| **RESEARCH ARTICLE**

Nutrition Counseling for Pregnant Women and Making Healthy Drinks from BIT (Beta Vulgaris L.) to Prevent and Overcome Iron Nutrient Anemia

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| **ABSTRACT**

Anemia is often caused by a lack of iron in food; parasites in the body consume substances that inhibit the absorption of iron before, during, and after eating, such as the tannins found in tea. The goal of this study is to improve mothers' understanding of pregnant women about iron nutritional anemia and understanding of making healthy drinks from beetroot (Beta vulgaris L.) and nutritional sources that contain lots of iron and factors that inhibit and facilitate the absorption of iron in the body. The method used involved pretest treatment and posttest. Results and discussion focused on increasing the knowledge of pregnant women about iron nutritional anemia and how to prevent and overcome the occurrence of iron nutritional anemia through the consumption of various sources of iron nutrition. There has been a change in understanding of the pharmacist's role as a caregiver; this can be seen in question no 1. There has been a change in understanding of how to get medicine at a pharmacy (Dagusibu); this can be seen in question no 2. There has been a change in understanding of getting drug information; this can be seen from the correct answer to question no. 3.

| **KEYWORDS**

Beetroot, antianemia, iron

1. Introduction

Pregnancy is an important phase of life because it determines the birth of quality human resources. Therefore, pregnant women and fetuses need adequate nutritional intake (Almatsier, 2010). The nutritional adequacy rate (RDA) for Indonesian women for energy is 2,175 kilo calories (kcal), and protein is 57 grams per person per day. Pregnant women in the first trimester should get an additional 180 kcal of calories and 20 grams of protein. Pregnant women in the second and third trimesters need an additional 300 kcal of calories and 20 grams of protein (Kemenkes RI 2013).

In addition to macronutrients, micronutrient needs, especially iron (Fe), play an important role for pregnant women as a source of formation of red blood cells. Anemia is one of the nutritional disorders in pregnant women. Anemia in pregnant women is a condition where the level of hemoglobin (Hb) in red blood cells is less than 11 g/dl. Until now, it is still a public health problem. The results of the Basic Health Research show an increase in the percentage from 2013, by 37.1%, to 48.9% in 2018 (Kemenkes RI 2018).

The high incidence of anemia in pregnant women is indirectly a result of the lack of nutritional intake of iron sources, the increased need for iron during pregnancy, the reluctance of pregnant women to consume blood-added tablets, and low knowledge of iron nutritional anemia. Based on the results of research by Agustina et al. (2015) at the Pasar Minggu District Health Center showed a significant relationship between respondents' knowledge and the severity of iron nutritional anemia. The lower the knowledge, the more severe the degree of anemia. Pregnant women who experience anemia will adversely affect the health of the mother and

fetus, namely miscarriage, bleeding during childbirth, low birth weight (LBW), susceptibility to infection, premature birth, impaired intelligence, and death (Saifuddin, 2014). Anemia is often caused by a lack of iron in food, parasites in the body, and consuming substances that inhibit the absorption of iron before, during, and after eating, such as tannins in tea. The results of the study by Fuada et al., 2019 stated that knowledge about food sources of iron from vegetables and Fe tablets was associated with the incidence of anemia in pregnant women.

The results of research by Agustina et al. (2015) at the Pasar Minggu Public Health Center suggested the need for counseling to increase knowledge of pregnant women about iron nutritional anemia, namely the understanding of anemia, causes of iron nutritional anemia, signs and symptoms of anemia, due to anemia in mother and fetus, ways to prevent and treat anemia and iron deficiency anemia. In addition, knowledge of iron sources is needed, factors that facilitate and inhibit iron absorption.

2. Method
At the initial stage, the level of knowledge related to nutrient sources that contain a lot of Fe is measured. Measurements were made by giving open questions about foods containing Fe, the benefits, how to consume them, and the impact that occurs if pregnant women lack Fe. Furthermore, the resource person gave material about various nutritional sources that contain a lot of Fe using PowerPoint media. The material is given in 45 minutes, followed by a question and answer session. The final stage is to give back questions (posttest) to the counseling participants with the same questions given at the pretest.

3. Results and Discussion
After following this counseling, it is hoped that it will increase the knowledge of pregnant women about iron nutritional anemia, how to prevent and overcome the occurrence of iron nutritional anemia through the consumption of various nutritional sources of iron.

Of the 35 respondents consisting of pregnant women who are members of the RBC (free maternity home) who answered correctly to question 1, 18 people and 17 people answered incorrectly. Correct answers to question 2, as many as 26 people answered correctly, and 9 people answered incorrectly. The correct answer to question 3, as many as 3 people and 32 people answered incorrectly. More details can be seen in graph 1 below:
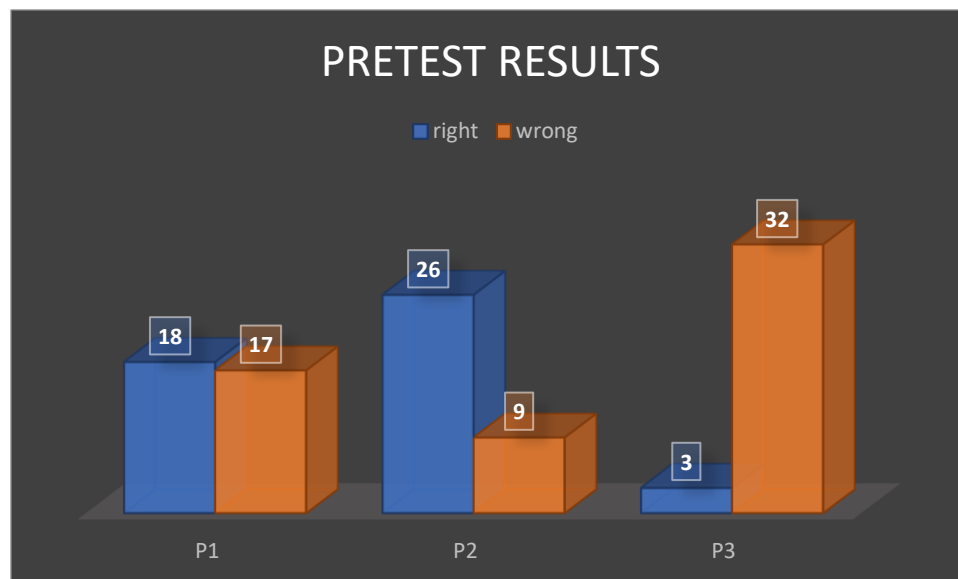
The total number of correct answers was 45%, and 55% still answered incorrectly; this can be seen in graph 2 below:

After being given intervention in the form of counseling about nutrition for pregnant women containing iron, in the form of power points as below:


1. Benefits and how to consume Fe

After 45 minutes of counseling, a 10-minute discussion was held with the respondents; it turned out that 66% of the respondents did not comply and routinely took iron-containing drugs due to the bad taste and nausea; this can be seen in the table below:

Table 1: Level of adherence of pregnant women to take drugs containing iron

Obedience of pregnant women	Number of people Trimester 1	Number of people trimester 2	Number of people trimester 3	Total respondents
obey	1	5	6	12
Not obey	12	7	4	23
Total	13	12	10	35

Pregnant women who do not comply as much as: 23/35 x 100% = 66% do not comply with the consumption of FE drugs, especially in the first trimester of pregnancy; this is due to the effects of nausea caused by these drugs and the effects of nausea from early pregnancy. The older the gestational age, the more obedient to taking medication, as much as 34%. Non-compliance is shown in the graph below:
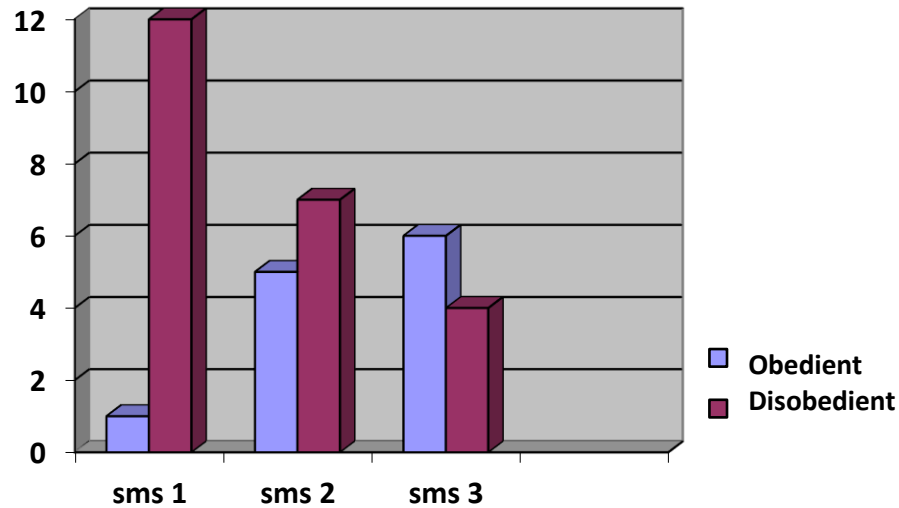
Non-adherence to drug consumption due to the effect of the drug can actually be overcome by taking the drug at the right time and in the right way, so it is necessary to provide counseling regarding the consumption of FE drugs at the right time, such as taking FE drugs without tea or coffee or consuming food immediately or other healthy drinks that contain vitamin C.

2. Food sources that contain lots of iron
For the second question, there were many respondents who answered correctly, meaning that the respondents already know a lot of vegetables and fruits that contain iron. The following is the respondent's answer to question no 2.

food source	Beef/chicken liver	Spinach	Beetrot
Number of respondents	15	15	5

Of the 35 respondents, 15 participants answered that the largest source of Fe was beef/chicken liver, and also 15 people said it was spinach. However, 5 people answered that the source of Fe is found in beets, meaning that respondents still do not know much about beets as antianemia. So researchers feel the need to introduce beets that can be made as a healthy drink for pregnant women to prevent anemia.


From the results of making healthy drinks from beetroot combined with lemon, all respondents liked the drink.

3. The impact of iron deficiency

The third question is about the impact of iron deficiency; as many as 3 people answered correctly, but 32 people answered incorrectly, meaning that 91% of pregnant women did not know the impact of iron deficiency and was very linear with the level of disobedience of respondents who still did not comply with taking medication. So the researchers provided intervention in the form of counseling about the impact of iron deficiency

After counseling and simulation of making healthy drinks containing antianemic nutrients, the last post-test was carried out. The post-test results can be seen in the following graph:
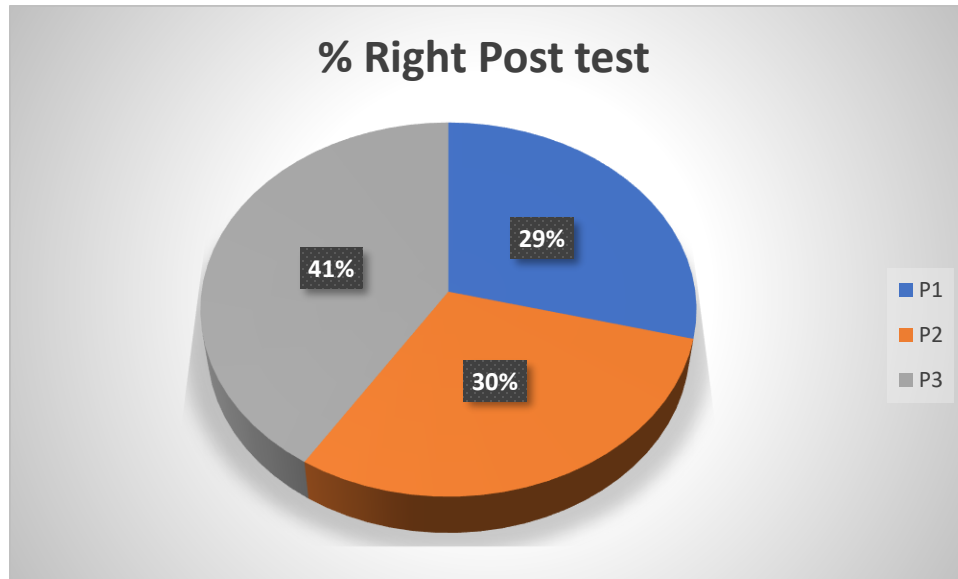
The graph of the correct percentage on the post-test to the same 3 questions during the pre-test

As seen in the graph above, there was an increase in the correct answers in question 1 to 29%, in question 2, as many as 30%, and in question 3, as many as 41% answered correctly, meaning that the respondents already understood the importance of iron for pregnant women. The hope is that after understanding, pregnant women will be more obedient to consuming iron supplements, and the anemia rate will decrease, which will also affect a healthy fetus. The correct answer can be seen in the graph below:
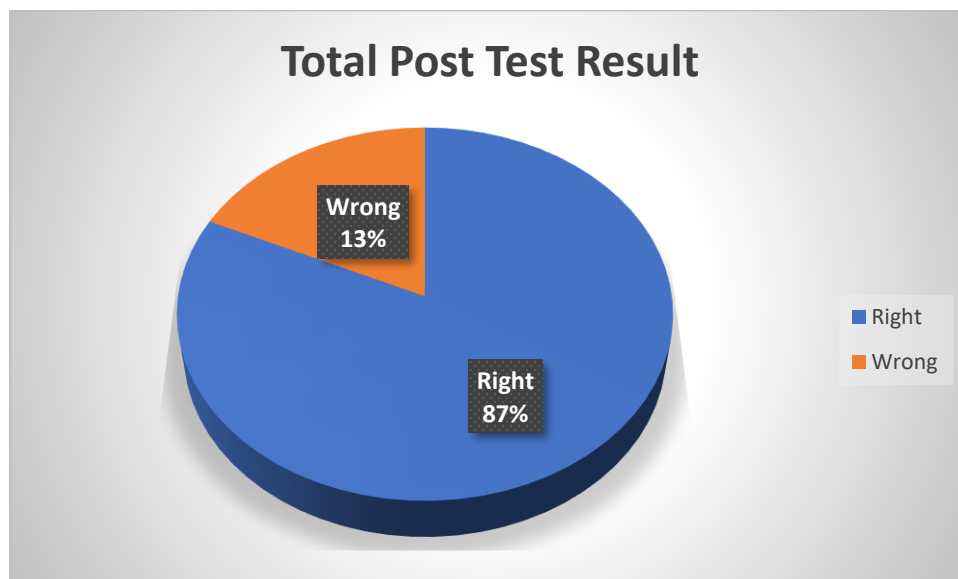
Graph of the percentage of correct answers after the post-test

Changes in the level of understanding of respondents can be seen in the graph below:
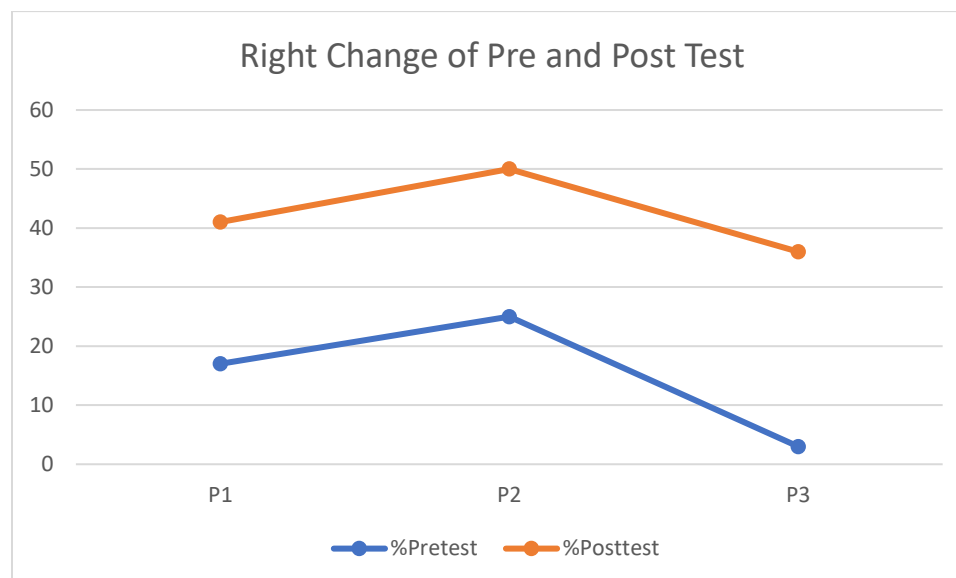
Right Change of Pre and Post Test

Figure 5 shows a very significant change in the increase in question no 3. This shows the success of using the intervention method. But overall, the interventions that were carried out both with the extension method showed an increase in public understanding of the importance of iron for pregnant women.

In figure 3, the counseling given is the role of pharmacists as caregivers (drug information providers) and DAGUSIBU counseling (how to get, use, store and dispose of drugs). The weakness of the extension method is that the process tends to be unidirectional because the tutor only provides information while the respondents are not randomized to play an active role or tend to be passive/only listen, less interaction and depend on the tutor. Although the extension method showed an increase in understanding, the improvement was slight compared to the CBIA method. Overall, the post-test results showed an increase in public understanding of the role of pharmacists and drug information; this can be seen from the 87% correct answers during the post-test, as shown in Figure 4.

4. Conclusion

There is a change in understanding of the pharmacist's role as a caregiver; this can be seen in question no. 1. There is a change in understanding of how to get medicine at the pharmacy (Dagusibu); this can be seen in question no. 2 there is a change in understanding of getting drug information, this can be seen from the correct answer to the question number 3.

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