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Original Research

Husband support, compliance in consuming Fe tablets and incident of anemia in pregnant women

Latifah[1], Rizka Novia Rhamadayanti[2], Adriana Palimbo[3*], Umi Hanik Fetriyah[4]

[1]*Department of Nursing Profession, Sari Mulia University, Banjarmasin, Indonesia*
[2]*Nurse, Sungai Jingah Community Health Center, Banjarmasin, Indonesia*
[3]*Department of Midwifery, Faculty of Health, Sari Mulia University, Banjarmasin, Indonesia*
[4]*Department of Nursing, Faculty of Health, Sari Mulia University, Banjarmasin, Indonesia*

*Corresponding author: palimboadriana00@gmail.com

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ABSTRACT

Background: Anemia in pregnancy, particularly iron deficiency anemia, is a major public health concern with significant maternal and fetal implications. In Indonesia, anemia prevalence among pregnant women remains high, largely influenced by insufficient iron supplementation compliance and limited support systems. Husband support has been identified as a critical factor influencing maternal health behaviors, including compliance with consuming iron (Fe) tablets.
Objective: This study aims to analyze the relationship between husband support, compliance in consuming Fe tablets, and the incidence of anemia among pregnant women.
Method: A cross-sectional study was conducted involving 33 third-trimester pregnant women selected through purposive sampling. Data were collected using a validated questionnaire to assess husband support and maternal compliance with Fe tablet consumption. Hemoglobin levels were extracted from maternal health records. Statistical analysis using the Chi-Square Test.
Result: The study found significant relationships between husband support and anemia ($p = 0.035$) and between compliance with Fe tablet consumption and anemia ($p < 0.001$). Pregnant women with good husband support were less likely to experience anemia (6.1%) compared to those with poor support (18.2%). Similarly, none of the compliant participants developed anemia, while 24.2% of non-compliant women were anemic.
Conclusion: Husband support and compliance with Fe tablet consumption are key factors in reducing anemia among pregnant women. Interventions should focus on enhancing spousal involvement and promoting adherence to iron supplementation to improve maternal and fetal health outcomes.

1. Introduction

Pregnancy is a complex and multifaceted process that begins with the fertilization of an egg by a sperm cell, followed by intricate biological events that culminate in the birth of a child. This process involves not only the initial stages of conception but also critical phases of development, implantation, and physiological adaptations in the mother. While pregnancy is a natural physiological phenomenon, it places significant demands on the maternal body,

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requiring adequate nutritional intake to support the growth and development of the fetus and maintain the health of the mother.

One of the most prevalent health challenges during pregnancy is anemia, a condition marked by insufficient levels of red blood cells or hemoglobin, resulting in a reduced ability of the blood to transport oxygen. The World Health Organization (WHO) defines anemia as a hemoglobin level below 12 g/dL in adult females and below 13 g/dL in adult males (Shapiro & Brosnan, 2023). Anemia, particularly iron deficiency anemia (IDA), was a significant global health issue, impacting approximately 30% of the global population. Women and children are disproportionately affected, with anemia accounting for nearly 9% of global disability-related health issues annually (Marley & Brookes, 2024; Tejavat, 2023).

In Indonesia, the prevalence of anemia among pregnant women is a pressing public health concern. Approximately 48.9% of pregnant women in Indonesia experience anemia, with the highest rates observed in adolescents aged 15-24 years. A specific study revealed that 36.2% of young pregnant women, particularly in their first trimester, are affected by anemia (Kuntari & Supadmi, 2024). The underlying factors contributing to this issue include inadequate nutritional intake, limited access to healthcare services, and insufficient support systems.

Husband support plays a crucial role in maternal health during pregnancy. It is defined as the care, attention, and responsibility provided by a husband to his wife, reflecting a form of love and commitment (Mandey et al., 2020). The support from a husband can significantly influence a woman's health behaviors, including her compliance with medical advice and prescribed treatment regimens. Compliance in health is defined as the extent to which individuals adhere to medical recommendations and treatment protocols. In the context of anemia prevention, compliance with consuming iron supplement tablets (Fe tablets) is crucial for enhancing maternal hemoglobin levels and minimizing the risk of complications during pregnancy. Studies suggest that non-compliance with Fe tablet consumption is often influenced by socio-cultural, economic, and psychological factors, including the level of family support (Mir, 2023).

Preliminary data from the Sungai Jingah Community Health Center in Banjarmasin highlight the urgency of addressing anemia among pregnant women. In 2023, the center reported the highest percentage of anemia cases among pregnant women, with 88 cases recorded. This statistic underscores the critical need to identify and address factors that contribute to anemia, particularly those related to compliance with Fe tablet consumption and

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the role of husband support. Given this context, it is essential to explore husband support, compliance in consuming Fe tablets, and the incidence of anemia in pregnant women. Understanding this relationship can inform targeted interventions to improve maternal health outcomes. Therefore, this study aims to investigate how husband support influences compliance in consuming Fe tablets and its subsequent impact on anemia among pregnant women. By addressing this issue, the study seeks to provide insights into effective strategies for reducing anemia prevalence and promoting healthier pregnancies.

2. Method

Research design

This study utilizes a quantitative research method with a cross-sectional design to examine husband support, compliance to Fe tablet consumption, and anemia in pregnant women. The cross-sectional approach facilitates data collection at a single moment, making it effective for identifying associations between variables. The research was carried out in the Sungai Jingah Health Center area, Banjarmasin, Indonesia, a location noted for its high rates of anemia among pregnant women.

Respondent

The study population comprised third-trimester pregnant women registered at the Sungai Jingah Health Center. A purposive sampling technique was used to select participants based on predetermined inclusion and exclusion criteria. The inclusion criteria included pregnant women in their third trimester, willing to participate, and possessing complete antenatal care records. Exclusion criteria were pregnant women with severe complications or those unable to provide informed consent. A total of 33 respondents met the inclusion criteria and willingly agreed to participate in the study activities, providing their informed consent and demonstrating their commitment to the research process.

Data collection

Data collection utilized both primary and secondary data sources. Primary data were gathered through a structured Husband Support questionnaire, designed to measure the level of spousal support provided during pregnancy. The questionnaire was validated for content and reliability in prior studies. Secondary data were collected from participants' Maternal and Child Health (Id: Kesehatan Ibu dan Anak - KIA) books, which documented compliance with Fe tablet consumption and hemoglobin levels. An observation sheet was used to record and summarize hemoglobin examination results conducted at the health center.

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Data analysis

Data processing was conducted systematically in five stages: editing, coding, tabulating, data entry, and data cleaning. This process ensured the accuracy and completeness of the dataset. The analysis involved univariate analysis to describe the frequency and percentage distribution of categorical variables, such as levels of husband support, compliance with Fe tablet consumption, and hemoglobin status. The Fisher Exact Test was then employed to identify statistically significant associations between the independent and dependent variables. Results were presented in tables and charts to facilitate interpretation and discussion.

Ethical clearance

This study received ethical clearance from the Research Ethics Commission of Sari Mulia University, Banjarmasin, Indonesia, with approval number 192/KEP-UNISM/IV/2024. Participants were fully briefed on the study's purpose, procedures, and their right to withdraw at any stage without repercussions. Prior to data collection, written informed consent was obtained from all participants, ensuring compliance with ethical principles of autonomy, confidentiality, and beneficence.

3. Results

Characteristics of respondents

The characteristics of the respondents in this study were 30 respondents of parents who hadchildren with leukemia as shown in Table 1, as follows:

Table 1. Respondent characteristics

Characteristics	Frequency	Percentage (%)
Age (years old)		
<20	2	6,1
20-30	13	39,4
>30	18	54,5
Education level		
Primary School	0	0
Junior High School	0	0
Senior High School	26	78,8
Bachelor	7	21,2
Occupation		
Housewives	15	45,5
Self-employed	8	24,2
Civil Servant	2	6,1
Other	8	24,2
Parity		
1	22	66,7
2-5	11	33,3
>5	0	0
Total	33	100

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Based on Table 1, the characteristics of respondents with the age category, most of whom are >30 years old, were obtained as many as 18 respondents (54.5%). The characteristics of respondents in the education category are majority, having the last high school education of 26 respondents (78.8%). The characteristics of respondents in their job category as a housewife were 15 respondents (45.5%). And the characteristics of the parity category respondents were obtained by most pregnant women with 1 parity as many as 22 respondents (66.7%).

Distribution of husband support, compliance, and the incidence of anemia

Table 2 illustrates the distribution of husband support, compliance in consuming Fe tablets, and the incidence of anemia among pregnant women. The majority of respondents (78.8%) reported receiving good support from their husbands, while 15.2% experienced sufficient support, and only 6.1% reported poor support. Regarding compliance, 63.6% of participants adhered to Fe tablet consumption recommendations, whereas 36.4% did not comply. Additionally, 24.2% of the respondents were found to have anemia, while the remaining 75.8% were not anemic. These findings emphasize the critical role of husband support and compliance in preventing anemia during pregnancy.

Table 2. Distribution of husband support, compliance, and anemia among pregnant women

Criteria		Frequency	Percentage (%)
Support by husband			
	Good	26	78.8
	Sufficient	5	15.2
	Poor	2	6.1
Compliance			
	Yes	21	63.6
	No	12	36.4
Anemia			
	Yes	8	24.2
	No	25	75.8

Relationship between husband support, compliance, and incidence of anemia

Table 3 presents the relationship between husband support, compliance in consuming Fe tablets, and the incidence of anemia among pregnant women. The results show that anemia was more prevalent among those with poor husband support (18.2%) compared to those with good support (6.1%), with a statistically significant relationship ($p = 0.035$). Furthermore, none of the respondents who complied with Fe tablet consumption experienced anemia, while 24.2% of non-compliant participants had anemia, also showing a significant association ($p <$

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0.001). These findings highlight the critical roles of husband support and compliance in reducing anemia incidence during pregnancy.

Table 3. Relationship between husband support, compliance, and incidence of anemia

Criteria		Incident of anemia				Total		*p*-value
		Yes		No				
		Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	
Support of Husband	Good	3	6.1	18	54.5	20	60.6	0.035[a]
	Poor	6	18.2	7	21.2	13	39.4	
	Total	8	24.4	25	75.8	33	100	
Compliance	Yes	0	0	21	63.6	21	63.6	<0.001[b]
	No	8	24.2	4	12.1	12	36.4	
	Total	8	24.2	25	75.8	33	100	

Notes: [a] is Fisher exact test; [b] is Chi-square test.

4. Discussions

Fetal growth is highly dependent on maternal health, including the adequate intake of calories and nutrients. The caloric requirements of pregnant women must be met optimally to ensure the well-being of both the mother and the fetus. The ideal reproductive age for pregnancy and childbirth is between 20 and 35 years, which is considered the healthiest range for reproduction (Sukma & Sari, 2020). Education plays a crucial role in improving knowledge related to the management and prevention of anemia (Palimbo et al., 2024). With better understanding, individuals can identify anemia symptoms early, comprehend the importance of a balanced nutritional intake, and adhere to prescribed treatments. Furthermore, proper education can encourage behavioral changes, such as consuming iron-rich foods, using supplements as needed, and avoiding risk factors that may exacerbate anemia. Therefore, education serves as a strategic key to reducing the prevalence of anemia and enhancing overall public health quality. Maternal education is pivotal in influencing behaviors and choices during pregnancy. Mothers with higher levels of education are more likely to recognize the significance of routine antenatal visits, prioritize their health throughout pregnancy, and take necessary actions when faced with complications. This awareness enables them to safeguard the health of both themselves and their unborn children more effectively. A housewife is typically defined as a woman who manages household responsibilities, including cooking, cleaning, and educating children, and who generally does not engage in work outside the home (Imaduddin & Firdausi, 2023). Despite their limited involvement in the public sphere, housewives can still play a pivotal role in ensuring healthy pregnancies by acquiring knowledge and applying best practices in maternal care.

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Parity, defined as the number of live births a woman has experienced, is a significant factor influencing maternal health. Studies indicate that multiparous women (those who have given birth to more than one child) tend to have lower iron stores compared to nulliparous women (those who have not given birth), with significant differences observed in serum ferritin levels (Alfarisi et al., 2022). Furthermore, higher parity is associated with an increased risk of anemia during pregnancy. Research shows that women with three or more parities are at a higher risk of pre-pregnancy anemia, as evidenced by higher odds ratios reported in studies (Jie et al., 2022; Milman et al., 1993).

Husband support serves as a reinforcing factor that significantly influences the well-being of pregnant women, encompassing attitudes, actions, and acceptance toward their wives, particularly during pregnancy. This form of support often includes expressions of sympathy, demonstrated through affection, attention, and a willingness to listen to the wife's concerns and complaints (Darmawati et al., 2023). Such support plays a vital role in enhancing maternal adherence to health recommendations, including the consumption of iron (Fe) tablets.

Pregnant women are advised to consume a minimum of 90 Fe tablets during pregnancy, with a dosage of one tablet per day for 90 consecutive days. This supplementation is crucial for preventing anemia, particularly during the third trimester when the demand for iron significantly increases. Pregnant women require approximately 5 mg of iron daily to compensate for basal losses (0.8 mg/day), the increased production of red blood cells (150 mg), and the requirements of the conceptus (223 mg) (Swastika, 2024). Early screening for anemia is recommended during the first trimester, particularly before 13 weeks of gestation. This practice is essential for identifying and managing high-risk pregnancies, which include cases with closely spaced pregnancies, multiple gestations, and severe morning sickness leading to frequent vomiting (Gougoutsi et al., 2024; Lao, 2024; Putra & Sulastri, 2024; Wylde et al., 2016). Early detection and intervention can significantly reduce complications associated with anemia during pregnancy. The combination of husband’s support and medical interventions, such as Fe supplementation and anemia screening, is critical for improving maternal health outcomes. Encouraging family involvement and strengthening healthcare systems to facilitate early diagnosis and treatment can further enhance maternal adherence to health recommendations and mitigate risks associated with anemia during pregnancy.

The findings from Table 3 highlight the critical relationship between husband support

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and the prevalence of anemia in pregnant women. The Chi-Square analysis, utilizing Fisher's Exact Test, produced a p-value of 0.035, which is below the significance level ($\alpha = 0.05$). This indicates a significant relationship between husband support and the occurrence of anemia among pregnant women in the Sungai Jingah Health Center area. This finding aligns with research by Fajria et al. (2024), which also identified a strong association between husband support and anemia (p-value 0.001). The role of husband support in reducing the incidence of anemia is multifaceted. Informational support, such as helping pregnant women understand the importance of consuming Fe tablets, emotional support, including reminders to adhere to supplementation schedules, instrumental support in covering healthcare costs or providing necessary resources, and appreciation support by listening to and valuing the wife's experiences, collectively contribute to better maternal health outcomes. These forms of support are vital in ensuring that pregnant women are both physically and emotionally equipped to prevent anemia during pregnancy.

The statistical analysis from Table 3 further reveals that compliance with Fe tablet consumption is significantly associated with the incidence of anemia, as evidenced by a p-value <0.001. This finding underscores the importance of adherence to Fe supplementation regimens in reducing anemia during pregnancy. Compliance is measured through factors such as the correct number of tablets consumed and adherence to the prescribed method and timing of intake. This result is consistent with the study by Omasti et al. (2022), which reported a similar relationship between compliance with Fe tablet consumption and anemia incidence, with a p-value <0.001. The adverse effects of anemia during pregnancy, such as low birth weight, premature delivery, maternal and fetal infections, and an increased risk of miscarriage, highlight the necessity of compliance with iron supplementation guidelines.

To minimize the risk of anemia, a collaborative approach involving both pregnant women and their support systems is essential. Healthcare providers should prioritize education on the proper consumption of Fe tablets and the risks associated with anemia. At the same time, the role of husbands and families in providing emotional, informational, and financial support must be emphasized. Such combined efforts can enhance maternal adherence to supplementation programs and significantly reduce the risks associated with anemia during pregnancy.

5. Conclusion

This study concluded that the he majority of pregnant women have good category

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ISSN: 3026-5037 DOI: https://doi.org/10.71357/hsij.v3i1.58

husband support as many as 26 respondents (78.8%). Most participants demonstrated compliance with Fe tablet consumption, with 21 respondents (63.6%) adhering to the recommended guidelines. Additionally, the majority of pregnant women, 25 respondents (75.8%), did not experience anemia. A significant relationship was identified between husband support and the incidence of anemia among pregnant women in the Sungai Jingah Health Center area, as indicated by a p-value of 0.035 ($p < \alpha$, where $\alpha = 0.05$). Furthermore, a significant association was found between compliance with Fe tablet consumption and the incidence of anemia, with a p-value of <0.001 ($p < \alpha$, where $\alpha = 0.05$).

6. Conflict Of Interest

All authors declare no conflict of interest.

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