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The Role of Family in Improving Adherence to Anemia Treatment in Pregnant Women: A Case Study in Labulia Village

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Abstract. *Anemia during pregnancy is a common health issue that poses significant risks to both maternal and fetal health, particularly in the third trimester. This study aims to explore the role of family involvement in improving adherence to anemia treatment in pregnant women. Using a case study approach, the research was conducted in Labulia Village from August 29 to September 25, 2024, focusing on a 25-year-old pregnant woman diagnosed with severe anemia in her third trimester. Data were collected through in-depth interviews, direct observation, and clinical assessments, including hemoglobin levels, vital signs, and dietary intake. The study found that family support played a crucial role in enhancing the mother's understanding of anemia, leading to improved compliance with prescribed iron supplementation and dietary recommendations. The results showed a significant increase in hemoglobin levels from 8.0 g/dL to 11.8 g/dL, demonstrating the effectiveness of both education and family involvement in managing anemia. This case study underscores the importance of integrated maternal health education and the critical role of family support in preventing pregnancy-related complications, particularly anemia in the third trimester.*

Keywords: *Anemia, Pregnancy, Family Support, Third Trimester, Maternal Health*

1. INTRODUCTION

Anemia during pregnancy is one of the major public health problems in developing countries, contributing significantly to the high morbidity and mortality rates among pregnant women. In Asia, the prevalence of anemia in pregnant women is estimated to reach 72.6% (Sasmita, 2022). In Indonesia, pregnancy-related anemia is a serious concern due to its direct association with obstetric complications such as hemorrhage, infection risk, and maternal mortality. A pregnant woman is classified as anemic if her hemoglobin (Hb) level is <11 g/dL in the first and third trimesters, and <10.5 g/dL in the second trimester (Hariati et al., 2020).

The World Health Organization (WHO) reports that over 300,000 maternal deaths occur globally each year, most of which are caused by hemorrhage, hypertension, and sepsis. WHO also states that the prevalence of anemia in pregnancy ranges between 20% and 89%, using a hemoglobin level of 11 g/dL as the diagnostic threshold (WHO, 2021). In Indonesia, the top three causes of maternal mortality in 2018–2019 were hemorrhage, hypertension, and infection. One of the main contributors to hemorrhage is anemia during pregnancy (Ministry of Health of the Republic of Indonesia, 2020).

According to the Health Profile of West Nusa Tenggara Province (NTB), there has been an increasing trend in the number of pregnant women with anemia: 29 cases in 2016, 30 cases in 2017, and 34 cases in 2018 (NTB Health Office, 2018). In Central Lombok Regency, the prevalence of anemia among pregnant women was reported at 8.77%. Local data also show a year-over-year increase, with 34 cases (4.19%) in 2021 and 48 cases (5.92%) in 2022.

Based on the 2020 report from the PWS KIA (Maternal and Child Health Surveillance System) at UPTD Ubung Health Center, of the 858 pregnant women targeted, the antenatal care coverage for the first visit (K1) was 109.09%, complete antenatal care (K4) was 94.41%, risk factor and complication detection was 103.86%, maternal complication management was 132.75%, and Linakes coverage was 96.94%. The proportion of pregnant women with anemia was recorded at 3.50%, while those with chronic energy deficiency (CED) stood at 13.29%.

Anemia during pregnancy can lead to various serious complications, including weakened immunity, increased susceptibility to infections, decreased quality of life, miscarriage (abortion), hemorrhage, preterm delivery, low birth weight infants (<2,500 grams), short birth length (<48 cm), and even intrauterine fetal death in cases of severe anemia (Ministry of Health RI, 2020).

One of the contributing factors to the high prevalence of anemia among pregnant women is non-compliance in consuming iron (Fe) tablets. Pregnant women are recommended to take at least 90 iron tablets throughout their pregnancy. Adherence to iron supplementation plays a crucial role in maintaining optimal hemoglobin levels (Dewi & Mardiana, 2021). Additionally, an unbalanced diet, closely spaced pregnancies (<2 years apart), and infections are also major risk factors for anemia (Ministry of Health RI, 2020).

A pregnant woman's knowledge of the importance of nutrition during pregnancy also influences her anemia status. Research by Zuiatna (2021) found a significant relationship between knowledge and the incidence of anemia ($p = 0.040$). A lack of awareness regarding the need for nutritious food particularly iron-rich food can increase the risk of anemia and negatively affect fetal growth and development.

Anemia during pregnancy is caused by multiple factors, including poor compliance with iron supplementation and limited knowledge about the importance of balanced nutrition. Efforts to enhance education and monitor nutritional intake and supplementation during pregnancy are essential in reducing the prevalence of anemia and preventing pregnancy-related complications.

2. METHODE

This study uses a descriptive qualitative case study design to describe midwifery care for pregnant women with severe anemia during the third trimester. The research was conducted in Labulia Village from August 29 to September 25, 2024, with the subject, Mrs. "Y", a 25-year-old pregnant woman diagnosed with severe anemia, having a hemoglobin level of 8.0 g/dL at 28 weeks of pregnancy. The subject was purposively selected because she met the inclusion criteria, namely being in the third trimester of pregnancy with a diagnosis of anemia (Hb < 11 g/dL) and being willing to undergo midwifery care and follow-up visits. Exclusion criteria included pregnant women with severe pregnancy complications such as preeclampsia or active bleeding.

Data were collected through in-depth interviews with the subject and her family to obtain information about the mother's knowledge of anemia, the social support she received, and the symptoms she experienced. Additionally, direct observation of the clinical condition of the mother was conducted, including measurement of vital signs, nutritional status, and subjective complaints reported by the subject. Physical and supporting examinations were also carried out, including blood pressure measurement, body temperature, upper arm circumference (LILA), and hemoglobin levels. All midwifery care actions provided were also documented. The data analysis technique used was descriptive qualitative analysis with a content analysis approach, aimed at identifying changes in the mother's condition and the effectiveness of the interventions provided. The data obtained from the two visits were analyzed to assess the alignment between the symptoms experienced by the subject and the theoretical literature on anemia during pregnancy.

This study also considers ethical aspects, including obtaining ethical approval from the educational institution and informed consent from the research subject. All personal data of the subject are kept confidential and used solely for scientific research purposes.

3. RESULT AND DISCUSSION

a. Results

1) Identity and Social Characteristics

The individual assessment was conducted on August 29, 2024, involving a pregnant woman, Mrs. “Y”, aged 25 years, a Muslim from the Sasak ethnic group. She is a housewife residing in Labulia Village. The subject was in her second pregnancy (G2P1A0H1), with a gestational age of 28 weeks at the time of assessment.

2) Chief Complaints and Pregnancy History

The subject reported symptoms including dizziness, weakness, fatigue, lethargy, and difficulty sleeping. She had a normal menstrual history, with menarche at the age of 13, a regular 28-day cycle lasting 7–8 days, with bright red blood and no associated complaints. Pregnancy history indicated that the subject first felt fetal movement in the second trimester. There were no signs of danger or complications during pregnancy. However, the subject expressed concerns about her ability to deliver vaginally. Antenatal care (ANC) visits had been conducted twice during the first and second trimesters, and once during the third trimester. The treatment included iron (Fe) and vitamin B6 tablets, although third-trimester complaints persisted, including dizziness, fatigue, and sleep disturbances. The subject had received tetanus toxoid (TT) immunization.

3) Daily Needs Fulfillment Patterns

Nutrition: Prior to pregnancy, the subject ate twice daily with portions of one plate, consisting of rice, fish, vegetables, tofu, and tempeh. During pregnancy, meal frequency decreased to once daily with similar food types. Fluid intake increased from 6–7 glasses to 7–8 glasses of water per day. There were no dietary restrictions or complaints regarding eating and drinking.

Elimination: Bowel and urinary elimination patterns remained stable before and during pregnancy, with bowel movements 1–2 times per day and urination 5–7 times per day. No complaints were reported.

Rest: Nighttime sleep duration decreased from 6 hours to 5–6 hours, while napping remained 1–2 hours per day without complaint.

4) Social Support and Medication Intake

The subject received full support from her husband and family, who assisted with household chores and facilitated visits to health care facilities. She only took medications prescribed by the midwife, which included oral Fe tablets (2x1) and vitamin B6 (3x1).

5) Physical and Supporting Examinations

The subject's general condition was good, with clear consciousness (compos mentis) and stable emotional state. Vital signs showed blood pressure at 100/60 mmHg, pulse at 84 bpm, respiration rate at 20 breaths per minute, and body temperature at 36.5°C. The mother’s weight had decreased from 67 kg before pregnancy to 65 kg, with a height of 155 cm and upper arm circumference (MUAC) of 30 cm. Clinical signs included pale conjunctiva, dry lips, and pale gums. Abdominal examination indicated the fetus was positioned at the lower part of the uterus but had not yet engaged the pelvis. Hemoglobin levels were 8.0 g/dL, indicating severe anemia.

6) First Visit: Intervention and Evaluation

The primary diagnosis was 28-week gestation with severe anemia. Independent intervention was provided in the form of communication, information, and education (CIE) about anemia and the importance of consuming iron-rich foods. Oral therapy included Fe, vitamin B6, and vitamin C. The mother was advised to undergo an ultrasound scan and get adequate rest. Evaluation revealed that the mother understood the examination results and was willing to follow the prescribed treatment and adopt a healthy lifestyle.

7) Health Progress (Second Visit)

A follow-up visit was conducted on September 25, 2024. The subject reported no further dizziness, fatigue, or sleep disturbances and claimed to be consistently taking her medications as instructed. Vital signs had improved, with blood pressure at 120/80 mmHg and hemoglobin rising to 11.8 g/dL. The diagnosis at this visit was mild anemia during the third trimester. The intervention included oral Fe (60 mg), vitamin C (1000 mg), and paracetamol (3x1). Evaluation showed improved knowledge and compliance with the recommended treatment regimen.

b. Discussion

During the first visit, the subject (Mrs. "Y") complained of symptoms such as dizziness, weakness, fatigue, and lethargy. The interview revealed that the patient had limited knowledge about anemia during pregnancy. This lack of awareness reflects a low level of maternal health literacy, which can increase the risk of pregnancy complications. Educational counseling was provided about anemia in pregnancy, a condition characterized by decreased hemoglobin levels in the blood, which poses risks to both maternal and fetal health. These risks include miscarriage, antepartum hemorrhage, preterm labor, fetal growth restriction, and postpartum complications (Ministry of Health of the Republic of Indonesia, 2021).

The educational intervention also included recommendations to consume iron-rich nutritious foods, such as red meat, green leafy vegetables, and legumes, while avoiding foods or beverages that inhibit iron absorption, such as tea, coffee, or tannin-rich products (Hassan et al., 2022). The intake of iron tablets (Fe) and vitamin C was recommended to help increase hemoglobin levels and support optimal iron absorption.

During the second visit, the patient demonstrated improved understanding of her health condition. She reported clinical improvements, such as the disappearance of dizziness and fatigue, and demonstrated compliance with iron tablet intake. An increase in hemoglobin levels from 8.0 g/dL to 11.8 g/dL indicated the success of the educational and

therapeutic interventions. Family support also played a vital role in the effectiveness of the therapy, as emphasized by Patel et al. (2020), who stated that family involvement enhances maternal adherence to treatment during pregnancy.

Based on the two visits, it can be concluded that the lack of knowledge among the mother and her family contributed to the incidence of severe anemia in the third trimester. Ideally, hemoglobin levels in pregnant women should be above 11 g/dL, as values below 10 g/dL significantly increase the risk of obstetric complications (WHO, 2016). The clinical assessment showed consistency between theoretical knowledge and real-world practice, as the signs and symptoms experienced by Mrs. "Y" aligned with those described in the literature regarding severe pregnancy-related anemia.

Based on data interpretation, the primary diagnosis is a 28-week pregnancy with severe anemia. Potential complications that may arise include miscarriage, antepartum hemorrhage, preterm birth, fetal growth restriction, and complications during delivery and the postpartum period (Nasser et al., 2021).

The researcher provided a health education intervention or Communication, Information, and Education (CIE) about anemia in pregnancy, its risks, and preventive strategies. The patient was advised to get adequate rest, take iron tablets regularly, and increase the intake of foods rich in iron and vitamin C. In addition, she was instructed to avoid consuming food or beverages that inhibit iron absorption, such as tea and coffee.

In the context of midwifery management, care planning is carried out based on the identification of problems and anticipation of potential complications. The care plan for Mrs. "Y" included ongoing education about anemia, monitoring of hemoglobin levels, and strengthening of family support to improve treatment compliance. The implementation of care took place from August 29 to September 25, 2024. All interventions were designed based on client needs, and no significant obstacles were encountered during the process. The client showed a cooperative attitude and followed all recommendations given.

Evaluation was conducted to assess the effectiveness of the interventions provided. The results demonstrated significant improvements in both the clinical condition and the mother's knowledge of anemia. The rise in hemoglobin levels to 11.8 g/dL and the mother's improved understanding of the health education delivered were strong indicators of the success of the midwifery care provided

The role of family in improving adherence to anemia treatment among pregnant women is crucial, as evidenced by numerous studies highlighting the impact of family-centered interventions and support systems. Family involvement not only enhances

compliance with iron supplementation but also fosters a supportive environment that encourages healthy practices among pregnant women. The following section outlines the specific contributions of family dynamics to treatment adherence.

Family-centered health education interventions have shown significant improvements in adherence to iron supplements. For instance, a study conducted in rural Jodhpur reported a reduction in moderate anemia from 38.66% to 7.25% after the implementation of such interventions (Singh et al., 2024). These programs improve knowledge, attitudes, and practices regarding anemia, leading to better health outcomes for both mothers and babies.

Emotional support provided by family members especially husbands plays a vital role in encouraging pregnant women to comply with iron supplementation. Husbands can offer reminders and motivation, which are essential in helping women overcome the side effects commonly associated with iron tablets (Putri, 2023). Practical support, such as monitoring medication intake, has also been shown to significantly increase adherence rates (Nafiah et al., 2023).

Health perceptions and preventive behaviors related to anemia among pregnant women are strongly influenced by family dynamics. Studies have shown that a supportive family environment correlates with better adherence to anemia prevention practices (Mulya & Kusumastuti, 2022; Triharini et al., 2023). Families that actively participate in health education and support initiatives contribute to improved understanding and management of anemia.

4. CONCLUSION

This study demonstrates that a lack of knowledge about anemia among pregnant women can worsen the health of both the mother and the fetus, as seen in the case of Ny. "Y," who experienced severe anemia during the third trimester. Providing proper education about anemia, the importance of iron intake, and good social support can enhance the mother's understanding of her health condition, thereby improving adherence to treatment and a healthy diet. The results from two visits show that the improvement in the mother's knowledge regarding anemia and the increase in hemoglobin levels from 8.0 g/dL to 11.8 g/dL after the intervention indicate the success of the actions taken. Furthermore, the involvement of the family in supporting the pregnant mother also plays a crucial role in the success of this therapy. Overall, this study highlights the importance of integrated midwifery education and continuous

health monitoring to prevent more serious complications in pregnant women with severe anemia.

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