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Original Research Paper

Analysis of Factors Affecting Pregnant Women's Compliance With Iron Supplementation (Fe Tablets) at Anggalomoare Health Center, Konawe Regency

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Abstract

Background: Low adherence to iron (Fe) tablet supplementation among pregnant women remains a major barrier to preventing maternal anemia and its associated adverse pregnancy outcomes. **Objective:** This study aimed to analyze the factors influencing pregnant women's adherence to Fe tablet consumption, with particular emphasis on antenatal care (ANC) visits and husband's support. **Methods:** An analytical observational study with a cross-sectional design was conducted among 96 pregnant women attending the Anggalomoare Public Health Center who met the inclusion criteria. Data were collected using a validated questionnaire and analyzed through descriptive statistics, Chi-square tests, and multiple logistic regression to identify factors associated with adherence to Fe tablet consumption. **Results:** Knowledge ($p<0.001$), attitude ($p<0.001$), husband's support ($p<0.001$), and ANC visits ($p=0.007$) were significantly associated with adherence to Fe tablet consumption, whereas satisfaction with healthcare services was not significantly associated ($p=0.074$). Multivariable analysis identified maternal attitude as the strongest predictor of adherence, followed by husband's support and maternal knowledge. **Conclusion:** Improving pregnant women's adherence to Fe tablet supplementation requires strengthening positive maternal attitudes, increasing husband's involvement, and enhancing maternal knowledge through quality ANC services and family-centered health education, thereby supporting better maternal and fetal health outcomes and reducing the risk of pregnancy-related anemia.

Keywords: Pregnant Women; Anemia; Compliance; Support; Family.

Introduction

Anemia in pregnancy is a condition characterized by a deficiency of red blood cells or hemoglobin. It commonly occurs because the demand for oxygen increases during pregnancy and is accompanied by hemodilution. This condition increases the risk of serious complications, including postpartum hemorrhage, low birth weight (LBW), and preterm delivery, and may endanger both the mother and the fetus[1,2].

One of the main preventive strategies is the administration of iron (Fe) tablets, with a minimum recommendation of 90 tablets during pregnancy. Iron requirements increase during pregnancy because of the expansion of maternal blood volume and the needs of the fetus and placenta; however, dietary intake alone is often insufficient to meet these increased needs[3].

The World Health Organization (WHO) identifies anemia as a major public health problem, particularly in low-income countries, including Indonesia. Based on Riskesdas 2018, 48.9% of pregnant women in Indonesia experienced anemia, especially those aged 15–24 years. Although the coverage of Fe tablet distribution increased from 83.6% in 2021 to 94.2% in 2022, the prevalence of anemia

remains high, particularly in certain regions such as Papua and Southeast Sulawesi[4].

In Southeast Sulawesi, the number of pregnant women receiving Fe tablets has fluctuated from year to year. In 2022, among 59,442 pregnant women, only 15,471 received Fe tablets. This condition reflects the low level of adherence to Fe tablet consumption, which affects the effectiveness of the iron supplementation program[5].

Pregnant women's adherence to Fe tablet consumption is essential for the success of anemia-prevention programs. However, despite high distribution coverage, the prevalence of anemia has not decreased significantly because adherence remains low. Consuming 90 Fe tablets during pregnancy can increase hemoglobin levels and reduce the risk of anemia by approximately 20–25%[6,7].

Data from the Anggalomoare Public Health Center show a gap in antenatal care attendance that may affect iron intake during pregnancy. In 2022, of 112 pregnant women, only 53 continued to the fourth antenatal care visit (K4). This finding indicates low adherence to health services, which can lead to pregnancy-related complications[8].

The preliminary survey conducted at the Anggalomoare Public Health Center found that several pregnant women experienced anemia and symptoms such as dizziness and fatigue. Of three respondents, two reported taking Fe tablets regularly, while one did not consume them routinely. This study therefore aims to analyze the factors influencing pregnant women's adherence to iron supplementation in the working area of the Anggalomoare Public Health Center.

This study is important because anemia in pregnancy remains a significant health problem in Indonesia, particularly in Southeast Sulawesi, even though Fe tablet distribution has increased. Low adherence among pregnant women in consuming Fe tablets hinders the success of anemia-prevention programs and contributes to serious risks such as postpartum hemorrhage, low birth weight, and preterm delivery. Gaps in antenatal care visits, as observed at the Anggalomoare Public Health Center, further worsen this condition. This study seeks to analyze the factors that influence maternal adherence and to provide evidence-based recommendations to improve the effectiveness of maternal and child health interventions.

The novelty of this study lies in its multifactorial analysis of knowledge, attitude, husband's support, health-service satisfaction, and antenatal care (ANC) visits in relation to pregnant women's adherence to Fe tablet consumption in the Anggalomoare Public Health Center area, where anemia prevalence is high and ANC attendance remains suboptimal. Unlike previous studies, this research highlights the importance of husband and family involvement as key supporting factors and links low adherence with the limitations of local health services. This holistic approach provides a new, evidence-based perspective for developing family-based interventions and improving the quality of ANC services to reduce anemia among pregnant women.

Based on these problems, this study examines the factors influencing pregnant women's adherence to iron (Fe) tablet consumption in the working area of the Anggalomoare Public Health Center. The factors analyzed include maternal knowledge, attitudes toward Fe tablet consumption, satisfaction with health services, husband's support, and the frequency of antenatal care (ANC) visits. The study also explores how these factors are associated with adherence to iron supplementation, the prevalence of anemia during pregnancy, and the effectiveness of anemia prevention programs. The findings are expected to provide evidence for developing

targeted strategies to improve maternal adherence and pregnancy outcomes.

Materials and Methods

Study Design

This study employed an analytical observational design with a cross-sectional approach to examine factors associated with pregnant women's adherence to iron (Fe) tablet consumption in the working area of the Anggalomoare Public Health Center, Konawe Regency. The variables analyzed included maternal knowledge, attitudes, satisfaction with health services, antenatal care (ANC) visits, and husband's support. The relationships between these factors and adherence to iron supplementation were assessed using appropriate statistical analyses[9].

Sample

The study involved 96 pregnant women who met the inclusion criteria and were selected using a total sampling technique. The inclusion criteria were pregnant women in the second and third trimesters who received antenatal care at the Anggalomoare Public Health Center, were willing to participate as respondents, and received Fe tablets. Pregnant women with contraindications to Fe tablets or those who were unwilling to participate were excluded from the study.

The study variables were divided into independent and dependent variables. The independent variables included knowledge, attitude, health-service satisfaction, antenatal care visits, and husband's support. The dependent variable was pregnant women's adherence to Fe tablet consumption.

Data Collection Technique

Data were collected using a validated and reliable questionnaire adapted from previous studies. Primary data were obtained directly from respondents through structured questionnaires, while secondary data were gathered from relevant literature and official records available at the study site to support the analysis and provide contextual information.

Data Analysis Technique

Data processing was conducted systematically through coding, editing, scoring, and tabulation. Coding was performed to assign codes to raw data in order to facilitate analysis. Editing was carried out to ensure that the collected data were valid and accurate, while scoring was used to calculate the total score for each questionnaire item. The processed data were then presented in tables and narratives to facilitate interpretation of the findings.

Data analysis was performed in stages. Univariate analysis using SPSS version 23 was used to describe the characteristics of each variable separately. Bivariate analysis using the Chi-square test was then conducted to determine the relationship between independent and dependent variables, with a significance level of $\alpha = 0.05$. This test requires that no cell has an actual frequency of zero and that the number of cells with expected frequencies below 5 remains within the acceptable limit. Multivariate analysis using logistic regression was conducted to identify the independent variables that most strongly influenced the dependent variable. The influence of independent variables was determined based on the p-value, where $p < 0.25$ indicated a variable eligible for further multivariate consideration.

Ethical Consideration

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and applicable Indonesian regulations. All respondents received clear information regarding the study objectives, procedures, benefits, and potential risks before providing written informed consent. Participant

confidentiality was ensured through the use of identification codes, and all collected data were used solely for research purposes. Respondents' privacy, comfort, and welfare were protected throughout the study, with no procedures posing physical or psychological harm. Participation was entirely voluntary, and respondents were free to refuse or withdraw from the study at any stage without penalty or consequences. Ethical approval was obtained from the appropriate institutional ethics committee before data collection commenced.

Results

This study was conducted at the Anggalomoare Public Health Center, Konawe Regency, involving pregnant women residing within its service area. Eligible participants were recruited as respondents according to the study criteria. Their demographic and pregnancy-related characteristics are summarized in Figure 1, providing an overview of the study population and respondent distribution.

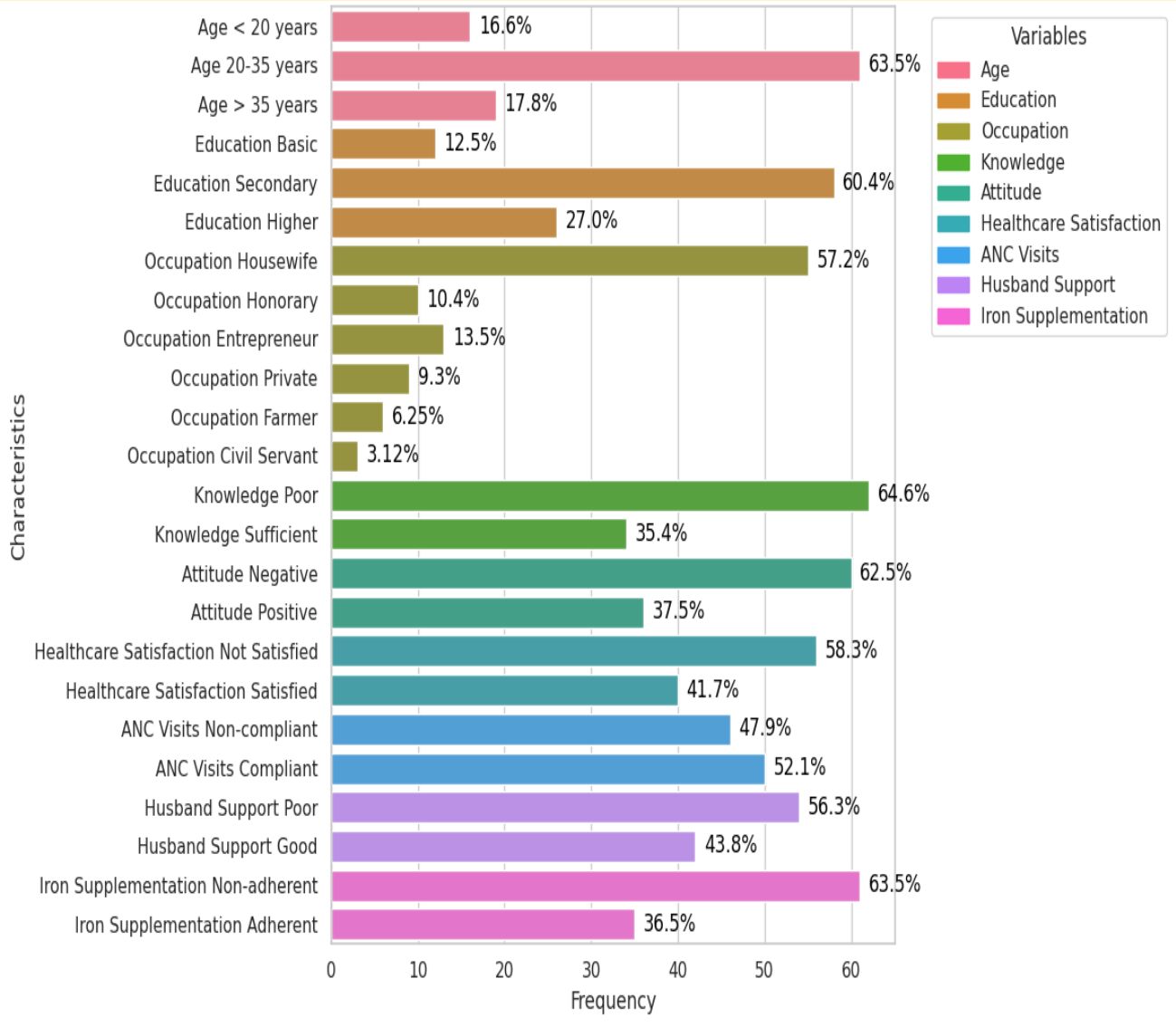

Figure 1. Frequency and Percentage Distribution of Respondent Characteristics

Table 1. Relationship Between Variables and Pregnant Women's Compliance with Iron Supplementation

Variable		Compliance with Iron Supplementation				Total	%	P-Value
		Non-Compliant	%	Compliant	%			
Knowledge	Poor	47	75.8	15	24.2	62	64.6	0.001
	Good	14	41.2	20	58.8	34	35.4	
Attitude	Negative	48	80	12	20	60	62.5	0.000
	Positive	13	36.1	23	63.9	36	37.5	
Healthcare Satisfaction	Not Satisfied	42	75	14	25	56	58.3	0.002
	Satisfied	19	47.5	21	52.5	40	41.7	
Antenatal Care Visits	Non-compliant	38	62.3	8	22.9	46	47.9	0.035
	Compliant	23	46.0	27	54	50	52.1	
Husband Support	Poor	41	75.9	13	24.1	54	56.3	0.012
	Good	20	47.6	22	52.4	42	43.7	
Total		61	63.5	35	36.5	96	100	

***Source**: Primary Data, 2024*

Based on the univariate analysis of the variables studied, most respondents in the working area of the Anggalomoare Public Health Center, Konawe Regency, had poor knowledge regarding iron supplementation, with 64.6% of respondents in the poor category and only 35.4% in the good category. Respondents' attitudes toward adherence to iron supplementation were mostly negative (62.5%), while only 37.5% showed a positive attitude. Regarding satisfaction with health services, more than half of the respondents (58.3%) were not satisfied with the services received, while 41.7% were satisfied. Nevertheless, slightly more than half of respondents (52.1%) had antenatal care visits that complied with the recommended schedule, while 47.9% did not. Husband's support for pregnant women's adherence to iron supplementation was also relatively low, with 56.3% of respondents reporting poor support, while 43.7% received good support. Finally, adherence to iron supplementation remained low: 63.5% of pregnant women were non-compliant with medical recommendations, and only 36.5% were compliant with iron supplementation instructions.

The relationships between knowledge, attitude, health-service satisfaction, antenatal care (ANC) visits, and husband's support with pregnant women's adherence to iron supplementation showed significant results. Pregnant women with good knowledge were more likely to adhere to iron supplementation than those with poor knowledge ($p = 0.001$), and women with positive attitudes showed higher adherence ($p = 0.000$). Satisfaction with health services also had an effect, with satisfied women being more likely to comply ($p = 0.002$). In addition, ANC visits that followed the recommended schedule improved adherence ($p = 0.035$), and good husband's support had a significant impact on pregnant women's adherence ($p = 0.012$). These variables are interrelated and important in increasing adherence to prevent anemia during pregnancy.

Based on the logistic regression analysis shown in Figure 2, several variables influenced pregnant women's adherence to iron supplementation, namely knowledge, attitude, health-service satisfaction, antenatal care visits, and husband's support. The most influential variable affecting adherence to iron supplementation among pregnant women in the working area of the Anggalomoare Public Health Center, Konawe Regency, in 2024 was attitude, with a significance value of 0.001 ($p < \alpha = 0.25$) and the highest odds ratio (OR = 8.262) compared with the other variables.

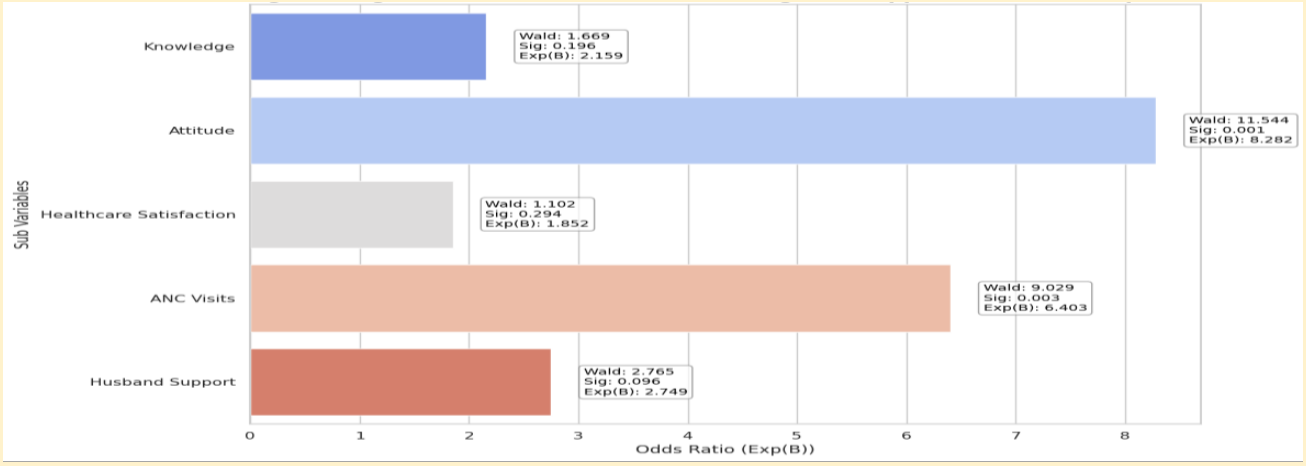

Figure 2. Logistic Regression Result: Factors Affecting Iron Supplementation Compliance

Discussion

The Influence of Knowledge on Pregnant Women's Adherence to Iron Supplementation (Fe Tablets)

Knowledge is the result of "knowing," which occurs after a person senses a particular object. Knowledge is an important cognitive domain in the formation of a person's overt behavior10. In the context of pregnant women's adherence to iron supplementation, several studies indicate that mothers' level of knowledge about the importance of iron tablets during pregnancy contributes to their efforts to consume the supplement more consistently. This is in line with Notoatmodjo's view that knowledge is the outcome of understanding an object through the human senses, particularly sight and hearing, which are the main sources of human knowledge.

Therefore, knowledge plays a key role in shaping pregnant women's adherence to iron supplementation. Good knowledge encourages the development of a positive attitude and ultimately produces the expected behavior in terms of adherence to Fe tablet consumption. For this reason, improving knowledge should be a priority in maternal health programs[11,12].

The analysis showed that most respondents had poor knowledge, totaling 62 people (64.6%), while 34 respondents (35.4%) had good knowledge. The Chi-square statistical test produced a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between knowledge and pregnant women's adherence to iron supplementation (Fe tablets).

This significant relationship can be explained by the fact that knowledge is a critical cognitive domain in shaping health behavior13. The finding indicates that the better a pregnant woman's knowledge of iron supplementation, the higher her level of adherence to Fe tablet consumption. Conversely, poor knowledge can become a barrier to adherence.

The high proportion of respondents with poor knowledge (64.6%) suggests several possibilities: gaps in the delivery of health information from health workers to pregnant women, limited understanding of the importance of iron during pregnancy, restricted access to reliable health-information sources, and possible sociocultural factors that influence the acceptance of health information.

Poor knowledge can affect various aspects of Fe tablet adherence, including lack of awareness of the benefits of Fe tablets for the mother and fetus, incorrect methods of consuming Fe tablets, limited understanding of side effects and how to manage them, and low

awareness of the risks of anemia during pregnancy[14,15].

To improve adherence to Fe tablet consumption through increased knowledge, several interventions can be implemented: optimizing health education at every antenatal care visit using more interactive methods; providing easy-to-understand educational media such as leaflets, posters, or educational videos; conducting individualized counseling based on each pregnant woman's level of understanding; organizing regular pregnancy classes with specific material on iron supplementation; and involving families in the education process to strengthen social support[16].

These findings emphasize the importance of improving pregnant women's knowledge as a key strategy for increasing adherence to Fe tablet consumption. Health education programs should be designed comprehensively and sustainably while considering the characteristics and specific needs of the target group. Improved knowledge is expected to lead to positive behavioral change in Fe tablet adherence, which ultimately contributes to the prevention of anemia during pregnancy.

The Influence of Attitude on Pregnant Women's Adherence to Iron Supplementation (Fe Tablets)

Consuming Fe tablets during pregnancy is essential for maintaining the health of both the mother and the fetus. Fe tablets help prevent anemia, which frequently occurs during pregnancy because of increased iron requirements17. In this context, pregnant women's attitudes toward Fe tablet consumption are key factors that reflect internal responses, including views, feelings, and tendencies to act. These attitudes strongly influence the level of adherence to medical recommendations, particularly iron supplementation.

The study by Fatimah et al. (2023)18 provides strong evidence of a significant relationship between pregnant women's attitudes and their adherence to Fe tablet consumption. Attitude does not merely reflect subjective views; it is also an important determinant of health behavior. Pregnant women who have positive attitudes toward Fe tablet consumption tend to be more motivated to consume the tablets regularly according to medical recommendations.

The study by Muh. Nur et al. also showed a significant relationship between mothers' adherence to attending posyandu and the nutritional status of toddlers, with a p-value of 0.00. This result indicates that the level of maternal adherence to routinely attending posyandu activities has a direct impact on toddler nutritional status as measured by various indicators[19].

Statistical analysis using the Chi-square test showed a p-value of 0.000 ($p < 0.05$), indicating a significant relationship between pregnant women's attitudes and their adherence to Fe tablet consumption. This finding demonstrates that a positive attitude often serves as an internal driver that encourages pregnant women to follow medical recommendations. Such positive attitudes are usually supported by a good understanding of the benefits of Fe tablets, especially in preventing anemia and supporting fetal growth.

A pregnant woman's attitude toward Fe tablet consumption is shaped by the knowledge and experiences she has acquired. Women who understand the importance of iron during pregnancy, the risks of anemia that can endanger pregnancy, and the benefits of Fe tablets in preventing complications tend to have attitudes that support supplement consumption. This understanding becomes a strong foundation for developing adherence to medical recommendations[20].

Attitude is also influenced by an individual's evaluation of the benefits of Fe tablet consumption. When a pregnant woman considers Fe tablet consumption important and beneficial, she is more likely to prioritize it in her daily routine. Conversely, negative attitudes or doubts can become major barriers that reduce adherence to regular Fe tablet consumption[21].

However, the study showed that many pregnant women still had inadequate knowledge regarding iron supplementation. The data revealed that most respondents (62.5%) had negative attitudes, while only 37.5% had positive attitudes. The high proportion of negative attitudes indicates the need for greater attention to health education efforts.

Based on Hasnidar's study (2021), a p-value of 0.02 ($p < 0.05$) was obtained, meaning that H0 was rejected and that there was a relationship between attitude and non-adherence to child immunization. In that study, respondents with negative attitudes who did not provide or complete immunization for their children were influenced by limited understanding, which reduced their desire or motivation to complete immunization[22].

The high proportion of negative attitudes among pregnant women may be caused by several factors. First, access to accurate and easily understood health information may be limited. Second, lower educational levels and limited experience from previous pregnancies may affect understanding. Third, minimal exposure to effective health education programs can also hinder improvement in pregnant women's understanding[23].

Insufficient knowledge about the importance of Fe tablets, the correct time to consume them, and the risks of iron deficiency during pregnancy has a direct impact on low adherence. In this regard, knowledge can be considered a fundamental element that shapes attitudes and health behaviors, including iron supplement consumption[24].

Other studies also confirm these findings. Analyses show that maternal attitudes have a significant relationship with adherence to Fe tablet consumption. This further confirms that a positive attitude toward iron supplementation plays an important role in increasing pregnant women's adherence to medical recommendations. Pregnant women with positive attitudes toward the importance of Fe tablet consumption tend to be more motivated to comply with medical advice, which in turn contributes to improved maternal and fetal health. This positive attitude includes a good understanding of the benefits of iron and a desire to maintain the health of both the mother and the unborn child[25,26].

To increase pregnant women's adherence, health workers need to take strategic steps to foster positive attitudes through comprehensive health education, effective counseling, and continuous support. Health education should not merely provide information; it must also build awareness among pregnant women about the importance of Fe tablets for their own health and the health of the fetus[27].

In addition, improving pregnant women's knowledge should be a major priority. Strategic efforts can be carried out by improving the quality and intensity of education during antenatal care visits. The use of more effective communication media, such as videos or infographics, can help pregnant women understand the importance of Fe tablets. Involving families in educational programs will provide social support that strengthens mothers' motivation to adhere to Fe tablet consumption[28].

Continuous provision of information is also important, not only when Fe tablets are distributed but also throughout visits to health facilities. By improving knowledge and positive attitudes, pregnant women are

expected to be more adherent in consuming Fe tablets, thereby reducing the risk of anemia and other complications during pregnancy. These measures can serve as effective strategies to support overall maternal and fetal health.

The Influence of Health-Service Satisfaction on Pregnant Women's Adherence to Iron Supplementation (Fe Tablets)

Health-service satisfaction is an important indicator in assessing the quality of services provided to patients, including pregnant women. This satisfaction reflects pregnant women's feelings after comparing the services they receive with their expectations. If the services received meet or exceed expectations, pregnant women will feel satisfied. Conversely, if the services do not meet expectations, satisfaction will decline. Dimensions of satisfaction include service reliability, responsiveness of health workers, quality assurance, empathy, and the physical condition of health facilities[29].

Pregnant women's adherence in the health context refers to the extent to which they follow medical recommendations, including consuming Fe tablets regularly. Fe tablets play an important role in preventing anemia during pregnancy, supporting red blood cell formation, and promoting fetal growth and development. Adherence to iron supplementation among pregnant women is often influenced by their perceptions of the health services they receive[30].

The study findings showed a significant relationship between health-service satisfaction and pregnant women's adherence to Fe tablet consumption. With a p-value of 0.002 ($p < 0.05$), this study confirms that pregnant women who are satisfied with services tend to be more adherent to medical recommendations. The distribution of data showed that most respondents (58.3%) were not satisfied with health services, while only 41.7% reported being satisfied.

Dissatisfaction with health services can reduce pregnant women's trust and motivation to comply with recommendations from health workers. This dissatisfaction is often caused by several factors, such as long waiting times, inadequate education about the importance of Fe tablets, limited effective communication between health workers and patients, and insufficient health-facility infrastructure. These factors directly influence pregnant women's willingness to follow medical instructions[31].

Mardhiah's study showed that knowledge, attitude, family support, and support from health workers significantly influenced pregnant women's adherence to Fe tablet consumption. Attitude was the most dominant factor, with $p = 0.001$ and $Exp(B) = 10.579$. Therefore, increasing pregnant women's knowledge about the importance of Fe tablet consumption, together with active family and health-worker involvement, is necessary to prevent anemia among pregnant women32.

To improve pregnant women's adherence, health facilities must improve the quality of services. This includes making service systems faster and more efficient, providing clear and comprehensive information about the benefits of Fe tablets, and building better relationships between health workers and patients. This approach aims to increase patients' trust in the services provided.

High-quality health education also plays an important role in increasing pregnant women's satisfaction and adherence. Through structured education sessions, pregnant women can understand the benefits and proper method of Fe tablet consumption, the risk of anemia if Fe tablets are not taken, and the appropriate time to consume them. Education delivered consistently and involving family members will strengthen pregnant women's understanding[33,34].

In addition, regular monitoring of pregnant women's satisfaction levels should be conducted to evaluate the quality of health services. Patient satisfaction surveys can help identify aspects that require improvement. By addressing patient complaints quickly and effectively, health services can continue to improve, ultimately supporting pregnant women's adherence to iron supplementation.

Iron supplementation or Fe tablets is an important component of maternal health programs designed to reduce the risk of anemia and pregnancy complications. When satisfaction with health services is high, pregnant women are more motivated to comply with medical recommendations. The relationship between health-service satisfaction and pregnant women's adherence illustrates the strong link between service quality and the success of health programs[17].

These findings emphasize the importance of health-service satisfaction in supporting the success of Fe tablet supplementation programs for pregnant women. Improving the quality of health services through effective communication, comprehensive education, and service-system improvement can be a major strategy for increasing pregnant women's satisfaction, which ultimately has a positive effect on their adherence to Fe tablet consumption.

The Influence of Antenatal Care Visits on Pregnant Women's Adherence to Iron Supplementation (Fe Tablets)

Antenatal care (ANC) visits are a crucial component in ensuring the health of pregnant women and their fetuses during pregnancy. Through these visits, pregnant women not only receive intensive health monitoring but also education focused on the importance of iron (Fe) supplementation. Health workers play an important role in providing information about the benefits of Fe tablet consumption, such as preventing anemia in pregnant women, supporting hemoglobin formation, and preventing complications such as postpartum hemorrhage that may endanger the mother. Furthermore, the education also explains how Fe tablets support optimal fetal growth and development[35].

One of the main objectives of ANC visits is to ensure that pregnant women obtain correct understanding of the importance of consuming iron supplementation. Fe tablets not only prevent anemia but also provide long-term benefits, such as increasing maternal energy and preventing more serious health problems. Therefore, ANC visits function not only as medical monitoring but also as an educational platform to improve pregnant women's adherence to regular and proper Fe tablet consumption[36].

This study found a significant relationship between ANC visits and pregnant women's adherence to Fe tablet consumption. The analysis produced a p-value of 0.035 ($p < 0.05$), indicating that adherence to the recommended ANC schedule was associated with better adherence to Fe tablet consumption. However, the findings also showed that pregnant women whose ANC visits did not comply with the recommended schedule had a higher proportion of non-adherence to Fe tablets. This situation may occur because limited ANC attendance reduces opportunities for pregnant women to receive continuous information about the importance of iron consumption.

Conversely, among pregnant women whose ANC visits complied with the recommended schedule, adherence to Fe tablet consumption was better. This indicates that regular ANC visits provide more opportunities for health workers to evaluate pregnant women's adherence. Routine visits also allow health workers to provide deeper education about the benefits of Fe tablet consumption and to offer solutions to barriers that pregnant

women may experience, such as nausea or digestive discomfort.

Success in improving pregnant women's adherence to Fe tablet consumption depends greatly on the involvement of health workers during ANC visits. Through continuous interaction, health workers can provide relevant education, build good relationships with pregnant women, and motivate them to recognize the importance of following recommendations related to iron supplementation[37]. In this context, ANC visits serve not only as medical examinations but also as an important medium for raising awareness about the risks of anemia and its adverse effects on maternal and fetal health.

The implication of these findings is the need for systematic efforts to increase ANC coverage by ensuring that every pregnant woman completes the minimum recommended visits during pregnancy in accordance with national and WHO guidelines. This can be achieved by strengthening socialization regarding the importance of ANC visits and improving access to health services, especially in areas with limited facilities. Implementing reminder systems for pregnant women to attend ANC visits regularly may also be an important strategy for increasing coverage[38].

It is also important to strengthen counseling on iron supplementation at every ANC visit. Education regarding the benefits of Fe tablets, correct consumption methods, and understanding potential side effects is essential for improving adherence. This can be achieved through effective communication between health workers and pregnant women, not by relying on one-time information delivery but through continuous interaction during each ANC visit[39].

ANC visits also play an important role in ensuring that pregnant women have direct access to Fe tablet distribution. Fe tablets are commonly provided free of charge as part of maternal and child health programs, making it easier for pregnant women to obtain these supplements without financial barriers. This direct distribution helps pregnant women avoid concerns about Fe tablet availability and encourages regular consumption[40].

Routine monitoring during each ANC visit provides an opportunity for health workers to evaluate pregnant women's adherence to Fe tablet consumption. If problems or barriers arise, such as side effects or discomfort, health workers can provide practical solutions, for example advising women to take Fe tablets after meals to reduce nausea. Such monitoring and evaluation not only improve adherence but also strengthen positive interpersonal relationships between pregnant women and health workers, encouraging continued compliance with recommendations[41].

ANC visits function as an effective means of improving pregnant women's adherence to Fe tablet consumption. Regular and scheduled visits provide many benefits, ranging from monitoring maternal and fetal health to providing education about Fe tablet benefits and evaluating adherence to iron supplementation. To reduce the prevalence of anemia among pregnant women, efforts are needed to increase both the coverage and quality of ANC visits in accordance with WHO recommendations[42]. This is important to ensure better maternal and fetal health and to support broader public health goals.

The Influence of Husband's Support on Pregnant Women's Adherence to Iron Supplementation (Fe Tablets)

Husband's support for maternal health, particularly in relation to adherence to iron (Fe) tablet consumption, has a highly significant role. Emotionally, support from the husband provides pregnant women with a sense of safety and comfort. When husbands show concern for the health of their spouse and fetus, pregnant

women feel more motivated to maintain their health, including by following medical recommendations such as taking Fe tablets. Simple actions, such as reminding the mother of the Fe tablet schedule or helping manage side effects such as nausea, can improve adherence to iron supplementation. Therefore, husband's support is a fundamental factor in creating healthy behavior among pregnant women[43,44].

The findings of this study showed a significant relationship between husband's support and pregnant women's adherence to Fe tablet consumption, with a p-value of 0.012 ($p < 0.05$). This result indicates that stronger support from the husband is associated with higher adherence to Fe tablet consumption. Among pregnant women who did not receive adequate husband's support, non-adherence to Fe tablet consumption was very high, reaching 75.9%. This indicates that lack of husband's support can be a major barrier to pregnant women's adherence to medical recommendations, particularly iron supplementation.

Lack of attention from the husband to the wife's health can reduce the motivation of pregnant women. In addition, pregnant women may not receive practical assistance needed, such as transportation for obtaining Fe tablets or financial support to access nutritious foods. In such situations, pregnant women may feel isolated and less motivated to follow health recommendations. Conversely, when husbands provide emotional, practical, and financial support, pregnant women tend to feel more supported and more motivated to maintain their health, including consuming Fe tablets regularly[31].

Among pregnant women who received good husband's support, the distribution between those who were adherent (52.4%) and non-adherent (47.6%) was more balanced. This indicates that good husband's support has a positive impact on pregnant women's adherence. Husband's support may include emotional support in the form of motivation and attention, instrumental support such as reminders to take Fe tablets, and informational support related to the benefits of Fe tablets for maternal and fetal health. In addition, appreciation from the husband for the pregnant woman's efforts to maintain her health also contributes to improved adherence to medical recommendations.

This study confirms that the husband's role in supporting maternal health is very important, especially in improving adherence to Fe tablet consumption. As the closest partner, the husband has a major influence on shaping the health behavior of pregnant women. Therefore, improving adherence requires a more comprehensive and holistic approach in which husbands are included as part of the main support system. Involving husbands in this process can strengthen family bonds and facilitate the achievement of maternal and child health goals.

Health workers have an important role in educating married couples about the importance of maintaining health during pregnancy, including understanding iron supplementation. Joint education during health visits can help improve couples' understanding of the importance of Fe tablet consumption in preventing anemia among pregnant women and maintaining fetal health. Health workers can explain the positive impacts of regular Fe tablet consumption and other benefits that support a healthy pregnancy. This approach, which involves both partners, is expected to strengthen shared commitment to improving maternal and fetal health[45].

The study by Alma Alfianti (2023) showed that husband's support had a significant relationship with pregnant women's adherence to Fe tablet consumption. A total of 56.5% of pregnant women in the working area of the Cirendeu Public Health Center adhered to Fe

tablet consumption, and husband's support was proven to increase adherence, with p = 0.025 and an odds ratio (OR) of 5.000. Maternal knowledge and husband's support are important factors in preventing iron-deficiency anemia during pregnancy. The study recommended that public health centers routinely monitor pregnant women's adherence to Fe tablet consumption and provide education to both husbands and pregnant women regarding the importance of Fe supplementation[46].

In addition, the study by Andi (2024) showed that family support significantly influenced improved adherence to medication-control visits among patients with hypertension. This was demonstrated by a paired sample t-test with p = 0.000 ($p \leq 0.05$). These findings indicate that family involvement is a key factor in helping patients with hypertension follow medication recommendations more consistently. Family support can include reminders to take medication, assistance in obtaining medication, motivation, and the creation of an environment that supports a healthy lifestyle[47].

Husband's support includes not only emotional support but also practical and financial support. In practical terms, husbands can accompany pregnant women to ANC visits to ensure that they receive the necessary routine examinations and appropriate information from health workers. The husband's presence during ANC visits also provides meaningful moral support. Furthermore, husbands can obtain direct information from health workers about the benefits of iron supplementation and then reinforce this information at home[48].

Financial support from the husband is also an important factor in ensuring pregnant women's adherence to Fe tablet consumption. Although Fe tablets are often provided free of charge by health facilities, some pregnant women may need additional supplements or nutritious foods that support iron absorption. In this regard, the husband's role in fulfilling family needs is important to ensure adequate maternal nutritional intake, which in turn supports the success of iron supplementation programs.

Husband's support does not only influence pregnant women's behavior in consuming Fe tablets; it also strengthens family relationships as a whole. The husband's involvement in supporting maternal and fetal health contributes to harmonious family relationships, which positively affect pregnant women's mental and physical health. Therefore, educating husbands about their important role during pregnancy and the support needed by pregnant women can improve maternal adherence to Fe tablet consumption and support the broader success of maternal and child health programs[49].

Support provided by husbands, whether emotional, practical, or financial, not only affects the health of pregnant women but also helps create healthy living patterns that can improve the quality of life of both mother and child. Increasing husbands' understanding of their role during pregnancy will have a significant impact on creating an environment that enables pregnant women to follow health recommendations, including regular Fe tablet consumption49. Husband involvement is therefore one of the keys to improving pregnant women's adherence to iron supplementation programs and ensuring that maternal and fetal health are well maintained.

Conclusion

Conclusion

Based on the findings of this study in the working area of the Anggalomoare Public Health Center, Konawe Regency, in 2024, it can be concluded that knowledge, attitude, health-service satisfaction, antenatal care (ANC) visits, and husband's support

significantly influence pregnant women's adherence to iron supplementation (Fe tablets). Among these variables, pregnant women's attitude showed the strongest influence on adherence, indicating the importance of a more personal approach to developing positive attitudes toward Fe tablet consumption. Therefore, interventions that emphasize improved knowledge, positive attitudes, family support, and high-quality health services can increase pregnant women's adherence to iron supplementation programs and reduce the prevalence of anemia in pregnancy.

Recommendations

The recommendations of this study are that public health centers, as primary health-care providers, should strengthen health education programs that target not only pregnant women but also their families, especially husbands, to support adherence to iron (Fe) tablet supplementation. This education can be delivered through routine counseling sessions or individual consultations during antenatal care (ANC) visits. Public health centers should also ensure the consistent availability of Fe tablets and conduct structured monitoring and evaluation of pregnant women's adherence. For the Health Office, it is important to formulate policies that support family involvement and strengthen synergy among public health centers, community health volunteers, and the wider community through community-based programs. The Health Office should also improve training for health workers so they can more effectively address barriers to adherence and implement data-based health campaigns to increase public awareness. Future researchers are encouraged to explore other factors that may influence pregnant women's adherence, such as cultural, psychological, and communication-related factors between health workers and pregnant women. Studies in areas with different social and cultural characteristics are also important to broaden understanding. In addition, the development of technology-based interventions, such as mobile applications that remind pregnant women to take Fe tablets, can serve as an innovative alternative in the digital era.

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