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The Effect of the Grant of a Boiled Egg to Increased Levels of Hemoglobin (Hb) in Pregnant Women with Anemic at Cerme Village Health Center Kediri Regency in 2022

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ABSTRACT

Anemia is a condition of decreased red blood cells or hemoglobin, thus decreasing the capacity of haulage needs oxygen to organs in the mother and fetus are diminished. The results of a preliinary survey conducted in gretting pregnant as much as 99 of pregnant women are anemic as many as 36 pregnant women, and 63 pregnant women not anemic.The purpose of the research is to analyze the effect of the grant of a boiled egg to increased levels of hemoglobin (Hb) in pregnant women with anemic in Poskesdes Cerme Kediri Regency year 2022.This type of reseach is one approach to experimental quasy group pre test-post test design. The population in this research as much as 15 pregnant women with anemic, whereas the sample in this research is the entire amount of the existing population of pregnant women with anemic by using total sampling. Analysis of research test *t-test* and *independent sample t-test.*Research results showed the t-test in the get before and after given a boiled egg that is the *p value* of 0,000 or $p < a$ (0,05). On *independent* test *sample t-test* in the get *value* of 0,001 p or $p < a$ (0,05), which means there's influence after consuming boiled eggs to increased levels of hemoglobin.From the results of the study prove that consumption of boiled egg everyday can help improve hemoglobin levels in pregnant women with anemic, so it is recommended for pregnant women with anemic to consume boiled egg a day 1 rounds in the morning to raise the levels of hemoglobin.

Keywords: boiled eggs, levels of hemoglobin, pregnant women

INTRODUCTION

According to Indonesia's MMR achievement data is 359/100,000 live births, the main causes of direct maternal death are bleeding 28%, eclampsia 24%, and infection 11%. The indirect cause is anemia 51% (MOH, 2019).

In East Java Province Maternal Mortality Rate (MMR) In 2019, the East Java Province Maternal Mortality Rate reached 89.81 per 100,000 live births. This figure increased compared to 2020 which reached 98.39 per 100,000 live births, one of which was caused by hypertension in pregnancy, which was 26.90%, and bleeding was 21.59%. The indirect cause is anemia 37.17% (East Java Province Health Profile, 2020).

Based on a preliminary preliminary survey conducted by researchers in the working area of Poskesdes Cerme, Kediri Regency in March 2022, it was found that there were 99 pregnant women, 36 people with anemia, while 63 people without anemia.

Anemia is a condition characterized by low levels of hemoglobin or reduced number and quality of red blood cells, which function as a means of transporting nutrients and oxygen for physiological and biochemical processes of body tissues. The diagnosis of anemia is established based on the signs and symptoms that appear and by looking at the hemoglobin level in the blood (Lutter, 2012).

Various efforts to reduce the incidence of anemia have been carried out by midwives by carrying out activities that include early detection of pregnant women with anemia by checking hemoglobin levels, and giving blood-added tablets. In addition, there are also foods that can help increase hemoglobin levels in pregnant women. If pregnant women do not take iron supplements, they can try to consume boiled eggs as a substitute for blood-boosting supplements. Because in the egg there is also a type of micro-mineral content that is very important, namely protein and iron. Eggs can help preserve vitamins in the body if you are anemic.

According to Nurmayanti R, in 2014, that the high protein content in eggs has many benefits for the health of the body, some of the benefits of eggs include: Eggs are good for the eyes, help overcome iron deficiency, meet nutrient needs, and prevent blood coagulation. Eggs have some good energy content for the body, whether boiled, half-boiled or scrambled can increase red blood cells. Boiled eggs contain 154 kilocalories of energy, 12.2 grams of protein, 0 grams of carbohydrates, 0 grams of fat, 54 milligrams of calcium, 0 milligrams of phosphorus, and 2.7 milligrams of iron.

Based on previous research conducted by Supiati, Sitti Yulaikah in 2015, it was found that the total number of respondents was 18 people, respondents who consumed boiled eggs experienced changes in Hb levels, as many as 16 respondents (88.9%) experienced an increase of more or equal to 11 g % and only 2 respondents (11.1%) experienced an increase in Hb levels less than or equal to 10 g %.

The reason the researchers chose the research location in the working area of Poskesdes Cerme was because the total number of mothers who experienced anemia was quite a lot, amounting to 36 of the total number of pregnant women, namely 99 pregnant women, besides that it could provide input to pregnant women about consuming eggs during pregnancy. maternal and fetal health and can reduce the incidence of anemia.

Based on these data, researchers are interested in conducting research on the effect of giving boiled eggs to increase hemoglobin levels in pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022.

METHODS

Design and Samples

The design used in this research is pre experimental with pretest-post test one group design approach. The population in this study were 15 pregnant women with anemia who were in the working area of Poskesdes Cerme, Kediri Regency in 2022. Sampling technique of this research is total sampling. The sample size is 15 people.

Data Collection

Researchers conducted hemoglobin examination on respondents to determine hemoglobin levels of pregnant women before being given treatment and then recorded on the observation sheet. Doing treatment by giving boiled eggs as much as 1 egg a day for 1 week. on the 8th day, the researcher re-examined the hemoglobin level after being given treatment and then recorded the results on the observation sheet or questionnaire.

Data Analysis

Data analysis used Saphiro Wilk to test the data normality, and using Paired T test to analyze the hypothesis

RESULTS

The result shows that the age of respondents who consumed boiled eggs almost entirely were 14 people (93.3%) aged 20-35 years, almost all of them were 14 people (93.3%) had basic education, most of them were 13 people (86.7%) did not working or housewives, most of which are 9 people (60.0%) are in multigravida parity i.e. have 2-4 children.

Tabel 1. Frequency Distribution of Hemoglobin Levels Before Consuming Boiled Eggs in Pregnant Women with Anemia in the working area of Poskesdes Cerme Kediri Regency in 2022

Variabel	N	Mean	Median	Mode	SD	Min	Max
HB level before consuming boiled eggs	15	8.90	8.60	8	751	8	10

(Source: Primary Research Data for 2022)

Based on table 1, it can be interpreted that the hemoglobin level before consuming boiled eggs has a mean of 8.90 g/dl, a median of 8.60 g/dl, a mode of 8 g/dl, and a standard deviation of 75.

Tabel 2. Frequency Distribution of Hemoglobin Levels After Consuming Boiled Eggs in Pregnant Women with Anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022.

Variabel	N	Mean	Median	Mode	SD	Min	Max
HB level after consuming boiled eggs	15	9.84	9.70	9.50	734	8	11

(Source: Primary Research Data for 2022)

Based on table 2, it can be interpreted that the hemoglobin level after consuming boiled eggs has a mean of 9.84 g/dl, a median of 9.70 g/dl, a mode of 9.50 g/dl, and a standard deviation of 734.

Tabel 3. Normality Test of Hemoglobin Levels before and after consuming Boiled Eggs in Pregnant Women with Anemia in the working area of Poskesdes Cerme Kediri Regency in 2022.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Hb_Pretest	,192	15	,143	,916	15	,170
Hb_Posttes	,192	15	,142	,965	15	,772

a. Lilliefors Significance Correction

In the normality test using Shapiro Wilk hemoglobin levels before consuming boiled eggs p_value > significance value (0.170 > 0.05), this means that the data is normally distributed, while hemoglobin levels after consuming boiled eggs p_value > significance value (0.772 > 0.05).), this means that the data is normally distributed. Then the normality test of the data distribution can be concluded p value > with = 0.05. So that the data distribution is normal and can be used parametric test with paired sample t test.

Tabel 4. Differences in Hemoglobin Levels before and after consuming boiled eggs in pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022.

Variable	Mean	SD	SE
Hemoglobin level before treatment	8.90	751	194
Hemoglobin level before treatment	9.84	734	189
Difference of Hemoglobin level before and after treatment	0.94	17	5
p *value* = 0.000 α = 0.05			

(Source: Primary Research Data for 2022)

In table 4 it can be interpreted that the hemoglobin level before consumption of boiled eggs is 8.90 g/dl and after consumption of boiled eggs is 9.84 g/dl so that it can be seen that there is a difference of 0.94 g/dl of hemoglobin before and after consumption of boiled eggs. . The results of the paired

sample t test showed a significant number of 0.000 which means less than = 0.05, thus H0 is rejected, meaning that there is an effect of boiled egg consumption on increasing hemoglobin levels in pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022.

DISCUSSION

Hemoglobin Levels Before Consuming Boiled Eggs in Pregnant Women with Anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022

Based on the results of the analysis in the table above, before consuming boiled eggs, the hemoglobin level of pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022 was 8.90 gr/dl, the hemoglobin level was 7-8 gr% or including moderate anemia. Anemia is a condition characterized by low levels of hemoglobin or reduced number and quality of red blood cells, which function as a means of transporting nutrients and oxygen for physiological and biochemical processes of body tissues. Anemia due to impaired red blood cell formation occurs when the amount of iron is inadequate or lacks folic acid, vitamin B12 or globulins. Anemia means red blood cell deficiency which can be caused by the loss of too many red blood cells or the formation of red blood cells that are too slow (Lutter, 2012). He said no anemia Hb> 11gr%, mild anemia Hb 9-10 gr%, moderate anemia Hb 7-8 gr% and severe anemia if Hb levels <7 gr% (Setiawan 2012).

The number of pregnant women who have hemoglobin Hb levels of 7-8 g/dl or experience moderate anemia in the work area of the Testega Public Health Center, Pegunugan Arfak Regency, West Papua Province in 2022 is caused by the adequacy of iron in the body. Iron is needed for the production of hemoglobin, so iron deficiency anemia will lead to the formation of smaller red blood cells and a lower hemoglobin content. The recommended iron adequacy is the minimum amount of iron derived from food that can provide enough iron for every healthy individual in 95% of the population, so as to avoid the possibility of iron deficiency anemia so that if pregnant women lack sufficient iron in the body, they will experience anemia. Lack of adequate iron in the body is caused by a lack of knowledge about it. From the results of research conducted in the working area of Poskesdes Cerme, Kediri Regency in 2022, almost all 14 people (93.3%) respondents had basic education. Several observations have shown that most of the anemia suffered by the community is due to malnutrition, which is often found in rural areas with malnutrition or malnutrition. Pregnancy and childbirth are closely spaced, and pregnant women with low education and socioeconomic levels (Manuaba, 2010).

According to Amirrudin's research (2017), the factor that influences anemia status is the low level of education. The low level of education of a person will affect the lack of knowledge, so that knowledge of the importance of iron adequacy in pregnant women is poorly understood. This is what causes most of the respondents to experience moderate anemia.

Hemoglobin Levels After Consuming Boiled Eggs in Pregnant Women With Anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022

Based on the results of the analysis in the table above, after consuming boiled eggs, the hemoglobin level of pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022 was 9.84 gr/dl, the hemoglobin level was 9-10 gr/dl or had mild anemia.

Eggs are a type of animal protein side dish that is cheap, easy to find, economical and one of the most nutrient-dense foods. The nutritional content of eggs is rich in high-quality protein. The average egg protein content is 12-16% or about 12.2 grams of protein in one egg. Eggs also contain a type of very important micro-mineral, namely iron, zinc and selenium. Eggs contain iron which is quite good. The iron content of eggs is 2.7 mg in whole eggs and 0.95 mg in egg yolks. Meanwhile, the zinc content in eggs is 0.72 mg whole eggs and 0.58 mg egg yolks (Anwar and Khomsan, 2016).

Good nutrition will facilitate healing and avoid malnutrition. Iron can increase hemoglobin levels in pregnant women who are malnourished, while protein is a substance that is responsible for building muscle, body tissue, and bone tissue. The number of respondents who have Hb 9-10 g/dl or

experience mild anemia is caused by consuming boiled eggs. Eggs are one of the most nutrient-dense foods. The content of eggs includes iron which can increase hemoglobin levels in pregnant women who are malnourished, so that initially pregnant women experience moderate anemia, after consuming boiled eggs hemoglobin levels will gradually increase and cause anemia levels to decrease.

Effect Analysis Before and After Consuming Boiled Eggs on Pregnant Women with Anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022

The results of the paired sample t test showed that the value (sig) 0.000 < (0.05) thus H0 was rejected, meaning that there was a significant effect of boiled egg consumption on increasing Hb levels in pregnant women with anemia.

Although the minimum Hb level before consuming boiled eggs was 8 while the minimum Hb level after consuming boiled eggs was also 8, these results were based on the average Hb level increasing after consuming boiled eggs, meaning that the consumption of boiled eggs can increase the Hb levels of pregnant women with anemia. Eggs are a good food to meet the nutritional needs of protein in both children and adults and pregnant women. The average egg protein content is 12-16% or about 12.2 grams of protein in one large egg. Eggs also contain a type of very important micro-mineral, namely iron, zinc and selenium. Eggs contain iron which is quite good. The iron content of eggs is 2.7 mg in whole eggs and 0.95 mg in egg yolks. Meanwhile, the zinc content in eggs is 0.72 mg whole eggs and 0.58 mg egg yolks (Anwar and Khomsan, 2016).

The function of iron is to form red blood cells, so that if the production of red blood cells in the body is sufficient, the hemoglobin level will be normal so that it is useful in overcoming anemia for pregnant women. Iron is the main constituent of hemoglobin (Pearce, 2010) as the main means for binding oxygen and circulating nutrients to meet the needs of the mother and fetus, so hemoglobin is very important for pregnant women. If pregnant women lack iron (fe) will cause low hemoglobin levels, which will then cause anemia in pregnant women. So that anemia also affects the fetus. Anemia in pregnant women is very dangerous because it can cause pregnancy complications (Guyton, 2011).

From the results of research in the work area of the Testega Public Health Center, Pegunugan Arfak Regency, West Papua Province in 2022, it shows that the hemoglobin level of the respondents before consuming boiled eggs is 8.90 gr/dl, the hemoglobin level is 7-8 gr/dl, after consuming boiled eggs is 9, 84 g/dl hemoglobin level becomes Hb 9-10 g/dl or the respondent's hemoglobin level after consuming boiled eggs has increased. Chicken eggs contain various vitamins, minerals such as vitamin A, ribovlafin, folic acid, vitamin B6, vitamin B12, iron, potassium, calcium, phosphorus and a very high source of protein. Good nutrition will facilitate healing and avoid malnutrition. Iron can increase hemoglobin levels in pregnant women who are malnourished. So that the consumption of boiled eggs can increase Hb levels in pregnant women with anemia (Anwar and Khomsan, 2016). Based on the data obtained and the theory shows that there is a significant effect of giving boiled eggs to increase hemoglobin levels in pregnant women with anemia.

CONCLUSION

The results suggested that Hemoglobin levels in pregnant women before consuming boiled eggs in pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022 an average of 8.90 gr/dl hemoglobin levels of Hb 7-8 gr/dl or including moderate anemia . 2. Hemoglobin levels after consuming boiled eggs in pregnant women with anemia in the working area of Poskesdes Cerme Kediri Regency in 2022 averaged 9.84 g/dl, hemoglobin levels were 9-10 g/dl or had mild anemia. 3. There is an effect of hemoglobin levels before and after consuming boiled eggs on pregnant women with anemia in the working area of Poskesdes Cerme, Kediri Regency in 2022.

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