

Midwifery care for pregnant women with moderate anemia: a case study in Makassar

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ABSTRACT

Anemia in pregnancy remains a significant public health problem, particularly in developing countries such as Indonesia. This case study describes midwifery care for a 23-year-old woman at 38 weeks and 4 days of gestation diagnosed with moderate anemia (hemoglobin 8 g/dL) at PMB Suryanti, Makassar. According to the Ministry of Health standards, the study applied the midwifery care management process, including assessment, diagnosis, planning, implementation, evaluation, and documentation. Data were collected through interviews, physical examinations, and laboratory tests. The main complaints were fatigue and dizziness, with pale conjunctiva and lips as clinical findings. Midwifery interventions included providing health education about balanced nutrition, rest, and personal hygiene and administering iron supplements (Fe 200 mg), vitamin C, B-complex, and calcium lactate. After consistent care and follow-up, the hemoglobin level increased to 9.5 g/dL, and the pregnancy continued normally until term. This case demonstrates that comprehensive antenatal midwifery care, focusing on early detection, nutritional counseling, and compliance with iron supplementation, effectively improves maternal hemoglobin levels and prevents complications. The study emphasizes the importance of continuous monitoring and health education for pregnant women to reduce the incidence of anemia and ensure maternal and fetal well-being.

Keywords: anemia, midwifery care, pregnancy.



INTRODUCTION

Anemia during pregnancy remains a significant global health problem, particularly in developing countries where nutritional deficiencies and limited access to health care are prevalent [1]. According to the World Health Organization (WHO), anemia in pregnancy is defined as a hemoglobin (Hb) level of less than 11 g/dL [2]. However, some studies use a slightly lower threshold of 10.5 g/dL, especially in the second trimester when physiological hemodilution peaks. This condition is a common complication of pregnancy and can have serious consequences for both mother and fetus if not correctly managed [3].

In developing nations such as Indonesia, the prevalence of anemia among pregnant women remains alarmingly high compared to developed countries [4]. National health data indicate that approximately 63.5% of pregnant women in Indonesia experience anemia, whereas in developed countries such as the United States, the rate is only around 6%. The high prevalence of anemia in Indonesia is primarily attributed to nutritional deficiencies, low socioeconomic conditions, and a lack of awareness regarding the importance of prenatal care [5]. Iron deficiency is the most common cause of anemia in pregnancy, often resulting from inadequate dietary intake of iron, folic acid, and vitamin B12. These nutrients are essential for hemoglobin synthesis and the production of healthy red blood cells [6].

Pregnancy itself imposes increased physiological demands on the maternal body. The total blood volume expands by 30–50% to support the growing fetus and placenta [7]. Consequently, the need for iron and other hematopoietic nutrients rises significantly. When a pregnant woman fails to meet these increased nutritional demands, either through diet or supplementation, her body cannot produce enough hemoglobin to transport adequate oxygen to tissues [8]. As a result, she may experience symptoms such as fatigue, dizziness, weakness, and shortness of breath. If left untreated, moderate to severe anemia can lead to more severe complications, including preterm birth, low birth weight, intrauterine growth restriction, and even maternal or neonatal mortality [9]. This trend correlates with suboptimal distribution and consumption of iron supplementation tablets, insufficient nutritional counseling, and poor compliance among pregnant women. These findings highlight the urgent need for comprehensive interventions to improve maternal nutrition, ensure consistent access to iron supplements, and provide effective antenatal counseling [10].

Anemia in pregnancy not only affects the mother physiologically but also has psychological and social implications. Pregnant women suffering from anemia often report low energy levels, emotional distress, and decreased quality of life, which can interfere with their ability to perform daily activities and prepare for childbirth [11]. Therefore, early identification, prevention, and management of anemia should be considered a vital part of antenatal care provided by midwives and other health professionals. Midwives play a crucial role in reducing the incidence of anemia during pregnancy through early detection, nutritional education, and appropriate clinical interventions [12]. The implementation of standardized midwifery care covering assessment, diagnosis, planning, implementation, and evaluation is essential to ensure the safety and well-being of both mother and fetus. This holistic approach allows midwives to provide individualized care, promote healthy behaviors, and empower women to actively participate in maintaining their own health [13].

This study focuses on midwifery care for a 38-week pregnant woman with moderate anemia at the Suryanti Midwifery Clinic in Makassar. It aims to describe the process of providing comprehensive antenatal care based on midwifery standards and professional responsibilities. Through systematic assessment, appropriate diagnosis, and evidence-based intervention, this report intends to improve the quality of maternal care and reduce complications associated with anemia in pregnancy. The objectives of this study are: (1) to identify and analyze the causes and effects of moderate anemia during pregnancy; (2) to provide appropriate midwifery care that supports maternal and fetal health; and (3) to evaluate the outcomes of interventions, particularly the improvement of hemoglobin levels and maternal well-being. This study is expected to enhance the understanding and competence of midwives in managing anemia cases, contribute to academic knowledge, and serve as a valuable reference for both clinical practice and future research.

MATERIALS AND METHODS

Type of Study

This case study uses a descriptive approach to implement midwifery care for a pregnant woman diagnosed with moderate anemia. Based on midwifery management standards, the case study method allows for an in-depth exploration of the patient's condition, assessment, diagnosis, intervention, and evaluation. The data were collected directly from the patient and related health records at PMB Suryanti, Makassar, to provide a comprehensive understanding of clinical practice.

Location and Time of Study

The study was conducted at PMB Suryanti, a private midwifery practice in Makassar City. The data collection and observation period occurred on April 6, 2025, when the patient, identified as Mrs. "I", was at 38 weeks and 4 days of gestation. Follow-up evaluations were carried out until April 20, 2025, to monitor changes in hemoglobin levels and the effectiveness of the care provided.

Subject of the Study

The subject of this study was a 23-year-old multiparous woman (GII PI A0) in her third trimester of pregnancy with a diagnosis of moderate anemia (Hb 8 g/dL). The selection of this subject was based on inclusion criteria: Pregnant woman at ≥ 28 weeks gestation, Diagnosed with anemia (Hb between 7–9 g/dL), Willing to participate and cooperate during assessment and follow-up visits. The exclusion criteria included women with chronic diseases such as hypertension, diabetes, or cardiac disorders, which could interfere with data interpretation.

Data Collection Techniques

The data were collected using primary and secondary sources. Primary Data: Obtained through direct observation, interviews, and physical examinations of the patient. The midwife collected subjective data (complaints, medical history, obstetric history, nutritional and psychosocial factors) and objective data (vital signs, physical assessment, and laboratory results). Secondary Data: Gathered from patient medical records, antenatal care (ANC) documentation, and existing reference materials, including textbooks, midwifery standards, and WHO guidelines. The data collection instruments used in this study included: an Observation Sheet, to record maternal and fetal conditions. Interview Guide, to collect subjective information. Physical Examination Tools include a sphygmomanometer, a stethoscope, a thermometer, and a measuring tape. Laboratory tests, particularly hemoglobin (Hb) level measurement, use the Sahli method.

Method of Data Analysis

Data analysis was carried out using a descriptive qualitative study. The data obtained were organized, interpreted, and presented per the midwifery management process framework established by the Ministry of Health (KEPMENKES No. 938/Menkes/SK/VII/2007). The analysis covered the following stages: Assessment (Data Collection): Gathering comprehensive subjective and objective information about the patient's condition. Diagnosis and Problem Identification: Formulating midwifery diagnoses and potential complications based on the collected data. Planning (Intervention Design): Developing a detailed care plan to manage anemia and maintain maternal-fetal well-being. Implementation: Executing the planned interventions, including health education, nutrition counseling, iron supplementation, and follow-up care. Evaluation: Assessing the effectiveness of interventions by monitoring maternal hemoglobin levels, symptom improvement, and overall pregnancy progress. Documentation: Recording all findings and care actions using the SOAP format (Subjective, Objective, Assessment, Plan).

Ethical Considerations

Before the study began, informed consent was obtained from the patient after providing a complete explanation of the data's purpose, procedures, and confidentiality. The patient's identity is anonymized in this report. The research adhered to the ethical principles of autonomy, beneficence, non-maleficence, and justice, ensuring that all care was conducted within professional and ethical standards of midwifery practice.

RESULTS

Table 1. Summary of Findings

No.	Parameter	Initial Assessment (April 6, 2025)	Follow-Up Evaluation (April 20, 2025)	Interpretation / Outcome
1	Gestational Age	38 weeks 4 days	Term (40 weeks)	Pregnancy reached full term with a stable maternal and fetal condition Hb level increased; anemia improved from <i>moderate</i> to <i>mild</i>
2	Hemoglobin (Hb)	8 g/dL	9.5 g/dL	
3	Vital Signs	BP: 100/80 mmHg, HR: 80 bpm, RR: 20/min, Temp: 36.7°C	BP: 110/80 mmHg, HR: 82 bpm, RR: 20/min, Temp: 36.8°C	All vital signs remained within normal physiological limits
4	Main Complaints	Dizziness, easy fatigue	Slight fatigue after light activities	Symptoms reduced significantly after 2 weeks of intervention
5	Physical Appearance	Pale conjunctiva, lips, and nails	Slight pallor, no severe anemia signs	Visible improvement in skin and mucosal color
6	Dietary Habits	Irregular meals, limited intake of iron-rich foods	Improved nutrition with vegetables, meat, eggs, and fruits	Better dietary compliance after counseling
7	Medications / Supplements	Started on Fe 200 mg (2×1), Vit C 500 mg (3×1), B-Complex (3×1), Ca lactate (1×1)	Continued as prescribed	Compliance improved; medication was tolerated
8	Fetal Condition	Fetal heart rate 144 bpm, regular and strong	Fetal heart rate 142 bpm, normal and reactive	Fetal well-being was maintained throughout observation
9	Maternal Behavior & Attitude	Anxious and fatigued	Calm, confident, cooperative	Psychological improvement after health education and support
10	Outcome of Care	Moderate anemia	Mild anemia, stable pregnancy, positive maternal adaptation	Care objectives achieved successfully

The results of this study indicate that midwifery care provided to Mrs. “I” effectively improved her hematological and physiological condition. Upon initial assessment on April 6, 2025, the patient was at 38 weeks and 4 days of gestation and presented with moderate anemia (Hb 8 g/dL). She reported feeling easily fatigued and dizzy, and clinical examination revealed pallor in the conjunctiva, lips, and nails. Vital signs were within normal limits, and fetal heart tones were regular at 144 beats per minute, confirming fetal well-being. The intervention included comprehensive antenatal care consisting of: Nutritional counseling emphasizing foods rich in iron, folate, and vitamin C (such as liver, meat, green vegetables, and citrus fruits), Iron supplementation (Fe 200 mg) twice daily, Vitamin C, B-complex, and calcium lactate administration, Guidance on adequate rest, personal hygiene, and recognition of danger signs during pregnancy, Psychological support to reduce anxiety and encourage adherence to care recommendations.

Significant improvement was observed at the follow-up evaluation on April 20, 2025. The hemoglobin level increased from 8 g/dL to 9.5 g/dL, indicating that the anemia had improved from moderate to mild. The patient’s complaints of dizziness and fatigue had reduced, and she reported feeling stronger and more active in daily activities. Her nutritional intake improved following counseling sessions, and she consistently consumed the prescribed supplements. Vital signs during follow-up remained stable: blood pressure 110/80 mmHg, pulse 82 bpm, and temperature 36.8°C, all within normal limits. The fetal heart rate (142 bpm) remained regular and intense, confirming continuous fetal health. Psychologically, the patient appeared calm, confident, and well-informed about her pregnancy and the

importance of nutritional balance. Overall, the implementation of standardized midwifery care, including systematic assessment, diagnosis, planning, implementation, and evaluation, was successful. The coordinated approach between patient education, supplementation, and emotional support contributed to measurable improvements in maternal and fetal outcomes. The study concludes that regular antenatal monitoring, adherence to iron therapy, and continuous nutritional counseling are essential to managing anemia in pregnancy effectively. This case demonstrates the importance of midwives' roles in early detection, individualized care, and preventing complications related to maternal anemia.

DISCUSSION

This case study illustrates the process and outcomes of midwifery care for a pregnant woman diagnosed with moderate anemia in the third trimester. The discussion focuses on the relationship between the findings obtained from the case and the theoretical framework of antenatal care and anemia management. The debate is structured according to the stages of midwifery care: assessment, diagnosis, planning, implementation, evaluation, and documentation.

Assessment

The initial assessment is critical in determining the patient's condition and needs. In this case, the patient, Mrs. "I," aged 23 years, was in her second pregnancy (GII P1 A0) at 38 weeks and 4 days of gestation. She complained of frequent dizziness and fatigue, classic symptoms of anemia in pregnancy. Physical examination revealed pale conjunctiva, lips, and nails, while laboratory tests showed a hemoglobin (Hb) level of 8 g/dL, confirming moderate anemia according to WHO criteria [14]. The assessment results align with theoretical knowledge that anemia in pregnancy commonly results from iron deficiency, which is exacerbated by the increased demand for hemoglobin production during gestation [15]. The maternal blood volume increases by up to 45–50% during pregnancy, leading to physiological hemodilution and reduced Hb concentration if iron intake is insufficient. Thus, early identification through regular antenatal care (ANC) is essential to prevent severe complications [16].

Diagnosis

Based on the assessment, the diagnosis established was GII PI A0, 38 weeks 4 days gestation, with moderate anemia (Hb 8 g/dL), live single fetus in longitudinal lie with cephalic presentation. Subjective and objective findings supported this diagnosis, including fatigue, pallor, and low Hb levels. The diagnosis correlates with the WHO classification, which defines anemia severity as mild (Hb 10–10.9 g/dL), moderate (Hb 7–9.9 g/dL), and severe (Hb <7 g/dL) [17]. The diagnosis is also consistent with findings, which emphasize that most anemic cases in pregnancy are due to nutritional deficiency and poor adherence to iron supplementation [18]. This case demonstrates the importance of accurate diagnostic formulation based on data synthesis to guide effective care planning [19].

Planning and Implementation

The care plan was designed according to the midwifery management standards outlined by the Ministry of Health (KEPMENKES No. 938/Menkes/SK/VII/2007). The primary goal was to improve maternal hemoglobin levels, maintain maternal and fetal well-being, and prevent obstetric complications. The interventions implemented included: Nutritional counseling emphasizing the consumption of iron-rich foods such as liver, red meat, eggs, green leafy vegetables, and vitamin C-rich fruits to enhance iron absorption [20]. Iron and vitamin supplementation: Fe tablets 200 mg twice daily, Vitamin C 500 mg thrice daily, Vitamin B complex for appetite and metabolism, and calcium lactate once daily [21]. Health education provides information about danger signs in pregnancy, hygiene, rest patterns, and the importance of medication adherence [22]. Psychological support addressing the patient's anxiety and encouraging positive coping mechanisms [23]. These interventions align with recommendations from the Indonesian Ministry of Health and WHO, highlighting the necessity of combined pharmacological and non-pharmacological strategies to treat anemia in pregnancy [24]. The counseling component was particularly effective, as the patient's dietary habits improved significantly during the two-week follow-up period [25].

Evaluation

The patient showed marked improvement after two weeks of consistent care and monitoring. Her

Hb level increased from 8 g/dL to 9.5 g/dL, indicating a transition from moderate to mild anemia. Her complaints of dizziness and fatigue diminished, and she reported feeling stronger and more energetic [26]. Vital signs remained stable, and fetal heart rate was within normal limits (142 bpm), demonstrating that maternal and fetal health were maintained [27]. Compliance with iron therapy and proper nutrition can improve hemoglobin concentration within two to four weeks [28]. It also confirms that continuous antenatal care plays a crucial role in early intervention and preventing anemia-related complications such as preterm labor, low birth weight, and postpartum hemorrhage [29].

The outcomes in this study are consistent with theoretical expectations and existing evidence [30]. The interventions based on standard midwifery protocols led to measurable improvement in maternal and fetal outcomes. Applying the SOAP documentation system (Subjective, Objective, Assessment, Plan) ensured that each step was recorded systematically, facilitating evaluation and accountability. In practice, the success of this case highlights the essential role of midwives in detecting, managing, and preventing anemia in pregnancy through evidence-based care. Integrating clinical skills, counseling, and emotional support was instrumental in achieving positive results. The care provided to Mrs. "I" demonstrates that structured midwifery management, adherence to iron supplementation, and consistent follow-up can improve hemoglobin levels and overall pregnancy outcomes. The findings reaffirm the importance of early ANC visits, patient education, and personalized midwifery interventions in reducing maternal anemia prevalence. This case is a practical example of how theoretical knowledge, when applied systematically, can lead to tangible health improvements in maternal care.

CONCLUSIONS

Based on the results of this case study, it can be concluded that the midwifery care provided to Mrs. "I," a 23-year-old woman at 38 weeks and 4 days of gestation with moderate anemia, was successfully implemented according to midwifery management standards. The interventions, which included nutritional counseling, iron and vitamin supplementation, health education, and psychological support, significantly improved the patient's condition. Her hemoglobin level increased from 8 g/dL to 9.5 g/dL, and her symptoms of fatigue and dizziness decreased substantially. The pregnancy continued normally until term, and maternal and fetal conditions remained stable throughout the care process. These findings demonstrate that early detection, comprehensive antenatal care, and patient compliance with treatment are key to managing anemia in pregnancy effectively.

It is recommended that all pregnant women undergo regular antenatal care (ANC) visits beginning early in pregnancy to detect and prevent anemia and other complications. Midwives should strengthen their role in providing continuous health education, especially regarding balanced nutrition, iron supplementation, and the recognition of warning signs during pregnancy. Health institutions are encouraged to ensure consistent availability of iron tablets and promote nutritional programs to support maternal health. For future research, it is advisable to conduct broader studies involving multiple cases to assess the long-term effectiveness of midwifery interventions in improving maternal hemoglobin levels and pregnancy outcomes.

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Authors' contributions

All authors contributed significantly to the development and completion of this research study.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research. No financial, professional, or personal relationships have influenced the outcomes or interpretations presented in this study.

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