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The Relationship Between Iron Consumption Behavior and the Incidence of Anemia in Pregnant Women at the Garoga Health Center UPTD, Garoga District, North Tapanuli Regency, North Tapanuli Province North Sumatra 2024	**Desi Natalia Hasibuan** e-mail:hasibuandesi50@gmail.com **Yasrida Nadeak** e-mail:yasrida.nadeak@gmail.com STIKes Mitra Husada

Abstract.
According to RISKESDAS data (2018) in Indonesia, pregnant women who received iron tablets were 73.2% and those who did not receive iron tablets were 26.8%, pregnant women who consumed less than 90 iron tablets were 61.9% and more than 90 tablets were 38.1%. Anemia in pregnant women can increase the risk of premature birth, maternal and child mortality, and infectious diseases. This study aims to determine the relationship between iron consumption behavior and the incidence of anemia in pregnant women at the Garoga Health Center, North Tapanuli Regency. This study used a cross-sectional research method. The population in this study were all pregnant women who came to visit for Antenatal Care examinations who came to the Garoga Health Center. The sample in this study was 30 respondents with a purposive sampling technique. The research instrument used a questionnaire. The conclusion of this study is that there is a relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center, there is a relationship between iron consumption behavior based on attitudes and the incidence of anemia in pregnant women at the Garoga Health Center, there is a relationship between iron consumption behavior based on actions and the incidence of anemia in pregnant women at the Garoga Health Center.

Keywords: Behavior, Fe Tablets, Anemia

I. INTRODUCTION

Pregnant women receive services from health workers at health care facilities. These services are carried out during the mother's gestational age, the types of services are grouped according to gestational age into the first trimester, second trimester, and third trimester. The health services for pregnant women provided must meet the following types of services: Weighing and measuring height, Blood pressure measurement, Upper Arm Circumference (LILA) measurement, Measurement of the height of the peak of the uterus (fundus uteri), Determination of tetanus immunization status and administration of tetanus immunization according to immunization status, Provision of iron tablets of at least 90 tablets during pregnancy, Determination of fetal presentation and fetal heart rate (DJJ), Implementation of a talk show (provision of interpersonal communication and counseling, including postpartum family planning), Simple laboratory test services, at least blood hemoglobin (Hb) test, urine protein examination and blood type examination (if never done before), Case management according to indications..(Ministry of Health, 2018)

The five biggest causes of maternal death are bleeding, hypertension in pregnancy, infection, prolonged or obstructed labor and abortion. Maternal death in Indonesia is still dominated by three main causes of death, namely bleeding,

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hypertension in pregnancy, abortion and infection. Anemia is a condition where

the amount of hemoglobin in the blood is less than normal. This hemoglobin is made in red blood cells, so anemia can occur either because red blood cells contain too little hemoglobin or because the number of blood cells is insufficient. Anemia in pregnancy can give a poor prognosis for the fetus, childbirth, and postpartum period (Sulistyawati, 2019).

According to RISKESDAS data (2018) in Indonesia, pregnant women who received iron tablets were 73.2% and those who did not receive iron tablets were 26.8%, pregnant women who consumed less than 90 iron tablets were 61.9% and more than 90 tablets were 38.1%. Pregnant women who experienced anemia aged 15-24 years were 84.6%, aged 25-34 years were 33.7%, aged 35-44 years were 33.6% and aged 45-54 years were 24%.

Anemia in pregnant women can increase the risk of premature birth, maternal and child mortality, and infectious diseases. Iron deficiency anemia in mothers can affect the growth and development of the fetus/baby during pregnancy and after. The results of the 2018 Riskesdas stated that in Indonesia 48.9% of pregnant women experience anemia. As much as 84.6% of anemia in pregnant women occurs in the 15-24 year age group. To prevent anemia, every pregnant woman is expected to receive at least 90 iron tablets during pregnancy. (Ministry of Health, 2018)

II. LITERATURE REVIEW

Anemia in Pregnant Women

Definition

Anemia is a decrease in hemoglobin (Hb) levels in the blood. Pregnant women have a high metabolic rate. During pregnancy, the process of forming fetal body tissue, the formation of fetal organs, and the process of energy production occurs so that pregnant women can continue to do normal daily activities. Therefore, pregnant women need more iron than non-pregnant women. (Sinsin, 2016)

Iron deficiency is the most common cause (90%) of anemia in pregnancy because pregnancy increases iron requirements by two to three times. The greatest iron requirements occur during the last four weeks of pregnancy and these requirements are met at the expense of the mother's needs. Iron requirements during pregnancy are met in part because menstruation does not occur and there is increased absorption of iron from the diet by the intestinal mucosa, although this also depends on the mother's iron reserves. (Bothamley, 2015).

Based on several opinions above, what is meant by anemia in pregnancy is a condition of decreased blood hemoglobin levels due to iron deficiency with hemoglobin levels in the first and third trimesters <11 gr% and hemoglobin levels in the second trimester <10.5 gr%.

Degree of anemia

a. Based on hemoglobin levels according toWHO :
   1) Very light : Hb 10 g% - normal limit
   2) Light : Hb 8.8 g% - 9.9 g%
   3) Currently : Hb 6 g% - 7.9 g%
   4) Heavy : Hb < 6 g%

b. The Department of Health defines the degree of anemia asfollowing:
   1) Very light : Hb 11 g% - normal limit
   2) Light : Hb 8 g% - < 11 g%
   3) Currently : Hb 5 g% - <8 g%
   4) Heavy : Hb <5 g%

Thus, it can be concluded that hemoglobin levels are said to be normal in pregnant women in the third trimester if ≥ 11gr% and anemia if hemoglobin levels <11gr%.

III. RESEARCH METHODS

The type of research used in this study is descriptive analytical research. Analytical research researchers try to find the relationship between one variable and another. Researchers seek the relationship between the variables of knowledge and

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behavior of consuming iron tablets with the incidence of anemia in pregnant women at the Garoga Health Center through primary, secondary and secondary data.

Location and Time of Research
Research Location
This research was conducted at Garoga Health Center in 2024.
Research Time
The initial survey was conducted in March 2024 and field research was conducted in May-June 2024.

Population and Sample
Population
Population is the entire research subject that includes all elements in the research area (Arikunto, 2012). The population in this study was all pregnant women who came to visit for Antenatal Care examinations who came to the Garoga Health Center in 2024 as many as 90 people.

Sample
A sample is a portion of a population that is used as an object to represent members of the population. In this study, the sampling technique used was the accidental sampling technique or taking samples by chance or accidentally meeting pregnant women who came to the Garoga Health Center. The study will be conducted for 1 week with a total of 30 pregnant women.

Data collection technique
Primary Data
Primary data is data collection carried out directly by researchers on the research subjects, namely data collection obtained directly from respondents through interviews and observations (direct observations) related to the research problem, namely the characteristics of pregnant women.

Secondary Data
Secondary data obtained through data collection from the evaluation section at Garoga Health Center in 2024.

Data Processing Techniques
The data that has been collected using the flow sheet is grouped according to the data required with the following steps:
1. Editing
This is an activity to check the completeness of the filling, clarity of answers, relevance of answers, and consistency of answers in the questionnaire.
2. Coding
Classify respondents' answers according to type by giving each answer a code/mark with a certain code.
3. Processing
The activity of entering data from a questionnaire into a computer program package.
4. Cleaning
This is an activity to recheck data that has been entered to see whether there are any errors or not.

IV. RESEARCH RESULTS AND DISCUSSION

Research result
Univariate Analysis
Iron Consumption Behavior Based on Knowledge
Frequency Distribution of the Relationship between Iron Consumption Behavior Based on Knowledge and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024.

NO	Category	Amount	Percentage (%)
1	Not enough	18	40
2	Enough	9	45
3	Good	3	15
	Total	30	100

Based on the table, it can be seen that the frequency distribution of the relationship between Iron Consumption Behavior Based on Knowledge and the Incidence of Anemia in Pregnant Women at the Garoga Health Center

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in 2024 from 30 respondents (100%), namely the majority of respondents had sufficient knowledge of 9 respondents (45%), while the minority had good knowledge of 3 respondents (15%).

Iron Consumption Behavior Based on Attitude
Frequency Distribution of the Relationship between Iron Consumption Behavior Based on Attitudes and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024.

NO	Category	Amount	Percentage (%)
1	Not enough	24	70
2	Enough	2	10
3	Good	4	20
	Total	30	100

Based on the table, it can be seen that the frequency distribution of the relationship between Iron Consumption Behavior Based on Attitudes and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024 from 30 respondents (100%), namely the majority of respondents had a less than adequate attitude of 24 respondents (70%), while the minority of respondents had a sufficient attitude of 2 respondents (10%).

Iron Consumption Behavior Based on Action
Frequency Distribution of the Relationship between Iron Consumption Behavior Based on Actions and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024.

NO	Category	Amount	Percentage (%)
1	Not enough	24	70
2	Enough	1	5
3	Good	5	25
	Total	30	100

Based on the table, it can be seen that the frequency distribution of the relationship between Iron Consumption Behavior Based on Actions and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024 from 30 respondents (100%), namely the majority of respondents had insufficient actions as many as 24 respondents (70%), while the minority had sufficient actions as many as 1 respondent (5%).

Bivariate Analysis
The Relationship Between Iron Consumption Behavior Based on Knowledge and the Incidence of Anemia in Pregnant Women at Garoga Health Center in 2024
Frequency Distribution of the Relationship between Iron Consumption Behavior Based on Knowledge and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024.

No	Knowledge	Anemia Occurrence						*P (value)*
		Currently		Light		Total		
		F	%	F	%	**F**	**%**	
1	Not enough	8	40	0	0	**8**	**40**	**0.005**
2	Enough	6	30	3	15	**9**	**45**	
3	Good	0	0	3	15	**3**	**15**	
	TOTAL	**14**	**70**	**6**	**30**	**20**	**100**	

Based on the research results in the table showing the results of cross-tabulation between the relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024, it can be seen that out of 30 respondents (100%), the majority of respondents had sufficient knowledge of 9 (45%) respondents with moderate anemia of 24 (70%) respondents and a minority had good knowledge of 3 (15%) respondents with mild anemia of 6 (30%) respondents.
Based on statistical results using Chi-Square shows a p value of 0.005 which is smaller than the error rate (0.005 > 0.05). So Ho is rejected and Ha is accepted which means there is a relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.
Based on the Chi-Square test output table, it is known that the calculated Chi-Square is

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10,476 and the Chi-Square table for df = 2 at a significance of 0.05. Because the calculated Chi-Square value is greater than the Chi-Square table, it can be interpreted that there is a relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.

Discussion

The Relationship Between Iron Consumption Behavior Based on Knowledge and the Incidence of Anemia in Pregnant Women at Garoga Health Center in 2024

Based on the research results in the table showing the results of cross-tabulation between the relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024, it can be seen that out of 20 respondents (100%), the majority of respondents had sufficient knowledge of 9 (45%) respondents with moderate anemia of 14 (70%) respondents and a minority had good knowledge of 3 (15%) respondents with mild anemia of 6 (30%) respondents.

Based on statistical results using Chi-Square shows a p value of 0.005 which is smaller than the error rate (0.005 > 0.05). So Ho is rejected and Ha is accepted which means there is a relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.

The results of this study are in line with previous research conducted by Rizki entitled The Relationship between Fe Tablet Supplements and Hemoglobin Levels in Pregnant Women in the Third Trimester at the Air Dingin Health Center in Padang City, stating that Fe Tablet supplements with Hemoglobin levels in pregnant women in the third trimester at the Air Dingin Health Center in Padang City were obtained from 64 respondents, 26 respondents (86.7%) had poor knowledge and 2 respondents (5.9%) had good knowledge. While respondents with positive behavior had poor knowledge of 4 respondents (16.9%) and 32 respondents (94.1%) had good knowledge. So it can be concluded that the higher the level of mother's knowledge, the more mothers will consume Fe tablets to prevent anemia during pregnancy (Rizki, 2017).

This study is in line with previous research conducted by Riza Anggrainy in 2017 entitled "The Relationship between Knowledge and Attitudes of Pregnant Women in Preventing Anemia at Rumbai Health Center 2017" The results showed that the majority of respondents with less knowledge did not take the attitude of preventing anemia 28 people (51.9%) and the minority of respondents with good knowledge did not take the attitude of preventing anemia as many as 1 person (7.40%). Based on data processing between the relationship between knowledge and attitudes of preventing anemia, the chi-square results were obtained with a P value = 0.014 <0.05, this indicates that there is a significant relationship between the two variables (Anggraini, 2017).

This study is in line with previous research conducted by Norfai in 2017 entitled the relationship between consumption of Fe iron tablets and knowledge with the incidence of anemia in pregnant women in the work area of the Alalak Tengah Health Center in Banjarmasin City, this study aims to determine and explain the relationship between consumption of Fe tablets and knowledge with the incidence of anemia in pregnant women, this study is an analytical survey with a cross-sectional approach. The sample size was 120 respondents who visited and received treatment at health facilities in the Alalak Tengah Health Center work area. Data were collected by interview using a questionnaire, the results of data collection were analyzed using univariate and bivariate statistics with the chi-square test. Variables that statistically had a significant relationship with the incidence of anemia in pregnant

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women (p-value ≤ 0.05) were consumption of iron tablets and knowledge (Norfai, 2017).
The above results are in line with the opinion that one of the factors that determines a person's health behavior is knowledge, the higher a person's knowledge, the more he or she can utilize this ability (Notoadmodjo, 2012).

According to the researcher's assumption that other factors that cause anemia are irregular consumption of iron tablets, pregnant women who have good knowledge but do not consume iron tablets regularly can cause anemia as well as mothers who have less knowledge. The need for pregnant women for iron (Fe) increases by 0.8 mg per day in the first trimester and increases sharply during the third trimester, namely 6.3 mg per day. That amount cannot be met only through food, let alone supported by the lack of knowledge of pregnant women regarding the increased need for iron (Fe) during pregnancy, which causes iron deficiency anemia to easily occur in pregnant women. Preventive efforts in dealing with the occurrence of anemia in pregnant women are the need for pregnant women to maintain and consume nutritious foods and foods that contain a lot of iron so that the mother's knowledge is needed to maintain the health of the mother and fetus.

The Relationship Between Iron Consumption Behavior Based on Attitude and the Incidence of Anemia in Pregnant Women at Garoga Health Center in 2024
Based on the research results in the table showing the results of cross-tabulation between the relationship between iron consumption behavior based on attitudes and the incidence of anemia in pregnant women at the Garoga Health Center in 2024, it can be seen that out of 20 respondents (100%), the majority of respondents had a less than ideal attitude of 14 (70%) respondents with moderate anemia of 24 (70%) respondents and a minority had a sufficient attitude of 2 (10%) respondents with mild anemia of 6 (30%) respondents.

Based on statistical results using Chi-Square shows a p value of 0.001 which is smaller than the error rate (0.001 > 0.05). So Ho is rejected and Ha is accepted which means there is a relationship between iron consumption behavior based on attitudes and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.

Based on previous research conducted by Hidayah (2014) on the relationship between compliance of pregnant women in consuming iron tablets with the incidence of anemia from 64 respondents, it was found that respondents who did not consume iron tablets had a non-supportive attitude of 18 respondents (78.3%) and a supportive attitude of 10 respondents (21.7%). While respondents who consumed Fe tablets with a non-supportive attitude of 0 respondents (0%) were smaller than the supportive attitude of 46 respondents (100%). So it can be concluded that consuming iron tablets is an action. A person acts if there is an intention. The formation of intention is determined by the attitude towards the behavior. A supportive attitude or an unsupportive attitude is formed from knowledge. The more positive aspects of knowledge, the more supportive attitudes will be formed. In relation to consuming Fe tablets, if you know more about anemia during pregnancy, it is expected that an attitude will emerge that supports the mother's willingness to consume Fe tablets (Hidayah, 2014).

The above results are in line with the opinion that one of the factors that determines a person's attitude is knowledge, the higher the knowledge and supportive attitude of a person, the more he or she can utilize the ability. Knowledge about anemia that is not supported by an unsupportive attitude can result in an increase in the number of anemia during pregnancy. Good knowledge about anemia supported by a supportive attitude will also cause someone to want to consume Fe tablets during pregnancy to prevent anemia (Notoadmodjo, 2012).

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According to the researcher's assumption that if the attitude and occurrence of anemia in pregnant women in the third trimester are interrelated, then the mother cannot implement a good pattern of consuming Fe tablets. This is supported by the attitude and occurrence of anemia which are both interrelated. Poor pregnancy conditions can be a problem of anemia occurring in every cycle of life, starting from pregnancy, childbirth and postpartum. The first two years of life are a critical period because during this period there is very rapid growth and development.

Anemia during pregnancy that occurs during this period is risky for labor and cannot be recovered in a short time, it is necessary to consume nutritious food and regularly consume iron tablets. Pregnancy causes an increase in iron requirements. The developing fetus requires a certain amount of iron from its mother until the age of 5-6 months after birth so that iron requirements increase during pregnancy. Lack of iron consumption can increase the risk of pregnant women experiencing iron deficiency because when entering the third trimester the mother experiences hemodilution or dilution. This is because the production of more fluids so that the need for red blood cells increases (Mangkuji, 2017).

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

After conducting research on "The Relationship between Iron Consumption Behavior and the Incidence of Anemia in Pregnant Women at the Garoga Health Center in 2024", the researcher can conclude that:

1. There is a relationship between iron consumption behavior based on knowledge and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.
2. There is a relationship between iron consumption behavior based on attitudes and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.
3. There is a relationship between iron consumption behavior based on actions and the incidence of anemia in pregnant women at the Garoga Health Center in 2024.

Suggestion

For Research Places

For all independent midwives practicing at the Garoga Health Center, it is hoped that they can determine policy efforts to improve the quality of services for pregnant women, provide counseling and education carried out by midwives on the nutrition of pregnant women, especially the consumption of iron tablets.

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