



Anemia Prevention Therapy in Pregnant Women

Nuuva Yusuf¹, Ryzky Diah Anggraini²

^{1,2} Sekolah Tinggi Ilmu Kebidanan Mutiara Mahakam Samarinda, Jl. Ery Suparjan RT 12 No 49 A, Kel. Sempaja Selatan, Kec. Samarinda Utara, Kota Samarinda, Kalimantan Timur, 75119, Indonesia
Email: nuuvayusuf@gmail.com¹, riskidiah1267@gmail.com²

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ABSTRACT

Anaemia is a problem that often occurs in pregnant women, which, if not above, can result in impaired fetal growth and even death. Green beans are a source of food that contains iron, vitamin C and zinc. This research aims to analyze the effect of giving green beans toward the increase of haemoglobin level on pregnant women with anaemia in the working area of Puskesmas. The research method is the kind of pre-experimental research using the approach of one group pretest-posttest design. The sample is 30 pregnant women with anaemia. The sampling technique uses purposive sampling. Haemoglobin level was carried out before and after the experiment, and green bean porridge was given to the respondents 2 times a day for 7 days. The results showed that the level of pregnant women's haemoglobin treated increases averagely as much as 1.17g/dL. The result of data analysis using paired T-test obtains $p\text{-value} = 0,000 < \alpha 0.05$. There is a significant effect of giving green beans to increase haemoglobin levels on pregnant women with anaemia. It is hoped that midwives can provide counselling about the benefits of giving green bean porridge to increase haemoglobin levels in pregnant women with anaemia.

Keywords: Green Beans Porridge, Haemoglobin, Pregnant Women

INTRODUCTION

Anaemia in pregnancy is a problem that requires serious attention from various parties because it dramatically influences the quality of human resources (Kartika et al., 2020; Nurhidayah, 2020). According to World Health Organization (WHO), 20% of the 515,000 maternal deaths worldwide are caused by anaemia (Choirunissa & Manurung, 2019).

Anemia is the most significant public health problem globally, especially for pregnant women. Pregnant women are declared anaemic if haemoglobin (Hb) < 11 g/dL (Darmawati et al., 2020; Irianti et al., 2015; Mantadakis et al., 2020).

Pregnant women experience anaemia due to the hemodilution process (blood-thinning), which begins at 10 weeks and peaks at 32-36 weeks. Anemia in pregnancy must be treated immediately to prevent bleeding during labour and disturbances in fetal growth and development (Jannah & Puspaningtyas, 2018; Olli, 2019).

For pregnant women, anaemia is one prevalent of maternal mortality and morbidity. In addition, anaemia can also increase the risk of infant morbidity and mortality, give birth to babies with low birth weight, fetus and mother are susceptible to infection, miscarriage, increase the risk of premature birth and

LBW (Choirunissa & Manurung, 2019; Mayasari et al., 2021).

Anaemia in pregnant women also can increase the incidence of asphyxia in newborns, where nutritional deficiencies in pregnancy cause obstacles in haemoglobin synthesis so that the amount of haemoglobin cannot compensate for the increase in plasma volume. Anaemia in pregnancy causes oxygen transport to the tissues, and the fetus is disturbed. This disorder can cause hypoxia in the fetus in the womb so that at the time of birth, it can cause neonatal asphyxia (E. R. Astuti & Yunita, 2020; Hassan & Alatas, 2015; Kasim & Murni, 2021).

Based on the Riskesdas (2018) results, the incidence of anemia in pregnant women increased by 48.9% compared to Riskesdas (2013), which was 37.1%. Meanwhile, according to Dinas Kesehatan Provinsi, in 2017, 161 pregnant women experienced anaemia, and in 2018 the prevalence of anaemia increased by 57 people.

Anaemia, better known as anaemia, is one of the most common conditions in pregnant women where the body does not have enough red blood cells (Endah Yulianingsih et al., 2020). Apart from pregnant women, young women and women of childbearing age are also very susceptible to anaemia (Tandon et al., 2018). Anaemia in adolescent girls is not resolved, so when pregnant, the anaemia

will be challenging to overcome, and the risk of giving birth to Low Birth Weight (LBW) and stunting (Choirunissa & Manurung, 2019; Mayasari et al., 2021; E Yulianingsih et al., 2021).

Anaemia can be prevented by eating a balanced nutritious diet with adequate iron intake to meet the body's needs. Another way to reduce the incidence of anaemia in pregnant women is not only to give Fe tablets but must be supported and assisted by providing food rich in iron (Lathifah, 2018; Mayasari et al., 2021; Suryani & Sulastri, 2020).

Food as a source of energy can support various growth processes. Food consumed by pregnant women can be used for fetal growth by 40% and the mother by 60%. If the nutrition of pregnant women does not match the needs, disturbances may occur during pregnancy, both for the mother and the fetus (Wulan & Vindralia, 2021).

Green beans are a source of food containing iron, vitamin C and zinc, which are thought to play a role in treating anaemia. In addition, green beans also have vitamin A of 7 mcg in half a cup. Vitamin A deficiency can worsen iron deficiency anaemia. Green beans also contain iron as much as 6.7 mg, which is a substance that is needed by the body, especially for the formation of erythrocytes (Olii et al., 2022; Putra & MS, 2018).

Consuming vitamin A supplementation can benefit people with anaemia because vitamin A supplements have many essential roles in the body, one of which is the mobilization of iron reserves throughout the tissues (Amalia, 2016; Lathifah, 2018; Mayasari et al., 2021).

Based on Amirul's research (2016), there was an increase in haemoglobin levels in adolescent girls, namely 1 g/dL after being given 500 ml of green bean juice and given 2 times a day, morning and afternoon for 7 days.

The research results by Choirunissa and Manurung (2019) showed that the average Hb level in the intervention group before being given green beans juice was 9.993 g/dL and after being given green beans juice 11.287 g/dL. There is a difference between providing green beans juice to haemoglobin levels in the intervention group with an average increase in Hb levels after being given green beans juice by statistical test Paired sample T-test, namely sig (2-tailed) of 0.000 < 0.05.

Previous research has used green beans in processed juices, so currently, researchers are trying to research in other processed forms, so this study aims to analyze the effect of giving green bean porridge to increase haemoglobin levels in pregnant women with anemia in the working area of Puskesmas.

METHOD

This study uses a pre-experimental design, one group pretest-posttest, to know the effect of giving green bean porridge to increasing haemoglobin levels in pregnant women with anemia before and after treatment. This research was conducted from 15 - 21 April 2019.

The total population was 57 pregnant women, and 30 respondents were recruited using the purposive sampling technique. Examination of Hb levels was carried out before and after the experiment, and green bean porridge as much as 200 grams was given 2 times a day for 7 days. Respondents consume the green bean

porridge every day in the morning and evening. The inclusion criteria were a pregnant woman with a Hb level of <11g/dL and not consuming multivitamins such as zinc tablets. Respondents who could not follow the study process were excluded.

Data collection in this study used digital Hb measuring instruments and EasyTouch brand Hb strips, assessment sheets and respondent observation sheets, followed by data analysis with the Paired Sample T-Test. The calculation was performed with the SPSS for Windows software with a significance level of $\alpha = 0.05$.

RESULT AND DISCUSSION

Result

Table 1 Distribution Frequency Characteristics of Respondents

Characteristics of Respondents	n	%
Age		
<20 years	3	10.0
20-35 years	22	73.3
>35 years	5	16.7
Parity		
Primigravida	9	30.0
Multigravida	21	70.0
Gestational Age		
18-28 weeks	13	43.3
29-40 weeks	17	56.7
Education		
Elementary school	3	10.0
Junior high school	10	33.3
Senior high school	14	46.7
University	3	10.0
Occupation		
Housewife	28	93.3
Honorary employee	2	6.7
Hemoglobin Levels Before Intervention		
9-10 g/dL	26	86.7
7-8 g/dL	4	13.3
Haemoglobin Levels After Intervention		
Increase	28	93.3
Not increasing	2	6.7

Source: Primary Data

Based on table 1, it can be known that 73.3% of respondents are in the ages group

of 20-35 years, 70.0% of respondents are multigravida, 56.7% of respondents were

at the gestational age of 29-40 weeks, 46.7% of respondents education level is high school, 93.3% of respondents are a housewife and 93.3% of respondents experienced an increase in haemoglobin levels after the intervention.

Tabel 2 Paired Sample T-Test

Mean	Std. Deviation	N	T	df	Sig. (2-tailed)
-1,17	0,050	30	-12,718	29	0,000

Source: Primary Data

Table 2 shows the average results of anaemia in pregnant women based on research conducted on 30 respondents of 1.17 g/dL and a standard deviation of 0.50. At the same time, the significance value of the paired T-test (2-tailed) is $0.000 < 0.05$, which means H_0 is rejected, and H_a is accepted, meaning that there is an effect of giving green bean porridge to increase haemoglobin levels in pregnant women with anemia.

Discussion

Based on the paired T-test analysis results obtained, the p -value $0.000 < \alpha 0.05$, which means H_0 is rejected, and H_a is accepted, meaning that there is an effect of giving green bean porridge to increase haemoglobin levels in pregnant women with anemia. Anemia can be influenced by the absorption of food consumed by pregnant women. In addition to medication, anaemia can be overcome by

giving green bean drinks because the nutritional content in green beans can reduce the prevalence of anaemia and improve iron utilization. (Amalia, 2016; Proverawati, 2011).

Iron is a mineral that is needed to form red blood cells. In addition, minerals also function as components to form myoglobin (a protein that carries oxygen to muscles). (Briawan, 2016; Osungbade & Oladunjoye, 2012). The need for iron in pregnant women with a single fetus is around 1000 mg or an increase of about 200-300%. The estimated amount of iron needed during pregnancy is 1040mg. At the time of delivery, 200mg of iron is retained by the body, 300mg of iron is transferred to the fetus and 450mg to increase the number of red blood cells. Iron can be obtained from animal foods, such as meat, chicken, and fish. Other good sources are eggs, mashed cereals, nuts, green vegetables, and fruits (Lathifah, 2018; Milda, 2016).

Green beans are one type of legume that contains high iron, which is very beneficial for the health of pregnant women and can prevent and treat anaemia in pregnant women (Putra & MS, 2018).

Green beans also have many benefits for pregnancy, such as the high content of folic acid in green beans, which can protect for babies to avoid low birth weight or premature birth and can help prevent neural tube defects, as well as severe

abnormalities in the brain and spinal cord (Wulan & Vindralia, 2021). Vitamin K contained in green beans also plays a role in maintaining strong bone conditions for the mother and fetus in the womb (Retnorini et al., 2017). Digestive disorders in pregnant women can also be overcome because green beans are rich in fibre and help digestive problems such as constipation and maintaining a healthy digestive tract (Waryana, 2015).

In addition, the presence of phytochemicals in green beans, which are complete, can help the process of hematopoiesis, one of the roles of green beans in the formation of red blood cells and preventing anaemia. Green beans also contain vitamins and minerals. Minerals such as calcium, phosphorus, iron, sodium and potassium are abundant in green beans (Farida, 2017; Maulina & Indra, 2015; Mayasari et al., 2021).

Based on this study, if pregnant women consume regularly, green beans can increase haemoglobin levels by 1.17g/dL. This is in line with previous research conducted by Mayasari et al. (2021), which shows that green beans juice is effective against increasing Hb levels in pregnant women.

Jannah dan Puspaningtyas (2018) also showed that pregnant women who consumed green beans juice experienced a significant increase in Hb levels with an

average rise of 1.15 g/dL during the research intervention. Olii et al.'s study (2022) also stated that giving mung bean juice for 14 days at a dose of 250 ml could increase Hb levels in adolescent girls. Green beans are one type of legume with high iron content, equal to 6.7 mg. The most iron content in green beans is found in the embryo and seed coat.

Based on the research results that have been done, there are still 2 respondents (6.7%) who did not change. In the results of interviews conducted by researchers, respondents complained that they did not get enough rest. This was because they had children who had to be cared for and cared for properly, so they could not regulate their rest patterns properly, which caused Hb levels not to change.

Sleep and rest are basic needs that everyone needs so that the body can function normally. When resting, the body performs a beneficial recovery process to restore the body's stamina to be in optimal condition. Lack of sleep can cause the biosynthesis of body cells, including haemoglobin biosynthesis, to be disrupted to interfere with forming haemoglobin levels (A. Astuti, 2017; Renny, 2016).

After conducting further studies, the mother said that she consumed tea in the morning in the second respondent. Researchers assume that this is one of the

factors that cause the mother's haemoglobin level not to increase.

Anaemia in people who have a habit of drinking tea is more significant than people who rarely have a habit of drinking tea. In tea, there are compounds called tannins. These tannins can bind several metals such as iron, calcium and aluminium, then form chemically complex bonds. Because in a continuously secured position, the iron and calcium compounds found in food are difficult to absorb by the body, causing a decrease in iron (Fe) (Mariana et al., 2018; Marizaana, 2016; Suni, 2016; Wulandari, 2015).

In addition, the researchers also found that there were respondents who were 41 years old. This age group is included in the risk factors for anaemia, where the risk depends on socio-economic conditions and the local environment. In addition, the physical and psychological aspects of pregnant women who are more than 35 years old cause anaemia due to decreased body resistance and nutritional deficiencies (Astriana, 2017; Jannah & Puspaningtyas, 2018; Suni, 2016).

Based on the results of this study, most of the respondent's included in the category of multigravida (70.0%). Primigravida and multigravida pregnant women are at risk of developing anaemia during pregnancy. Anaemia in multigravida pregnant women occurs due to a history of labour that is too

frequent, causing a more significant increase in blood plasma volume which results in greater hemodilution or blood thinning, while an unbalanced diet influences anaemia in primigravida pregnant women before pregnancy, which is still ongoing after entering pregnancy (Ambarwati, 2015; Jannah & Puspaningtyas, 2018; Sibagariang, 2016).

Haemoglobin levels may decrease due to hemodilution.

Physiologically, hemodilution will occur when the pregnancy enters the gestational age of 16 weeks to 36 weeks. This shows that increasing gestational age tends to experience complications and risks such as anaemia (Olii, 2020). The limitation of this study is that the researcher only used 1 intervention group. Researchers also did not control the food consumed by respondents, so that it might affect the study results. It is hoped that there will be studies that add to the control group with a more significant number of samples in the future and compare them with different intervention groups.

CONCLUSION

This study shows that green beans porridge for 7 days with a dose of 200g can increase Hb level in pregnant women. For midwives, it is expected that midwives can provide counselling or socialization about the benefits of giving green bean

porridge to increase haemoglobin levels in pregnant women with anemia. Pregnant women are expected to consume green beans porridge to increase haemoglobin levels, and it is more advisable to consume green beans porridge together with Fe tablets.

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