



Research Article

The Relationship between the Level of Knowledge and Attitude of Pregnant Women towards Anemia Prevention and the Consumption of MMS Tablets in the Third Trimester of Pregnant Women in the Mantangai Community Health Center Work Area

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Abstract. Anemia in pregnant women remains a significant public health problem that affects both maternal and fetal health. This condition may lead to pregnancy complications such as hemorrhage, low birth weight, and increased risk of maternal and infant mortality. One of the efforts to prevent anemia is through regular consumption of Multiple Micronutrient Supplements (MMS). Compliance of pregnant women in consuming MMS is influenced by several factors, including knowledge level and attitude. This study aimed to determine the relationship between knowledge level and attitude of pregnant women toward MMS consumption among third-trimester pregnant women in the working area of Mantangai Health Center. This study used a quantitative method with an observational analytic design and a cross-sectional approach. The sample consisted of 60 respondents selected using purposive sampling technique. The research instruments were questionnaires on knowledge, attitude, and MMS consumption compliance. Data analysis was performed using the Chi-Square test with a significance level of 0.05. The results showed that most respondents had moderate knowledge and positive attitudes. There was a significant relationship between knowledge and attitude with MMS consumption compliance (p -value = 0.001). Pregnant women with good knowledge and positive attitudes were more compliant in consuming MMS compared to other groups.

Keywords: Attitude; Knowledge; MMS; Pregnant Women; Third Trimester.

1. INTRODUCTION

Anemia in pregnant women remains a public health problem that seriously impacts the health of both the mother and the fetus. This condition occurs when hemoglobin levels fall below normal limits, reducing the blood's ability to transport oxygen (Arbainah et al., 2024; Sofiyani et al., 2025). Pregnant women are at high risk of developing anemia due to the increased need for iron during pregnancy for fetal and placental growth. Inadequate nutritional intake and poor adherence to supplementation exacerbate this condition (Arbainah et al., 2024). The impacts of anemia can include fatigue, increased risk of bleeding during delivery, low birth weight, and even maternal and infant mortality. The WHO reports that the global prevalence of anemia in pregnant women will reach approximately 36.5% by 2023 (Afrianty et al., 2025).

In Indonesia, anemia among pregnant women remains quite high despite various health programs. Data shows the prevalence of anemia in pregnant women is around 37.1% in 2023. This condition indicates that anemia remains a serious problem in maternal health. A Multiple Micronutrient Supplement (MMS) tablet program has been implemented to help prevent iron and micronutrient deficiencies (Yunus & Safitri, 2025; Sundari & Purwanti, 2026). This program aims to improve the health status of mothers and fetuses during pregnancy. The

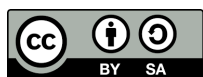
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program's success is greatly influenced by pregnant women's compliance with regular MMS consumption (Sulaiman et al., 2022).

Knowledge among pregnant women is a crucial factor in determining health behaviors, including anemia prevention. Pregnant women who understand the benefits of MMS, its dosage instructions, and the impact of anemia tend to be more compliant in taking the supplement. Lack of knowledge can lead to poor compliance due to misperceptions about the side effects or benefits of MMS (Sundari & Purwanti, 2026). Health education from healthcare professionals is one way to improve understanding among pregnant women. Increased knowledge is expected to foster better health behaviors during pregnancy (Lestari & Putri, 2025).

The attitude of pregnant women also plays a crucial role in determining adherence to MMS consumption. A positive attitude toward anemia prevention will encourage pregnant women to be more disciplined in taking supplements. Conversely, a negative attitude can lead to non-compliance, even if the mother has sufficient knowledge. Attitudes are shaped by experience, information, and support from their environment. Support from husbands and family can also strengthen a pregnant woman's positive attitude toward maintaining her health (Rejeki & Fajri, 2025).

Mantangai Community Health Center (Puskesmas Mantangai) is one of the health facilities implementing a program to provide MMS to pregnant women in their third trimester. However, pregnant women are still found not to consume MMS regularly as recommended by health workers. Some mothers reported forgetting, experiencing discomfort after consumption, and receiving insufficient family support. This situation suggests that compliance still needs to be improved through educational and family approaches. Knowledge and attitudes are suspected to be related to compliance with MMS consumption in pregnant women in their third trimester (Rohan et al., 2024).

Based on the above description, pregnant women's knowledge and attitudes are suspected to be related to compliance with MMS consumption in preventing anemia. The better the knowledge and attitudes of pregnant women, the higher the level of compliance in consuming MMS. Good compliance plays a crucial role in preventing anemia and improving maternal and fetal health. This study is expected to provide insight into factors influencing compliance in pregnant women. The results can also serve as a basis for improving maternal health education programs in community health centers.

2. THEORETICAL STUDY

Pregnant Women's Knowledge of Anemia Prevention

Knowledge is the result of a person's sensory process of information, which then shapes their understanding and health behaviors. For pregnant women, knowledge about anemia includes the definition, causes, effects, and prevention methods through the consumption of iron supplements. Pregnant women with good knowledge tend to be more aware of maintaining their health during pregnancy. Lack of knowledge can lead to low compliance with supplement consumption due to lack of awareness of their benefits. Research shows that knowledge is significantly related to compliance with iron consumption in pregnant women (Lestari & Putri, 2025).

Pregnant Women's Attitudes towards MMS Consumption

Attitude is a person's response or tendency to accept or reject a health product based on knowledge and experience. Pregnant women's attitudes toward consuming MMS are strongly influenced by the information they receive, family support, and previous experiences. A positive attitude will encourage pregnant women to be more compliant in consuming MMS regularly. Conversely, a negative attitude can hinder compliance even if the mother has sufficient knowledge. Research shows that attitude has a strong influence on pregnant women's compliance behavior in preventing anemia (Rejeki & Fajri, 2025).

3. RESEARCH METHODS

This study used a quantitative method with an observational analytical design and a cross-sectional approach to determine the relationship between the level of knowledge and attitudes of pregnant women and their adherence to MMS tablet consumption in preventing anemia. The independent variables in this study were the knowledge and attitudes of pregnant women, while the dependent variable was adherence to MMS consumption in the third trimester of pregnancy. The study was conducted in May 2026 at the Mantangai Community Health Center (Puskesmas Mantangai).

The population in this study was all third-trimester pregnant women who received MMS tablets in the Mantangai Community Health Center (Puskesmas). A sample of 60 respondents was selected using a purposive sampling technique with inclusion and exclusion criteria. Inclusion criteria included third-trimester pregnant women who were willing to participate, able to read and write, and regularly received MMS tablets. Exclusion criteria included pregnant women with severe pregnancy complications and respondents who did not complete the questionnaire completely.

The research instrument used a structured questionnaire consisting of a knowledge questionnaire, an attitude questionnaire, and a compliance questionnaire regarding MMS consumption. The knowledge questionnaire covered the definition of anemia, the benefits of MMS, and the impact of iron deficiency. The attitude questionnaire covered maternal responses to MMS consumption, while the compliance questionnaire covered the regularity of MMS consumption according to health workers' recommendations. Data were analyzed using the Chi-Square test with a significance level of 0.05.

4. RESULTS AND DISCUSSION

Results

Table 1. Respondent Characteristics (n = 60).

Characteristics	Category	f	%
Age	<20 years	10	16.7
	20–35 years	42	70.0
	>35 years	8	13.3
Education	Low	18	30.0
	Intermediate	30	50.0
	Tall	12	20.0

Based on Table 1, the majority of respondents were aged 20–35 years and had a secondary education. This indicates that the majority of mothers are of a safe reproductive age.

Table 2. Distribution of Knowledge Level of Pregnant Women (n = 60).

Knowledge	f	%
Good	20	33.3
Enough	25	41.7
Not enough	15	25.0
Total	60	100

Based on Table 2, the results of the study indicate that the majority of respondents had a sufficient level of knowledge, namely 25 respondents (41.7%). Respondents with good knowledge were 20 respondents (33.3%), while 15 respondents (25.0%) had insufficient knowledge. These data indicate that pregnant women's understanding of MMS and anemia prevention is still predominantly in the sufficient category, so there is still a need for improved health education.

Table 3. Distribution of Pregnant Women's Attitudes (n = 60).

Attitude	f	%
Positive	35	58.3
Negative	25	41.7
Total	60	100

Based on Table 3, the majority of respondents (35 respondents) had a positive attitude toward MMS consumption. Meanwhile, 25 respondents (41.7%) had a negative attitude. These results indicate that although the majority of pregnant women have a positive attitude, a significant proportion still has a negative attitude toward MMS consumption.

Table 4. Relationship between Knowledge and Attitude with MMS Compliance.

Variables	Compliant n (%)	Non-compliant n (%)	p-value
Good Knowledge	16 (80.0%)	4 (20.0%)	0.001
Sufficient Knowledge	12 (48.0%)	13 (52.0%)	
Lack of Knowledge	3 (20.0%)	12 (80.0%)	
Positive Attitude	28 (80.0%)	7 (20.0%)	0.001
Negative Attitude	8 (32.0%)	17 (68.0%)	

Based on Table 4, the results of the study indicate that pregnant women with good knowledge were mostly compliant in consuming MMS, namely 16 respondents (80.0%), while those with less knowledge were mostly non-compliant, namely 12 respondents (80.0%). In the attitude variable, mothers with positive attitudes were mostly compliant, namely 28 respondents (80.0%), while mothers with negative attitudes were more non-compliant, namely 17 respondents (68.0%). This indicates a tendency that the better the knowledge and attitudes of pregnant women, the higher the level of compliance in consuming MMS.

Discussion

The study results showed that pregnant women's knowledge was related to adherence to iron supplement consumption. Mothers with good knowledge were more likely to adhere to iron supplement consumption than those with poor knowledge. This suggests that understanding the benefits of iron supplement consumption plays a crucial role in shaping health behaviors. Good knowledge makes mothers more aware of the risk of anemia during pregnancy. This aligns with research by Lestari & Putri (2025), which found that knowledge influences adherence to iron supplement consumption. Improving health education is a crucial factor in improving adherence in pregnant women.

Pregnant women's attitudes also correlate with adherence to MMS consumption. Mothers with positive attitudes tend to be more disciplined in consuming MMS. Positive attitudes are formed from experience, information, and support from their environment. Conversely, negative attitudes make mothers less consistent in following health recommendations. This is consistent with research by Rejeki & Fajri (2025), which states that attitudes play a role in pregnant women's compliance. Attitude is a crucial factor in changing health behaviors.

Mothers with adequate knowledge still exhibit varying levels of adherence. Some are compliant and some are non-compliant with MMS consumption. This situation suggests that knowledge alone is insufficient without a positive attitude. A lack of in-depth understanding leads to mothers remaining hesitant about taking supplements. This aligns with health behavior theory, which states that knowledge influences action. Repeated education is needed to improve pregnant women's understanding.

Mothers with limited knowledge are often non-compliant with MMS consumption. This indicates a lack of understanding of the benefits of supplements. This lack of information leads to mothers not understanding the importance of anemia prevention. This situation risks increasing the incidence of anemia in pregnant women. Research by Sulaiman et al. (2022) indicates that low compliance is a barrier to supplementation programs. Health education needs to be continuously improved.

Negative attitudes also contribute to low adherence. Mothers with negative attitudes tend to neglect taking MMS. This may be influenced by unpleasant experiences after taking the tablets. Family support also influences maternal attitudes. Research by Rohan et al. (2024) found that family support influences adherence in pregnant women. Attitude is a crucial factor in the success of maternal health programs.

Overall, knowledge and attitude play a crucial role in adherence to MMS consumption. Mothers with good knowledge and positive attitudes are more likely to adhere to MMS consumption. This demonstrates the importance of ongoing health education. Improving knowledge and attitudes can reduce the risk of anemia in pregnant women. Health programs

need to strengthen outreach at healthcare facilities. This is expected to improve the quality of maternal and fetal health.

5. CONCLUSION AND SUGGESTIONS

Based on the research results, it can be concluded that there is a relationship between the level of knowledge and attitudes of pregnant women towards compliance with MMS tablet consumption in the third trimester of pregnancy in the Mantangai Community Health Center work area. Pregnant women with good knowledge and positive attitudes tend to be more compliant in consuming MMS compared to pregnant women with less knowledge and negative attitudes. The analysis results show a significant relationship between knowledge and attitudes with compliance with MMS consumption, so both factors play an important role in efforts to prevent anemia in pregnant women.

Health workers at Mantangai Community Health Center are expected to increase educational activities regarding the importance of regular MMS consumption through outreach, counseling, and educational media that are easily understood by pregnant women. Pregnant women are also expected to be more active in seeking health information and increase compliance in consuming MMS according to health workers' recommendations. Families, especially husbands, are expected to provide support in the form of reminders and motivation so that pregnant women are more disciplined in consuming MMS. Future research is recommended to add other variables such as family support and access to information to obtain more comprehensive results.

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