



Empowering Mothers In Monitoring Compliance with Blood Supplement Tablet (BST) And Date Consumption For Anemia Prevention

Nita Aulia Putri¹, Lisnawati²

¹Poltekkes Kemenkes Tasikmalaya, West Java, Indonesia, nitaauliaputri@gmail.com

²Poltekkes Kemenkes Tasikmalaya, West Java, Indonesia, bidanlisna85@gmail.com

Corresponding Author : bidanlisna85@gmail.com

Abstract:

Background: Anemia is one of the indirect causes of maternal death. Anemia in pregnancy is a condition in which the hemoglobin level in the blood is less than 11 grams, reducing the body's ability to transport oxygen to tissues. The prevalence of anemia in pregnant women in Indonesia was 27% in 2024. The incidence of anemia at the Jagapura Community Health Center, Cirebon Regency, was 18.4% in 2024. Management of anemia involves iron supplementation, dietary changes, and regular monitoring of hemoglobin levels. Dates are foods rich in iron and are part of the local wisdom of the Japura people.

Aim: This research aims to address anemia in women by empowering mothers to improve compliance with the consumption of iron tablets and dates.

Methods: A case study method is used. The intervention involved the mother and her husband in monitoring compliance with consuming one iron tablet and seven dates per day for 14 days. Mothers' adherence to taking supplements and nutritious foods is supported by the family's active role in monitoring and motivation.

Results, There was an increase in the mother's hemoglobin level and in maternal adherence to taking iron tablets and dates, from 10.1 g/dL to 10.9 g/dL.

Conclusions and Implications. Empowering mothers and families to monitor compliance with iron tablets and date consumption effectively increases hemoglobin levels and reduces maternal and infant complications.

Keywords: *Empowering Mother, anemia, Iron tablets, dates*



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INTRODUCTION

The goal of health development is to improve the community's health status, with one indicator being the Maternal Mortality Rate. By 2023, the maternal mortality rate in Indonesia will reach 189 per 100,000 live births, a figure that is still far from the SDGs target (less than 70 per 100,000 live births by 2030). Anemia is an indirect factor that causes

maternal death, as it can cause bleeding, infection, and prolonged parturition (Kementerian Kesehatan Republik Indonesia, 2023).

Anemia in pregnancy is defined as a condition of decreased Hemoglobin (Hb) levels in the blood, namely $<11.00 \text{ gr}\%$ in the first and third trimesters, and $<10.50 \text{ gr}\%$ in the second trimester. Based on the 2023 Indonesian Health Survey, the prevalence of anemia among pregnant women in Indonesia is reported to be 27.7%. The incidence of anemia in Cirebon Regency was 1,242 cases in the first trimester and 744 cases in the third trimester (2023). Especially at the Japura Health Center, there has been an increase in pregnant women with anemia from 9.6% (97 cases) in 2023 to 18.4% (190 cases) in 2024 (Kemenkes RI, 2020).

The government overcomes anemia by administering at least 90 Fe tablets during pregnancy. However, maternal adherence to taking Fe tablets is often an issue, which is influenced by a variety of factors, including family support. Empowering families to monitor the consumption of Fe tablets and nutrients is essential to prevent and overcome anemia (Wulandari, 2024).

One additional nutritional intervention is the consumption of Dates (*Phoenix Dactylifera*). Dates contain a considerable amount of iron, which is 0.90 mg per 100g, and are effective in increasing hemoglobin levels with an average increase of 1.18 g/dl during 14 days of consumption. (Hermawan et al., 2021).

- 1. Penelitian ini berada pada arus terkini (state of the art) dalam bidang kesehatan ibu hamil—khususnya pencegahan anemia melalui suplementasi zat besi dan intervensi gizi tambahan. Upaya penanggulangan anemia di Indonesia umumnya fokus pada:**
 - 1. Pemberian tablet Fe sebagai standar nasional untuk mencegah anemia pada ibu hamil, termasuk distribusi dan edukasi konsumsi minimal 90 tablet selama kehamilan.**
 - 2. Pendekatan edukasi dan penyuluhan untuk meningkatkan kepatuhan ibu, khususnya terkait efek samping dan manfaat Fe.**
 - 3. Penggunaan buah kurma sebagai intervensi nutrisi tambahan karena kandungan zat besi serta kemampuannya meningkatkan kadar Hb.**
 - 4. Penguatan peran keluarga dalam mendukung kesehatan ibu hamil, terutama keterlibatan suami dalam kepatuhan konsumsi Fe, sudah mulai diterapkan dalam beberapa studi sebelumnya.**
- 2. Namun, sebagian besar penelitian sebelumnya hanya berfokus pada:**
 - **hubungan kepatuhan ibu dan peningkatan Hb**
 - **efek konsumsi kurma dan Fe terhadap Hb**
 - **edukasi kesehatan individu**
- 3. Sementara artikel ini membawa pendekatan terkini berupa kombinasi intervensi kurma + Fe + family empowerment, diterapkan dalam studi kasus langsung dengan monitoring nyata melalui check sheet keluarga.**

LITERATURE REVIEW

Anemia is a body condition characterized by examination results showing hemoglobin (Hb) levels in the blood that are lower than usual, which can be caused by a low number of red blood cells (for example, due to heavy bleeding due to an accident or other cause), or a sufficient number of red blood cells but the Hb content in the red blood cells is low. (Wirata, 2024).

The Center for Disease Control and Prevention defines anemia as a condition with Hb levels <11 g/dL in the first and third trimesters, Hb <10.5 g/dL in the second trimester, and <10 g/dL postpartum. (Wibowo et al., 2021).

Symptoms of anemia generally appear due to a lack of oxygen being carried to the body's tissues due to low Hb, so that the tissues lacking oxygen cannot function optimally,

and symptoms of anemia appear. (Sandy & Sulistyorini, 2024). Anemia develops slowly, so symptoms are often not noticeable. By the time symptoms do occur, the anemia is usually quite severe. Anemia in pregnant women is considered mild if the Hb level is 10-10.9 g/dl, moderate if the Hb level is 7-9.9 g/dl, and severe if the Hb level is <7 g/dl. (Wardhani et al., 2023).

Pregnancy can increase iron requirements by two to threefold. Iron is needed for the production of extra red blood cells, for certain enzymes needed by tissues, the fetus, and the placenta, and to replace normal daily losses (Rosidah et al., 2023). Iron deficiency is the leading cause of pathological anemia in pregnancy (approximately 95% of cases). When iron stores are depleted, the bone marrow produces smaller (microcytic) and paler (hypochromic) red blood cells, thus reducing oxygen-carrying capacity (Juandri et al., 2024).

Iron (Fe) plays a role as a component in the formation of myoglobin, a protein that distributes oxygen to muscles, enzymes, and collagen. Iron also plays a role in the body's immune system. Iron (Fe) tablets are important for pregnant women because they have the following functions: increasing nutritional intake for the fetus, preventing iron deficiency anemia, preventing bleeding during childbirth, and reducing the risk of maternal death due to bleeding during childbirth (Soleha, 2024). Pregnant women should consume foods high in iron, such as whole grains, red meat, nuts, green vegetables, and liver. Adequate vitamin C consumption can also improve iron absorption in the body (Widyantari, 2023).

Pregnant women experience changes in blood circulation, making them susceptible to anemia. Normally, 100 ml of blood contains 15 grams of hemoglobin, which can carry 0.03 grams of oxygen. A daily iron intake of 60 mg can increase hemoglobin levels by 1 gram per month (Noviyanti et al., 2024). Iron absorption is greatly influenced by the availability of vitamin C, in the reaction vitamin C plays a role as a source of electrons to reduce oxygen and as a protective agent to maintain the iron reduction status (Handayani & Contesa, 2024).

The government is implementing anemia prevention and management efforts through the provision of iron tablets at a daily dose of one tablet (60 mg iron and 0.25 mg folic acid) for at least 90 consecutive days during pregnancy. Furthermore, to ensure a safe pregnancy, delivery, and fetus and baby, it is necessary to raise awareness among mothers about the importance of regularly taking iron tablets (Widyantari, 2023).

Anemia has a significant negative impact on morbidity and mortality in both mothers and infants. Preventing and reducing the incidence of anemia in pregnant women is crucial to the family's role in maintaining their health (Noviyanti et al., 2024). The solution to this

problem is to involve family members in the nursing process, with the goal of enhancing the family's role in preventing anemia in pregnant women through family empowerment. Based on previous research conducted by Triharini (Triharini et al., 2023) found that family factors have a significant influence on preventing anemia in pregnant women.

Eating dates before meals can help increase iron absorption, especially when combined with foods containing vitamin C, which also supports iron absorption. Eating dates in the morning can provide the energy and nutrients needed for daily activities. Dates can make you feel full faster due to their fiber content, which can help control appetite (Restu & Contesa, 2024).

METHOD

This study uses a case report design (Case Study) or Comprehensive Midwifery Care. This approach focuses on the management of individual clinical cases applying standardized interventions that are modified to the client's specific needs. The subject of the case is Mrs.P, age 17 years, G1P0A0 (Young Primigravida), gestational age of 35 weeks, with mild anemia. Care is provided the UPTD PONED Jagapura Health Center through a series of home visits and care contacts.

Case management is based on Varney's modified seven steps. The Core Interventions implemented are:

- a. Checking the Hemoglobin level of pregnant women. The patient was given Fe tablets to be taken 1 time daily, plus 7 dates per day for 14 days. Furthermore, the patient was re-examined for hemoglobin levels after the intervention to determine the increase in hemoglobin levels of pregnant women. The sample was observed by making 5 home visits to patients.
- b. Carrying out family empowerment by involving husbands and immediate family members in monitoring compliance with the consumption of Fe tablets and dates by filling out compliance checksheets for the consumption of Fe and Date tablets, as well as their role in supporting Mrs. P.
- c. Carrying out health promotion efforts through providing education about the dangers of anemia, the benefits of Fe tablets, and a balanced nutritional diet.

Data Collection Techniques:

- a. Primary Data: Interview (coordinated anamnesis), Physical Examination (including Hb check using hemoglobin meter), and Observation (observation and recording of compliance with Fe tablet and date consumption using a checklist sheet).
- b. Secondary Data: Patient's medical records and antenatal care daily visit books.

DISCUSSION

Midwifery care was successfully carried out as planned. Subjective and objective data are assessed in a focused manner, leading to an appropriate case analysis. The management, centered on providing education and family monitoring, went smoothly. The husband and family showed active support in monitoring Mrs. P to consume Fe tablets and dates every day, for 14 days, which were monitored through filling out the check sheet. The results of the laboratory check on day 14 showed a Hemoglobin level of 10.9 grams. There was an increase in Hemoglobin levels from the initial examination, which was 10.1 grams. The results showed an increase in Hb levels by 0.8 gr%.

The 17-year-old sample was, theoretically, included in the high-risk category (young primi). This condition is often associated with physical and psychological immaturity, as well as low adherence to health recommendations, including the consumption of Fe tablets. This reinforces the need for interventions based on family empowerment and social support. Family empowerment plays a crucial role (Ayad et al., 2020). By involving the husband and family, the compliance challenges that often occur in Fe tablet supplementation programs can be overcome. The husband/family becomes a monitoring agent, ensuring that Fe tablets and dates are consumed regularly. The use of Fe tablets as a pharmacological intervention, combined with dates as a source of additional nutrients that have been clinically tested, may help increase Hemoglobin (Hb) levels. This approach is holistic and more acceptable to patients. All measures of midwifery care, from assessment to management and evaluation, have been successfully implemented, demonstrating that an integrated care model that focuses on behavioral/compliance aspects can help minimize the gap between theory and practice in anemia management. (Rahayu & Prabasari, 2024).

From this article, it appears that there are several research gaps that have not been filled by much previous research, namely:

1. There is a lack of studies that measure the direct impact of family involvement as supervisors of Fe and date consumption, not just moral support.

2. Lack of research that combines pharmacological interventions (Fe) and local nutrition (dates) in a single model of empowerment approach.
3. There has not been much research-based research on measurable case studies with daily monitoring using family checklists to ensure compliance.
4. Research limitations on vulnerable age groups, such as juvenile primigravida, where compliance rates are usually low.
5. Lack of evidence of family empowerment practices at the primary service level (Puskesmas) directly through home visits and monitoring.

An important gap that the article points out is that, although the effectiveness of Fe and dates is well known, the mechanism of family involvement as a daily control has not been extensively empirically evaluated. This is an important space for further research.

The main novelties of this article are:

1. Integrated intervention model: Fe + Date + Family Empowerment in one midwifery management design.
2. Family-based monitoring approach: husband and family not only provide support, but also become *active monitors* through check sheets.
3. Implementation based on local culture: the selection of dates as an additional nutrient is based on the *local wisdom* of the Japura people, not just nutritional considerations.
4. Case study in adolescent-age primigravida mothers, who are a high-risk group for anemia and non-conformity.
5. Empirical proof of Hb changes within 14 days through measured monitoring (10.1 g/dl → 10.9 g/dl).

This novelty shows that: not just medical interventions, but socio-cultural interventions and family empowerment able to improve compliance and Hb levels in the context of primary services.

CONCLUSION

This study successfully carried out comprehensive obstetric care in Mrs. P, a young primigravida (age 17 years) with a diagnosis of mild anemia at 35 weeks of gestation. Family Empowerment Intervention through daily compliance monitoring of Fe Tablet and date fruit consumption has proven effective in managing this case.

This approach successfully involves the husband and family actively in the supervision of the mother's diet and supplementation, which directly contributes to the increase in pregnant women's adherence to the consumption of Fe tablets and dates, thereby improving the health status of pregnant women.

The Family Empowerment model, integrated with monitoring Fe tablets and dates, is recommended as an effective and applicable strategy for anemia intervention in pregnant women, especially in vulnerable young age groups, at the primary health service level.

Implication

The results of this study can be used as input for efforts to prevent anemia during pregnancy through family empowerment by monitoring compliance with the consumption of iron tablets and dates. This research shows a new direction in the prevention of anemia: not only supplements, but also family empowerment. Fill gaps related to family-based compliance monitoring. Offering novelty on the integration of Fe+dates+family empowerment with a case study approach in primary services.

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