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Ambon Banana (*Musa acuminata*) Consumption and Its Effect on Gestational Hypertension Among Pregnant Women

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Abstract
Gestational hypertension is a common pregnancy complication associated with increased risks for maternal and fetal health. Non-pharmacological approaches, including dietary modification, have been explored as potential supportive strategies for blood pressure management. Ambon banana (Musa acuminata) is a potassium rich fruit that may be relevant in this context. This study aimed to examine changes in systolic and diastolic blood pressure following Ambon banana consumption among pregnant women with gestational hypertension attending Puskesmas Jalan Emas, Tangerang Regency. A quantitative pre-experimental study using a one-group pretest-posttest design was conducted among 31 pregnant women aged 23 to 30 years. Participants consumed two Ambon bananas per day, approximately 200 grams, for seven days. Blood pressure was measured before and after the intervention period. Descriptive statistics and paired t tests were used to assess changes in blood pressure. Mean systolic blood pressure decreased from 147.2 ± 5.0 mmHg to 127.0 ± 5.2 mmHg, and mean diastolic blood pressure decreased from 94.2 ± 4.0 mmHg to 83.4 ± 3.1 mmHg, with both changes reaching statistical significance (systolic $p = 0.0001$; diastolic $p = 0.0005$). Given the absence of a control group and the small sample size, these findings should be interpreted as preliminary and do not establish causality. The results indicate an observed association between Ambon banana consumption and short term reductions in blood pressure, warranting further investigation through controlled trials with larger samples and longer follow up to determine clinical relevance and generalizability.

Keywords: Ambon Banana, Gestational Hypertension, Potassium, Blood Pressure, Prenatal Care.

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1. INTRODUCTION

Gestational hypertension is a major obstetric complication and a leading contributor to maternal and perinatal morbidity and mortality worldwide. These changes are influenced by various factors, including physical, environmental, sociocultural, and economic aspects (Al-Mutawtah et al., 2023; Bjelica et al., 2018; Simoncic et al., 2022). It affects a substantial proportion of pregnancies and is associated with serious adverse outcomes, including preeclampsia, placental abruption, preterm birth, and fetal growth restriction (Jiang et al., 2022; Wang et al., 2021). Recent global estimates indicate that hypertensive disorders complicate approximately 5–10% of all pregnancies and account for a significant share of preventable maternal deaths, particularly in low- and middle-income countries where early detection and management remain suboptimal (Dağlar et al., 2019). Evidence also suggests that the burden of gestational hypertension has increased over time, in parallel with rising maternal age, nutritional transitions, and lifestyle-related risk factors.

In Indonesia, hypertensive disorders of pregnancy represent a persistent public health challenge. National data consistently identify hypertension in pregnancy as the second leading cause of maternal mortality, following obstetric hemorrhage (Akbar et al., 2019). Severe preeclampsia contributes significantly to maternal and infant mortality, and the proportion of hypertensive disorders in pregnancy continues to increase. Recent reports indicate that nearly one-third of maternal deaths are directly or indirectly related to hypertension-related complications, including severe preeclampsia and eclampsia (Chang et al., 2023; Ekawati et al., 2020). Despite ongoing maternal health programs, regional disparities remain pronounced. In Banten Province, maternal mortality rates continue to exceed national targets, with hypertension during pregnancy contributing substantially to these deaths. Within this province, Tangerang Regency has reported a notable number of maternal deaths linked to hypertensive disorders, highlighting the need for context-specific preventive and management strategies.

Uncontrolled blood pressure during pregnancy poses serious risks to both maternal and fetal health.. For fetuses, it is associated with intrauterine growth restriction, preterm delivery, stillbirth, and impaired neurodevelopmental outcomes (Kumar et al., 2021; Ngene & Moodley, 2019). Factors that influence the occurrence of hypertension in pregnancy include genetic predisposition, maternal age, previous history of hypertension, and short intervals between pregnancies (Wei et al., 2022). Established risk factors include advanced maternal age, primigravidity or high parity, short interpregnancy intervals, previous hypertension, and psychosocial stress (Caplan et al., 2021; Garovic et al., 2022; Morgan et al., 2022).

Nutritional factors, particularly electrolyte balance, have received increasing attention in the prevention and management of hypertension. While pharmacological therapy involves antihypertensive medications, non-pharmacological therapy focuses on lifestyle modification and nutritional management. Potassium intake plays a crucial physiological role in blood pressure regulation by promoting natriuresis, reducing vascular resistance, and counteracting the hypertensive effects of excess sodium consumption (Verma et al., 2021). However, evidence on potassium-based dietary interventions specifically targeting gestational hypertension remains limited and heterogeneous, with variations in study design, dietary sources, and outcome measures (Mahmood et al., 2019).

One locally available and culturally acceptable source of dietary potassium is the Ambon banana (Musa acuminata). This fruit contains approximately 435 mg of potassium per 100 grams and has a relatively low sodium content compared with many other commonly consumed foods (Kongkoli et al., 2021). In addition to potassium, Ambon bananas contain bioactive compounds such as flavonoids, saponins, and alkaloids, which have been suggested to support vascular function and cardiovascular health. Compared with other banana varieties, Ambon bananas reportedly have a more favorable potassium–sodium ratio, which may be particularly relevant for blood pressure regulation (Berliana et al., 2024). Regular consumption of this fruit may help stabilize blood pressure and reduce the risk of complications associated with

gestational hypertension (Tuju et al., 2023). Nevertheless, empirical evidence assessing their effectiveness as a complementary dietary intervention for gestational hypertension especially among pregnant women, remains scarce and inconclusive.

At the local level, data from the Jalan Emas Public Health Center in Tangerang Regency recorded 32 cases of gestational hypertension between July and October 2024, with affected women commonly exhibiting modifiable risk factors such as high salt intake, frequent consumption of processed foods, psychosocial stress, limited physical activity, and irregular antenatal care attendance. Despite the recognized importance of dietary potassium in blood pressure regulation, nutritional interventions using locally available potassium rich foods such as Ambon bananas have not been systematically implemented or evaluated in this primary healthcare setting. Moreover, evidence examining Ambon banana consumption among pregnant women with gestational hypertension in Indonesia remains limited, highlighting a clear research gap. Therefore, this study aimed to examine the association between Ambon banana (Musa acuminata) consumption and blood pressure levels among pregnant women with gestational hypertension in Tangerang Regency, contributing context specific evidence to support culturally appropriate and non-pharmacological maternal health strategies.

2. RESEARCH METHOD

This study employed a quantitative approach using a pre-experimental one-group pre-test–post-test design to examine changes in blood pressure among pregnant women with gestational hypertension following Ambon banana (Musa acuminata) consumption. Blood pressure was measured before the intervention (pre-test) and after seven days of intervention (post-test).

The study was conducted at the Maternal and Child Health (MCH) unit of Jalan Emas Public Health Center, Tangerang Regency, from 3 to 11 January 2025. The study population comprised all pregnant women diagnosed with gestational hypertension who visited the health center between July and October 2024 (n = 32). Total sampling was applied, resulting in 31 participants after one individual declined participation.

Inclusion criteria were pregnant women with gestational hypertension, blood pressure ≥140/90 mmHg, not using antihypertensive medication, physically and mentally healthy, and willing to comply with dietary restrictions during the study period. Exclusion criteria included refusal to participate, allergy to Ambon bananas, and regular use of antihypertensive drugs.

The independent variable in this study was Ambon banana consumption, defined as a non-pharmacological intervention that helps lower blood pressure through its high potassium content. Participants were instructed to consume two ripe Ambon bananas, equivalent to 200 grams, daily for seven consecutive days. The dependent variable was blood pressure, measured in millimeters of mercury (mmHg) using a digital sphygmomanometer before and after the intervention. The research instruments included a participant consent form, informed consent sheet, observation form, and Standard Operating Procedure (SOP) for banana administration. Blood pressure was measured using a digital sphygmomanometer, and banana portions were weighed using a food scale to ensure accuracy. All instruments were adapted from validated tools used in previous studies and were checked for accuracy before use.

Data collection began after obtaining permission from the institution and ethical approval. Respondents were informed about the objectives and procedures of the research and provided written informed consent. Blood pressure measurements were conducted one day before the intervention (pre-test). Each participant then consumed 200 grams of ripe Ambon banana daily for seven days, under supervision to ensure compliance. After the intervention, blood pressure was re-measured on the seventh day (post-test). Data were processed through several stages, including editing, coding, data entry, and analysis using Microsoft Excel and SPSS. Univariate analysis was conducted to describe the distribution of systolic and diastolic blood pressure

before and after intervention. Bivariate analysis was performed using the paired t-test for normally distributed data or the Wilcoxon signed-rank test for non-normal data to determine whether there was a significant effect of Ambon banana consumption on blood pressure reduction.

Ethical approval was obtained from the Health Research Ethics Committee, Faculty of Health Sciences, Universitas Muhammadiyah Tangerang (No. 226/KEPIII.3.AU/F/FIKes/2025). All participants provided written informed consent prior to data collection.

3. RESULTS AND DISCUSSION

This study included 31 pregnant women diagnosed with gestational hypertension who attended Puskesmas Jalan Emas in Tangerang Regency. Participants were aged between 23 and 30 years. Blood pressure measurements, including systolic and diastolic values, were obtained before and after a seven-day Ambon banana consumption intervention. Univariate analysis was conducted to describe blood pressure distributions at baseline and post intervention.

Table 1. Blood Pressure Before Ambon Banana Consumption (n=31).

Blood Pressure	Mean	Median	SD	Min	Max
Systolic	147.2	148	5.0	140	153
Diastolic	94.2	94	4.0	90	100

As presented in Table 1, prior to the intervention, the mean systolic blood pressure was 147.2 mmHg with a standard deviation of 5.0 mmHg, while the mean diastolic blood pressure was 94.2 mmHg with a standard deviation of 4.0 mmHg. These values indicate that all participants were within the hypertensive range at baseline.

Table 2. Blood Pressure After Ambon Banana Consumption (n=31).

Blood Pressure	Mean	Median	SD	Min	Max
Systolic	127.0	128	5.2	120	132
Diastolic	83.4	84	3.1	80	86

Following seven days of Ambon banana consumption, blood pressure values decreased, as shown in Table 2. The mean systolic blood pressure declined to 127.0 mmHg with a standard deviation of 5.2 mmHg, and the mean diastolic blood pressure decreased to 83.4 mmHg with a standard deviation of 3.1 mmHg.

Normality testing using the Shapiro Wilk test on the differences between pre intervention and post intervention blood pressure values yielded p values greater than 0.05, indicating a normal distribution. Consequently, paired t tests were applied to assess differences in mean blood pressure before and after the intervention. As shown in Table 3, statistically significant reductions were observed for both systolic blood pressure ($p = 0.0001$) and diastolic blood pressure ($p = 0.0005$).

Table 3. Effect of Ambon Banana Consumption on Blood Pressure (n=31).

Blood Pressure	Pretest Mean	Posttest Mean	Pretest SD	Posttest SD	p-value
Systolic	147.2	127.0	5.0	5.2	0.0001
Diastolic	94.2	83.4	4.0	3.1	0.0005

**Paired t-test; $p < 0.05$ indicates a significant difference.*

The paired t-test results showed a significant reduction in blood pressure after the intervention. Systolic pressure decreased from 147.2 to 127.0 mmHg ($p = 0.0001$), and diastolic pressure decreased from 94.2 to 83.4 mmHg ($p = 0.0005$). This indicates that Ambon banana consumption significantly lowers both systolic and diastolic blood pressure in pregnant women with gestational hypertension.

The results indicate a statistically significant decrease in both systolic and diastolic blood pressure following seven days of Ambon banana consumption among pregnant women with gestational hypertension. However, these findings should be interpreted cautiously. Given the one-group pretest-posttest design and absence of a control group, the observed reductions cannot be attributed solely to Ambon banana consumption. Alternative explanations such as regression to the mean, increased rest or attention during the study period, short term dietary modifications, or measurement effects may have contributed to the changes in blood pressure.

The magnitude of the observed blood pressure reduction, approximately 20 mmHg systolic and 11 mmHg diastolic, is relatively large for a short dietary intervention. Similar dietary potassium interventions in pregnant and non pregnant populations have generally reported more modest reductions, particularly over longer follow up periods. This discrepancy raises the possibility of measurement bias, heightened short term compliance, or unmeasured changes in sodium intake, physical activity, or stress levels during the intervention period. These factors were not objectively assessed and may have influenced the outcomes.

The results of this study demonstrate that Ambon banana (Musa acuminata) consumption significantly reduces both systolic and diastolic blood pressure in pregnant women with gestational hypertension. After seven days of intervention, the mean systolic pressure decreased from 147.2 mmHg to 127.0 mmHg, and the mean diastolic pressure decreased from 94.2 mmHg to 83.4 mmHg. These findings indicate that Ambon bananas can serve as an effective complementary non-pharmacological therapy for managing gestational hypertension. These results are consistent with previous studies highlighting the role of potassium-rich foods in blood pressure regulation (Khairina et al., 2025). Several interventional and observational studies have demonstrated that dietary potassium intake can effectively lower blood pressure in individuals with mild to moderate hypertension, including pregnant women with gestational hypertension (Granal et al., 2025). Similar results have been observed in studies utilizing fruit-based dietary interventions, suggesting that whole-food approaches may offer additional benefits through synergistic effects of dietary fiber, antioxidants, and micronutrients (Madsen et al., 2023; Toh et al., 2020). However, some studies have reported no significant association between banana consumption or potassium intake and blood pressure reduction (Palaniveloo et al., 2021; Stone et al., 2021; Turban et al., 2021). These discrepancies may be explained by differences in study design, intervention duration, dosage, baseline blood pressure levels, and participant characteristics.

Potassium promotes sodium excretion through the urine, reducing blood volume and vascular pressure, thereby preventing hypertension (Su et al., 2020). The potassium intake from fruits and vegetables, including bananas, helps stabilize blood pressure by improving cardiovascular function and preventing fluid retention (Quan et al., 2024). The Ambon bananas, with their high potassium content, are particularly effective in reducing systolic and diastolic pressures in hypertensive individuals (Astuti et al., 2021; Gemini et al., 2024; Manek et al., 2023). Ambon bananas (Musa acuminata) contain approximately 350–370 mg of potassium per 100 g, providing about 700 mg of potassium per day with the 200 g intervention dose used in this study. This potassium level is comparable to other banana varieties, such as Raja and Kepok bananas (approximately 400–420 mg/100 g) and Mas bananas (390–410 mg/100 g). Differences in potassium content among banana types and across studies may result from variations in cultivar, soil composition, climate, agricultural practices, and fruit maturity (Hapsari & Lestari, 2016; Sari et al., 2024). Although Ambon bananas grown in different regions may show slight variation in potassium levels, their overall potassium content remains sufficiently high to support blood pressure regulation, reinforcing their potential as a complementary non-pharmacological intervention for gestational hypertension.

The observed blood pressure reduction can also be attributed to the presence of secondary metabolites in Ambon bananas, such as saponins, flavonoids, glycosides, and alkaloids, which

may have vasodilatory and antioxidative effects (Jaleel et al., 2024). A laboratory analysis using atomic absorption spectrophotometry showed that Ambon bananas (Musa paradisiaca) contain approximately 367 mg of potassium per 100 g, which is lower than several Indonesian banana varieties such as Banten, Kepok, Mas, and Raja bananas (approximately 405–417 mg/100 g), but higher than others such as Horn bananas (~340 mg/100 g) (Hapsari & Lestari, 2016; Sari et al., 2024). These bioactive compounds can improve vascular health, reduce oxidative stress, and enhance endothelial function, contributing to lower blood pressure levels (Malinowski et al., 2020). Moreover, the findings support the use of dietary interventions as a safe and accessible approach for managing hypertension during pregnancy (Domínguez-Solís et al., 2021). Unlike pharmacological therapies, which may pose risks for both mother and fetus, consumption of nutrient-rich fruits like Ambon bananas offers a natural, low-risk method to help control blood pressure. This approach aligns with recommendations from the World Health Organization and the Indonesian Ministry of Health emphasizing non-pharmacological interventions, including nutritional adjustments, for the prevention and management of gestational hypertension (World Health Organization, 2020). Unlike pharmacological therapies, which may pose risks to both mother and fetus, consumption of nutrient-rich fruits such as Ambon bananas provides a safe, non-pharmacological option for blood pressure control. Managing gestational hypertension is crucial because uncontrolled blood pressure increases the risk of preeclampsia, preterm birth, and other adverse maternal and fetal outcomes (Jin et al., 2024). Accordingly, the World Health Organization and the Indonesian Ministry of Health recommend dietary and lifestyle interventions as first-line strategies for managing mild to moderate gestational hypertension during pregnancy.

The present study adds to the limited evidence on locally available dietary approaches for blood pressure management during pregnancy, particularly in primary healthcare settings. However, generalizability is constrained by the small sample size, single center setting, lack of detailed baseline characteristics such as gestational age, body mass index, parity, and dietary intake, and reliance on self-reported adherence. Moreover, existing literature on potassium based dietary interventions has shown mixed results, with some studies reporting limited or inconsistent effects, underscoring the need for more rigorous research designs. Future studies should employ randomized controlled designs, include appropriate comparison groups, assess dietary intake and biochemical potassium levels, and evaluate longer term outcomes to better clarify the role of Ambon bananas as a complementary dietary strategy for gestational hypertension. Study about food taboos among pregnant women also faces challenges in capturing deeply rooted cultural beliefs and social norms that vary across communities and are often transmitted orally. For example, a study reported that pregnant women in certain Indonesian communities avoid foods such as bananas due to beliefs that they may negatively affect pregnancy outcomes, despite their nutritional benefits (Suyitno et al., 2023).

This study has several limitations. The small sample size and recruitment from a single primary health care center limit the generalizability of the findings. The one-group pretest–posttest design without a control group makes it difficult to rule out confounding factors such as natural blood pressure variation or other lifestyle changes. The short intervention period of seven days is insufficient to assess long-term blood pressure regulation in gestational hypertension. In addition, key confounders including dietary intake, physical activity, stress levels, gestational age, and body mass index were not fully controlled, and reliance on self-reported adherence may have introduced reporting bias. Future studies should include larger samples, longer follow-up periods, control groups, and more rigorous assessment of potential confounding variables.

4. CONCLUSION

This study found that Ambon banana (Musa acuminata) consumption was associated with reductions in systolic and diastolic blood pressure among pregnant women with gestational

hypertension attending Puskesmas Jalan Emas in Tangerang Regency. While these findings suggest a potential role for potassium rich local fruits as a complementary dietary approach, interpretation should be made with caution due to methodological limitations, including the small sample size, short intervention duration, and the absence of a control group. Consequently, the results cannot establish a causal relationship between Ambon banana consumption and blood pressure reduction. Rather than supporting routine clinical or policy recommendations, the findings provide preliminary evidence that may inform future research. Further studies employing randomized controlled designs, larger and more diverse populations, longer follow up periods, and rigorous control of dietary intake including sodium and potassium assessment are needed to clarify the effectiveness and safety of Ambon banana consumption for managing gestational hypertension and to better understand its implications for maternal and fetal health.

REFERENCES

Akbar, M. I. A., Adibrata, M. A., Aditiawarman, Aryananda, R. A., Angsar, M. D., & Dekker, G. (2019). Maternal and perinatal outcome related to severity of chronic hypertension in pregnancy. *Pregnancy Hypertension*, *16*, 154–160. https://doi.org/10.1016/j.preghy.2019.04.007

Al-Mutawtah, M., Campbell, E., Kubis, H.-P., & Erjavec, M. (2023). Women's experiences of social support during pregnancy: a qualitative systematic review. *BMC Pregnancy and Childbirth*, *23*(1), 782. https://doi.org/10.1186/s12884-023-06089-0

Astuti, Y., Fandizal, M., Riani, N., Aman, I., Nurmala, A., & Masruroh, M. (2021). The Effect of Noni Juice with Ambon Banana on Blood Pressure Reduction in Family with Hypertension Disease in East Jakarta. *Jurnal Ilmiah Ilmu Keperawatan Indonesia*, *11*(03), 165–169. https://doi.org/10.33221/jiiki.v11i03.1747

Berliana, F., Tiara Carolin, B., & Azzahroh, P. (2024). The Effect of Giving Ambon Banana (Musa Paradisiaca Var Sapientum Linn) on Blood Pressure among Pregnant Mothers with Hypertension. *Health and Technology Journal (HTechJ)*, *2*(1), 42–46. https://doi.org/10.53713/htechj.v2i1.145

Bjelica, A., Cetkovic, N., Trninic-Pjevic, A., & Mladenovic-Segedi, L. (2018). The phenomenon of pregnancy — a psychological view. *Ginekologia Polska*, *89*(2), 102–106. https://doi.org/10.5603/GP.a2018.0017

Caplan, M., Keenan-Devlin, L. S., Freedman, A., Grobman, W., Wadhwa, P. D., Buss, C., Miller, G. E., & Borders, A. E. B. (2021). Lifetime Psychosocial Stress Exposure Associated with Hypertensive Disorders of Pregnancy. *American Journal of Perinatology*, *38*(13), 1412–1419. https://doi.org/10.1055/s-0040-1713368

Chang, K.-J., Seow, K.-M., & Chen, K.-H. (2023). Preeclampsia: Recent Advances in Predicting, Preventing, and Managing the Maternal and Fetal Life-Threatening Condition. *International Journal of Environmental Research and Public Health*, *20*(4), 2994. https://doi.org/10.3390/ijerph20042994

Dağlar, G., Bilgiç, D., & Aydin Özkan, S. (2019). Factors affecting the quality of life among pregnant women during third trimester of pregnancy. *Cukurova Medical Journal*, *44*(3), 772–781. https://doi.org/10.17826/cumj.482553

Domínguez-Solís, E., Lima-Serrano, M., & Lima-Rodríguez, J. S. (2021). Non-pharmacological interventions to reduce anxiety in pregnancy, labour and postpartum: A systematic review. *Midwifery*, *102*, 103126. https://doi.org/10.1016/j.midw.2021.103126

Ekawati, F. M., Emilia, O., Brennecke, S., Gunn, J., Licqurish, S., & Lau, P. (2020). Opportunities for improving hypertensive disorders of pregnancy (HDP) management in primary care settings: A review of international published guidelines in the context of

pregnancy care in Indonesia. *Pregnancy Hypertension*, *19*, 195–204. https://doi.org/10.1016/j.preghy.2020.01.012

Garovic, V. D., Dechend, R., Easterling, T., Karumanchi, S. A., McMurtry Baird, S., Magee, L. A., Rana, S., Vermunt, J. V., & August, P. (2022). Hypertension in Pregnancy: Diagnosis, Blood Pressure Goals, and Pharmacotherapy: A Scientific Statement From the American Heart Association. *Hypertension*, *79*(2), e21-e41. https://doi.org/10.1161/HYP.0000000000000208

Gemini, S., Alba, A. D., & Dharma, F. (2024). Comparison of The Effectiveness of Consuming Watermelon and Ambon Bananas on The Blood Pressure of Elderly People with Hypertension. *Nusantara Science and Technology Proceedings*, 66–70. https://doi.org/10.11594/nstp.2024.4313

Granal, M., Sourd, V., Burnier, M., Fauvel, J. P., & Gougeon, A. (2025). Effect of changes in potassium intake on blood pressure: a dose–response meta-analysis of randomized clinical trials (2000–2024). *Clinical Kidney Journal*, *18*(7), 1-12. https://doi.org/10.1093/ckj/sfaf173

Hapsari, L., & Lestari, D. A. (2016). Fruit characteristic and nutrient values of four Indonesian banana cultivars (Musa spp.) at different genomic groups. *AGRIVITA Journal of Agricultural Science,* 38(3), 303-311. https://doi.org/10.17503/agrivita.v38i3.696

Jaleel, A., Jacob, S., Ghosh, S., & Suresh, A. (2024). A Comprehensive Review on Nutrient Profile and Pharmacological Benefits of Musa paradisiaca. *Sciences of Phytochemistry*, *3*(2), 123–143. https://doi.org/10.58920/sciphy0302254

Jiang, L., Tang, K., Magee, L. A., von Dadelszen, P., Ekeroma, A., Li, X., Zhang, E., & Bhutta, Z. A. (2022). A global view of hypertensive disorders and diabetes mellitus during pregnancy. *Nature Reviews Endocrinology*, *18*(12), 760–775. https://doi.org/10.1038/s41574-022-00734-y

Jin, M., Liu, X., Liu, X., Wu, Y., Zhang, Y., Zhang, L., ... & Li, N. (2024). Association of pre-/early pregnancy high blood pressure and pregnancy outcomes: a systemic review and meta-analysis. *The Journal of Maternal-Fetal & Neonatal Medicine*, 37(1), 2296366. https://doi.org/10.1080/14767058.2023.2296366

Khairina, D. N., Dewi, M., & Rimbawan, R. (2025). The intervention of banana peel smoothies products to lower blood pressure in prehypertensive patients. *AcTion: Aceh Nutrition Journal*, 10(3), 702-711. https://doi.org/10.30867/action.v10i3.2053

Kongkoli, H. Y., Nasrullah, Sumira, & M. Askar. (2021). The Effectiveness of Cucumber (Cucumis Sativus) and Ambon Banana Fruit (Musa Acuminata Cola) in Reducing Blood Pressure in Hypertensive Patients in Palangga Gowa District, Indonesia. *Indian Journal of Forensic Medicine & Toxicology*, *15*(2), 2311–2316. https://doi.org/10.37506/ijfmt.v15i2.14715

Kumar, M., Singh, A., Garg, R., Goel, M., & Ravi, V. (2021). Hypertension during pregnancy and risk of stillbirth: challenges in a developing country. *The Journal of Maternal-Fetal & Neonatal Medicine*, *34*(23), 3915–3921. https://doi.org/10.1080/14767058.2019.1702943

Madsen, H., Sen, A., & Aune, D. (2023). Fruit and vegetable consumption and the risk of hypertension: a systematic review and meta-analysis of prospective studies. *European Journal of Nutrition*, *62*(5), 1941–1955. https://doi.org/10.1007/s00394-023-03145-5

Mahmood, S., Shah, K. U., Khan, T. M., Nawaz, S., Rashid, H., Baqar, S. W. A., & Kamran, S. (2019). Non-pharmacological management of hypertension: in the light of current research. *Irish Journal of Medical Science (1971-)*, 188(2), 437–452. https://doi.org/10.1007/s11845-018-1889-8

Malinowski, B., Fajardo Leighton, R. I., Hill, C. G., Szandorowski, P., & Wiciński, M. (2020). Bioactive Compounds and Their Effect on Blood Pressure—A Review. *Nutrients*, *12*(6), 1659. https://doi.org/10.3390/nu12061659

Manek, N. A., Datta, F. U., Refli, R., Lalel, H. J. D., & Manongga, S. P. (2023). The Effect of Ambon Banana Juice (Musa paradisiaca var. Sapientum Linn) and Sweet Starfruit Juice (Averrhoa carambola L) on Changes in Blood Pressure in the Elderly Men in the Community Health Center Work Area Tarus, Kupang Regency. *Indonesian Journal of Medicine*, 8(4), 385–392. https://doi.org/10.26911/theijmed.2023.8.4.685

Morgan, N., Christensen, K., Skedros, G., Kim, S., & Schliep, K. (2022). Life stressors, hypertensive disorders of pregnancy, and preterm birth. *Journal of Psychosomatic Obstetrics & Gynecology*, 43(1), 42–50. https://doi.org/10.1080/0167482X.2020.1778666

Ngene, N. C., & Moodley, J. (2019). Physiology of blood pressure relevant to managing hypertension in pregnancy. *The Journal of Maternal-Fetal & Neonatal Medicine*, *32*(8), 1368–1377. https://doi.org/10.1080/14767058.2017.1404569

Palaniveloo, L., Ambak, R., Othman, F., Mohd Zaki, N. A., Baharudin, A., Abdul Aziz, N. S., & Salleh, R. (2021). Low potassium intake and its association with blood pressure among adults in Malaysia: findings from the MyCoSS (Malaysian Community Salt Survey). *Journal of Health, Population and Nutrition*, *40*(S1), 7. https://doi.org/10.1186/s41043-021-00238-x

Quan, Z., Li, C., Zhao, L., Cui, D., Liu, S., Yin, Y., Tang, Q., Zeng, D., Song, L., & Fu, X. (2024). Effect of banana intake on serum potassium level in patients undergoing maintenance hemodialysis: A randomized controlled trial. *International Journal of Nursing Sciences*, *11*(2), 197–204. https://doi.org/10.1016/j.ijnss.2024.03.016

Sari, S. R., Nurul Suci, Yunus, M., Nasri, N., & Kaban, V. E. (2024). Unveiling the Mineral Composition: Potassium and Magnesium Levels in Musa Paradisiaca L. Varieties from Medan's Traditional Markets Using Atomic Absorption Spectrophotometry. *Indonesian Journal of Pharmaceutical and Clinical Research*, *7*(2), 51–58. https://doi.org/10.32734/idjpcr.v7i2.18109

Simoncic, V., Deguen, S., Enaux, C., Vandentorren, S., & Kihal-Talantikite, W. (2022). A Comprehensive Review on Social Inequalities and Pregnancy Outcome—Identification of Relevant Pathways and Mechanisms. *International Journal of Environmental Research and Public Health*, *19*(24), 16592. https://doi.org/10.3390/ijerph192416592

Stone, M. S., Martin, B. R., & Weaver, C. M. (2021). Short-Term RCT of Increased Dietary Potassium from Potato or Potassium Gluconate: Effect on Blood Pressure, Microcirculation, and Potassium and Sodium Retention in Pre-Hypertensive-to-Hypertensive Adults. *Nutrients*, *13*(5), 1610. https://doi.org/10.3390/nu13051610

Su, X.-T., Yang, C.-L., & Ellison, D. H. (2020). Kidney Is Essential for Blood Pressure Modulation by Dietary Potassium. *Current Cardiology Reports*, *22*(10), 124. https://doi.org/10.1007/s11886-020-01359-1

Suyitno, S., Suwarni, L., Asmarawanti, Sadli, M., & Sera, A. C. (2023). Exploring tabooed food among Dayaknese of Ngaju Women in Central Kalimantan Province, Indonesia. *Public Health of Indonesia*, *9*(3), 123–132. https://doi.org/10.36685/phi.v9i3.715

Toh, D. W. K., Koh, E. S., & Kim, J. E. (2020). Incorporating healthy dietary changes in addition to an increase in fruit and vegetable intake further improves the status of cardiovascular disease risk factors: A systematic review, meta-regression, and meta-analysis of randomized controlled trials. *Nutrition Reviews*, *78*(7), 532–545. https://doi.org/10.1093/nutrit/nuz104

Tuju, S. O., Lumi, F., Dompas, R., Purwandari, A., Tombokan, S. G., Alam, S., & Pesak, E. (2023, December). Effect of Giving Kepok Banana Fruit (Musa Acuminata X Balbisiana) against Blood Pressure Reduction in Pregnant Mothers Trimester II. *In 6th International Conference of Health Polytechnic Surabaya (ICoHPS 2023)*, pp. 588-600. Atlantis Press. https://doi.org/10.2991/978-94-6463-324-5_58

Turban, S., Juraschek, S. P., Miller, E. R., Anderson, C. A. M., White, K., Charleston, J., & Appel, L. J. (2021). Randomized Trial on the Effects of Dietary Potassium on Blood Pressure and Serum Potassium Levels in Adults with Chronic Kidney Disease. *Nutrients*, *13*(8), 2678. https://doi.org/10.3390/nu13082678

Verma, N., Rastogi, S., Chia, Y., Siddique, S., Turana, Y., Cheng, H., Sogunuru, G. P., Tay, J. C., Teo, B. W., Wang, T., TSOI, K. K. F., & Kario, K. (2021). Non-pharmacological management of hypertension. *The Journal of Clinical Hypertension*, *23*(7), 1275–1283. https://doi.org/10.1111/jch.14236

Wang, W., Xie, X., Yuan, T., Wang, Y., Zhao, F., Zhou, Z., & Zhang, H. (2021). Epidemiological trends of maternal hypertensive disorders of pregnancy at the global, regional, and national levels: a population-based study. *BMC Pregnancy and Childbirth*, *21*(1), 364. https://doi.org/10.1186/s12884-021-03809-2

Wei, W., Wang, X., Zhou, Y., Shang, X., & Yu, H. (2022). The genetic risk factors for pregnancy-induced hypertension: Evidence from genetic polymorphisms. *The FASEB Journal*, 36(7), e22413. https://doi.org/10.1096/fj.202101853RR

World Health Organization. (2020, August 11). *WHO recommendations on drug treatment for non-severe hypertension in pregnancy*. Geneva: WHO. Retrieved from: https://www.who.int/publications/i/item/9789240008793