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The Influence of Community Health Cadres' Role and Family Support on Adherence to Iron (Fe) Tablet Consumption Among Pregnant Women

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ABSTRACT
According to the World Health Organization (WHO), the global prevalence of anemia is approximately 40% among children aged 6–59 months, 37% among pregnant women, and 30% among women aged 15–49 years. The roles of community health cadres and family support are essential in creating a supportive environment that encourages pregnant women to adhere to iron (Fe) tablet supplementation. This study aimed to examine the influence of community health cadres' role and family support on adherence to iron (Fe) tablet consumption among pregnant women. This research employed a quantitative descriptive design with a cross-sectional approach. The independent variables were the role of community health cadres and family support, while the dependent variable was adherence to iron (Fe) tablet consumption. The study was conducted in Nunggi Village, within the working area of Wera Community Health Center, Bima Regency, West Nusa Tenggara, Indonesia, in 2025. The population and sample consisted of all 32 pregnant women, selected using a total sampling technique. Data were collected using a structured questionnaire and analyzed through univariate and bivariate analyses. The results showed that both the role of community health cadres and family support had a statistically significant influence on adherence to iron (Fe) tablet consumption among pregnant women, with p-values of 0.023 and 0.046, respectively. In conclusion, the roles of community health cadres and family support significantly influence pregnant women's adherence to iron (Fe) tablet consumption. Therefore, strengthening the involvement of community health cadres and enhancing family support are recommended to improve adherence to iron supplementation during pregnancy.

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INTRODUCTION

The maternal mortality ratio (MMR) reflects the number of women who die from causes related to complications during pregnancy and remains a major public health concern in Indonesia. One of the most common complications during pregnancy is anemia, which significantly contributes to maternal morbidity and mortality [1]. According to the World Health Organization (WHO), the global prevalence of anemia is approximately 40% among

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children aged 6–59 months, 37% among pregnant women, and 30% among women aged 15–49 years [2]. Furthermore, the 2024 Indonesian Health Survey (Survei Kesehatan Indonesia/SKI) reported that approximately three out of every ten pregnant women in Indonesia suffer from anemia [3].

Iron deficiency anemia is one of the most prevalent nutritional disorders during pregnancy and is largely preventable through adequate iron supplementation. Maternal anemia has been associated with an increased risk of preeclampsia, postpartum hemorrhage, infection, and prolonged hospitalization. In addition, iron deficiency anemia during pregnancy may result in adverse fetal and neonatal outcomes, including fetal death, low birth weight, and preterm birth [4]. Therefore, iron (Fe) tablet supplementation has become one of the key interventions recommended to prevent anemia during pregnancy [5]. National guidelines recommend that every pregnant woman consume at least 90 iron (Fe) tablets throughout pregnancy [6].

Community health cadres play a crucial role in educating the public about the importance of iron (Fe) tablet consumption [7]. Adequate knowledge regarding the benefits, dosage, and proper use of iron supplements can improve public awareness of nutritional requirements during pregnancy [8]. Well-trained community health cadres are capable of delivering health information effectively and in an understandable manner, thereby encouraging pregnant women to adhere to iron supplementation. Likewise, family support is equally important because the family, as the smallest social unit, often bears substantial emotional and psychological responsibilities during pregnancy. Families are expected to provide emotional support, care, attention, and encouragement, particularly for pregnant women diagnosed with anemia. Families who understand the importance of iron supplementation are more likely to motivate and remind pregnant women to take iron tablets regularly. Such motivation and continuous support from family members represent important determinants of adherence to iron supplementation programs [5].

Medication adherence refers to the extent to which patients follow recommendations provided by healthcare professionals. One of the factors influencing health behavior is the presence of reinforcing factors, including empowerment and support from family members, particularly spouses [9]. Non-adherence to iron tablet consumption reduces the effectiveness of iron supplementation programs and limits their potential benefits. Adherence can only be achieved when pregnant women consistently follow the prescribed regimen for iron tablet consumption [7]. Consequently, the effectiveness of iron supplementation programs depends not only on the distribution coverage of iron tablets but also on pregnant women's adherence to consuming them. High coverage of iron tablet distribution may not substantially reduce the prevalence of iron deficiency anemia if adherence to supplementation remains low [10].
The collaborative roles of community health cadres and family members can create a supportive environment that promotes regular iron (Fe) tablet consumption. Active communication between community health cadres and families strengthens awareness, reinforces health messages, and provides emotional encouragement for pregnant women. The combination of knowledgeable community health cadres and strong family support has considerable potential to improve adherence to iron supplementation, thereby reducing the

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prevalence of maternal anemia and ultimately improving maternal and neonatal health outcomes.

METHODS

This study employed a quantitative descriptive design using a cross-sectional approach [11]. The research aimed to examine the influence of the role of community health cadres and family support on adherence to iron (Fe) tablet consumption among pregnant women.

The study population consisted of all pregnant women residing in Nunggi Village, Wera District, Bima Regency, West Nusa Tenggara Province, Indonesia. The sample included all 32 pregnant women registered between January and March 2025. A total sampling technique was employed, in which all eligible members of the target population were included in the study [12].

Data collection was conducted in several stages. First, preliminary data were obtained to identify eligible participants. Subsequently, structured questionnaires developed by the researchers were administered to all respondents. The questionnaire assessed the role of community health cadres, the level of family support, and adherence to iron (Fe) tablet consumption among pregnant women.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Univariate analysis was performed to describe the distribution and percentages of the variables, including the role of community health cadres, family support, and adherence to iron (Fe) tablet consumption among pregnant women. Bivariate analysis was conducted using simple linear regression to examine the influence of the role of community health cadres and family support on adherence to iron (Fe) tablet consumption [11]. The study was conducted in Nunggi Village, Wera District, Bima Regency, West Nusa Tenggara Province, Indonesia, in 2025.

1. Results

Table 1. Characteristics of Respondents by Age, Educational Level, Employment Status, and Gestational Trimester Among Pregnant Women in Nunggi Village, Wera Community Health Center Working Area

Characteristics	Frequency (n)	Percentage (%)
Age		
<20 years	3	9.4
20–35 years	20	62.5
>35 years	9	28.1
Total	32	100.0
Educational Level		
Primary education (elementary and junior high school)	1	3.1
Secondary education (senior high school)	13	40.6
Higher education	18	56.3
Total	32	100.0
Employment Status		

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Characteristics	Frequency (n)	Percentage (%)
Employed	23	71.9
Unemployed	9	28.1
Total	32	100.0
Gestational Age		
First trimester	7	21.9
Second trimester	14	43.7
Third trimester	11	34.4
Total	32	100.0

Source: Secondary Data.

As presented in Table 1, the majority of respondents were aged 20–35 years (62.5%), while only 9.4% were younger than 20 years. Regarding educational attainment, more than half of the respondents had completed higher education (56.3%), whereas only 3.1% had a primary level of education. In terms of employment status, most respondents were employed (71.9%), while 28.1% were unemployed.

Based on gestational age, the largest proportion of pregnant women were in the second trimester (43.7%), followed by those in the third trimester (34.4%) and the first trimester (21.9%). These findings indicate that the study participants were predominantly women of reproductive age with relatively high educational attainment, the majority of whom were employed and in the second trimester of pregnancy at the time of data collection.

Table 2. Association Between the Role of Community Health Cadres, Family Support, and Pregnant Women's Adherence to Iron (Fe) Tablet Consumption

Variables	Adherent	(%)	Non-Adherent	(%)	Total (n)	(%)	*p*-value
Role of Community Health Cadres							
Good	21	87.5	3	12.5	24	100	0.023
Poor	4	50.0	4	50.0	8	100	
Total	25	78.1	7	21.9	32	100	
Family Support							
Good	16	88.9	2	11.1	18	100	0.046
Poor	8	57.1	6	42.9	14	100	
Total	24	75.0	8	25.0	32	100	

Source: Secondary Data.

As shown in Table 2, among respondents who perceived the role of community health cadres as good, 21 (87.5%) were adherent to iron (Fe) tablet consumption, while only 3 (12.5%) were non-adherent. In contrast, among respondents who perceived the role of community health cadres as poor, adherence and non-adherence were equally distributed, with 4 respondents (50.0%) in each category.

Regarding family support, 16 respondents (88.9%) who reported good family support adhered to iron (Fe) tablet consumption, whereas only 2 respondents (11.1%) were non-

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adherent. Among respondents with poor family support, 8 (57.1%) adhered to iron supplementation, while 6 (42.9%) did not.

Bivariate analysis demonstrated statistically significant associations between both independent variables and adherence to iron (Fe) tablet consumption. The role of community health cadres was significantly associated with adherence (p = 0.023), and family support also showed a significant association (p = 0.046). These findings indicate that effective involvement of community health cadres and strong family support significantly improve pregnant women's adherence to iron (Fe) tablet supplementation.

Discussion

Characteristics of Pregnant Women

The findings of this study indicate that most respondents were between 20 and 35 years of age (62.5%), while only 9.4% were younger than 20 years. More than half of the respondents had attained higher education (56.3%), whereas only 3.1% had completed primary education. Regarding employment status, the majority of respondents were employed (71.9%), while 28.1% were unemployed. In terms of gestational age, most participants were in the second trimester of pregnancy (43.7%), whereas the smallest proportion were in the first trimester.

These findings are consistent with the theory that education is a process of developing individuals' knowledge, attitudes, and behavior through teaching and learning, with the ultimate goal of improving intellectual capacity and human development [13]. Educational attainment influences an individual's ability to acquire, understand, and apply health-related information. Consequently, pregnant women with higher educational levels are generally more capable of understanding the importance of antenatal care and adhering to recommended health interventions, including iron (Fe) tablet supplementation.

Age also plays an important role in shaping an individual's cognitive ability and decision-making capacity. As people mature, their ability to process information, solve problems, and make informed health decisions generally improves. Women aged 20–35 years are considered to be within the optimal reproductive age because their reproductive organs have reached full anatomical and physiological maturity, and they are more likely to possess the psychological readiness required to cope with pregnancy and childbirth [14]. Therefore, women within this age group are generally better prepared to understand and comply with health recommendations, including regular iron supplementation.

Employment status may also contribute to differences in health knowledge and health-seeking behavior. Women who work outside the home are more likely to interact with colleagues, healthcare providers, and community members, thereby increasing their exposure to health-related information. Employment is often associated with greater financial independence and broader access to educational resources. Consequently, employed women tend to have better knowledge regarding the benefits of iron (Fe) tablets, which may positively influence their adherence to iron supplementation during pregnancy [15].

The predominance of respondents in the second trimester of pregnancy provides an important opportunity for health promotion interventions. The second trimester is commonly

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regarded as the most comfortable stage of pregnancy because symptoms such as nausea and vomiting that are frequently experienced during the first trimester generally subside, while the physical discomfort associated with the third trimester has not yet become pronounced. During this period, pregnant women are usually more physically comfortable and emotionally stable, making it an ideal time for healthcare professionals and community health cadres to provide comprehensive education regarding adherence to iron (Fe) tablet consumption, birth preparedness, antenatal care, and pregnancy exercise programs. Interventions delivered during the second trimester are therefore expected to have a greater impact on improving maternal compliance with recommended health practices.

Influence of the Role of Community Health Cadres and Family Support on Pregnant Women's Adherence to Iron (Fe) Tablet Consumption

Based on the statistical analysis performed using the Statistical Package for the Social Sciences (SPSS), the best-fitting regression model was obtained as follows:

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Cadre Role (1)	-2.746	1.205	5.191	1	0.023	0.064
Family Role (1)	-2.448	1.225	3.991	1	0.046	0.086
Constant	3.487	1.220	8.175	1	0.004	32.683

The results showed that both the role of community health cadres and family support had a statistically significant influence on pregnant women's adherence to iron (Fe) tablet consumption. The significance value for the role of community health cadres was 0.023 ($p < 0.05$), while the significance value for family support was 0.046 ($p < 0.05$). These findings indicate that the active involvement of community health cadres in providing health education, motivation, and continuous assistance, together with family support through emotional encouragement, supervision, and regular reminders, significantly enhances pregnant women's adherence to iron (Fe) tablet supplementation. The regression model generated from the SPSS analysis at a 95% confidence level is presented as follows:

$$\pi \frac{\exp(3.487 - 2.746x_1(1) - 2.448x_2(1))}{1 + \exp(3.487 - 2.746x_1(1) - 2.448x_2(1))}$$

1. Role of Community Health Cadres: The odds ratio (Exp(B)) indicated that pregnant women who received good support from community health cadres were 15.580 times more likely to adhere to iron (Fe) tablet consumption than those who received inadequate support from community health cadres (Exp(B) = 1/0.064 = 15.580).
2. Family Support: The odds ratio (Exp(B)) showed that pregnant women who received good family support were 11.567 times more likely to adhere to iron (Fe) tablet consumption than those who received poor family support (Exp(B) = 1/0.086 = 11.567).

CONCLUSION

Based on the findings of this study, it can be concluded that the role of community health cadres and family support have a significant influence on pregnant women's adherence to consuming iron (Fe) tablets. This is statistically supported by the significance values for the

role of community health cadres (p = 0.023) and family support (p = 0.046), both of which are below the significance threshold (p < 0.05). Therefore, it is recommended that the roles of community health cadres and families be further strengthened and optimized to improve pregnant women's adherence to iron (Fe) tablet supplementation.

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