


The Relationship Between Pregnant Women's Attitudes Towards Taking Iron Tablets And The Incidence Of Anemia

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Article Info	ABSTRAC
<p>Keywords: pregnant women, anaemia incidence, attitude</p>	<p>Anaemia among pregnant women poses a significant risk, serving as an indirect contributor to maternal mortality and negatively impacting pregnancy outcomes. This circumstance, characterized by a deficiency of red blood cells, hampers the delivery of oxygen to bodily tissues, a situation worsened by the heightened demands of pregnancy. Iron deficiency anaemia can lead to various complications, including impaired fetal growth, premature delivery, low birth weight, increased vulnerability to infections, and even fetal demise. The objective of this research is to explore the connection among pregnant women's attitudes towards the consumption of iron (Fe) tablets and the prevalence of anaemia. Utilizing a cross-sectional research design and purposive sampling technique, the findings revealed that 36.7% of participants held a negative attitude towards Fe tablets. Furthermore, a moderate correlation was identified among the attitudes of pregnant women regarding Fe tablet consumption and the incidence of anaemia, as indicated by a contingency C value of 0.370. This suggests that the attitudes of pregnant women significantly influence their adherence to Fe tablet intake. Therefore, maternal and child health programs should have attitudinal factors into account to enhance compliance by Fe tablet consumption, ultimately reducing the risk of anaemia and associated pregnancy complications. Implementing effective behavior change interventions can significantly improve both maternal and infant health outcomes.</p>
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INTRODUCTIO

The maternal mortality rate (MMR) and infant mortality rate (IMR) are key indicators of a nation's overall health status and healthcare effectiveness. Data by the 2012 Indonesian Demographic and Health Survey (SDKI) revealed an increase in the MMR, rising by 228 to 359 per 100,000 live births. This figure is still relatively high when compared to other countries in the Association of Southeast Asian Nations (ASEAN). (Suparji, 2024) . Simultaneously, the infant mortality rate (IMR) was recorded at 34 per 1,000 live births. Although the government has implemented various initiatives, the reduction in the maternal mortality rate (MMR) has not achieved the Sustainable Development Goals (SDG) targets for

Indonesia. The goal was established at 306 per 100,000 live births by 2019, by an aim to further decrease it to 70 per 100,000 live births by 2030 (Suparji, 2024) .

Maternal mortality can be caused by direct and indirect obstetric causes (Putri, 2018) . Anaemia is one of the indirect contributors to maternal mortality that often arises before pregnancy and is further aggravated by the circumstance of pregnancy itself. A significant portion of the Indonesian population is at high risk for anaemia, primarily due to the prevalent low economic status among many Indonesians (Beressa et al., 2022) . Anaemia is a medical circumstance characterized by a deficiency of red blood cells (erythrocytes) in the body. These red blood cells are essential as they contain haemoglobin, which is responsible for transporting oxygen to all tissues throughout the body (Hidayah & Anasari, 2012) .

Iron deficiency anaemia in pregnant women is strongly associated by maternal mortality, so it is worth watching out for (Angrainy, 2017) . Complications experienced by women who are pregnant can be fatal, both to the mother and fetus (Elisa Safitri & Rahmika, 2022) . Anaemia in pregnant women can result in stunted growth of the baby, premature birth of the baby, the baby is born by low weight, the baby becomes more susceptible to disease due to infection, and death of the baby in the womb can occur in severe anaemia circumstances (Erwin et al., 2018) . Pregnant women will experience blood loss (bleeding) during childbirth and experience increased factors for postpartum depression. According to SKRT data, the prevalence of anemia among pregnant women has shown a periodic decline. Specifically, the prevalence was recorded at 63.5% in 1992, dropping to 50.9% in 1995, then to 40% in 2001, and rising slightly to 50.6% in 2013. The 2013 Basic Health Research (Riskesdas) indicated that the prevalence of anemia among pregnant women in Indonesia was 37.1%. In 2019, the distribution of Fe tablets in Indonesia reached 85%, an increase by 83.3% in 2021. Additionally, the prevalence of anemia was higher among pregnant women in rural areas (22.8%) compared to those in urban areas (20.6%) (Suparji, 2024)

According to a survey carried out by researchers at TPMB D, there were 821 pregnant women in 2024, by 67 of them affected by anemia, representing 8.4% of the total. The health indicator for anemia incidence at TPMB D in West Bandung Regency is set at 10% of the target population of pregnant women. While the anemia rate at TPMB D is below the established indicator, it remains relatively high among pregnant women and requires prompt attention.

To tackle the issue of iron deficiency anemia among pregnant women, the Indonesian government, through the Ministry of Public Health, has been providing a program since 1970 that offers free iron tablets to pregnant women at Puskesmas and Posyandu. This initiative involves distributing blood supplement tablets, each containing 200 mg of ferrous sulfate and 0.25 mg of folic acid, which is equivalent to 60 mg of iron and 0.25 mg of folic acid. (Suparji, 2024) . It is advised that every pregnant woman consume blood supplement tablets at a dosage of one tablet daily throughout her pregnancy and continue for forty days following childbirth. (Wahyuni, 2019) . The effectiveness of administering blood supplement tablets can be evaluated by the coverage rates of Fe 1 (those who received 30 tablets during their first visit, starting at 20 weeks) and Fe 3 (those who received 90 tablets through the third trimester). In 2002, the coverage for Fe 1 was 64.62%, which rose to 69.14% in 2003, and

further increased to 76.9% in 2009. For Fe 3, the coverage in 2002 was 54.92%, which improved to 59.62% in 2003 and reached 68.9% in 2019.

Many efforts to reduce anaemia have been made but have not shown the desired reduction. This is most likely influenced by the low awareness of maternal attitudes about anaemia prevention and the dangers that will arise. One handling is the need to conduct a careful analysis of attitude change at an earlier target, namely the assessment of the operational form of attitudes and practices that exist in the community (Harap & Siregar, 2024) .

Side effects that may occur when consuming Fe Tablets include; sometimes nausea, vomiting, abdominal pain, constipation, black stools, etc. (Harap & Siregar, 2024) . In fact, these side effects are not dangerous, and occur because iron has the potential to corrode the intestinal lining causing ulceration. Pregnant women are recommended to have blood supplement tablets accompanied by vitamin C, so that absorption is faster (Ariandini & Ramadani, 2023) .

A preliminary survey conducted over one week at the TPMB D in West Bandung Regency during Antenatal Care (ANC) examinations revealed that 7 out of 28 pregnant women assessed were diagnosed by either mild or moderate anaemia. Haemoglobin levels are typically evaluated during the third trimester of pregnancy, although this may be adjusted based on the patient's specific circumstances. Following the examination results, interventions were implemented, including the provision of iron (Fe) tablet supplementation. One significant factor influencing the development of anaemia in pregnant women is their attitude towards the side effects associated by Fe tablet consumption, particularly the common occurrence of constipation (difficulty in bowel movements).

Attitude refers to a person's reaction or response that remains internal to stimuli or objects. This attitude can significantly impact an individual's ability to make decisions deemed appropriate when confronted by choices of right or wrong, as it reflects an emotional state inside of the individual.

METHOD

This research employed an analytical design utilizing a cross-sectional approach to explore the connection among the attitudes of pregnant women regarding the administration of Fe tablets and the prevalence of anemia, by data gathered concurrently. The research population included all pregnant women in their third trimester who had their hemoglobin (Hb) levels assessed at TPMB D in West Bandung Regency. A sample of 30 respondents was chosen through a total sampling method, which was appropriate given the small size of the population. The inclusion criteria required participants to be third-trimester pregnant women who were receiving antenatal care, categorized as low-risk pregnancies, prescribed blood supplement tablets, literate, and willing to have part in the research. Those excluded were pregnant women who opted out of taking blood supplement tablets or had pre-existing circumstances associated by blood cell disorders or infections. Data collection was carried out through questionnaires and hemoglobin test results. The validity of the questionnaires was evaluated using the Pearson Product Moment correlation, and reliability was measured by

Cronbach's Alpha. The data analysis process included multiple steps: editing, coding, processing, and cleaning. Univariate analysis was performed to outline the characteristics of the variables, while bivariate analysis, particularly the Chi-Square test, was utilized to examine the connections among the variables. The research process consists of several phases: the preparation stage, the implementation phase (which involves obtaining permission, securing informed consent, conducting the research, and processing the data), and the concluding stage (which includes report writing and testing).

RESULTS AND DISCUSSION

This chapter presents the findings of the research investigating the connection among pregnant women's attitudes towards iron (Fe) tablets and the incidence of anaemia at TPMB D in West Bandung Regency. The data was collected through questionnaires and haemoglobin (Hb) examinations, utilizing an accidental sampling technique. The data was analyzed using SPSS 24, and the results are presented through both univariate and bivariate analyses.

Table 1 Overview of pregnant women's attitudes towards giving Fe tablets

Criteria	Frequency	%
Negative	11	36,7
Positive	19	63,3
Total	30	100,0

by table 1, it is revealed that most of the attitudes of pregnant women towards giving Fe tablets are in positive criteria, namely 19 people (63.3%) and negative as many as 11 people (36.7%).

Table 2 Overview of anaemia incidence

Criteria	%
Anaemia	23,3
Not anaemic	76,7
Total	100,0

by table 2, it is revealed that most of the incidence of anaemia is not anaemic as many as 23 people (76.7%) and anaemia as many as 7 people (23.3%).

Table 3 connection among pregnant women's attitude towards Fe tablet administration and anaemia incidence

Variables	Anaemia				Total	P-Value
	Anaemia		Not anaemic			
Attitude	Frek	%	Frek	%		
Negative	5	45,45	6	54,55	11	
Positive	2	10,53	17	89,47	19	0,029
Total	7	23,33	23	76,67	30	

$$\chi^2 = 4.751$$

Table 3 shows that out of 11 pregnant women by negative attitude towards giving Fe tablets, 5 people (45.45%) were anaemic and 6 people (54.55%) were not anaemic. Of the 19 people, the attitude of pregnant women towards giving Fe tablets was positive as many as 2 people (10.53%) by anaemia and 17 people (89.47%) were not anaemic. Based on the statistical calculation of the Chi-Quadrat test of 4,751 and P-value = 0.029. Because the P-value is smaller than 5% or 0.000 < 0.05, there is a connection among the attitude of pregnant women towards giving Fe tablets and the incidence of anaemia. After it is revealed that there is a connection among the attitude of pregnant women towards giving Fe tablets and the incidence of anaemia, it can be calculated the value of the size of the connection among the two variables by the contingency coefficient. The contingency coefficient value can be found through the formula:

$$C = \sqrt{\frac{\chi^2_{hitung}}{n + \chi^2_{hitung}}}$$

Calculation example:

For the calculated χ^2 value = 4.751, the contingency coefficient:

$$C = \sqrt{\frac{4.751}{30 + 4.751}} = 0,370$$

Table 4 connection among pregnant women's attitude towards giving Fe tablets and anaemia incidence

Variables	χ^2 calculate	connection	Description
Attitude	4.751	0,370	Medium

To utilize the connection value for evaluating the extent of the connection among pregnant women's attitudes towards administering Fe tablets and the occurrence of anemia, it is essential to compare this correlation value by the maximum contingency coefficient. The maximum C value can be determined using the following formula:

$$C = \sqrt{\frac{m-1}{m}}$$

Based on the correlation coefficient according to Guilford, the classification of the contingency coefficient is as follows:

C = 0	: No correlation
0 < C < 0.2 Cmax (0.1414)	: Very low correlation
0.2 Cmax (0.1414) ≤ C < 0.4 Cmax (0.2828)	: Low correlation
0.4 Cmax (0.2828) ≤ C < 0.6 Cmax (0.4242)	: Medium correlation
0.6 Cmax (0.4242) ≤ C < 0.8 Cmax (0.5656)	: High correlation
0.8 Cmax (0.4242) ≤ C < 0.707	: Very high correlation
C = Cmax = 0.707	: Perfect correlation

According to Table 1, the findings indicated that out of 30 participants, the majority of pregnant women exhibited a favorable attitude towards the provision of Fe Tablets, by 19 individuals, representing 63.3%, displaying a positive outlook. Based on the opinions

expressed by experts, it can be concluded that what is meant by attitude is a state of attitude, behaviour, or response given to what happens, and reacts in a certain way influenced by emotional states towards objects, whether in the form of people, institutions or certain problems in which there are three components, namely the cognitive component, the affective component, and the behavioural component (Harap & Siregar, 2024) . Attitude can also affect a person's circumstance to choose something that he considers right, when he is faced by the right and wrong choices, because attitude is a person's emotional state (Karyuni et al., 2020) .

The results showed that attitude is the dominant factor that is significantly related to the habit of taking Fe tablets regularly among pregnant women, so the attitude factor determines the success of a Puskesmas programme, especially in terms of the regularity of taking Fe tablets.

This statement aligns by the findings by research carried out by investigators at TPMB D West Bandung Regency, which indicates that most pregnant women exhibit a positive attitude. Such a positive outlook serves as a guiding principle in the lives of these women. A positive attitude in pregnant women in TPMB D West Bandung Regency Bandung City is a tendency to approach, like, expect certain objects that may be able to consider everything in opinion and see a good point of view in assumptions.

According to the researcher, the positive attitude possessed by pregnant women in TPMB D West Bandung Regency may be due to the respondents being able to choose and determine the right choice, appropriate, and considered appropriate to be an attitude in responding to the statements contained in the questionnaire. It is said to be positive because the majority of respondents continue to have Fe tablets even though the Fe tablets they have smell bad, cause darker stools, and have Fe tablets at bedtime to minimise the side effects of nausea and even vomiting.

One theory that can explain the connection among attitude and behaviour is proposed by Fishbein and Ajzen (Fishbein, M., & Ajzen, 1977) . According to them, among attitude and behaviour there is one psychological factor that must be present for the two to be consistent, namely intention.

Table 2 reveals that among the 30 respondents who are in their third trimester of pregnancy, 7 individuals, or 23.3%, were found to have anemia. This circumstance in pregnant women arises by an increase in both plasma volume and erythrocyte count. (Masrufah, 2021; Samia et al., 2019) . An increase in plasma by three times in the number of erythrocytes will cause a decrease in the haemoglobin-hematocrit ratio so that it will increase the risk of physiological anaemia during pregnancy. Although during pregnancy physiological anaemia is included in the normal state (Fatimah et al., 2023) .

Pregnant women are classified as anemic if their hemoglobin (Hb) level falls below 11 g/dl during the first and third trimesters of pregnancy. In the second trimester, anemia is indicated by an Hb level of less than 10.5 g/dl. Anemia in pregnant women can result by insufficient hemoglobin production, which may be due to nutritional deficiencies or issues by the production of the hemoglobin chain. (Fatimah et al., 2023) .

Anaemia in pregnant women is dangerous because it causes; during pregnancy (delayed fetal development by its various clinical manifestations, cause hyperemesis

gravidarum and gestosis, cause placenta previa, can cause placental abruption, danger to labour, prolonged labour, fetal distress, surgical delivery, amniotic embolism), during post partum (post partum haemorrhage, puerperium infection easily occurs, placental retention can occur, uterine subinfusion, babies are born by anaemia), to the fetus (abortion, intra uterine death, high prematurity, low birth weight, congenital defects can occur, babies are prone to infection until perinatal death) (Adam, I., & Ali, 2016; Ejidokun, 2000) .

The sixth midwifery service standard discusses the management of anaemia in pregnancy which aims to find anaemia in pregnancy early and conduct adequate follow-up to overcome anaemia before delivery has place. During pregnancy midwives must check Hb levels at least 2 times during the pregnancy process, namely in the first trimester (gestational age before 12 weeks) and third trimester (gestational age 28 to 36 weeks) (Serbesa, 2019) . This theory is in line by the researcher's research which occurred in 7 out of 30 respondents experiencing anaemia, which may be caused by several factors of knowledge and attitudes of pregnant women.

Table 3 indicates a moderate correlation among the attitudes of pregnant women regarding the administration of Fe tablets and the occurrence of anemia in TPMB D West Bandung Regency. According to the contingency norm, the C value of 0.370 for the connection among pregnant women's attitudes towards administering Fe tablets and the incidence of anemia falls inside of the range of $0.4C_{max}(0.2828) \leq C < 0.6C_{max}(0.4242)$, indicating a moderate connection. An individual's attitude towards a particular object reflects their level of concern for that object. This suggests that a negative attitude may arise by a lack of care or concern.

Awareness of the dangers of anaemia is one of the factors that cause people to have a positive attitude towards anaemia prevention programs, including taking Fe tablets regularly as recommended by midwives or other health workers (Munira, 2019) . It is expected that a positive attitude towards anaemia prevention can reduce the incidence of anaemia in pregnant women (Kadir et al., 2021) . Because anaemia is a "*potential danger to mother and child*", it requires serious attention by all parties involved in health services in the future (Pasaribu et al., 2023; Rehana et al., 2024) . To address anemia, the Indonesian government, via the Minister of Health, enacted regulation number 88 of 2014, which establishes standards for blood supplement tablets aimed at women of childbearing age and pregnant women. The goal of this regulation is to serve as a guideline for the central government, provincial authorities, local governments, and all entities involved in the distribution of blood tablets. The objective is to guarantee the provision of high-quality blood supplement tablets that adhere to established standards to prevent and address iron nutritional anemia in women of childbearing age, by a particular focus on pregnant women. The formulation includes 60 mg of elemental iron, derived by Ferrous Sulfate, Ferrous Fumarate, or Ferrous Gluconate preparations, along by 0.400 mg of Folic Acid. (Ministry of Health RI, 2014) .

The researcher identified a moderate connection among pregnant women's attitudes towards the administration of iron (Fe) tablets and the incidence of anaemia. It was noted that negative attitudes towards the side effects associated by Fe tablet consumption significantly contribute to this issue. Many respondents exhibited negative attitudes primarily due to their

inadequate responses to side effects such as constipation and nausea, which led to inconsistent consumption of Fe tablets. In contrast, adhering to the recommended intake of Fe tablets as advised by healthcare professionals is a crucial preventive measure aimed at reducing the risk of anaemia in pregnant women.

Anaemia rates can be reduced to a minimum. In the midst of the modern era by human resources by a very critical mindset and the facilities provided by the government in the form of providing Fe tablets by sufficient doses available at the health centre, the community should be able to use it wisely to improve health status, and minimise risk factors.

The findings of a related research titled "The connection among Knowledge About Anemia and Attitudes Towards Preventing Anemia in Pregnant Women at the Bodag Health Centre Trenggalek Regency," conducted by Harahap and Solina in 2018 by 30 respondents, revealed a connection among knowledge and attitudes regarding anemia prevention.

CONCLUSION

The findings of this research revealed that the majority of pregnant women (63.3%) held a positive attitude towards the administration of iron (Fe) tablets, and most participants (76.7%) did not experience anaemia. However, a moderate connection ($C=0.370$) was observed among pregnant women's attitudes towards Fe tablet administration and the incidence of anaemia, suggesting that knowledge alone does not guarantee a positive shift in attitude. Based on these results, it is recommended that healthcare professionals enhance counseling efforts regarding the potential side effects of Fe tablets and strategies to minimize discomfort following consumption, by the aim of improving pregnant women's attitudes. Furthermore, it is crucial to increase awareness among pregnant women about the importance of health and the symptoms of anaemia. This research can also serve as a valuable reference for educational institutions.

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