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EFFECT OF BOTEME HALMAHERA CONSUMPTION (*Setaria Italica*) ON THE IMPROVEMENT OF HEMOGLOBIN AND TROMBOSIT TO THE COMMUNITY IN THE VILLAGE OF NORTH HALMAHERA

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ABSTRACT

Hemoglobin has the function of one of them is Taking oxygen from the lungs and then taken to all body tissues. Trombosit is a bloodless cell originating from megakariosit cytoplasm. Boteme (*Setaria Italica*) or millet is a kind of small seed cereal that becomes the staple food of society with nutritional value. This study aims to determine the effect of Boteme Halmahera (*Setaria Italica*) Consumption on Hemoglobin and Platelet Increase in Community in Ruko Village, North Tobelo Sub-district, North Halmahera Regency, 2017. The research type is "quasy eskperiment design with Pre-post test control group". With a large sample of 10 respondents in the Village Ruko sampling by non probability sampling type consecutive sampling. Result of T test analysis show that there is influence of Boteme to increase Hemoglobin and Trombosit with T-count value is $5.488 > T\text{-table value} = 2,766$, platelet T count $10.328 < \text{value T table} = 2.766$ Hence the null hypothesis (H_0) rejected and alternative hypothesis (H_a) accepted. From result of research have got significant value = 0.005 hemoglobin and platelet value of sig = 0.000 thus has proved that in group of experiment / intervention H_0 rejected and H_a accepted (where sig $< 0,05$).

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INTRODUCTION

Blood in the human body has a very important function as a tool for the transport of oxygen and substances needed by the body. Blood is a red body fluids, this red color is an iron-containing breathing protein, which is the place where the oxygen molecules are bound caused by hemoglobin. In the blood is also contained such as water, protein, minerals and salt. Selain the blood is also divided into several types. Pada each type of blood also has an important role in the body. Type of human blood that is red blood cells, white blood cells and blood chips. According to Hiremath, P.S, et al, (2010)

According to Chris Brooker (2008) blood is a liquid connective tissue consisting of pale yellow, plasma, which contains a suspension of red blood cells or erythrocytes, white blood cells or leukocytes and blood platelets. Blood in humans is usually red. hemoglobin that binds oxygen and carbon dioxide.

The level of hemoglobin is the size of pigmentrespiratoric in red blood granules. The number of hemoglobin in normal blood is about 15 grams per 100 ml of blood and this amount is usually called "100 percent" (Evelyn, 2010). Normal limits of hemoglobin values for a person are difficult to determine because hemoglobin levels vary among ethnic groups. However, WHO has established normal hemoglobin levels based on WHO age and sex in (2012).

Anemia is more common in women, this is because women need more iron than men in the same age. Women are more likely than men to have iron deficiency anemia due to blood loss every month through normal menstruation by Atikah, (2011).

Hemoglobin (Hb), which serves to transport oxygen. Each red blood cell contains about 300 million hemoglobin each of which serves to bind oxygen. In capillaries lunged red blood cells will bind oxygen and form oxyhemoglobin. In systemic capillaries hemoglobin will give most of its oxygen and hemoglobin decreases according to Scanlon, (2007).

Platelets are nucleated blood cells derived from the cytoplasm of megakaryocytes. The normal levels of platelets in the human body are about 150 - 450 x 10³ / µl. In the inactive state the platelets have a biconvex disc shape with a diameter of 2 - 4 µm. The platelets can survive in the body for 7 -10 days. The role of platelets in the body is as a formation of blockages during normal haemostatic response to wounds according to Hoffbrand et al. (2005).

The occurrence of anemia can be caused due to damage to blood cells as a result of heavy exercise

which generally leads to loss of iron (Fe) so that hemoglobin (Hb) levels decrease. Kurnia Fitriani (2014) .The emergence of anemia can also be caused by intake of wrong diet, irregular and unbalanced with the sufficiency of nutrients needed by the body such as energy intake, protein intake, carbohydrate intake, fat intake, vitamin C and especially lack food sources containing iron.

Globally anemia occurs in 24.8% of the world's population of about 1.62 million people. The high incidence of anemia indicates poor nutritional status and public health. Anemia can occur in all age groups but is most common in children and pregnant women WHO, (2008). Based on WHO research 1993-2005, globally 1.62 billion people or approximately 24.8% are affected by anemia. The highest prevalence is at

pre school children 47.4%, pregnant women 41.8%, non-pregnant women 30.2%, school children 25.4%, elderly 23.9%, and lowest in adult men 12.7% WHO, 2008).

the prevalence of iron deficiency anemia in Asia is > 75%, East Africa 47%, West Africa 56%, as well as in Australia and New Zealand is 20% (ACC / SCN, 2000). As for western countries such as Europe and America, the prevalence of iron deficiency anemia is about 18-29% (WHO, 2006).

While in Indonesia, based on Riskesdas (2013), the prevalence of anemia is 21.7% with the proportion of 18.4% in males and 23.9% in females. The prevalence of anemia for the Special Region of Yogyakarta (DIY) alone was 15.0% with details of 20.9% for women, 11.6% for men, and 8.7% for children (MOH, 2008).

While the incidence of anemia in Indonesia according to the results of Basic Health Research (Riskesdas) in 2007 showed 19.7% suffered by urban adult women, 13.1% male adults, and 9.8% of children. Anemia in women is still commonly found in 17 provinces in Indonesia including North Sumatra, West Sumatra, Riau, Lampung, Bangka Belitung, DKI Jakarta, Central Java, DI Yogyakarta, West Kalimantan, Central Kalimantan, South Kalimantan, East Kalimantan, South Sulawesi, Sulawesi Southeast, Gorontalo, moluccas and North Moluccas.

Botemes include a minor economic plant but have nutritional value similar to other food crops such as rice, corn, wheat, and other grain crops because the boteme plant itself is classified into a grain crop type. Most of the people are not familiar with botard as a source of food according to Marlin, (2010).

Nutritional content of Boteme (*setaria italica*) is carbohydrate 84,2%, protein 10,7%, fat 3,3%, fiber 1,4%, Ca 37 mg, Fe 6,2 mg, vitamin C 2,5%, vitamin B1

0.48%, and vitamin B2 0.14%. (Widyaningsih and Mutholib, 1999).

From the above explanation, the researchers are interested to conduct research entitled "The Effect of Boteme Consumption (*Setaria Italica*) Against Increasing Hemoglobin and Platelet In Community In Ruko Village, North Tobelo Sub District of North Halmahera.

Research design

This research design Quasy Experiment Design Control Group with pretest and posttestcontrol group design that there are two groups that each selected at random or random. The first group was given treatment and the second group was not treated. The treated group is called the experimental group and the untreated group is called the control group.

After that, one measurement was done in the Pretest for both groups, then treated in the first group (experiment group) and in the second group (control group) was not treated. After that, the posttest was done in both groups. It aims to look at comparisons in the experimental group and the control group.

The research design is described as follows:

Pretest Posttest

O1 x O3

O2 O4

Information:

O1 = Measurement result of increase of hemoglobins before boteme consumption in intervention group (experiment)

O2 = Measurement result of increase of hemoglobin in control group

X = Bots of boteme intervention

O3 = Result of measurement of increase of hemoglobindan platelets before boteme consumption in intervention group (experiment)

O4 = Measurements of hemoglobin and platelet enhancement in the control group

RESULTS

The results of statistical test analysis (SPSS) using T test (Thitung and T table) showed that Halmahera botem has an influence on the increase of hemoglobin in community in RukoKecamatan Tobelo Utara Village of North Halmahera. Based on research boteme Halmahera (*Setaria Italica*) can improve). group Exsperimen(*Pre-Test dan Post-Test*)

1. Decision-making based on comparisons of T arithmetic and T tables.

a. If T count is greater than T table then ho is rejected

b. If T count is smaller than T table then ha Accept Known T count is 5.488, 10.328 whereas T table is searched in a way

a. 5% significant level for the 2 side test then the significant level is divided into 2.5%

b. Df (degree of freedom) or degree of freedom sought by the formula of the amount of data -1 or 5-1 = 4

c. The test is done by 2 sides with df = 4 value and significant value 0.05 then from t table got value 2,776.

Because T arithmetic lies in the Ho area is rejected, it can be concluded that the hemoglobin before and after consuming Boteme Halmahera is not the same or different significantly.

1. Decision-making based on probability value

a. If the probability is > 0.05, then Ho is rejected

b. If the probability is < 0.05, then Ha is accepted for the 2-sided test, each side divided by 2 to become

1) The probability number is $\frac{1}{2} > 0,025$, then Ho is rejected

2) Probability $\frac{1}{2} < 0,025$, Ha is accepted

It can be seen that T count for hemoglobin is 5,488, 10,328 with probability 0.005, 0.000 for 2 side test, probability number is 0.005, 0.000 / 2 then Ho is rejected While T count for hemoglobin and thrombocyte is < 0.025, with probability for test 2 side of probability number is then Hadith accept.

That the hemoglobin and platelets before and after taking the Halmahera boteme are relatively different or the Halmahera boteme is effective in increasing Hemoglobin and Platelets.

Control Group (Pre Test and Post Test)

Decision-making based on comparisons of T arithmetic and T tables.

a. If t arithmetic greater than t table then ho accepted

b. If t arithmetic smaller than t table then ha rejected

The unknown T count is -1.633, -0.916 while the T table is searched in a way

a. 5% significant level for 2 side test then the significant level is divided into 2.5%.

b. Df (degree of freedom) or degree of freedom sought by the formula of the amount of data -1 or 5-1 = 4

c. with a value of df = 4 and a significant value of 0.05 then from t table obtained value of 2776.

DISCUSSION

Based on the same thorough research on the community there can be an increase of hemoglobin and platelets in the experimental group that influence the consumption of Halmahera botem (*Setaria Italica*) to the

increase of hemoglobin and platelets in society containing iron (Fe) and vitamin C.

CONCLUSION

From the research result can be concluded as follows:

Based on the same thorough research on the community, there can be an increase of hemoglobin and platelets in the experimental group that influence the consumption of Halmahera botem (*Setaria Italica*) to the increase of hemoglobin and platelets in society containing iron (Fe) and vitamin C.

SPSS stastic test results obtained significant value of hemoglobin $p = 0.005 < 0.05$, platelets $p = 0.00 < 0.05$ which means the Null Hypothesis rejected, it can be concluded that the influence of consumption Boteme Halmahera (*Setaria Italica*) on the increase of hemoglobin and platelets to the community in the village of North Toba Subdistrict, North Halmahera District.

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