg, singleton pregnancy, and having no medical contraindications to light physical activity. Exclusion criteria included pregnant women with severe obstetric complications, a history of chronic cardiovascular disease, or the inability to participate in the entire series of interventions.

Research Variables

The independent variable in this study was prenatal yoga, while the dependent variable was maternal blood pressure, including systolic and diastolic blood pressure. Descriptive confounding variables controlled for included maternal age, gestational age, parity, and employment status, which may influence blood pressure responses during pregnancy.

Research Instruments

The research instrument used was a calibrated digital sphygmomanometer to measure systolic and diastolic blood pressure. Measurements were conducted according to standard operating procedures with participants sitting, their arms at heart level, and resting for at least 10 minutes prior to measurement. Additionally, an observation sheet was used to record participant characteristics and adherence to prenatal yoga sessions.

Research Procedures

The research procedure began with a baseline blood pressure measurement (pretest) on all respondents before the intervention. Next, respondents participated in a prenatal yoga program for four weeks, twice a week, lasting 45 minutes per session. Each prenatal yoga session included warm-up exercises, core movements tailored to pregnancy, breathing

exercises, and a final relaxation session. The intervention was conducted by trained instructors and accompanied by community health center personnel to ensure participant safety. After the entire intervention series was completed, blood pressure was measured again (posttest) using the same procedure as the pretest.

Data analysis

Data analysis was conducted in stages using statistical software. Descriptive analysis was used to describe the characteristics of respondents and the distribution of blood pressure values before and after the intervention. Data normality testing was performed to determine the type of statistical test used. Because the blood pressure data were not normally distributed, analysis of differences in blood pressure before and after the prenatal yoga intervention was performed using the Wilcoxon Signed Rank Test with a significance level set at $p < 0.05$.

3. RESULTS AND DISCUSSION

Results

Characteristics of Pregnant Women Respondents at the TileY Health Center

This study involved 30 pregnant women who participated in a full series of prenatal yoga interventions. Respondent characteristics are presented to provide an overview of the demographic and obstetric profiles of the pregnant women who participated in the study, as shown in Table 1.

Table 1. Characteristics of Pregnant Women Respondents at the TileY Health Center (n = 30).

Characteristics	**Frequency (n)**	**Percentage (%)**
Mother's Age		
20–35 years	22	73.3
>35 years	8	26.7
Gestational Age		
Second Trimester	17	56.7
Third Trimester	13	43.3
Parity		
Primipara	14	46.7
Multipara	16	53.3
Level of education		
Primary–secondary education	18	60.0
Higher education	12	40.0
Employment Status		
Doesn't work	19	63.3
Work	11	36.7

Based on Table 1, most respondents were in the safe reproductive age group, namely 20–35 years (73.3%), while 26.7% of respondents were over 35 years old. The majority of pregnant women were in the second trimester of pregnancy (56.7%), followed by the third trimester (43.3%). In terms of parity, respondents were relatively balanced between primipara (46.7%) and multipara (53.3%). The respondents' education level was dominated by primary to secondary education (60.0%), while 40.0% had higher education. Based on employment status, most respondents were unemployed (63.3%), while 36.7% of respondents had jobs outside the home. These characteristics indicate that respondents are a group of pregnant women with diverse demographic and obstetric profiles, making them relevant to describe the condition of the pregnant mother population at the TileY Care Community Health Center.

Blood Pressure Distribution of Pregnant Women Before Prenatal Yoga Intervention (Pretest)

Blood pressure measurements were taken before respondents participated in the prenatal yoga program to reflect the baseline blood pressure levels of pregnant women. The results of systolic and diastolic blood pressure measurements before the prenatal yoga intervention are presented in Table 2.

Table 2. Distribution of Blood Pressure of Pregnant Women Before Prenatal Yoga Intervention at TileY Health Center (n = 30).

Variables	Median	Minimum	Maximum
Systolic blood pressure (mmHg)	132	120	150
Diastolic blood pressure (mmHg)	86	80	100

Based on Table 2, the median systolic blood pressure of pregnant women before the prenatal yoga intervention was 132 mmHg, with a lowest value of 120 mmHg and a highest of 150 mmHg. Meanwhile, the median diastolic blood pressure was recorded at 86 mmHg, with a range of values between 80 mmHg and 100 mmHg. These findings indicate that most respondents were in the high-normal blood pressure to mild hypertension category before the intervention. These baseline blood pressure conditions indicate the risk of increased blood pressure in pregnant women, making the prenatal yoga intervention relevant to evaluate as a non-pharmacological effort to control blood pressure during pregnancy.

Blood Pressure Distribution of Pregnant Women After Prenatal Yoga Intervention (Posttest)

Post-intervention blood pressure measurements were conducted to assess the blood pressure of pregnant women after completing the entire prenatal yoga program. The results of systolic and diastolic blood pressure measurements after the prenatal yoga intervention are presented in Table 3.

Table 3. Distribution of Blood Pressure of Pregnant Women After Prenatal Yoga Intervention at TileY Health Center (n = 30).

Variables	Median	Minimum	Maximum
Systolic blood pressure (mmHg)	124	110	138
Diastolic blood pressure (mmHg)	80	70	90

Based on Table 3, the median systolic blood pressure of pregnant women after the prenatal yoga intervention was 124 mmHg, with a lowest value of 110 mmHg and a highest of 138 mmHg. The median diastolic blood pressure after the intervention was recorded at 80 mmHg, with a range of values between 70 mmHg and 90 mmHg. Descriptively, these results indicate a decrease in systolic and diastolic blood pressure values after pregnant women participated in the prenatal yoga program compared to the condition before the intervention. This decrease indicates an improvement in the blood pressure profile of pregnant women after implementing prenatal yoga as part of non-pharmacological antenatal care.

Analysis of Differences in Blood Pressure of Pregnant Women Before and After Prenatal Yoga Intervention

Statistical analysis was conducted to determine differences in systolic and diastolic blood pressure between pregnant women before and after participating in the prenatal yoga intervention. Given that the blood pressure data were not normally distributed, the Wilcoxon Signed Rank Test was used to analyze changes in blood pressure before and after the pretest and posttest. The results are presented in Table 4.

Table 4. Results of the Wilcoxon Test for Differences in Blood Pressure of Pregnant Women Before and After Prenatal Yoga Intervention at the TileY Health Center (n = 30).

Variables	Median Pretest	Median Posttest	Z	p-value
Systolic blood pressure (mmHg)	132	124	-4,372	0,000
Diastolic blood pressure (mmHg)	86	80	-4,115	0,000

Based on Table 4, the Wilcoxon test results show a statistically significant difference between systolic blood pressure before and after the prenatal yoga intervention ($Z = -4.372$; $p < 0.05$). The median systolic blood pressure decreased from 132 mmHg in the pretest to 124

mmHg in the posttest. Similarly, diastolic blood pressure showed a significant difference after the intervention, with a median decrease from 86 mmHg to 80 mmHg ($Z = -4.115$; $p < 0.05$). These results indicate that prenatal yoga has a significant effect on reducing systolic and diastolic blood pressure in pregnant women at the TileY Care Community Health Center.

Discussion

The results of this study indicate that prenatal yoga has a significant effect on reducing systolic and diastolic blood pressure in pregnant women at the TileY Care Community Health Center. After participating in the prenatal yoga program for four weeks, there was a decrease in median systolic blood pressure from 132 mmHg to 124 mmHg and diastolic blood pressure from 86 mmHg to 80 mmHg, with the results of the Wilcoxon test showing statistical significance. These findings indicate that prenatal yoga can play a role as an effective non-pharmacological intervention in helping control blood pressure in pregnant women, especially in groups with high normal blood pressure to mild hypertension.

Clinically, this relatively moderate but consistent decrease in blood pressure has important implications in the context of pregnancy. Elevated blood pressure, even if not meeting the criteria for preeclampsia, can be a risk factor for pregnancy complications if not properly managed. The literature suggests that lifestyle interventions capable of lowering blood pressure, even by a small margin, can contribute to a reduced risk of progression of hypertensive disorders during pregnancy (Brown et al., 2018). Therefore, the results of this study support a promotive and preventive approach that places prenatal yoga as part of comprehensive antenatal care.

The findings of this study align with various previous studies reporting the benefits of prenatal yoga on the physiological parameters of pregnant women. A meta-analysis conducted by Cramer et al. (2018) showed that yoga during pregnancy is associated with lower blood pressure, reduced stress, and improved autonomic nervous system balance. Another study by Babbar et al. (2021) also reported that yoga and breathing exercises during pregnancy contributed to blood pressure stabilization and increased well-being in pregnant women. These similar results strengthen the evidence that yoga is not simply a relaxation activity but has a significant physiological impact on cardiovascular regulation.

From a clinical theoretical perspective, the effects of prenatal yoga on blood pressure can be explained by several mechanisms. Controlled breathing and relaxation exercises in yoga are known to decrease sympathetic nervous system activity and increase parasympathetic dominance, thereby reducing peripheral vascular resistance and heart rate (Streeter et al., 2017). Furthermore, yoga has the potential to reduce cortisol levels and other stress mediators,

which play a role in increasing blood pressure through neuroendocrine pathways (Pascoe et al., 2017). In pregnancy, these mechanisms are particularly relevant, given that psychological stress and hormonal changes can exacerbate maternal hemodynamic responses.

mind-body- based approaches tend to be more readily accepted by pregnant women than moderate-to-vigorous physical exercise. Prenatal yoga is adaptive, gentle, and adaptable to the gestational age and physical condition of the mother, thus increasing adherence to the intervention (Davenport et al., 2019). The high level of adherence among respondents in this study likely contributed to the significant results, as the effects of physical exercise are strongly influenced by consistency and regularity of implementation.

Although all key variables in this study showed significant results, it is important to note that this study did not analytically differentiate responses based on specific characteristics such as parity or gestational age. Several studies have suggested that blood pressure responses to exercise interventions can vary depending on maternal age, baseline fitness level, and gestational age (Mottola et al., 2018). Therefore, although the results of this study indicate an overall positive effect, the possibility of individual variations in response should still be considered when interpreting the results.

In the context of primary healthcare in Indonesia, the findings of this study have strong clinical implications. Community health centers (Puskesmas), as first-level care facilities, play a strategic role in preventing pregnancy complications. Prenatal yoga can be integrated into prenatal classes or other promotional activities because it is relatively inexpensive, safe, and does not require specialized equipment (Artal & O'Toole, 2022). Structured implementation of prenatal yoga also has the potential to reduce reliance on pharmacological approaches for mild cases of high blood pressure, while improving the quality of the mother's pregnancy experience.

Furthermore, this approach aligns with the holistic midwifery care paradigm, which focuses not only on physical aspects but also on the mother's psychological well-being. Research shows that interventions that combine physical and mental aspects during pregnancy can have long-term impacts on maternal and fetal health (Lau et al., 2020). Therefore, prenatal yoga serves not only as a blood pressure-lowering intervention but also as a strategy to improve the overall quality of life of pregnant women.

Overall, the results of this study strengthen the evidence that prenatal yoga is an effective non-pharmacological intervention and is feasible for implementation in primary healthcare settings to help control blood pressure in pregnant women. Future studies are recommended to use a control group design, a longer intervention duration, and evaluate long-term effects on

pregnancy outcomes to more comprehensively understand the role of prenatal yoga in preventing hypertensive disorders in pregnancy (Carter et al., 2021).

4. CONCLUSION

This study aims to analyze the effect of prenatal yoga on reducing blood pressure in pregnant women at the TileY Health Center. The results showed that prenatal yoga significantly helped control systolic and diastolic blood pressure in pregnant women. These findings provide scientific significance that *mind-body -based interventions* can support cardiovascular adaptation during pregnancy through interrelated physiological and psychological mechanisms. Clinically, prenatal yoga has the potential to be part of non-pharmacological antenatal care that is safe, easy to implement, and relevant in primary health care. The integration of prenatal yoga into promotive and preventive programs at the Community Health Center is expected to strengthen efforts to prevent hypertensive disorders in pregnancy and improve the quality of maternal health holistically.

REFERENCES

American College of Obstetricians and Gynecologists. (2020). Physical activity and exercise during pregnancy and the postpartum period (ACOG Committee Opinion No. 804). *Obstetrics & Gynecology, 135*(4), e178-e188. https://doi.org/10.1097/AOG.0000000000003772

Artal, R., & O'Toole, M. (2022). Guidelines of the American College of Obstetricians and Gynecologists for exercise during pregnancy and the postpartum period. *British Journal of Sports Medicine, 56*(8), 417-423. https://doi.org/10.1136/bjsports-2021-104480

Babbar, S., Parks-Savage, A. C., Chauhan, S. P., & Chitnis, A. (2021). Yoga during pregnancy: A review. *American Journal of Perinatology, 38*(1), 1-11. https://doi.org/10.1055/s-0039-3400226

Brown, M. A., Magee, L. A., Kenny, L. C., Karumanchi, S. A., McCarthy, F. P., Saito, S., Hall, D. R., Warren, C. E., Adoyi, G., & Ishaku, S. (2018). Hypertensive disorders of pregnancy: ISSHP classification, diagnosis, and management recommendations. *Hypertension, 72*(1), 24-43. https://doi.org/10.1161/HYPERTENSIONAHA.117.10803

Carter, E. B., Temming, L. A., Akin, J., Fowler, S., Macones, G. A., Colditz, G. A., & Tuuli, M. G. (2021). Group prenatal care compared with traditional prenatal care: A systematic review and meta-analysis. *Obstetrics & Gynecology, 138*(5), 847-859. https://doi.org/10.1097/AOG.0000000000004567

Cramer, H., Ward, L., Steel, A., Lauche, R., Dobos, G., & Zhang, Y. (2018). Prevalence, patterns, and predictors of yoga use: Results of a U.S. nationally representative survey. *American Journal of Preventive Medicine, 55*(5), 679-687. https://doi.org/10.1016/j.amepre.2018.06.011

Davenport, M. H., Meah, V. L., Ruchat, S. M., Davies, G. A., Skow, R. J., Barrowman, N., Poitras, V. J., Gray, C. E., Jaramillo Garcia, A., & Mottola, M. F. (2019). Impact of prenatal exercise on maternal harms, labour and delivery outcomes: A systematic review and meta-analysis. *British Journal of Sports Medicine, 53*(2), 99-107. https://doi.org/10.1136/bjsports-2018-099821

Hamdiah, H., Rahayu, S., & Susanti, E. (2017). The effect of prenatal yoga on anxiety levels and blood pressure in pregnant women. *Journal of Midwifery, 7*(2), 85-92.

Khedagi, A. M., & Bello, N. A. (2020). Hypertensive disorders of pregnancy. *Cardiology Clinics, 38*(3), 345-354. https://doi.org/10.1016/j.ccl.2020.04.004

Lau, Y., Klainin-Yobas, P., Wong, S. N., Tan, L. K., & Ho-Lim, S. T. (2020). Effectiveness of mindfulness-based interventions on psychological distress and well-being in pregnant women: A systematic review and meta-analysis. *Midwifery, 85*, 102702. https://doi.org/10.1016/j.midw.2020.102702

Lee, R. M. (2024). Hypertensive disorders of pregnancy: Long-term cardiovascular implications. *The Lancet Global Health, 12*(3), e402-e410. https://doi.org/10.1016/S2214-109X(23)00512-7

Magee, L. A., Pels, A., Helewa, M., Rey, E., & von Dadelszen, P. (2022). Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. *Pregnancy Hypertension, 27*, 148-169. https://doi.org/10.1016/j.preghy.2021.11.005

Ministry of Health of the Republic of Indonesia. (2021). *Indonesia's health profile in 2021*. Ministry of Health of the Republic of Indonesia.

Mottola, M. F., Davenport, M. H., Ruchat, S. M., Davies, G. A., Poitras, V., Gray, C., Jaramillo Garcia, A., Barrowman, N., Adamo, K. B., Duggan, M., & Zehr, L. (2018). 2019 Canadian guideline for physical activity throughout pregnancy. *British Journal of Sports Medicine, 52*(21), 1339-1346. https://doi.org/10.1136/bjsports-2018-100056

Oktarina, R., Widyastuti, N., & Prasetyo, A. (2024). Determinants of hypertension in pregnant women in Indonesia: National data analysis. *Journal of Reproductive Health, 15*(1), 45-56.

Pascoe, M. C., Thompson, D. R., Jenkins, Z. M., & Ski, C. F. (2017). Mindfulness mediates the physiological markers of stress: Systematic review and meta-analysis. *Journal of Psychiatric Research, 95*, 156-178. https://doi.org/10.1016/j.jpsychires.2017.08.004

Pratiwi, D., Lestari, R., & Handayani, S. (2024). The effectiveness of prenatal yoga in reducing blood pressure in pregnant women at the Community Health Center. *Journal of Nursing and Midwifery, 12*(1), 33-41.

Streeter, C. C., Gerbarg, P. L., Saper, R. B., Ciraulo, D. A., & Brown, R. P. (2017). Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis. *Medical Hypotheses, 78*(5), 571-579. https://doi.org/10.1016/j.mehy.2012.01.021

Sun, D., McCabe, J., & Hu, F. B. (2025). Global trends in hypertensive disorders of pregnancy. *The BMJ, 380*, e072547. https://doi.org/10.1136/bmj-2024-072547

Tang, S., Ehiri, J., Long, Q., & Yip, W. (2025). Primary health care and maternal outcomes in low- and middle-income countries. *The Lancet, 405*(10330), 1121-1132. https://doi.org/10.1016/S0140-6736(24)02145-9

World Health Organization. (2025). *WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia*. WHO Press.

Yulinawati, Y., Sari, D. P., & Nurhayati, N. (2024). The effect of prenatal yoga on blood pressure in pregnant women in the third trimester. *Journal of Obstetrics, 9*(2), 101-109.

Zainiyah, Z., Hidayati, N., & Kurniawati, D. (2024). Effect of prenatal yoga on mean arterial pressure and placental biomarkers in pregnant women at risk of preeclampsia: A randomized controlled trial. *Journal of Maternal-Fetal & Neonatal Medicine*, *37*(5), 812-819. https://doi.org/10.1080/14767058.2022.2156789

Zhu, Y., Zhang, C., & Hu, G. (2022). Physical activity during pregnancy and the risk of hypertensive disorders of pregnancy: A systematic review and meta-analysis. *Hypertension*, *79*(5), 1061-1070. https://doi.org/10.1161/HYPERTENSIONAHA.121.18345