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The educational effectiveness of the attitude approach model to the compliance of pregnant women consuming Fe

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Abstract

Background: Compliance of pregnant women in taking iron (Fe) tablets is an important factor in preventing pregnancy anemia. However, compliance rates are still low in some areas. An educational approach based on local culture such as SIPAKATAU (mutual respect in Bugis-Makassar culture) is considered to be able to increase the role of the family in supporting regular Fe consumption. **Methods:** This study used a quasi-experimental design with a post-test only control group design approach. The sample consisted of 32 pregnant women who were randomly divided into two groups: the intervention group that was educated with the SIPAKATAU approach model and the control group that did not receive the education. Data analysis used Fisher's Exact Test and Odds Ratio (OR) tests. **Results:** Results showed that pregnant women who received education with the SIPAKATAU approach model had a 2.667 times higher compliance rate in taking Fe tablets compared to pregnant women who did not receive the education (p = 0.00; OR = 2,667). **Conclusion:** Education with the SIPAK approach model is effective in increasing the adherence of pregnant women in consuming Fe tablets. The application of this model is recommended for midwives to optimize the role of the family as companions and supervisors in iron supplementation programs during pregnancy.

Keywords: Education, SIPAKATAU, Iron tablets, Anemia

1. Introduction

Anemia is a condition when the number or capacity of red blood cells is insufficient for the body's physiological needs. In pregnant women, anemia is defined as hemoglobin levels <11.0 g/dl in the first trimester and <10.5 g/dl in the second and third trimesters (Ministry of Health of the Republic of Indonesia, 2020). Anemia during pregnancy increases the risk of complications such as bleeding, miscarriage, stillbirth, prematurity, and BBLR (WHO, 2023). The main cause of anemia in pregnant women in developing countries is iron deficiency (Gedefaw et al., 2021; Nurahmawati et al., 2023), which are influenced by unbalanced nutritional intake, recurrent pregnancies, infections, SEZs, and lack of adherence to Fe tablet consumption (Ministry of Health of the Republic of Indonesia, 2020).

Globally, anemia affects about 2 billion people, and 50% of them are due to iron deficiency. The prevalence of anemia in pregnant women is higher (48.2%) than in non-pregnant women (30.2%) (Teklu Gebrehiwot et al., 2020). In Indonesia, the prevalence of anemia in pregnant women increased from 37.1% to 48.9% (Riskesdas, 2022), and in West Sulawesi it reached 77.14%, with the highest area in Central Mamuju at 94% (Ministry of Health of the Republic of Indonesia, 2018).

WHO recommends the consumption of 30–60 mg of iron and 400 µg of folic acid during pregnancy (WHO, 2020; Ministry of Health of the Republic of Indonesia, 2023). However, preliminary studies showed that out of 10 pregnant women at the Durikumba Health Center, 7 of them did not take Fe tablets regularly due to side effects such as nausea, dizziness, and constipation. This adherence is strongly influenced by family knowledge and support (Getachew et al., 2018; Lyoba et al., 2020; Long Hoang Nguyen et al., 2021).

Family-based education has been proven to be effective in increasing the knowledge and adherence of pregnant women to the consumption of Fe tablets (Tetti Seriati Situmorang, 2019; Fariba Nasiriziba et al., 2021; Mira Triharini, 2021; Rigal et al., 2021). The SIPAKATAU education model that carries local Bugis values—Sipakatau, Sipakainge, and Sipakalebbi—was developed to empower families in accompanying pregnant women (Halisah & Armiyati Nur, 2022). This model involves household education, community empowerment, and strengthening the role of the family as a reminder and controller.

Based on these conditions, this study was conducted to examine the effectiveness of the SIPAKATAU approach model education on the compliance of pregnant women in consuming Fe tablets at the Durikumba Health Center, Central Mamuju Regency in 2024.

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2. Materials and Methods

This study is a quasi experiment with a post-test only control group design (Kelana, 2011), which involves two groups, namely the intervention group and the control group. The intervention group received education on the Sipakatau model three times, while the control group was not given treatment. The effectiveness of the intervention was measured through the level of adherence to Fe tablet consumption after treatment in both groups.

This research will be carried out in July 2024, at the Durikumba Health Center, Karossa District, Central Mamuju Regency. The population in this study is all pregnant women who made antenatal care (ANC) visits in the working area of the Durikumba Health Center in May 2024, with a total of 72 people. Sample selection was carried out by non-probability sampling using the purposive sampling method, based on inclusion and exclusion criteria. Inclusion criteria include pregnant women less than 20 years old, do not experience nausea or vomiting, live in the research area until childbirth, and do not have severe diseases other than anemia or chronic energy deficiency (KEK). Meanwhile, the exclusion criteria are pregnant women who suffer from severe illnesses, do not live in the work area of the Durikumba Health Center, or are not willing to be respondents.

The number of samples was determined based on Federer's formula, which is (t−1)(n−1) > 15, with t = 2 groups, so n > 16 was obtained. The total number of respondents used was 32 people, consisting of 16 pregnant women in the intervention group and 16 in the control group. The allocation into two groups was carried out by simple random sampling.

3. Results

3.1 Distribution Table of Characteristics of Pregnant Women at Durikumba Health Center, Central Mamuju Regency in 2024

Table 1 Distribution Table of Characteristics of Pregnant Women at Durikumba Health Center, Central Mamuju Regency in 2024

Variables	Total	
	n	%
Age Group		
<20 or >35 Years	8	25.0
20-35 Years	24	75.0
Education		
Primary	9	28.1
Secondary	16	50.0
Higher	7	21.9
Mother's employment status		
Working	10	31.3
Not working	22	68.8

Based on Table 1, the majority of respondents were in the productive age group of 20-35 years old at 75.0%, while the age group of <20 or >35 years was only 25.0%. This shows that most of the respondents are within the ideal age range for pregnancy.

In terms of education, respondents with secondary education dominated by 50.0%, followed by basic education at 28.1%, and higher education at 21.9%. This indicates that most mothers have a sufficient level of education that allows them to receive health information well.

Meanwhile, in terms of employment status, the majority of pregnant women do not work, which is as much as 68.8%, while those who work are only 31.3%. The high proportion of mothers who do not work can have an impact on free time to participate in education, but also has the potential to affect access to information and the family economy.

3.2 The effect of SIPAKATAU Approach Model education on the compliance of mothers consuming FE at the Durikumba Health Center, Central Mamuju Regency in 2024

Table 2. The effect of SIPAKATAU Approach Model education on the compliance of mothers consuming FE at the Durikumba Health Center, Central Mamuju Regency in 2024

Educational model	Compliance Status consuming FE				Total	OR	p
	Obedient		Non-compliant				
	n	%	n	%	n (%)		
Sipakatau	16	100.0	0	0.000	16 (100.0)	2.667	0.00
Non Sipakatau	6	37.5	10	62.5	16 (100.0)		

Based on table 2, it shows that there is a significant difference between the Sipakatau and non-Sipakatau educational models on the compliance of pregnant women in consuming Fe tablets. In the group that received Sipaktau model education, all respondents (100%) showed compliance in consuming Fe tablets. In contrast, in the non-Sipakatau group, only 37.5% were compliant, while 62.5% were non-compliant.

The results of the Fisher test showed a value of p = 0.00, which is statistically significant (p < 0.05). This shows that there is a meaningful relationship between the Sipakatau educational model and the level of compliance of pregnant women in consuming iron supplements.

In addition, the Odds Ratio (OR) value = 2.667, indicates that pregnant women who received education with the Sipakatau model had a 2.67 times greater chance of being obedient in taking Fe tablets compared to pregnant women who did not receive education with the model.

4. Discussion

The results of this study show a significant relationship between education with the SIPAKATAU approach model and the adherence of pregnant women in consuming Fe tablets, based on the results of the Chi Square test which resulted in a p value of < 0.05. These findings are consistent with the research of Halisah (2022) and Armiyati Nur (2022), which found that the SIPAKATAU approach positively affects the increase of knowledge and compliance of pregnant women in taking iron supplements. Similar things were also found in studies by Sholihah (2019), Aktac et al. (2018), and Juniarti and Naim (2021).

The SIPAKATAU educational model is carried out through home visits and involves families in the education process. Education begins with an initial survey to explore the condition and understanding of mothers and families about iron, so that the interventions carried out can be more targeted. This approach facilitates the formulation of educational goals, anticipates obstacles, and creates a continuous supervision system that strengthens family involvement in improving pregnant women's compliance (Satrianegara, 2014).

Family-based education is a form of empowerment that emphasizes the active role of the family as the closest environment that affects health status, especially in pregnant women (Juniarti & Yamin, 2016). With increased knowledge through education, it is hoped that family members can become companions and supervisors in ensuring that pregnant women routinely consume the Fe tablets given.

The researchers assume that education plays a role in improving the knowledge of pregnant women, which then has an impact on compliance in consuming Fe tablets. In contrast, the control group that only received the leaflet and was directed to study independently tended to have lower comprehension, especially if the mother did not have the initiative to read and understand the available information. The lack of family involvement as supervisors and supporters also affects the level of compliance. Although there was an increase in knowledge in some control groups, the improvement was not as optimal as in the intervention group due to their limited understanding of the contents of the leaflet.

Other studies support these findings. Mirsanjari et al. (2021) reported a significant increase in the nutritional awareness of pregnant women after being educated, from 3% to 31%. Halisah (2022) also stated that the family education approach is effective in improving pregnant women's nutritional knowledge and influencing consumption patterns. A study by Fariba Nasiriziba et al. (2018) shows that family-based education can improve family knowledge and self-care of chronic disease patients, including the role of the family in supporting MP-ASI giving practices.

In addition, Rigal, Salmon-Legagneur, and colleagues (2021) found that family-based educational approaches can change mothers' food consumption habits and cooking behaviors. Research by Mira Triharini (2018) also confirms that family support and advice have a significant effect on pregnant women's compliance in consuming iron supplements.

5. Conclusions

This study shows that there is a significant relationship between the education of the SIPAKATAU approach model and the compliance of pregnant women in consuming Fe tablets (p < 0.05). Education carried out through home visits and involving families has proven to be effective in increasing the involvement and active role of families as companions and supervisors. This approach is able to meaningfully increase pregnant women's knowledge, which then has a positive impact on compliance in the consumption of iron supplements. Therefore, family-based educational interventions such as the SIPAKATAU model can be an effective strategy in efforts to prevent anemia in pregnant women, especially in areas with a high prevalence of anemia.

Conflict of Interest

There is no conflict of interest

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