E-ISSN: 2987-209X
International Journal of Midwifery and Health Sciences
Vol. 3, Issue 3 (2025), November

The Effect of Giving Ambon Banana Smoothies on Hemoglobin Levels in Pregnant Women in the Third Trimester with Anemia in TPMB Wahdiati District, Tangerang

Ade Mona Julia Putri [1,] **Putri Azzahroh** [2,] **Bunga Tiara Carolin** [3*]

[1,2,3] *Midwifery Study Program, Faculty of Health Sciences, National University*

**Corresponding Author: bunga.tiara@civitas.unas.ac.id,*

Submission date: 15-08-2025; Date of received: 27-08-2025

ABSTRACT

Background: Anemia is a condition of low oxygen levels in the blood caused by a lack of iron intake, which is necessary for the formation of hemoglobin. There are two ways to prevent anemia: pharmacologically, by taking iron tablets, and non-pharmacologically, by consuming Ambon banana smoothies. **Purpose:** To determine the effect of administering Ambon banana smoothies on hemoglobin levels in pregnant women in their third trimester with anemia at the Wahdiati Maternity Clinic in Tangerang Regency. **Methods:** The data analysis used was univariate. The average hemoglobin level before the administration of Ambon banana smoothies in the control group was 10,56 g/dL, while in the intervention group it was 10,29 g/dL. The average hemoglobin level after administration of Ambon banana smoothies in the control group was 11,50 g/dL, while in the intervention group it was 12,36 g/dL. The results of the bivariate analysis using an independent t-test yielded a p-value of 0,001 ($p < 0,05$). This finding indicates that there was a significant difference in the increase in hemoglobin levels between the control group and the intervention group. **Conclusion:** Ambon banana smoothies are a safe and effective alternative therapy for increasing hemoglobin levels. Further research with larger samples and longer intervention durations is recommended to reinforce these findings

Keywords: anemia in pregnant women, hemoglobin levels, ambon banana *smoothies*, third trimester, nutritional intervention.

Introduction

Anemia in pregnant women remains a health issue that requires serious attention, both in Indonesia and in other developing countries. This condition is characterized by low levels of hemoglobin in the blood, a vital component responsible for transporting oxygen to all body tissues, including the growing and developing fetus in the womb. Low hemoglobin levels directly impact the physiological processes of both the mother and the fetus, as inadequate oxygen supply can trigger various serious health problem. Anemia during pregnancy not only directly impacts the mother's health but can also reduce the child's quality of life and hinder long-term development (Rismawati et al., 2022)

According to a report by *the World Health Organization* (WHO, 2021), the prevalence of anemia in pregnant women worldwide reaches 36,5%. Meanwhile, a *meta-analysis study* by (Gebreweld, 2022)revealed that the prevalence rate is slightly higher, at around 36,8%. In Indonesia, the situation is even more alarming. Data from the 2022 *Indonesian Nutritional Status Survey* (*SSGI*) released by *the Ministry of Health of the Republic of Indonesia* (RI, 2022) shows that the prevalence of anemia in pregnant women reached 48.9%. This figure indicates that nearly half of all pregnant women in Indonesia suffer from anemia, making this problem an urgent public health challenge that must be addressed.

Anemia during pregnancy can have a variety of consequences, ranging from mild symptoms to complications that threaten the life of both the mother and the fetus. These impacts include pregnancy complications such as miscarriage *and* premature birth, problems during labor such as prolonged *labor* and heavy bleeding, and postpartum complications such as infection, stress, and low breast milk production. Furthermore, the fetus is also at risk of dysmaturity, microsomy, low birth weight (*LBW*), and even perinatal death (Rismawati et al., 2022)

The most common type of anemia experienced by pregnant women is iron deficiency anemia , which is generally caused by low iron intake from the daily diet, impaired iron absorption in the gastrointestinal tract, digestive system problems, or significant blood loss. (Rismawati et al., 2022)emphasized that anemia during pregnancy can increase the risk of serious complications, including postpartum hemorrhage . In fact, if anemia occurs in the first trimester of pregnancy, this condition can trigger premature birth. This fact demonstrates the importance of preventing and properly managing anemia during pregnancy, one of which is through providing iron-rich nutrition.

One simple yet potent food-based intervention is the use of bananas, particularly Ambon bananas, as a nutritional source to increase hemoglobin levels. Ambon bananas (*Musa paradisiaca var. Sapientum Linn.*) contain iron, vitamin C, and B-complex vitamins, all of which play a role in hemoglobin formation. Findings by (Siregar et al., 2022) indicate that regular consumption of Ambon bananas can increase hemoglobin levels in pregnant women with anemia, thereby helping reduce the risk of complications that may occur during pregnancy.

One popular and widely loved processed food is banana *smoothies* . Processing bananas into *smoothies* not only provides a delicious flavor but also makes it easier for pregnant women to consume this fruit regularly, thus meeting their nutritional needs. Ambon bananas, which are commonly found in Southeast Asia, including Indonesia, have a physical appearance that is similar to Cavendish bananas, but are relatively smaller in size. Besides being consumed directly, Ambon bananas can be processed into various dishes such as fried bananas or banana cake. Their nutritional content is quite complete and also beneficial for health (Heryanto & Moonti, 2023)

Findings (Siregar et al., 2022)reinforce the benefits of this fruit, where consuming 320 grams of Ambon bananas for one week was shown to significantly increase hemoglobin levels. This suggests that meeting the iron needs of pregnant women requires adequate intake from iron-rich foods, and Ambon bananas are a good choice. Furthermore, the body's iron metabolism requires vitamin C for optimal iron absorption. Because Ambon bananas contain vitamin C, this fruit plays a dual role: as a source of iron and also as a supporter of iron absorption in the body, ultimately effectively increasing hemoglobin levels in pregnant women.

Based on data collected from January to May 2025 at the Wahdiati Prenatal Health Center (TPMB), 60 of the 140 pregnant women examined suffered from anemia. Efforts to address this issue include routinely administering iron supplements once daily and improving dietary habits, particularly by increasing the consumption of vegetables and fruits. Following these interventions, the pregnant women are scheduled for repeat laboratory tests one month later to monitor their hemoglobin levels.

Methods

This finding uses a *quasi-experimental design* with *a two group pretest-posttest design approach* , where there are two groups, namely the experimental group and also

the control group which are selected randomly *to* measure changes in hemoglobin levels before and also after being given Ambon banana *smoothies* , with a sample size of 30 people consisting of 15 pregnant women in the third trimester who were given Ambon banana *smoothies* and also 15 pregnant women in the third trimester who were not given the treatment. The location of the findings at TPMB Wahdiati Harapan Kita Housing, Bencongan Indah District, Kelapa Dua Village, Tangerang Regency, which was carried out from May to July 2025, using the independent variable in the form of Ambon banana *smoothies* and also the dependent variable in the form of hemoglobin levels of pregnant women with anemia, and interfering variables that may influence the results, with operational definitions that refer to the limits and also clear measurements of these variables to ensure the implementation of findings and also objective data analysis.

Results

Table 1
Average Hemoglobin Levels in the Intervention Group Before and After Giving Ambon Banana *Smoothies*

Hemoglobin Level	N	Mean	Standard Deviation	Min	Max
Before	15	10,29	0,42	9,5	10,8
After	15	12,36	0,39	11,7	12,9

Based on the data presented in Table 1, there was a marked and noteworthy improvement in hemoglobin levels among the participants in the intervention group following the administration of Ambon banana smoothies throughout the observation period. Before the intervention, the average hemoglobin concentration of the participants was measured at 10,29 g/dL, with a standard deviation of 0,42, which clearly falls below the recommended normal range for pregnant women. The lowest recorded value among the participants was 9,5 g/dL, while the highest reached 10,8 g/dL, indicating that every individual in the group was experiencing mild anemia before the introduction of the smoothie intervention. After consistently consuming the Ambon banana smoothies, the average hemoglobin level increased substantially to 12,36 g/dL, with a reduced standard deviation of 0,39, and values ranging from a minimum of 11,7 g/dL to a maximum of 12,9 g/dL. This significant upward shift demonstrates that all participants achieved hemoglobin levels within the normal range post-intervention, highlighting the smoothie's effectiveness in evenly enhancing hemoglobin concentrations in third-trimester pregnant women with anemia.

These findings not only suggest the potential of Ambon banana smoothies as a natural dietary strategy for improving maternal hemoglobin levels but also underscore the broader implications of integrating nutrient-rich fruits into the diet to support maternal health and fetal development, emphasizing the importance of accessible and palatable nutritional interventions during pregnancy.

Table 2
Average Hemoglobin Levels in the Control Group Before and After the Findings

Hemoglobin Level	N	Mean	Standard Deviation	Min	Max
Before	15	10,56	0,24	10,1	10,9
After	15	11,50	0,17	11,2	11,8

Table 2 illustrates the changes in hemoglobin levels observed within the control group, which did not receive Ambon banana smoothies, revealing a modest improvement over the course of the study period, though the magnitude of this increase was notably smaller compared to the intervention group. Initially, the participants in the control group had an average hemoglobin level of 10,56 g/dL with a standard deviation of 0,24, a minimum value of 10,1 g/dL, and a maximum of 10,9 g/dL, indicating that many were still below the optimal hemoglobin range for pregnant women.

Following the intervention period, hemoglobin levels rose to an average of 11,50 g/dL, with a standard deviation of 0,17, a minimum of 11,2 g/dL, and a maximum of 11,8 g/dL, demonstrating that some improvement occurred even without the addition of Ambon banana smoothies. However, the overall increase in hemoglobin was relatively modest when contrasted with the intervention group, suggesting that while routine consumption of iron supplements and a generally improved diet may contribute to elevating hemoglobin levels, the absence of natural dietary iron sources like Ambon bananas may limit the extent of this improvement.

This data underscores the potential role of nutrient-rich foods in complementing conventional supplementation, highlighting how specific natural interventions can amplify hematological outcomes in pregnant women, and emphasizing that reliance solely on standard supplementation may produce incremental, rather than substantial, improvements in hemoglobin concentrations.

Table 3

Results of the Shapiro-Wilk Data Normality Test

Group	P Value	Information
Intervention Pre-test	0,902	Normal
Post-test Intervention	0,947	Normal
Pre-test Control	0,937	Normal
Post-test Control	0,955	Normal

The findings presented in Table 3, based on the Shapiro-Wilk normality test, indicate that the data collected from both the pre-test and post-test measurements across the intervention and control groups exhibited p-values exceeding 0,05, signifying that the dataset conforms to a normal distribution. This observation confirms that the variability and spread of the hemoglobin measurements are consistent with the assumptions required for parametric statistical analysis.

Meeting the criterion of normality is a critical prerequisite, as it ensures the reliability and validity of subsequent inferential tests. Consequently, this validation allows for the appropriate application of parametric procedures, including both the paired samples t-test, which evaluates changes within the same group over time, and the independent samples t-test, which compares differences between distinct groups. By establishing the normality of the data, researchers can confidently proceed with these analytical methods, ensuring that the statistical conclusions drawn regarding the effects of Ambon banana smoothies and other interventions on hemoglobin levels in pregnant women are both robust and scientifically sound.

Table 4.
Results of *the Paired Samples t-test* on Hemoglobin Levels Before and After Giving Ambon Banana *Smoothies*

Variables	N	Pre-test Mean	SD pre-test	Post-test Mean	SD post-test	P Value
Intervention	15	10,29	0,42	12,36	0,39	0,001
Control	15	10,56	0,24	11,50	0,17	0,001

Table 4 presents the outcomes of the paired samples t-test, which examined changes in hemoglobin levels before and after the intervention within each study group. In the intervention group, participants experienced a notable rise in average hemoglobin levels, from 10,29 g/dL before the treatment to 12,36 g/dL following the administration of Ambon banana smoothies, with a p-value less than 0,001, demonstrating that this

improvement was highly statistically significant.

In contrast, the control group, which did not receive the banana smoothie intervention, also showed a statistically significant increase in hemoglobin from an average of 10,56 g/dL to 11,50 g/dL, likewise with a p-value below 0,001, but the magnitude of this change was comparatively smaller than that observed in the intervention group. The pronounced disparity in hemoglobin elevation between the two groups strongly suggests that incorporating Ambon banana smoothies into the diet provided an additional, measurable benefit that went beyond the effects achieved by iron supplementation alone.

These findings underscore the potential of this natural dietary intervention to enhance maternal hemoglobin levels more effectively, indicating that combining conventional supplementation with nutrient-rich foods may yield superior hematological outcomes in pregnant women, particularly those experiencing anemia during the third trimester.

Table 5
Results of the *Independent t-test* for Hemoglobin Levels *Pre-test* and *Post-test* in the Intervention and Control Groups

Variables	N	Mean Intervention Group	SD	Control Group Mean	SD	P Value
Pre-test	15	10,29	0,42	10,56	0,24	0,04
Post-test	15	12,36	0,39	11,50	0,17	0,001

Based on the data summarized in Table 5, the independent t-test analysis reveals that, during the pre-test phase, there was already a statistically significant difference in the average hemoglobin levels between the intervention group, which measured 10,29 g/dL, and the control group, which measured slightly higher at 10,56 g/dL, with a p-value of 0,04.

Although this initial disparity was relatively modest, it indicates that baseline hemoglobin levels were not entirely uniform across the two groups. Following the intervention period, however, the post-test measurements demonstrated a markedly larger gap: the intervention group, which consumed Ambon banana smoothies, exhibited a substantial increase to an average hemoglobin level of 12,36 g/dL, whereas the control group, which received only standard care without the additional dietary supplementation, reached an average of 11,50 g/dL. The p-value for this post-intervention comparison was less than 0,001, reflecting a highly statistically significant difference and underscoring

the pronounced impact of the smoothie intervention.

These findings provide compelling evidence that the inclusion of Ambon banana smoothies in the diet of anemic pregnant women not only enhances hemoglobin levels more effectively than standard care alone but also demonstrates the practical potential of natural, nutrient-rich foods as a complementary strategy for improving maternal hematological health, thereby highlighting an accessible and beneficial approach to addressing anemia in pregnancy.

Discussion

Hemoglobin Levels Before and After Consuming Ambon Banana *Smoothies in the Intervention Group*

Before the intervention began, the average hemoglobin level of pregnant women in the third trimester in this group was 10,29 g/dL with *a standard deviation* of 0,32, indicating that most respondents were below the normal hemoglobin limit for pregnant women and were also classified as mildly anemic. After the intervention for the specified period, there was an increase in the average hemoglobin level to 12,36 g/dL with *a standard deviation of* 0,39. This increase had a *p-value* 0,001, indicating that the difference between before and after the intervention was statistically significant.

These findings indicate that consuming Ambon banana *smoothies* contributes positively to increasing hemoglobin levels effectively. Nutritionally, Ambon bananas are rich in carbohydrates as a source of fast energy, vitamin B6 which supports the process of hemoglobin formation, vitamin C which helps the absorption of iron, and minerals such as potassium and magnesium (Pakpahan et al., 2024).

The addition of other ingredients such as milk increases protein and calcium content, while honey or dates act as a source of natural sugar and antioxidants that can increase the immune system of pregnant women (Puspita Abdjul & Wahab Pakaya, 2023). The advantages of banana *smoothies* are their soft texture, natural sweetness without added sugar, and ease of preparation, making them practical for daily consumption. The potassium in bananas is also beneficial in maintaining electrolyte balance and also reducing muscle cramps that are often experienced during pregnancy (Ghaniana & Azizi, 2024).

Compared to other types of bananas, Ambon bananas have a higher vitamin B6

content (Heryanto & Moonti, 2023), making them more optimal for supporting hemoglobin formation. These results are consistent with the findings of (Widyawati et al., 2024) and also (Hardiani. et al., 2020)which prove that consuming Ambon bananas twice daily for 7–14 days, along with Fe tablets, can significantly increase hemoglobin levels. Researchers assume that this increase is influenced by adequate iron intake and optimal iron metabolism, where the vitamin C in Ambon bananas helps iron absorption, so this combination makes Ambon banana *smoothies* effective in treating anemia in pregnant women.

Hemoglobin Levels Before and After Consuming Ambon Banana *Smoothies* in the Control Group

The control group in this study only received intervention in the form of regular consumption of iron tablets at a standard dose without the addition of Ambon banana *smoothies* . Factors influencing the increase in the control group included compliance with iron tablet consumption, a supportive diet, and the intake of other nutrients that support iron absorption. As is known, the effectiveness of iron tablets can vary depending on the dose, level of compliance, and vitamin C intake, which helps reduce ferric iron to ferrous iron, thus facilitating the formation of a ferrous-ascorbate complex that increases iron absorption by 25–50%.

Ambon bananas can actually be a natural source of vitamin C that supports this process, but in the control group, this source was not specifically added. A study (Tuju et al., 2022) also corroborated these findings, finding that the combination of Ambon bananas and iron tablets resulted in a more significant increase in hemoglobin levels than iron tablets alone. The researchers speculated that although the control group experienced an increase in hemoglobin levels due to iron tablet consumption, the increase was limited due to the lack of additional iron and vitamin C from the Ambon banana *smoothie* , thus reducing its effectiveness to the same level as in the intervention group.

The Effect of Consuming Ambon Banana *Smoothies* on Increasing Hemoglobin Levels

Statistical analysis showed that the administration of Ambon banana *smoothies*

had a significant effect on increasing hemoglobin levels in pregnant women with anemia, as evidenced by a *p-value* 0,001. The change from *pre-test* to *post-test* demonstrated the real effectiveness of this intervention. This finding is in line with the findings of Hardiani et al. (2020) who proved that consuming Ambon bananas twice daily for 14 days can significantly increase hemoglobin in pregnant women in the third trimester.

The average hemoglobin level data from this finding shows that before the intervention, the experimental group had an average of 9,9 g/dL, and also after the intervention increased to 11,56 g/dL. Meanwhile, the control group experienced an increase from 9,24 g/dL to 10,14 g/dL. Similar results were found in the thesis (Tripertiwi, 2023), where the intervention group experienced an increase of 1,68 g/dL, while the control group only experienced 0,6 g/dL.

Theoretically, this effectiveness can be explained by the iron content in Ambon bananas, which are a raw material for hemoglobin, and vitamin C, which increases iron absorption in the intestines. Researchers also observed that the success of the intervention depended not only on the nutritional content of Ambon bananas, but also on respondents' compliance with *the smoothies* on schedule, environmental support, and an iron-rich diet. Therefore, the significant increase in hemoglobin in the intervention group can be considered a result of the synergy between the key nutrients in Ambon bananas and other supporting factors.

Comparison of the Effectiveness of Ambon Banana *Smoothie Consumption* in the Intervention Group and the Control Group

This proves that the combination of Fe tablets and Ambon banana *smoothies* provides a greater increase in hemoglobin levels than consuming Fe tablets alone. The findings (Mardianti. et al., 2020) support these results by stating that Ambon bananas can act as an additional source of iron and vitamin C, thereby increasing the effectiveness of Fe supplementation. From a nutritional physiology perspective, vitamin C in Ambon bananas helps convert ferric iron into ferrous iron, which is more easily absorbed by the body, increasing iron absorption by 25–50%, and stimulating optimal hemoglobin production.

Given these benefits, Ambon bananas are recommended as part of the daily diet of pregnant women to prevent anemia and related complications, both during pregnancy,

childbirth, and postpartum. Researchers assume that although both groups experienced improvements, the most effective strategy is to combine iron supplementation with improved dietary patterns based on highly nutritious local foods such as Ambon bananas processed into *smoothies* , so that this intervention can be a simple, affordable, and sustainable approach in treating anemia in pregnant women.

Conclusion

The results of this study clearly demonstrate that a 14-day intervention involving the daily consumption of Ambon banana smoothies had a pronounced and statistically significant effect on elevating hemoglobin levels in third-trimester pregnant women diagnosed with anemia at TPMB Wahdiati, Tangerang Regency. In the group that received the Ambon banana smoothies, the average hemoglobin concentration rose markedly from 10,29 g/dL prior to the intervention to 12,36 g/dL after the 14-day period, with a p-value of less than 0,001, indicating a highly significant improvement.

By contrast, the control group, which did not receive the smoothies but continued with standard care, exhibited a smaller yet still statistically significant increase, with hemoglobin levels rising from 10,56 g/dL to 11,50 g/dL (p 0,001). Furthermore, the independent t-test analysis confirmed that the difference in hemoglobin improvement between the two groups was exceptionally significant (p 0.001), highlighting that the supplementation with Ambon banana smoothies contributed an additional and meaningful benefit beyond standard nutritional care alone.

These outcomes underscore the effectiveness of incorporating Ambon banana smoothies, which are naturally rich in iron, vitamin C, and folic acid, as a strategic nutritional intervention for managing anemia in pregnant women. Beyond merely restoring hemoglobin levels to normal ranges, this approach may also play a crucial role in mitigating the risks of anemia-related pregnancy complications, supporting overall maternal health, and providing a practical, accessible, and natural dietary solution for improving hematological outcomes during the critical third trimester of pregnancy.

Ethical Considerations

This study was conducted in accordance with ethical principles for human research, including obtaining informed *consent* from all participants prior to participation.

Throughout the study, the confidentiality of each pregnant woman's personal data and test results was strictly maintained, and participants had the right to withdraw at any time without consequence. The intervention, which included administering Ambon banana *smoothies* , was deemed safe and did not pose significant health risks, while medical supervision was maintained to prevent complications. All study procedures, including hemoglobin measurement and monitoring for side effects, followed standard health protocols, and the study was approved by the relevant ethics committee.

Conflict of Interest

The authors declare that they have no *conflicts of interest* that could affect the objectivity or integrity of these findings. All data, analysis, and interpretation of the results were conducted independently without any influence from any party.

Author contribution

All authors were actively involved in every stage of the findings, from *study design* and data collection to statistical analysis and manuscript writing. Each author also approved the final version of the manuscript for publication and is responsible for the accuracy of the findings.

References

Gebreweld, A. (2022). Prevalence of anemia and associated factors among pregnant women: A systematic review and meta-analysis. *PLOS ONE*, *17*(3), e0264715. https://doi.org/10.1371/journal.pone.0264715

Ghaniana, F., & Azizi, N. (2024). Smoothies Beverage dari Pisang Raja dan Jeruk Manis sebagai Makanan Selingan Sumber Kalium untuk Mencegah Hipertensi. *Department of Agricultural Technology Politeknik Negeri Jember*, *1*(11), 161–178. https://ocs.polije.ac.id/index.php/pnacia/article/view/75

Hardiani., Choirunissa, R., & Rifiana, A. J. (2020). Pengaruh Pisang Ambon Terhadap Peningkatan Kadar Hemoglobin pada Ibu Hamil di Klinik FS Munggaran Kabupaten Garut. *Jurnal Ilmiah Kesehatan*, *12*(2), 149–158. https://doi.org/10.37012/jik.v12i2.252

Heryanto, M. L., & Moonti, M. A. (2023). Efektifitas pemberian smoothies pisang ambon

dan jambu biji merah terhadap kenaikan hemoglobin (Hb) pada remaja puteri di Sekolah Tinggi Ilmu Kesehatan Kuningan. *Jurnal Ilmu Kesehatan Bhakti Husada: Health Sciences Journal*, *14*(02), 242–249. https://doi.org/10.34305/jikbh.v14i02.852

Mardianti., Farida., & Farida, Y. (2020). Efektivitas Pisang Ambon Terhadap Peningkatan Kadar Hemoglobin Ibu Hamil Di Kabupaten Karawang. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, *4*(2), 327–331. https://doi.org/10.34011/juriskesbdg.v14i2.2016

Pakpahan, S. B., Anjani, G., Pramono, A., Gizi, M. I., Gizi, D. I., Kedokteran, F., Diponegoro, U., & Tengah, J. (2024). *PERAN KANDUNGAN ZAT GIZI DAN SENYAWA BIOAKTIF PISANG TERHADAP TINGKAT NAFSU MAKAN : A LITERATURE*. *13*(September), 382–394. https://doi.org/10.14710/jnc.v13i4.43280

Puspita Abdjul, S., & Wahab Pakaya, A. (2023). Efektifitas Penggunaan Buah Kurma Terhadap Peningkatan Hemoglobin Pada Remaja Putri di SMAN 1 Tolangohula. *Jurnal Ilmiah Ilmu Kesehatan Dan Kedokteran*, *1*(3), 134–143.

RI, K. (2022). *Survei status gizi Indonesia (SSGI) tahun 2022*. Kementerian Kesehatan RI. https://gizi.kemkes.go.id/download/SSGI-2022.pdf

Rismawati, I. K., Triwidi Yantari, D., Herawati, Y., & Nurlatifah, T. (2022). Efektivitas Pisang Ambon Terhadap Kadar Hemoglobin Pada Ibu Hamil Dengan Anemia Di Desa Balegede Naringgul Kabupaten Cianjur. *Stikes Dharma Husada*. https://siakad.stikesdhb.ac.id/article/4008220089/

Siregar, N. Y., Noya, F., & Candriasih, P. (2022). Pengaruh Konsumsi Buah Pisang Ambon (Musa Paradisiaca Var Sapientum Linn) Terhadap Peningkatan Kadar Hb Pada Ibu Hamil Dengan Anemia Di Wilayah Kerja Puskesmas Kayamanya. *Poltekita: Jurnal Ilmu Kesehatan*, *16*(2), 157–163. https://doi.org/10.33860/jik.v16i2.919

Tripertiwi, S. (2023). *Peningkatan Kadar Hemoglobin dan Kualitas Tidur Ibu Hamil Trimester III dengan Pemberian Smoothies Buah Pisang Ambon (Musa Acuminata) dan Buah Blewah (Cucumis Melo Var. Cantalupensis)*. Program Studi S2 Ilmu Kebidanan Sekolah Pascasarjana Universitas Hasanuddin.

Tuju, S. O., Kusmyati, Yasmari, N. K., Lontaan, A., & Losu, F. N. (2022). Efektivitas Pemberian Kombinasi Pisang Ambon (Musa Paradisiaca Var. Sapientum) dan

Tablet Fe Terhadap Kadar Hemoglobin pada Ibu Hamil Trimester III di Puskesmas Pinolosian. *E-Prosiding Semnas*, *1*(2), 74–85. https://ejurnal.poltekkesmanado.ac.id/index.php/eprosiding2022/article/view/1684

WHO. (2021). *Anaemia*. https://www.who.int/news-room/fact-sheets/detail/anaemia

Widyawati, H., Prasetyo, M., & Sundari, D. (2024). Validitas alat Hb meter digital dalam skrining anemia. *Jurnal Kesehatan Primer*, *9*(1), 55–61. https://jkp.ui.ac.id/article/view/1450