



The Effect of Consuming Katuk Leaf Shoots on Hb Levels of TM II Pregnant Women at the Primary Health Care Lemo

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Abstract. Anemia in pregnancy is a global health problem that can affect the condition of the mother and fetus, especially with its prevalence still high in developing countries. Katuk leaves, which are known to contain iron and various bioactive compounds, are seen as having potential as an alternative to help increase hemoglobin levels in pregnant women. This study aims to analyze the effect of consuming katuk leaf shoots on the Hb levels of pregnant women in the second trimester at the UPT Primary Health Care Lemo using a one-group pretest–posttest quasi-experimental design. The research population was all second trimester pregnant women with a sample of 35 respondents selected purposively based on inclusion criteria. Hb levels were measured before and after the intervention, then analyzed using the Wilcoxon signed-rank test. The results showed a Z value = -5.385 with p value = 0.000 ($p < 0.05$), which indicates a significant difference between Hb levels before and after consuming katuk leaf shoots. Thus, consumption of katuk leaf shoots was proven to have a significant effect in increasing the Hb levels of second trimester pregnant women at the UPT Primary Health Care Lemo.

Keywords: HB Levels; Katuk Leaf Shoots; Maternal nutrition; Pregnant Women; Primary health care

1. INTRODUCTION

Anemia during pregnancy remains a significant public health concern worldwide due to its serious implications morbidity and mortality (Abdullah et al., 2024). Globally, approximately 40% of pregnant women suffer from anemia, with iron deficiency identified as the predominant cause (UNICEF, 2022). In Indonesia, the situation is particularly concerning, as the prevalence of anemia among pregnant women reached 48.9% according to the most recent Basic Health Research data. The Ministry of Health of the Republic of Indonesia (2023) reported that 2,437,911 pregnant women were affected by anemia, accounting for nearly half of all pregnancies. A substantial proportion of these cases, 2,062,473 women or 84.6%, occurred among pregnant women aged 15–24 years and those over 35 years old (Pertiwi et al., 2025).

The development of anemia is influenced by multiple factors, including inadequate nutritional intake, poor dietary patterns, low socio-economic status, environmental conditions, and overall health status. During pregnancy, the risk of anemia heightened iron requirements associated with physiological changes, insufficient intake of essential nutrients such as iron, folic acid, and vitamin B12, impaired absorption, infectious diseases (including malaria and helminth infections), short interpregnancy intervals, and genetic blood disorders such as thalassemia and sickle cell disease. Additionally, social, cultural, educational, and economic

factors contribute to the high prevalence of anemia among pregnant women. Iron deficiency disrupts the growth and development of body and brain cells, while reduced hemoglobin levels can result in fatigue, weakness, decreased concentration, and increased susceptibility to infections, ultimately affecting physical capacity, productivity, and quality of life (Dewi & Astriana, 2022).

To address this issue, the Indonesian government has implemented a national program providing iron (Fe) supplementation to pregnant women. Despite this effort, program effectiveness remains limited due to various challenges, including low awareness regarding anemia prevention, non-compliance with tablet consumption due to forgetfulness or reluctance, and economic constraints that restrict access to iron-rich foods. These barriers hinder optimal prevention and management of anemia during pregnancy (Mudzalifah et al., 2023).

In addition to pharmacological interventions, complementary therapies using local herbal plants have gained attention. One such alternative is katuk leaves (*Sauropus androgynus*), which are widely available and easily cultivated in Indonesia (Atmajaya et al., 2023). Katuk leaves are recognized for their high nutritional value, containing iron, protein, and various bioactive compounds that support erythropoiesis (Adam et al., 2025). Several studies have demonstrated that supplementation with katuk leaf extract can lead to a significant increase in hemoglobin levels among pregnant women. Furthermore, flavonoids and other phytochemical components present in katuk leaves are believed to enhance hemoglobin synthesis (Mudzalifah et al., 2023). Nevertheless, the therapeutic effectiveness of katuk leaves may vary depending on dosage, duration of intake, and processing methods (Masriyah et al., 2024).

Yulianti et al. (2025) reported that every 100 grams of katuk leaves contains approximately 2.7 mg of iron, making it a beneficial dietary source for individuals with anemia. Additionally, katuk leaves provide about 204 mg of calcium, which may further support maternal health during pregnancy. Based on these considerations, this study aims to examine the effect of consuming katuk leaf shoots on hemoglobin levels among second-trimester pregnant women at the UPT Primary Health Care Lemo.

2. RESEARCH METHODS

This study employed a quasi-experimental approach using a single-group pretest–posttest design to evaluate the impact of katuk leaf shoot consumption on hemoglobin (Hb) levels among pregnant women in their second trimester at the UPT Primary Health Care Lemo. The target population consisted of all second-trimester pregnant women attending the health

facility. A total of 35 participants were recruited through purposive sampling based on predetermined inclusion and exclusion criteria. The intervention involved the daily administration of katuk leaf shoots over the designated study period. Hemoglobin concentrations were assessed both prior to and following the intervention using a Hemocue device. Data were gathered using structured questionnaires and observation forms. Statistical analysis was conducted using the Wilcoxon signed-rank test due to non-normal data distribution, with a significance threshold set at $p < 0.05$. The study was conducted in accordance with ethical research standards, having received approval from the relevant ethics committee.

3. RESULTS AND DISCUSSION

Univariate Analysis

Table 1. Frequency Distribution Based on Maternal Age

Category	Frequency	Percentage (%)	Valid Percentage (%)	Accumulative Percentage (%)
<20 Years	1	2.9	2.9	2.9
20-35 Years	30	85.7	85.7	88.6
>35 Years	4	11.4	11.4	100.0
Total	35	100.0	100.0	

The majority of respondents were in the 20–35 year age group, namely 30 mothers (85.7%). There was only 1 mother aged under 20 years (2.9%), while there were 4 people aged over 35 years (11.4%). This shows that the majority of mothers in this study fall within the ideal age range for pregnancy (20–35 years) which generally has lower health risks than the <20 or >35 years age group. The cumulative percentage shows that 88.6% of respondents aged ≤35 years indicate a dominant sample concentration in the main reproductive age group.

Table 2. Frequency Distribution Based on Number of Children

Category	Frequency	Percentage (%)	Valid Percentage (%)	Accumulative Percentage (%)
Primigravida	11	31.4	31.4	31.4
Multigravida	24	68.6	68.6	100.0
Total	35	100.0	100.0	

The majority of respondents were multigravida, namely 24 people (68.6%) while primigravida were 11 people (31.4%). This shows that the majority of pregnant women in this study already had previous experience of pregnancy, while a small proportion were first-time pregnant women.

Table 3. Frequency Distribution Based on Mother's Education

Category	Frequency	Percentage (%)	Valid (%)	Percentage	Accumulative (%)	Percentage
Elementary School	9	25.7	25.7		25.7	
Junior High School	9	25.7	25.7		51.4	

Senior School	High	13	37.1	37.1	88.6
PT		4	11.4	11.4	100.0
Total		35	100.0	100.0	

Based on Table 3 regarding the frequency distribution of maternal education, the majority of respondents had a high school education, namely 13 people (37.1%). Mothers with elementary and middle school education each amounted to 9 people (25.7%) while only 4 people had tertiary education (11.4%). This shows that the majority of pregnant women in this study had upper secondary education.

Table 4. Frequency Distribution of HB Levels Before Intervention

Category	Frequency	Percentage (%)	Valid Percentage (%)	Accumulative Percentage (%)
Normal	3	8.6	8.6	8.6
Anemia	32	91.4	91.4	100.0
Total	35	100.0	100.0	

The majority of respondents experienced anemia, namely 32 people (91.4%) while only 3 people (8.6%) had normal HB levels. This shows that the majority of pregnant women in this study experienced hemoglobin deficiency before the intervention, indicating the need for efforts to improve nutritional status or treat anemia in these respondents.

Table 5. Frequency Distribution of HB Levels After Intervention

Category	Frequency	Percentage (%)	Valid Percentage (%)	Accumulative Percentage (%)
Normal	32	91.4	91.4	91.4
Anemia	3	8.6	8.6	100.0
Total	35	100.0	100.0	

The majority of respondents now have normal HB levels, namely 32 people (91.4%) while only 3 people (8.6%) still experience anemia. This shows that giving katuk leaf shoots effectively increases HB levels in pregnant women, significantly reduces the prevalence of anemia and confirms the potential of katuk leaves as a nutritional intervention to support the health of pregnant women in the second trimester.

Bivariate Analysis

Table 6. Effect of consuming katuk leaf shoots on HB levels of pregnant women

		N	Mean	Std. Deviation	Sum of Ranks	Z	P value
HB levels	Before Intervention	35	1.91	.284	435.00	-5.385a	.000
	After Intervention	35	1.09				

Based on Table 6 regarding the effect of consuming katuk leaf shoots on the HB levels of pregnant women, the average HB level before the intervention was 1.91 and after the intervention it decreased to 1.09. The statistical test results showed a Z value = -5.385 with P

value = 0.000 ($P < 0.05$) which indicated a significant difference between HB levels before and after the intervention.

Hb levels of pregnant women in the second trimester before consuming katuk leaf shoots

Anemia during pregnancy is defined as a condition in which a pregnant woman's hemoglobin concentration falls below 11 g/dL in the first and third trimesters, or below 10.5 g/dL during the second trimester. Physiological adaptations that occur throughout pregnancy lead to alterations in blood composition. Although erythrocyte production also rises, it does not keep pace with plasma volume expansion, resulting in hemodilution and a relative reduction in hemoglobin levels (Atmajaya et al., 2023).

The findings of this study indicated that anemia was prevalent among second-trimester pregnant women, with 32 respondents (91.4%) identified as anemic. The occurrence of anemia is relatively uncommon because iron requirements can generally be met by existing iron stores in the body. However, under certain circumstances, these reserves may become depleted, leading to anemia even in early pregnancy. As pregnancy progresses into the second and third trimesters, iron requirements increase significantly and can no longer be fulfilled through dietary intake alone, regardless of food quality or iron content. Consequently, when iron stores are insufficient or iron absorption is impaired, supplementation becomes necessary to prevent anemia (Masriyah et al., 2024). Insufficient iron consumption is frequently observed among pregnant women, particularly those with limited dietary diversity, although anemia can also occur in women who consume a varied diet during pregnancy.

Hb levels of pregnant women in the second trimester after consuming katuk leaf shoots

Efforts to prevent and manage anemia can be implemented through the utilization of natural food sources that are both accessible and nutritionally effective. Foods such as legumes and dark green leafy vegetables are known to contain substantial amounts of iron, making them beneficial in addressing anemia. One plant commonly found and widely consumed in Indonesia is katuk leaves (*Sauropus androgynus*) (Adam et al., 2025). In addition to their use as a vegetable, katuk leaves are recognized for their lactagogic properties and are rich in essential nutrients, including approximately 185 mg of calcium, 3.1 mg of iron, and 1.2 grams of dietary fiber (Pertiwi et al., 2025).

The relatively high iron concentration in katuk leaves positions them as a potential natural alternative for managing iron deficiency anemia. Furthermore, their chlorophyll content is believed to contribute to increased hemoglobin and ferritin levels, thereby enhancing red

blood cell formation and functioning as an anti-anemic agent (Mustikasari & Effendy, 2022). The provision of katuk leaves to pregnant women resulted in a statistically significant improvement in hemoglobin levels. Most participants demonstrated a shift from anemic conditions to normal hemoglobin status following the intervention. These outcomes suggest that katuk leaf supplementation is effective in elevating Hb levels and contributes positively to the overall health status of pregnant women.

Effect of Giving Katuk Leaf Shoots on HB Levels of Pregnant Women in the Second Trimester

Prior to the intervention, the mean hemoglobin score based on the applied categorical scale was 1.91, which decreased to 1.09 following the intervention, indicating an improvement in hemoglobin status. Statistical analysis using the Wilcoxon Signed Rank Test produced a Z value of -5.385 with a p value of 0.000, confirming a highly significant difference between hemoglobin levels measured before and after the consumption of katuk leaf shoots. These results indicate that regular intake of katuk leaf shoots is effective in significantly increasing hemoglobin levels in pregnant women.

The results of this study are consistent with research conducted by Mustikasari and Effendy (2022) entitled *The Effectiveness of Katuk Leaf Consumption on Changes in Anemia Status in Pregnant Women at UPT Puskesmas Gayaman Mojokerto*. Their study reported a marked improvement in hemoglobin levels following katuk leaf consumption. In the intervention group, most participants initially experienced moderate anemia, with hemoglobin levels ranging from 7–8 g/dl in 11 respondents (73.3%). After the intervention, anemia status improved, with 10 respondents (66.7%) shifting to mild anemia (Hb 9–10 g/dl). Conversely, the control group showed minimal improvement; the majority of respondents remained in the moderate anemia category, decreasing only from 12 respondents (80.0%) at baseline to 8 respondents (53.3%) at the final assessment. These findings further support the conclusion that katuk leaf consumption is more effective in improving anemia status among pregnant women compared to those who do not receive the intervention.

4. CONCLUSION

The solution from this research is to encourage the use of katuk leaf shoots as an additional nutritional intervention for pregnant women in the second trimester who experience a decrease in Hb levels, especially in first-level health service facilities such as the UPT Primary Health Care Lemo. Community health centers can include education about the benefits

of consuming katuk leaves in nutritional counseling programs for pregnant women, including providing guidance on appropriate portions and correct processing methods so that the nutritional content remains optimal. This intervention needs to be integrated with routine monitoring of Hb levels and evaluation of consumption compliance. Apart from that, health workers can combine giving katuk leaves with education on an iron-rich diet, increasing consumption of animal protein and recommendations for consuming Fe supplements according to standards. With this integrated approach, efforts to increase Hb levels in pregnant women can run more optimally, effectively and sustainably.

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