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Aplication of Ethnomedicine-Based Complementary Midwifery Care in a Pregnant Woman with Mild Anemia: A Case Study

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Abstract

Anemia in pregnancy remains a significant public health problem. The 2023 Indonesian Health Survey reported a prevalence of 27.7% among pregnant women compared to 48.9% in 2018. Mild anemia can interfere with maternal well-being and pregnancy outcomes if not properly treated. Complementary ethnomedicine therapy using natural plants rich in iron, such as red dragon fruit and moringa leaves, has the potential to increase hemoglobin (Hb) levels. The purpose of this study was to evaluate the effect of complementary ethnomedicine therapy on hemoglobin levels in pregnant women with mild anemia. The research method was a case study conducted in February 2024 at the Midwife Independent Practice in Limapuluh Kota District. The subjects were primigravida women in their second trimester who were diagnosed with mild anemia based on clinical signs and laboratory tests. Primary data were collected through physical assessment and Hb measurement. The intervention consisted of complementary therapy using red dragon fruit and moringa leaves, administered daily for two weeks along with standard nutritional advice. Hb levels were measured before and after the intervention. Hb levels before the intervention were 10.2 g%, and Hb levels after the intervention were 11.3 g/dL. This represents an increase of 1.1 g%. In conclusion, treatment was provided according to the mother's needs. At the second visit, the mother did not have anemia. Complementary ethnomedical therapy using dragon fruit and moringa leaves can help prevent mild anemia in pregnant women.

Keywords: *anaemia, midwifery care, ethnomedicine, pregnant women, complementary therapy*

INTRODUCTION

Pregnancy anemia remains a major global public health problem, particularly in developing countries. Approximately 40% of pregnant women worldwide experience anemia (WHO, 2024a), and iron deficiency accounts for 50–60% of cases (Mintsopoulos *et al.*, 2024). At 2023 that 30.7% of women aged 15 to 49 suffer from anemia, specifically 35.5% of pregnant women and 30.5% of non-pregnant women in this age group. In addition, 39.8% of children also suffer from anemia (WHO, 2024b). In Indonesia, the prevalence of anemia among pregnant women remains substantial at 27.7% (Kemenkes.RI, 2024).

Anemia in pregnancy is defined as hemoglobin (Hb) levels <11 g% in the first and third trimesters and <10.5 g% in the second trimester (Lewis, 2015). The second trimester is a vulnerable period due to increased plasma volume and higher iron requirements for fetal and placental growth. If not properly managed, maternal anemia increases the risk of prematurity, low birth weight, and perinatal mortality (Ramadhanti *et al.*, 2023).

Antenatal care is recommended at least six times during pregnancy and includes maternal–fetal monitoring and safe, comprehensive services (Kemenkes RI, 2023). Midwives, as frontline maternal care providers, are expected to improve service quality through appropriate innovations (Apriani, Herdiani and Ningsih, 2020). However, despite the government program providing 90 iron tablets during pregnancy, the prevalence of anemia remains high (Helmyati *et al.*, 2023).

Pharmacological treatment primarily involves iron supplementation, while non-pharmacological approaches include dietary improvement and consumption of iron-rich foods (Abdullah *et al.*, 2024). Moringa leaves (Moringa Oleifera) have been identified as a natural iron source (Ramadhanti, H, *et al.*, 2025), and red dragon fruit has also been reported to support hemoglobin improvement (Ramadhanti, Nova H, *et al.*, 2025).

Furthermore, most published case reports focus on third-trimester anemia, while clinical evidence addressing mild anemia during the second trimester, a period of peak iron demand, is still scarce (Georgieff, 2020). This gap highlights the need for contextual clinical reporting. Therefore, this case study aims to describe the application and outcomes of ethnomedicine-based complementary midwifery care in a pregnant woman with mild anemia during the second trimester.

METHODS

This is a qualitative descriptive field study using a case study-based observational design. The use of the SOAP management format for data assessment involves primary data collection through interviews using S = subjective (consisting of 5 points, namely identity, obstetric history, health history, daily activity history, and socioeconomic and spiritual history), direct examination using O = objective (general examination of vital signs, special head-to-toe examination, and supporting examinations such as hemoglobin examination). The KIA book for pregnant women was used as a secondary data source. This case study was conducted by the author as a student participating in the fifth semester preclinical activities at the "DS" Midwife Independent Practice in Lima Puluh Kota Regency, West Sumatra Province, in February 2024. Ethical writing means protecting the privacy and confidentiality of research subjects, obtaining permission, and avoiding harm. Observations provide the foundation for processing the data collected and processed through SOAP management.

FINDINGS AND DISCUSSION

Based on the author's direct experience providing midwifery care to Mrs. "S" during her pregnancy during the following two visits:

Table 1.1 SOAP Documentation

ANC Schedule	SOAP	Substance
First: February 14, 2024 Time: 4:30 P.M. Location: PMB "DS" Lima Puluh Kota Regency	Subjective	Mrs. "S", 22 years old, G1P0000, came with her husband. She complained of dizziness when sitting and standing and feeling easily fatigued. This was her first pregnancy, with no history of abortion. LMP: October 18, 2023. TT immunization complete. No significant medical history. Previous second-trimester visit recorded Hb 9.8 g/dL and iron therapy had been initiated. Daily diet was generally adequate but vegetable intake was limited.
	Objective	Blood pressure 121/82 mmHg; BMI 22.94 kg/m²; MUAC 25.2 cm. Conjunctiva, lips, and nails slightly pale. Fundal height 18 cm; FHR 141 bpm, regular and strong. Hemoglobin level at this visit: 10.2 g/dL.
	Assessment	Diagnosis: G1P10000, 18-19 weeks gestation, single live intrauterine fetus, ballotement (+), fetus in good condition, mild anemia. Problems: Inadequate iron intake, suboptimal dietary pattern. Requirements: 1. Health Educations (nutrition, complementary therapy, rest) 2. Pharmacological therapy 3. Follow-up visit
	Planning	Implementation:

		1. Mother and husband were informed that the pregnancy was generally normal but accompanied by mild anemia. 2. Targeted education was provided focusing on iron-deficiency anemia in the second trimester, balanced nutrition emphasizing iron and vitamin C intake, complementary therapy using moringa leaves and red dragon fruit, adequate hydration, rest, and personal hygiene. 3. The mother received 600 mcg folic acid once daily, 500 mg vitamin C once daily, and 60 mg ferrous sulfate twice daily. 4. A follow-up visit was scheduled in two weeks Evaluation: Mother and husband understood the condition and agreed to follow recommendations. The mother committed to taking medication regularly, and the husband agreed to provide adherence support
Second: February 28, 2024 Time: 5:25 P.M. Location: PMB "DS" Lima Puluh Kota Regency	Subjective	Mrs. "S" reported completing her medication as prescribed. She felt less dizzy, more energetic, and her appetite improved. She reported regular fetal movement.
	Objective	Blood pressure 120/82 mmHg; pulse 82 bpm; BMI 23.81 kg/m²; MUAC 25.3 cm. Conjunctiva no longer pale. Fundal height 20 cm; FHR 142 bpm, regular and strong. Hemoglobin level: 11.3 g/dL.
	Assessment	Diagnosis: Mrs. "S" G1P10000, 20-21 weeks pregnant, single live intrauterine fetus, ballotement (+), fetus and mother in good condition. Problem: none Needs: none
	Planning	Implementation: 1. Mother and husband were informed that anemia had resolved and pregnancy condition was normal. 2. Reinforcement of balanced nutrition, continued iron supplementation, light physical activity, and preparation for subsequent antenatal care was provided briefly. 3. Preventive supplementation (multivitamin once daily, ferrous sulfate 60 mg twice daily, vitamin C 500 mg once daily) was continued. 4. Next routine ANC scheduled in one month Evaluation: Mother and husband expressed satisfaction with progress and agreed to continue recommendations and attend the next visit

Table 1.2 Summary of Hemoglobin Changes

Parameter	Visit I (14 Feb 2024)	Visit 2 (28 Feb 2024)	Change
Hemoglobin (g/dL)	10.2	11,3	+1,1
Clinical Status	Mild anemia	Normal Hb level	Resolved

At the first visit, the mother presented with dizziness and lethargy, accompanied by pale conjunctiva,

lips, and nails, with a hemoglobin level of 10.2 g/dL. These findings are consistent with common clinical manifestations of anemia in pregnancy, including pallor, fatigue, and dizziness (Ramadhanti *et al.*, 2023). Pale conjunctiva and nails are recognized clinical indicators of anemia (Unicef and Amref, 2020). Rather than merely confirming theoretical alignment, this case demonstrates how mild anemia can be clinically identified through both subjective complaints and simple physical examination before laboratory confirmation.

The detailed biochemical pathway of hemoglobin synthesis, although important in physiology, is not the primary focus of this case report. In clinical practice, the essential issue is iron availability, as insufficient iron reduces hemoglobin production and leads to anemia (Cunngingham *et al.*, 2014).

Mrs. "S" was diagnosed as G1P0000 at 18–19 weeks of gestation with mild anemia. Hemoglobin levels below 11 g/dL in the first and third trimesters or below 10.5 g/dL in the second trimester are classified as anemia in pregnancy (Ramadhanti *et al.*, 2023). Mild anemia is defined as Hb 10–10.99 g/dL (Helmyati *et al.*, 2023). Maternal anemia is associated with adverse outcomes such as low birth weight, prematurity, and maternal complications (Chen et al., 2024). Maternal anemia is associated with adverse outcomes such as low birth weight, prematurity, and maternal complications (Chen et al., 2024). Anemia is included in obstetric diagnostic nomenclature as a pregnancy complication (Wariyaka, 2021). Anemia is included in obstetric diagnostic nomenclature as a pregnancy complication (Wariyaka, 2021). In this case, the diagnosis was clinically appropriate and categorized as mild anemia without obstetric complications.

Several contributing factors to anemia in pregnancy include low iron intake, inadequate protein consumption, micronutrient deficiencies, infections, and insufficient nutritional awareness (Ramadhanti and Nova, 2025). In Mrs. "S," dietary limitations, particularly low vegetable intake, were identified as modifiable risk factors, which guided individualized counseling and intervention.

The intervention combined pharmacological therapy with nutritional education and complementary therapy using moringa leaves and red dragon fruit. Moringa leaves contain iron and other micronutrients (Nugrahani *et al.*, 2021). while red dragon fruit provides iron and vitamin C (Ramadhanti and Nova, 2025). Iron requirements during pregnancy increase substantially to support fetal growth and maternal blood volume expansion (Lasepa, Hendarini and Isnaeni, 2023). Micronutrient deficiencies, particularly iron and folate, are strongly associated with anemia (Nomira, 2024).

The favorable maternal response, evidenced by an increase in hemoglobin from 10.2 g/dL to 11.3 g/dL within two weeks, may be explained by several interacting factors: adherence to iron supplementation, improved dietary iron intake, enhanced absorption through vitamin C consumption, adequate rest, and strong family support. Regular iron supplementation of 60 mg/day is known to increase Hb levels progressively

(Sudayana *et al.*, 2022). Folic acid supplementation supports erythropoiesis and reduces pregnancy-related risks (Honaryati, Usman and Ahmad, 2021). Vitamin C enhances iron absorption (Krisnanda, 2020).

Adequate rest may also contribute indirectly to hematologic recovery. Sleep quality influences physiological regulation, including erythropoiesis (Utomo *et al.*, 2023). In this case, the mother reported improved sleep and reduced fatigue at the second visit, which may have supported overall recovery, although the specific contribution cannot be isolated.

Regular antenatal care attendance likely played an important role in early detection and monitoring. The mother attended ANC according to recommended schedules (MENKESRI, 2020). Consistent follow-up allowed timely evaluation of therapeutic response and reinforcement of adherence, which may explain the rapid improvement observed.

However, as a single case report, this study has inherent limitations. The improvement in hemoglobin cannot be attributed solely to complementary therapy, as pharmacological supplementation was administered concurrently. Dietary intake and adherence were self-reported and not objectively measured. In addition, the short follow-up period limits assessment of long-term sustainability of hemoglobin improvement. Therefore, the findings should be interpreted cautiously and cannot be generalized without further controlled studies.

Overall, this case highlights that integrated midwifery care—combining standard iron therapy, culturally acceptable complementary nutrition, adherence support, and close ANC monitoring—may contribute to favorable outcomes in mild second-trimester anemia. Future studies with comparative or larger designs are needed to clarify the specific contribution of ethnomedicine-based complementary interventions.

CONCLUSIONS

Midwifery care for Mrs. “S” led to the conclusion that problems found in pregnant women have an impact on fetal well-being. Based on subjective data assessment, namely a history of mild anemia, the mother felt dizzy and lacked enthusiasm for activities, and was a primigravida. Based on objective data, the mother's conjunctiva, lips, and nails were pale, and the results of the hemoglobin test showed that the mother was anemic. The assessment in establishing the diagnosis was based on Mrs. “S”'s first visit, G1P10000, at 18-19 weeks of pregnancy, with a single live intrauterine fetus, ballotement (+), the fetus in good condition with a hemoglobin level of 10.2 g/dL. At the second visit, anemia was not detected, as hemoglobin increased to 11.3 g/dL, indicating an improvement of 1.1 g/dL over two weeks of integrated care. The management plan established for Mrs. “S” at the PMB “DS” in Lima Puluh Kota District was appropriate and addressed the issue of anemia.

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