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Midwifery Care in Pregnant Women with Mild Anemia

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Abstract:
Anemia in pregnant women is a global and national problem that can increase the risk of maternal and infant morbidity and mortality. Anemia in pregnancy is a decrease in the capacity of blood to carry oxygen caused by a decrease in the number of red blood cells or a reduced hemoglobin concentration in the blood circulation. This study aims to analyze midwifery care in pregnant women with mild anemia. This study used a case study design with a comprehensive midwifery care approach in one patient. Data were collected through interviews, observations, physical examinations, and documentation studies. Data were analyzed using the stages of the midwifery process, which include assessment, diagnosis, intervention, implementation, and evaluation. The case study was conducted on Mrs. FF, who had a hemoglobin level of 10.2 gr/dL. The diagnosis was made G1P0000, gestational age 29-30 weeks, with mild anemia of an intrauterine live fetus. The intervention was carried out by educating about the importance of iron-rich nutrition, giving oral supplementation according to the recommended dose, and monitoring hemoglobin levels. The evaluation showed an increase in hemoglobin level to 11.2 gl/Dl after 8 weeks of intervention, with clinical improvement. This case demonstrates the importance of early detection of anemia in pregnancy and appropriate management through education, supplementation, and regular monitoring. A collaborative approach between health workers and pregnant women is essential to prevent anemia-related maternal and fetal complications.

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INTRODUCTION

Iron deficiency anemia remains the most prevalent hematologic complication during pregnancy, affecting approximately 38% of pregnant women globally (O'Toole et al., 2024). This condition arises due to increased iron demands to support fetal growth, placental development, and expanded maternal blood volume, making pregnant women particularly vulnerable (Davidson et al., 2023; Novelia et al., 2022). The World Health Organization (WHO) identifies anemia as a critical public health issue, with significant implications for maternal and neonatal health outcomes. Addressing this challenge requires a multidisciplinary approach, particularly within midwifery care, to mitigate risks and improve pregnancy outcomes (Taktouk et al., 2020).

The consequences of untreated anemia during pregnancy are profound, contributing to elevated rates of maternal morbidity and mortality, preterm birth, and intrauterine growth restriction (Davidson et al., 2023). Maternal anemia is also linked to diminished physical capacity, fatigue, and compromised immune function, hindering daily activities and prenatal care adherence (Faghir-Ganji et al., 2023). For the fetus, reduced oxygen delivery due to low hemoglobin levels may lead to developmental delays, low birth weight, and increased neonatal mortality risks. These multifaceted

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impacts underscore the urgency of early detection and intervention in antenatal care settings (Shi et al., 2022).

While iron deficiency accounts for nearly half of all anemia cases globally, its etiology is often multifactorial, particularly in low- and middle-income countries (Lauer et al., 2024). Nutritional inadequacies, such as insufficient intake of iron-rich foods, are primary contributors. However, other factors—including deficiencies in folate, vitamin B12, and chronic infections (malaria, helminthiasis)—can exacerbate the condition (Obeagu et al., 2025). Additionally, impaired nutrient absorption, genetic disorders like thalassemia, and socioeconomic barriers to healthcare access further complicate the epidemiology of anemia in pregnancy. Understanding these interrelated causes is essential for tailoring effective midwifery interventions (Kumar et al., 2021).

Anemia in pregnancy is clinically defined as a hemoglobin (Hb) concentration below 11.0 g/dL in the first and third trimesters or less than 10.5 g/dL in the second trimester (Abdulsalam et al., 2025; Carolin et al., 2023). This diagnostic threshold reflects physiological hemodilution during pregnancy, which lowers Hb levels even in healthy individuals. The American College of Obstetricians and Gynecologists (ACOG) emphasizes universal screening for anemia during the first prenatal visit and at 24–28 weeks of gestation. Despite these guidelines, studies reveal suboptimal adherence to iron supplementation regimens, with only 50% of anemic women achieving hemoglobin normalization (Detlefs et al., 2022). This gap highlights the need for improved patient education and follow-up strategies.

Untreated anemia escalates the risk of obstetric complications, including preeclampsia, cesarean delivery, and postpartum hemorrhage (Detlefs et al., 2022). Severe cases may necessitate blood transfusions or intensive care unit admissions, further straining healthcare resources. Neonatal risks encompass perinatal asphyxia, neonatal jaundice, and long-term neurodevelopmental impairments due to intrauterine hypoxia. These outcomes reinforce the importance of proactive management, particularly in resource-limited settings where maternal mortality rates remain disproportionately high (Guignard et al., 2021).

Evidence-based management of mild anemia prioritizes non-pharmacological and pharmacological interventions, including dietary education and iron supplementation. Midwives play a pivotal role in counseling pregnant women on consuming iron-rich foods—such as leafy greens, red meat, and fortified cereals—and enhancing iron absorption through vitamin C co-intake. Oral iron therapy, typically 30–60 mg of elemental iron daily, remains the cornerstone of treatment. Studies demonstrate that consistent supplementation reduces anemia risk by 70% and improves birth outcomes, yet challenges such as gastrointestinal side effects and poor adherence persist (Finkelstein et al., 2024).

Despite its preventability, mild anemia remains a persistent challenge in maternal health, necessitating a holistic midwifery approach that integrates screening, education, and continuous monitoring. Conservative management, including nutritional counseling and adherence to supplementation protocols, effectively mitigates complications without resorting to invasive measures (Finkelstein et al., 2024). By addressing individual and systemic barriers—such as food insecurity, cultural dietary preferences, and healthcare access—midwives can drive meaningful improvements in maternal and neonatal health. This approach aligns with global efforts to achieve Sustainable Development Goal 3, which aims to reduce maternal mortality and ensure equitable healthcare access for all pregnant women.

Volume 03 Number 04
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STUDY DESIGN

This study employed a case study design using a comprehensive midwifery care approach focused on a single patient, Mrs. FF. Data were collected through interviews, observations, physical examinations, and documentation reviews to assess the patient's physiological, psychological, and social health during pregnancy. Analysis followed the midwifery process stages: assessment, diagnosis, intervention, implementation, and evaluation. This framework enabled a holistic understanding of the patient's needs, ensuring personalized care planning that integrates clinical and contextual factors to address specific maternal health challenges.

Mrs. FF was diagnosed with mild anemia (hemoglobin level: 10.2 g/dL) at 29–30 weeks of gestation (G1P0000) with an intrauterine live fetus. Anemia during pregnancy poses risks such as preterm birth or fetal growth restrictions, necessitating targeted interventions. The care plan included health education on iron-rich diets, oral iron supplementation at recommended doses, and regular hemoglobin monitoring. Initial outcomes revealed improved maternal awareness of nutritional importance, though sustained follow-up was required to evaluate long-term intervention effectiveness. This highlights the critical role of early detection and tailored nutritional guidance in mitigating maternal-fetal complications.

Ethical approval was obtained from the Health Polytechnic of the Ministry of Health, Malang, ensuring adherence to voluntary participation, confidentiality, and participant well-being throughout the study. Findings underscore the value of evidence-based, individualized midwifery care in addressing pregnancy-related health issues like anemia. Integrating nutritional education, pharmacological support, and continuous monitoring aligns with global efforts to enhance antenatal care quality and reduce maternal morbidity. The study advances maternal health practices through actionable insights into managing common yet preventable pregnancy complications.

PATIENT INFORMATION

This case study focused on Mrs. FF, a 27-year-old primigravida (G1P0000) at 29–30 weeks of gestation.

CLINICAL FINDINGS

The initial assessment revealed subjective complaints of dizziness and a dietary preference that excluded animal protein sources. Objective findings included a body weight of 45 kg (BMI: ~19.1), height of 153 cm, and typical vital signs (blood pressure 120/80 mmHg, respiratory rate 20 breaths/min, pulse 80 bpm). Physical examination showed pallor of the conjunctiva, a uterine fundal height of 18 cm (consistent with gestational age), cephalic fetal presentation, and a fetal heart rate of 135 bpm (regular). Laboratory analysis confirmed mild anemia with a hemoglobin level of 10.2 g/dL. These findings formed the basis for diagnosing pregnancy complicated by mild anemia with a single intrauterine live fetus.

THERAPEUTIC INTERVENTION

The midwifery care plan followed a structured approach, beginning with comprehensive data analysis to establish an evidence-based diagnosis. The primary obstetric issue identified was mild anemia in pregnancy, requiring targeted interventions to mitigate risks such as preterm birth or fetal growth restriction. A three-pronged intervention strategy was implemented: (1) nutritional education

Volume 03 Number 04
August 2025
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emphasizing iron-rich foods (e.g., leafy greens, eggs, liver) and vitamin C to enhance iron absorption; (2) oral iron supplementation at the recommended dose; and (3) biweekly hemoglobin monitoring to assess progress. The goal was to improve maternal hemoglobin levels, alleviate symptoms, and ensure fetal well-being through personalized care.

Over eight weeks, the interventions demonstrated measurable improvements in maternal and fetal health. Mrs. FF reported resolution of dizziness, adopted dietary changes incorporating spinach, eggs, chicken liver, and vitamin C-rich foods, and adhered to iron supplementation. Follow-up assessments revealed a weight gain of 5.5 kg (50.5 kg total), normalized conjunctival color, and improved vital signs (blood pressure 110/70 mmHg, pulse 80 bpm, respiratory rate 22 breaths/min). Fetal parameters also showed positive trends, including a fundal height of 29 cm and a fetal heart rate of 147 bpm. Hemoglobin levels increased to 11.2 g/dL, confirming a successful response to the care plan and resolving maternal anemia.

This case underscores the effectiveness of a holistic midwifery approach in managing mild anemia during pregnancy. The integration of nutritional education, pharmacological support, and continuous monitoring resolved maternal symptoms and supported optimal fetal development. Key outcomes—hemoglobin improvement, dietary adherence, and fetal stability—highlight the importance of early detection and tailored interventions in preventing anemia-related complications. The findings emphasize the role of midwives in empowering pregnant women through health literacy and proactive care, aligning with global strategies to reduce maternal morbidity and enhance perinatal outcomes. This case is a model for addressing common yet preventable pregnancy complications through evidence-based, patient-centered practices.

DISCUSSION

According to WHO criteria, Iron Deficiency Anemia (IDA) in pregnancy is defined as when hemoglobin is less than 11 g/dL It is the most widespread malnutrition in the world and a serious public health problem worldwide, including in developed and developing countries (Kebede et al., 2025). In this case, Mrs. FF complained of dizziness and had a laboratory examination of a hemoglobin level of 10.2 gl/Dl. Anemia is associated with an increased risk of maternal and fetal mortality. The most common pathological cause of anemia is iron deficiency. Pregnant women require iron and folic acid supplements to meet their nutritional needs and those of the developing fetus. Inadequate intake of these essential nutrients during pregnancy can adversely affect maternal health, pregnancy outcome, and fetal development (Banerjee et al., 2024).

The obstetric diagnosis in this case is G1P0000 29-30 weeks of gestation with mild anemia of an intrauterine live single fetus. Treating iron deficiency anemia during pregnancy is not always easy. Many pregnant women have difficulty following the rules of taking iron supplements every day, most likely because the supplements often cause side effects on the digestive tract, such as nausea, abdominal pain, or constipation. However, less than ideal, daily oral administration of iron supplements at the same dose for all pregnant women is still a commonly used treatment method internationally for iron deficiency anemia. Anemia is an indicator of poor nutrition and poor health. Anemia in pregnant women is generally caused by physiological changes during pregnancy and is exacerbated by malnutrition. Anemia that is often found in pregnancy is due to iron deficiency. This occurs because of the increased need for iron to supply the fetus and placenta, in the context of tissue enlargement and red blood cell mass (Salma et al., 2024).

The intervention provided in this case is education about the importance of iron-rich nutrition, giving oral supplementation according to the recommended dose, and monitoring hemoglobin levels. Treatment of anemia can be done in 2 ways, namely, pharmacological and non-pharmacological.

Volume 03 Number 04
August 2025
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Pharmacological treatment uses tablets (Fe), but this method is often disliked because it often causes nausea and vomiting due to the smell of iron. Therefore, many healthy and safe breakthroughs have been made by previous researchers, ranging from giving juice to fruit and vegetable extracts, and handling anemia can be done by increasing the intake of iron-source foods in the community in the form of a balanced, nutritious diet (Salma et al., 2024). Oral iron supplements can act as a measure to reduce the burden of anemia (Stanworth et al., 2024). The recommended dose to be taken is 1 x 1 tablet per day according to the recommended dose. Each blood supplement tablet contains iron equivalent to 60 mg of elemental iron in Ferrous Sulfate, Ferrous Fumarate, or Ferrous Gluconate and Folic Acid of 0.400 mg. The dose can be increased for severe anemia to 2 x 1 tablet. Taking Fe tablets for 1 month or 30 tablets can increase Hb by 1 gram per day and reduce 73% of the frequency of anemia in pregnant women. There is a strong correlation between pregnant women's adherence to Fe tablets and their hemoglobin levels. The more adherent pregnant women are to using Fe tablets, the higher their hemoglobin levels (Erryca et al., 2022).

Some traditional foods rich in iron include cereals such as bajra and ragi, pseudo-cereal seeds such as amaranth, various types of beans such as soya beans, lentils, and Bengal gram beans, and green vegetables such as spinach, moringa, and taro leaves. Dried fruits like dates, raisins, and figs, and seeds like sesame seeds and Niger seeds are also good sources of iron. Apart from helping prevent anemia, these foods also benefit overall health. Another advantage is that these foods are easy to find in local markets and are affordable (Setiyarini & Dewi, 2025). Undernutrition anemia can be prevented and controlled through two main approaches: nutrition-specific and nutrition-sensitive interventions. Specific nutrition interventions focus directly on the underlying causes of anemia, such as poor dietary intake. Meanwhile, nutrition-sensitive interventions address indirect causes, such as disease or infection. Improving food diversity is one of the most effective and sustainable ways to prevent anemia. However, these efforts often take time as they also involve changing people's diets and habits (Kaur et al., 2025).

The best and longest-lasting way to prevent nutrient deficiency is to eat a healthy and nutritious diet and nutritional support, such as vitamin C, to increase iron absorption. Changing the diet can also help with treatment with supplements. Many still misunderstand and believe that vegetables such as spinach or Swiss chard are good for anemia because of their high iron content. The iron in vegetables is non-heme, which is difficult for the body to absorb. The human digestive system cannot absorb non-heme iron or heme iron from animal sources such as meat. So, even though these vegetables contain iron, their benefits for anemia are not as practical as animal sources of iron (Ahmad et al., 2022; Ferasinta & Dinata, 2024).

To meet iron needs, a person usually consumes iron tablets, but one alternative to meeting iron needs is to consume vegetables that contain iron. Iron is found in vegetables, including spinach. Green leafy vegetables such as spinach are a source of non-heme iron. Cooked spinach contains 8.3 mg/100 grams of iron. Adding iron to spinach plays a role in the formation of hemoglobin. In contrast, food sources that contain much iron are animals, especially in the liver, which contains the most iron (between 6.0 mg and 14.0 mg). Thus, taking iron tablets can increase hemoglobin levels in the blood (Hart et al., 2025).

CONCLUSION

The mild anemia case of Mrs. FF showed that interventions based on nutrition education, increased consumption of iron-rich foods, and iron supplementation, coupled with vitamin C intake, can effectively increase hemoglobin levels. After eight weeks of intervention, the mother's Hb level increased from 10.2 g/dL to 11.2 g/dL, and anemia symptoms were no longer present. These results

confirm that appropriate dietary changes, a good understanding of nutrition, and adherence to supplementation play a significant role in the successful treatment of mild anemia. This approach needs to be widely applied to prevent anemia during pregnancy.

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CONFLICT OF INTEREST

There are no conflicts in this article.

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Volume 03 Number 04
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