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The Effectiveness Green Spinach Boiled and Fe Tablets on Increasing Hb Levels in 3rd Pregnant Women

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ABSTRACT

If anemia in pregnant women is not treated properly, it will be a contributor to maternal death. Based on data sources from the West Java Health Service in Bekasi Regency, in 2020 there were 835 anemia in pregnant women. One way to increase hemoglobin is with pharmacological and non-pharmacological therapy, namely consuming green spinach and Fe tablets. Analyzing the effectiveness of giving green spinach decoction and Fe tablets on increasing Hb levels in pregnant women in 2024. Research methods: Using a pre-experimental research design, one group pretest posttest design, sample size of 20 people, total sampling technique, research variables: 450 gr green spinach decoction given once a day for 7 days and Fe tablets once a day for 7 days. Data analysis: Univariate, Bivariate using Wilcoxon. There is effectiveness of giving boiled green spinach using the Wilcoxon test (p value = 0.046 < P 0.05), which means that giving boiled green spinach to pregnant women has an effect on increasing Hb levels and giving FE tablets is more effective in increasing HB with the results of the Wilcoxon test (p value = 0.008 <P 0.05). Conclusion: Fe tablets are more effective in increasing the Hb of pregnant wome Suggestion: It is hoped that future researchers will carry out similar research on different targets and variables.

Keywords : Anemia, Pregnancy, Green Spinach, FE

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INTRODUCTION

Anemia in pregnant women is a serious health problem and requires special attention. When the intake of these nutrients is insufficient, hemoglobin levels can decrease, resulting in anemia (Rimawati et al., 2018). Untreated anemia during pregnancy can cause various dangerous complications for the pregnant mother and fetus and is a significant contributing factor to maternal and fetal mortality rates (Sari & Afriana, 2019). The body condition of pregnant women who experience anemia greatly affects their quality of life and can potentially pose a risk to the health of the fetus (Yunifitri et al., 2022). Therefore, it is important to have regular check-ups and get appropriate treatment to prevent and treat anemia during pregnancy. (Rusmiati, 2021)

Normal blood consists of 40-45% red blood granules and around 55-60% blood plasma (Safitri, 2019). For every 100 milliliters of blood there is usually approximately 12.5 to 6 hemoglobin (Putri et al., 2021). In every cubic millimeter of blood there are 4,500,000 to 5,500,000 red blood cells (Santosa et al., 2022). If a person's blood is less than the lowest amount then the person is classified as anemic (Sari & Afriana, 2019). The World Health Organization (WHO) estimates that every day 800 women die due to complications from pregnancy and childbirth (Raikhany, 2021). WHO data states that 40% of maternal deaths in developing countries are caused by anemia in pregnancy, 34% by eclampsia, 26% by disease, and 12% by infection. Based on WHO, anemia in pregnancy is confirmed if the hemoglobin (Hb) level is <11 g/dL. (Natalia et al., 2020)

Meanwhile, the Center for Disease Control and Prevention defines anemia as a condition with Hb levels <11 g/dL in the first and third trimesters, Hb <10.5 g/dL in the second trimester, and <10 g/dL in postpartum. This shows that WHO and CDC have the same defense, namely that if a pregnant woman's HB is less than 11 gr/%, it is called anemia. Based on data from the West Java Health Service in 2021, cases of anemia in pregnant women in West Java Province in 2019 exceeded 80,000 pregnant women/year and this number decreased in the following year, namely in 2020 around 60.000 pregnant women/year. Based on data from the same health service, there were 581 pregnant women with anemia in Bekasi Regency in 2015, 594 people in 2016 and 835 people in 2020. This shows that there is a significant increase in the incidence of anemia in Bekasi. This incident requires good and planned special treatment so that in the following year AKI and AKB as a result of anemia in pregnancy can be reduced. Meanwhile, at the Sukaraya Community Health Center, based on visitor data, there were 10 patients who experienced anemia in one month. To meet iron needs during pregnancy, it can be overcome with

pharmacological and non-pharmacological treatment namely by administering green spinach decoction and fe tablets (Simatupang M, 2022). Fe tablets are a vitamin that pregnant women must consume during and fetus (Handayani, 2021). By giving 450 grams of green spinach boiled in 800ml water for 3 minutes. and given once a day for 7 days will increase hemoglobin levels. (Legi et al., 2023).

pregnancy because physiologically the heart and blood vessel organ systems in pregnant women undergo changes aimed at meeting the metabolic needs of the mother

Figure 1. Green Spinach

Figure 2. Tablet Fe

METHOD

research was completed. And with the exclusion criteria of pregnant women who do not routinely have their pregnancy checked, and plan to give birth in their hometown. 450 gr spinach is boiled in 800 ml water for 3 minutes and given once a day for 7 days, Fe tablets are consumed once a day and given for 7 days. Then analyze the data using the Wilcoxone range list test. The instruments used are HB measuring tools, checklist sheets and questionnaires. (Rohmatika & Umarianti, 2018)

RESULTS AND *DISCUSSIONS*

Results

1. Univariat Univariate analysis results

a. Sample Characteristics
   Frequency distribution of respondents base on characterisctics of pregnant woman in third trimester.

Tabel 1. Frequency Distribution of Respondents Based on Characteristics

Characteristics	Frequency	Percentage
Age		
<20 Tahun	2	10
20-35 Tahun	13	65
>35 Tahun	5	25
Paritas		
Primipara	6	30
Multi para	11	55
Grande Multipara	3	15
Education		
SD	3	15
SMP	5	25
SMA	10	50
S1	2	10
Gestational Age		
27 – 30 minggu	3	15
31 – 35 minggu	13	65
36 – 40 minggu	4	20

Source: Master Data Reseacrh, 2024

Based on Table 1, the frequency distribution of the majority of respondents aged 20-35 years is 13 people or as many as (65%) with a minority aged <20 years 2 people or as many as (10%) with a majority frequency distribution of parity. Multipara respondents were 11 people or as many as (55%) while the Grande Multipara minority were 3 people or as many as (15%). The frequency distribution of the majority with a high school education is 10 people or as many as (50%) with a minority with a bachelor's degree as many as 2 people or as many as (10%) and the frequency distribution of the majority at 31-35 weeks' gestation is 13 people or as many as (65%) minorities. at 27-30 weeks of gestation there were 3 people or as many as (15%).

b. Frequency distribution of Hb levels of pregnant women in the 3rd trimester before and after being given green spinach in 2024

Table 2 Frequency Distribution of Hb Levels of Pregnant Women in The 3rd Trimester Before and After Being Given Boiled Green Spinach in 2024

Distribution of Hb Levels of Pregnant Women in	Before being given boiled spinach		After being given boiled spinach	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Anemic	6	60%	3	30%
Not Anemic	4	40%	7	70%
Total	10	100%	10	100%

Source: Master Data Reseacrh, 2024

Based on table 2 below, it can be seen that of the 10 respondents before being given boiled green spinach, there were 6 respondents who were anemic or as many as (60%), and there were 4 respondents who were not anemic or as many as (40%). Meanwhile, after being given boiled spinach hijam, respondents who were anemic experienced a decrease of 3 respondents or the equivalent of 30% and those who were not anemic increased by 7 respondents or 70%.

c. Frequency Distribution of HB Levels in Pregnant Women in the 3rd Trimester Before and After Being Given FE Tablets

Based on table 3 below, it can be seen that of the 10 respondents before being given Fe tablets, there were 9 respondents who are anemic or as many as (90%), and there was 1 respondent who was not anemic or as many as (10%). Meanwhile, based on the data above, after being given fe tablets, respondents who were anemic experienced a decrease of 2 respondents or as many as (20%) and those who did not experience anemia 8 respondents (80%).

Table 3. Frequency Distribution of Hb Levels of Pregnant Women in The 3rd Trimester Before and After Being Given Fe Tablets

Frequency Distribution of Hb Levels of Pregnant Women	Before Being Given Boiled Spinach		After Being Given Boiled Spinach	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Anemic	9	90	2	20
Not Anemic	1	10	8	80
Total	10	100	10	100

Source: Master Data Reseacrh Anita, 2024

2. Bivariate Analysis Results

Data from bivariate test analysis in this study include the variable normality test and the paired t test. Bivariate analysis aims to determine whether there is an effect of giving boiled green spinach and Fe tablets on increasing Hb levels in pregnant women in the third trimester. Before carrying out the T test, a normality test is first carried out to determine whether the data distribution is normal or not, as a condition for carrying out the T Test T.

a. Normality test of data distribution

Table 4. Normality Test Results for Hb Levels

	Normality test results for HB levels		
	Mean	Standar Deviation	P Value
Hb levels before giving green spinach decoction	1.30	0.48	0.000
Hb Levels After being given green spinach decoction	1.70	0.42	0.000
Hb levels before Fe Tablets	1.10	0.31	0.000
Kadar HB aftre Fe Tablets	1.80	0.42	0.000

Based on the results of the normality test in the table using the Shapiro Wilk test, it can be seen that the effect before being given boiled green spinach on the HB levels of pregnant women in the third trimester, 10 respondents with a mean value of 1.30, standard deviation 0.48 and P value 0.000. Meanwhile, there were 10 respondents who were given boiled green spinach on HB levels of pregnant women in the third trimester with a mean value of and P value of 0.000. This shows a P value of 0.000 < alpha value (0.05), which means the data is not normally distributed 1.70, standard deviation of 0.42 and P value of 0.000 and it can be seen that there was an effect before being given Fe tablets on the HB levels of pregnant women in the third trimester, 10 respondents with a mean value of 1.10, standard deviation of 0.31 and P value of 0.000. Meanwhile, there were 10 respondents who were given Fe tablets on the HB levels of pregnant women in the third trimester with a mean value of 1.80, standard deviation of 0.42 and cannot be continued with the T test, so proceed with the Wilcoxon test.

b. Uji Wilcoxon

Table 5. Efektiveness of Giving Green Spinach on Increasing Hb Levels in Pregnant Women In The 3rd Trimester 2024

Effectiveness of giving Green Spinach on increasing HB Levels			
Variabel	N	Mean	P Value
before – After	10	2.50	0.046

Wilcoxon signed ranks test (p-value 0.046<0.05)

Based on the table above, it was found that the difference in the increase in HB levels before and after giving boiled green spinach showed p value = 0.046 < 0.05, meaning that there was a significant influence on increasing HB levels in ibu hamil trimester 3 sebelum and after giving boiled spinach. So it can be concluded that there is effectiveness of giving boiled green spinach in increasing Hb levels in pregnant women in the 3rd trimester of 2024.

Table 6. Effectiveness of Giving Fe Tablets on Increasing Hb Levels in Pregnant Women in the 3rd Trimester of 2024

Effectiveness of giving Fe Tablet on increasing HB Levels			
Variabel	N	Mean	P Value
before – After	10	4.00	0.008

Wilcoxon signed ranks test (p-value 0.008<0.05)

Based on the table above, it is found that there is a difference in the increase in HB levels before and after administering Fe tablets, the results showed p value = 0.008 < 0.05, meaning that there was a significant effect on increasing HB levels in pregnant women in the third trimester before and after administering Fe tablets. So it can be concluded terdapat efektivitas Giving Fe tablets to Increase Hb Levels in Pregnant Women in the 3rd Trimester at in 2024

Table 7. Effectiveness of Giving Green Spinach and Fe Tablets on Increasing Hb Levels in Pregnant Women the 3rd Trimester of 2024

Effectiveness of giving Fe Tablet on increasing HB Levels	Negative Ranks Decline	Positive Ranks Increased	Ties Equal Value	P value
Green Spinach Stew Group (post test – pre-test)	0	4	6	0.046
Fe Tablet Group (post test – pre-test)	0	7	3	0.008

Wilcoxon (p-value 0.046<0.05, 0,008>0,05)

Based on the table above, after giving boiled green spinach, 0 respondents experienced a decrease in Hb levels, 4 respondents experienced an increase in Hb levels, 6 respondents experienced no change in Hb levels, whereas after being given Fe tablets, pregnant women experienced a decrease in levels. Hb was 0, 7 respondents experienced an increase in Hb levels, and 3 people experienced no change in Hb levels. So it is stated that giving Fe tablets is more effective than giving boiled green spinach to increase Hb levels in pregnant women.

Discussion

1. Frequency Distribution of Characteristics of 3rd Trimester Pregnant Women on Hemoglobin Levels).

Each characteristic can indicate a different risk for anemia. By knowing individual characteristics, health programs can be adjusted. For example, younger or older pregnant women (over 35 years) tend to have a higher risk of experiencing anemia. Young mothers may not have sufficient iron stores due to ongoing growth, while older mothers may face more health complications (Marniati & Nuzulul Rahmi, 2022). Higher education may require

a different educational approach compared to mothers with lower educational backgrounds (Winarni et al., 2020). Parity may also influence the risk of anemia. Mothers who have many children (multiparous) may experience a decrease in iron reserves due to previous pregnancies and childbirth. Additionally, if they do not get adequate nutrition between pregnancies, the risk of anemia increases (Widowati, 2023). Anemia is often more common in the second and third trimesters of pregnancy. In this period, the mother's blood volume increases, so the need for iron also increases. If iron intake is insufficient, the risk of anemia will increase.

2. Frequency Distribution of Hemoglobin levels of pregnant women in the 3rd trimester before and after being given boiled spinach)

Before being given the green spinach stew, 6 respondents were anemic, but after being given the green spinach stew, the number of people who were anemic decreased to 3 people. This shows that boiled green spinach can increase Hb levels in pregnant women. Spinach contains iron, vitamin C, and folate, all of which play an important role in the formation of red blood cells. Iron helps in hemoglobin synthesis, while vitamin C can increase iron absorption. Apart from that, spinach is also rich in antioxidants which are good for overall health. Consuming boiled green spinach for 7 consecutive days and with a dose of 450 and consumed at the same time every day will have an impact on increasing the Hb of pregnant women. This research is in line with Susilawati's research regarding the effectiveness of giving boiled green spinach to increase Hb levels in pregnant women in the second and third trimesters. The results after the intervention carried out hemoglobin levels after being given boiled green spinach increased by 12 pregnant women, the average value of increase in hemoglobin before and after consuming green spinach was 0.67 and the result of Asymp sig.(2Tailed) was 0.008, indicating that there was a difference in Hemoglobin levels before and after being given green vegetables.

3. Frequency distribution of hemoglobin levels in pregnant women in the third trimester before and after being given

Fe tablets Fe tablets are really needed by pregnant women, so pregnant women are required to consume a minimum of 90 Fe tablets during pregnancy. (Wulan et al., 2021)

Iron (Fe) tablets are often more effective in increasing hemoglobin (Hb) levels than boiled green spinach, especially in cases of iron deficiency anemia because the iron content in the Fe table contains a higher concentration of iron than spinach. (Nicholson et al., 2024)

This allows for a faster and more significant increase in hemoglobin levels. Then iron in tablet form is more easily absorbed by the body compared to non-heme iron from plant sources such as vegetables, and with tablets the iron dose can be measured precisely, making it easier to ensure adequate intake according to individual needs, especially for mothers. Pregnant women may have higher iron requirements. (Sloan et al., 2002)

4. The effectiveness of administering green spinach decoction and Fe tablets on increasing hemoglobin levels in pregnant women in the third trimester of pregnancy

Green spinach itself has many excellent benefits because it is a source of calcium, vitamin A, Vitamin C and Vitamin E, fiber and also beta-carotene. (Azzlina & Galaupa, 2023)

Apart from that, spinach also contains iron to prevent anemia. (Siregar et al., 2020) However, Fe tablets are designed with a sufficient dose to meet the body's needs, especially for individuals with anemia, so they are more effective in increasing Hb levels (Handayani, 2021)

Researchers argue that despite this, boiled green spinach still has other nutritional benefits and can be an important part of a healthy diet. Combining both iron tablets and iron-rich foods such as spinach can provide more optimal results. (Riestamala et al., 2021)

CONCLUSION

Consuming boiled green spinach can be a form of non-pharmacological treatment that is very good for increasing Hb levels in pregnant women naturally. Apart of that consuming boiled green spinach can also fulfill the vitamin and mineral needs of pregnant women, but consuming Fe tablets is a treatment. Very effective pharmacology for increasing Hb levels, by combining both iron tablets and iron-rich foods such as spinach can provide more optimal results.

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