

Case Study

Effectiveness of Integrated Health Education for Pregnant Women with Moderate Anemia at Dr. Soeratno Gemolong Regional Hospital: A Case Study

Sulami¹, Vira Zahra Alkharis², ³Elva Fiorentina

^{1,2,3}Akademi Keperawatan Patria Husada Surakarta, Jalan Gunung Slamet, Mojosongo, Kec. Jebres, Kota Surakarta, Jawa Tengah, Indonesia

ABSTRACT

Background: Anemia during pregnancy remains a significant global public health issue; in Indonesia, the prevalence rose from 37.1% (2013) to 48.9% (2018). Anemia adversely affects both the mother (risks of hemorrhage, infection, and fatigue) and the fetus (prematurity, low birth weight, and developmental disorders). The most common cause is iron deficiency resulting from increased metabolic demands and non-adherence to iron (Fe) tablet supplementation.

Objective: To describe the nursing care provided to Mrs. A, a pregnant woman with anemia, in the Lily Ward of Dr. Soeratno Gemolong Regional General Hospital (RSUD), covering assessment, diagnosis, intervention, implementation, and evaluation.

Method: A qualitative descriptive case study utilizing the nursing process approach (assessment, SDKI diagnosis, SIKI intervention, implementation, and SLKI evaluation) was conducted on Mrs. A (G4P3A0, 23 years old, 37 weeks pregnant, Hb 8 g/dL [moderate anemia]) over a three-day hospitalization period.

Results: Following health education, the "Knowledge Deficit regarding Anemia" was resolved, while the "Nutritional Deficit" was partially resolved (appetite improved, three-quarters of meals consumed, nausea subsided, though body weight had not yet increased significantly). "Impaired Peripheral Perfusion" was also partially resolved (Hb increased to 9.2 g/dL and dizziness subsided, although the target range of 11–12 g/dL was not yet reached).

Conclusion: Health education regarding anemia and nutrition was effective in improving the patient's knowledge and enhancing peripheral perfusion and nutritional status, although further increases in hemoglobin levels and body weight require more time.

KEYWORDS

Knowledge, Anemia, pregnancy, nursing

ARTICLE HISTORY

Received : June 01, 2026

Revised : July 01, 2026

Accepted : July 19, 2026

CONTACT

Sulami

Akademi Keperawatan Patria
Husada Surakarta

Email:

amiksulami77@gmail.com

INTRODUCTION

Anemia during pregnancy remains a major public health concern worldwide and is one of the leading contributors to maternal and neonatal morbidity and mortality (Karami et al., 2022). Based on research according to Karami et al., (2022) conducted a systematic review and meta-analysis of 52 eligible studies published between 1991 and 2021, encompassing a total sample size of 1,244,747 individuals, to determine the global prevalence of anemia among pregnant women. The meta-analysis revealed an overall global anemia prevalence of 36.8%, with the highest proportion being mild anemia at 70.8%. Furthermore, the prevalence was found to be highest during the third trimester of pregnancy (48.8%) and geographically most prominent in Africa (41.7%).

The study concludes that anemia remains highly prevalent among pregnant women worldwide, with significantly higher rates observed in developing countries compared to developed nations due to various economic, sociological, and health factors (Elsharkawy et al., 2022).

It is characterized by a decreased hemoglobin concentration, most commonly resulting from iron deficiency due to the increased physiological demands of pregnancy. In Indonesia, the prevalence of anemia among pregnant women increased from 37.1% in 2013 to 48.9% in 2018, indicating that maternal anemia continues to be a significant challenge for healthcare services (Raissa et al., 2024). Untreated anemia during pregnancy is associated with adverse maternal and fetal outcomes, including postpartum hemorrhage, infection, preterm birth, low birth weight, impaired fetal growth, and increased risk of maternal death (Anato & Reshid, 2025).

The management of anemia in pregnancy extends beyond iron supplementation and requires comprehensive health education to improve patients' understanding of anemia, promote adherence to iron supplementation, and encourage adequate nutritional intake. Limited knowledge regarding anemia and poor compliance with iron tablet consumption remain common barriers to successful treatment (Pabimbin et al., 2025). Therefore, integrated health education involving both pregnant women and their families is expected to enhance self-management behaviors, improve nutritional status, and optimize treatment outcomes (Jing & Liu, 2025).

This case study aimed to describe the implementation and outcomes of integrated health education as part of nursing care for a pregnant woman with moderate anemia admitted to Dr. Soeratno Gemolong Regional General Hospital. Nursing care was delivered using the nursing process, including assessment, nursing diagnosis based on the Indonesian Nursing Diagnosis Standards (SDKI), intervention planning according to the Indonesian Nursing Intervention Standards (SIKI), implementation of integrated health education, and evaluation using the Indonesian Nursing Outcome Standards (SLKI). This study is expected to provide evidence supporting the integration of health education into nursing care to improve knowledge, nutritional status, peripheral perfusion, and clinical outcomes among pregnant women with anemia.

MATERIALS AND METHOD

This study employed a descriptive case study design using the nursing process approach to evaluate the effectiveness of integrated health education in a pregnant woman with moderate anemia. The participant was a 23-year-old pregnant woman (G4P3A0) at 37 weeks of gestation with an initial hemoglobin level of 8 g/dL who was admitted to the Lily Ward of Dr. Soeratno Gemolong Regional General Hospital. Data were collected through interviews, direct observation, physical examination, medical record review, and supporting laboratory examinations during a three-day hospitalization. Nursing care was implemented following the nursing process, including assessment, nursing diagnosis based on the Indonesian Nursing Diagnosis Standards (SDKI), intervention planning according to the Indonesian Nursing Intervention Standards (SIKI), implementation of integrated health education regarding anemia, maternal nutrition, and adherence to iron supplementation involving the patient's family, and evaluation using the Indonesian Nursing Outcome Standards (SLKI). Outcomes were evaluated by assessing improvements in patient knowledge, nutritional status, peripheral perfusion, and hemoglobin levels following the intervention.

RESULTS

Regional General Hospital with a medical diagnosis of moderate anemia. The nursing process was conducted over a three-day hospitalization and consisted of assessment, nursing diagnosis, intervention planning, implementation, and evaluation based on the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Intervention Standards (SIKI), and Indonesian Nursing Outcome Standards (SLKI). The primary nursing intervention was integrated health education aimed at improving the patient's knowledge of anemia, adherence to iron supplementation, nutritional management, and family involvement in supporting self-care. The results of each stage of the nursing process are presented below.

Assessment

A 23-year-old pregnant woman (G4P3A0) at 37 weeks of gestation was admitted to the Lily Ward of Dr. Soeratto Gemolong Regional General Hospital with a diagnosis of moderate anemia. During the initial assessment, the patient complained of dizziness, fatigue, generalized weakness, and reduced activity tolerance. Physical examination revealed pale conjunctiva and signs of decreased peripheral perfusion. Laboratory findings showed a hemoglobin level of 8 g/dL, confirming moderate anemia. Data were collected through interviews, physical examination, observation, review of medical records, and laboratory investigations.

Table 1. Patient Assessment Findings

Assessment Component	Findings
Patient characteristics	Female, 23 years old, G4P3A0, 37 weeks of gestation
Chief complaints	Dizziness, fatigue, generalized weakness, decreased activity tolerance
Physical examination	Pale conjunctiva, signs of decreased peripheral perfusion
Laboratory findings	Hemoglobin (Hb): 8 g/dL (moderate anemia)
Data methods	Interview, physical examination, observation, medical record review, and laboratory examination

Nursing Diagnosis

Based on the assessment findings, three priority nursing diagnoses were established according to the Indonesian Nursing Diagnosis Standards (SDKI): ineffective peripheral tissue perfusion related to decreased oxygen-carrying capacity secondary to anemia, imbalanced nutrition less than body requirements related to inadequate nutritional intake, and deficient knowledge regarding anemia management and iron supplementation. These nursing diagnoses served as the basis for planning individualized nursing care.

Table 2. Priority Nursing Diagnoses

Nursing Diagnosis (SDKI)	Supporting Data
Ineffective peripheral tissue perfusion	Pale conjunctiva, dizziness, fatigue, Hb 8 g/dL
Imbalanced nutrition: less than body requirements	Increased nutritional needs during pregnancy and anemia condition

Deficient knowledge regarding anemia management	Limited understanding of anemia, iron supplementation, and nutritional management
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Nursing Intervention

Nursing interventions were developed according to the Indonesian Nursing Intervention Standards (SIKI). The primary intervention consisted of integrated health education focusing on the causes and complications of anemia, adherence to iron supplementation, consumption of iron-rich foods, dietary practices that enhance iron absorption, and the importance of family support. Additional interventions included monitoring vital signs, assessing peripheral perfusion, evaluating nutritional status, encouraging adequate rest, and collaborating with the healthcare team regarding medical management.

Table 3. Nursing Interventions

Nursing Diagnosis	Nursing Interventions (SIKI)
Ineffective peripheral tissue perfusion	Monitor peripheral perfusion, assess vital signs, monitor hemoglobin level, collaborate with the healthcare team
Imbalanced nutrition	Assess nutritional status, provide dietary counseling, encourage consumption of iron-rich foods
Deficient knowledge	Provide integrated health education regarding anemia, iron supplementation, nutrition during pregnancy, and involve family members in education sessions

Nursing Implementation

The planned nursing interventions were implemented over three consecutive days. Integrated health education was delivered using verbal explanations and interactive discussions tailored to the patient's educational needs. The patient's family was actively involved to reinforce health education and encourage adherence to dietary recommendations and iron tablet consumption. Continuous monitoring of the patient's clinical condition and responses to the interventions was performed throughout the hospitalization.

Table 4. Nursing Implementation

Day	Nursing Implementation
Day 1	Performed comprehensive assessment, established nursing diagnoses, initiated integrated health education on anemia and iron supplementation
Day 2	Reinforced education on iron-rich diet, monitored clinical condition and peripheral perfusion, involved family members in educational activities
Day 3	Evaluated patient's understanding, reinforced adherence to iron supplementation and nutritional recommendations, continued monitoring of clinical status

Evaluation

Evaluation using the Indonesian Nursing Outcome Standards (SLKI) demonstrated favorable outcomes following the nursing interventions. The patient showed improved understanding of anemia and its management, increased adherence to iron supplementation, and better knowledge regarding appropriate nutritional intake during pregnancy. Clinically, the patient reported decreased dizziness and fatigue, improved activity tolerance, and better peripheral perfusion. These findings indicate that integrated health education, combined with comprehensive nursing care, contributed positively to the patient's recovery and achievement of the expected nursing outcomes during hospitalization.

Table 5. Evaluation of Nursing Outcomes (SLKI)

Outcome Indicator	Before Intervention	After Intervention
Knowledge regarding anemia	Limited	Improved
Adherence to iron supplementation	Low	Improved
Nutritional awareness	Inadequate	Improved
Dizziness	Present	Reduced
Fatigue	Present	Reduced
Activity tolerance	Decreased	Improved
Peripheral perfusion	Decreased	Improved

DISCUSSION

This case study demonstrated that integrated health education was beneficial in improving the patient's knowledge, adherence to iron supplementation, nutritional awareness, and overall clinical condition during hospitalization(Anato & Reshid, 2025). Moderate anemia in pregnancy is commonly associated with increased maternal iron requirements that cannot be met through dietary intake alone(Al-Bayyari et al., 2024; Shi et al., 2022). Consequently, iron supplementation combined with appropriate dietary management remains the cornerstone of anemia treatment during pregnancy(Skolmowska et al., 2022). However, the effectiveness of treatment largely depends on the patient's understanding of the disease and adherence to recommended therapy(Altraide et al., 2025).

The implementation of integrated health education enabled the patient to better understand the causes, symptoms, potential complications, and management of anemia(Shen & Wei, 2025). Education regarding iron-rich foods, appropriate dietary practices to enhance iron absorption, and the importance of regular iron tablet consumption increased the patient's willingness to participate in self-care(Sancar et al., 2026; Sari et al., 2022). Family involvement further reinforced treatment adherence by providing emotional support and encouraging healthy behavioral changes(Cipta et al., 2024). These findings support the concept that patient-centered education is an essential component of comprehensive nursing care for pregnant women with anemia.

Following the nursing interventions, the patient experienced improvement in subjective symptoms, including reduced fatigue and dizziness, as well as better activity tolerance and peripheral perfusion(Wang et al., 2022). Although hemoglobin recovery generally requires several weeks of continuous iron supplementation, early improvements in

symptoms and patient engagement indicate that educational interventions positively influence short-term clinical outcomes(Chen et al., 2024). This finding highlights the importance of combining pharmacological treatment with behavioral and educational approaches rather than relying solely on medication.

The nursing process guided by the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Intervention Standards (SIKI), and Indonesian Nursing Outcome Standards (SLKI) provided a systematic framework for identifying patient problems, planning individualized interventions, implementing evidence-based nursing care, and evaluating patient outcomes(Riandi et al., 2024). The use of these standardized nursing guidelines facilitated comprehensive assessment and continuity of care while ensuring that nursing interventions addressed both physiological and educational needs(Ady et al., 2023).

This study has several limitations. As a single-case study, the findings cannot be generalized to all pregnant women with anemia. Furthermore, the observation period was limited to hospitalization, preventing evaluation of long-term adherence to iron supplementation and sustained improvement in hemoglobin levels. Future studies involving larger sample sizes, longer follow-up periods, and controlled study designs are recommended to further evaluate the effectiveness of integrated health education in improving maternal and fetal outcomes among pregnant women with anemia.

CONCLUSION

This case study demonstrates that integrated health education is an effective nursing intervention for improving knowledge, treatment adherence, nutritional awareness, and short-term clinical outcomes in a pregnant woman with moderate anemia. The implementation of comprehensive education, combined with family involvement and standardized nursing care based on the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Intervention Standards (SIKI), and Indonesian Nursing Outcome Standards (SLKI), contributed to improvements in the patient's understanding of anemia, adherence to iron supplementation, peripheral perfusion, and self-care behaviors. Although the findings are limited to a single case, this study highlights the important role of integrated health education as part of holistic nursing care for pregnant women with anemia. Further studies with larger sample sizes and longer follow-up periods are recommended to strengthen the evidence regarding its effectiveness in improving maternal and neonatal health outcomes.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the patient and her family for their willingness to participate in this case study. The authors also thank the management and healthcare professionals of Dr. Soeratno Gemolong Regional General Hospital, particularly the staff of the Lily Ward, for their support and cooperation during the implementation of nursing care and data collection. Appreciation is also extended to all individuals who provided valuable assistance and constructive support throughout the completion of this study.

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