THE EFFECT OF GIVING KELAKAI EXTRACT (STENOCHLAENA PALUSTRIS) TOWARDS YOUNG WOMEN WITH ANEMIA IN SEMBUNG VILLAGE NARMADA WEST NUSA TENGGARA

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Abstract

One of the nutritional problems faced by adolescents is anemia. The World Health Organization mentions the prevalence of anemia almost evenly in various regions of the world, which ranges from 40-88%. About 25-40% of young women in Southeast Asia suffer from anemia. The purpose of this research is to analyze the effect of giving extracts of kelakai (Stenochlaena palustris) on the incidence of anemia in young women. This research is Quasi Experimental research with research design used is non equivalent pre and posttest control group design in young women who are anemic. The sampling techniques in this study used purposive sampling techniques. The number of samples in this study amounted to 30 respondents, divided into 15 subjects for the consumption of extracts (Stenochlaena palustris) (250mg) and 15 subjects consumed Ferrous fumarate tablets (60 mg) taken daily during the week. Hypothesis testing is done using paired T-test and independent t-test. The results of the paired t-test showed that there was a significant difference in the increase in hemoglobin levels in young women before and after treatment with p-value of 0.000 (<0.005), while the independent t-test showed that the difference Significant hemoglobin levels with an average difference of 2,283 and from statistical test results obtained values of 0.030 which can be concluded that there is a significant difference in the increase in hemoglobin levels in young women between the control and treatment groups. The conclusion in this study is that there is an influence of giving extracts to increase hemoglobin levels in young women. The advice in this study is to be able to use the future as an alternative in preventing anemia in young women.

Keywords: *Kelakai (Stenochlaena palustris), Anemia, Young Women.*

1. INTRODUCTION

One of the nutritional problems faced by adolescents is anemia. The World Health Organization (2013) mentions the prevalence of anemia almost evenly in various regions of the world, ranging from 40-88%. About 25-40% of young women in Southeast Asia suffer from anemia. The prevalence of adolescent anemia in developing countries is 27%, while in developed countries it is 6%.

Young women are one of the groups prone to nutritional deficiency problems. Nutrients in the blood can be known through hemoglobin levels. The normal Hb level of young women is 12 gr/dl. Young women are said to be anemic if hb<12 gr/dl. Anemia levels occur due to insufficient hemoglobin levels for the exchange function of oxygen and carbon dioxide in tissues (Proverawati & Asfuah, 2011).

Basic Health Research (RISKESDAS) data report in 2013, anemia with prevalence in young women 13-18 years and women of childbearing age 15-49 years each of 22.7 percent (KEMENKES, 2013).Results of the National Health Survey in 2001 that the highest number of women of childbearing age experienced anemia in Banten Province by 71%, followed by West Nusa Tenggara (NTB) 66% and East Nusa Tenggara (NTT) 43.6%.

Ministry of Health (2013) determined the prevalence of anemia in school children as the limit of public health problems in Indonesia of >20%. Young women have a ten times greater risk of suffering from anemia compared to young men (Kemenkes RI, 2014). There are several reasons why young women have ten times the risk, the first being that young women have menstruation every month and are in their in and out, requiring more iron intake. The second reason is because young women often keep their appearance to stay slim or thin, so dieting or reducing eating (Sulistyoningsih, 2011).

Anemia can pose a risk in young women both long-term and in the short term. In the short term anemia can lead to delays in physical growth, and delayed sexual maturity. This indicates that the impact of adolescents experiencing anemia is a lack of concentration that will affect the learning achievements of the teenager in his class (Astriandani, 2015). The long-term impact of young women who have anemia is as a future mother who will become pregnant, thus the young woman will not be able to meet the nutrients for herself and also the fetus in her womb that can cause complications in pregnancy and childbirth, the risk of maternal death, prematurity, BBLR and perinatal mortality rates (Akma L, 2016).

Various efforts have been made by the government in tackling anemia, one of which is the distribution of Fe tablets to the community (Suryani et al, 2015). Tackling anemia should not depend on the government, but should start from one's own. In fact, anemia can be prevented through a simple way that is by doing a good diet. Kelakai is generally used by the community as a vegetable and hereditary used as traditional medicine, where by Dayak people are believed to be able to treat anemia and used to increase postpartum energy (State et al, 2017). Kelakai is also commonly found in Lombok Province of West Nusa Tenggara.

Kelakai contains Fe (4153 mg / 100 g), vitamin C (41 mg / 100 g), protein (2.36%), beta carotene (6.69 mg / 100 g) and asamfolat (1.13 mg / 100 g) (Wijaya et al., 2017). According to Mahyunidkk (2016, consuming Kelakai (Stenochlaena palustris) for 22 days showed a significant increase in maternal hemoglobin concentration (p-value ≤ 0.05) and proved to be just as effective as taking ferrous fumarate tablets that can increase hemoglobin levels (Mahyuni, Riyanto, & Muhhalimah, 2016).

Various efforts have been made to prevent anemia in young women, including providing counseling to schools about anemia, giving blood-added tablets to adolescents and empowerment activities in adolescents in school through peer counselors. But the incidence of anemia is still high. Therefore, the author is interested to conduct research on how the effect of giving extracts of kelakai (*Stenochlaena palustris*) on the incidence of young women's anemia in the village of Sembung Narmada West Lombok West Nusa Tenggara in 2020.

2. METHODOLOGY

This research is Quasi Experimental research with research design used is non equivalent pre and posttest control group design. Sampling techniques in this study were carried out with purposive sampling techniques. The large sample in this study used a total sampling of 30 samples namely young women who had anemia, 15 young women who were given the extract of kelakai (*Stenochlaena palutris*) in the treatment group and 15 young women who were given Ferrous fumarate as a control group.

The research place is in the village of Sembung District Narmada West Lombok Regency. The research period was conducted from July to December 2020. Before collecting data researchers have received ethical clearance from the commission of the Faculty of Medicine of Al-Azhar Islamic University Mataram. Ethical clearance came out on September 25, 2020 with Number:38/EC/FK-06/UNIZAR/X/2020 stating that the research has qualified for ethics.

Kelakai extract used in this study was a pure bean extract with a dose of 250 mg given in the treatment group and Ferrous fumarate with a dose of 60 mg given to the control group, which was consumed for 7 days after checking the hemoglobin levels of each respondent using the Hb stick tool. Hypothesis test done with Paired T-test is a different test of two paired samples and Independent T-test is a test used to determine whether or not the difference in average of two free samples.

3. RESULTS

3.1. Description of Respondent Characteristics

Table 1: *Distribution of Respondents' Characteristics*

Variable	Control Group (n=15)	Treatment Group (n=15)
Age Criteria		
Early teens (12-16 years old)	9 (60%)	12 (80%)
Late teens (17-25 years old)	6 (40%)	3 (20%)
Total	15 (100%)	15 (100%)

Based on table 1 Characteristics of respondents based on age in this study most are in the category of early adolescents aged 12-16 years number of 9 (60%) in the control group and 12 (80%) treatment group

Table 2: *Test Normality of Anemia Data in Young Women Before and After between Treatment and Control*

Variable	Treatment Group	Control Group
Anemia of young women		
Pretest	0,992	0,987
Posttest	0,406	0,178
Total	15 (100%)	15 (100%)

Table 2 shows the results of the distribution of anemia data in young women before treatment and after treatment. In the treatment group stated normal distribution with a

significant value of >0.05, so that bivariate data analysis can use *paired t-test dan uji independent t-test*.

Tabel 3: *Distribution of Anemia Levels in Young Women Before and After Treatment*

Anemia Level	Treatment Group				Control Group			
	Pre test		Post test		Pre test		Post test	
	n	%	N	%	n	%	n	%
Low	7	46,7	0	0	6	40	0	0
Medium	8	53,3	0	0	9	60	1	6,7
No Anemia	0	0	15	100			14	93,3
Total	15	100	15	100	15	100	15	100

Table 3 Shows that the majority of anemia rates in the young women control group before being given treatment were in the moderate category of 9 (60%) and after treatment was in the category of not anemia by 14 (93.3%). In the treatment group most of the levels of anemia in young women before being given treatment were in the moderate category of 8 (53.3%) and after treatment is in the category of not anemia of 15 (100%).

3. 2 Bivariate Analysis

3.2.1 Incidence of anemia in young women before and after giving the administration of the extract of the child (Stenochlaena palustris)

Table 4: *Paired T-test for Treatment of young women anemia in treatment group*

Variable	Anemia of Young Women		t	Mean	*P-value*	CI
	Pretest	**Posttest**				
	mean±SD	**mean±SD**				
Treatment						
Ekstracts of Kelakai	9,973±0,52	11,787±0,54	14,299	1,813	0,000	1,54-2,08

The results showed that in the average treatment group of anemia in young women before being given the extract was 9,973 and after being given the extract of kelakai obtained on average increased to 11,787. The difference in mean value between before and after being given the extract is 1,813 with a standard deviation of 0.49. In the statistical test results obtained values of 0.000, it can be concluded that there is a significant difference to the increase in hemoglobin levels in young women before and after treatment. The results of this study were supported by a similar study by Petricka et al, (2018), showing that there was a significant increase in hemoglobin levels of 3 gr / dl after being given 250 grams of vegetables per day for 7 days with statistical test results p-value ≤ 0.005.

Kelakai is generally used by the community as a vegetable and has been traditionally used as a traditional medicine, which is believed to be able to treat anemia and is used to increase postpartum energy (Negara et al, 2017). The (*Stenochlaena palustris)* contains vitamin C, vitamin A flavonoids, alkaloids and

steroids. The result of ca mineral analysis is higher in the leaves than the stem is 182.07 mg per 100 gr, as well as the highest Fe 291.32 mg per100 gr (Maharani et al, 2006). Kelakai (*Stenochlaena palustris*) has a high content of iron and vitamins. In this study Kelakai made in the form of extracts and then packed in capsule form, thus it is easy to consume, safer and durable.

3.2.2 Incidence of anemia in young women before and after treatment in the control group

Table 5: *Paired T-test for Treatment of Young Women's Anemia on the control group*

Variable	Anemia of Young Women		t	Mean	*P-value*	CI
	Pretest	**Posttest**				
	mean±SD	**mean±SD**				
Giving						
Fe control	9,920±0,57	11,267±0,69	11,426	1,346	0,000	1,09-1,59

The results showed that in the control group the average anemia in young women before being given Fe tablets were 9,920 and after being given Fe tablets it increased on average to 11,267. The difference in mean value between before and after given fe tablet is 1,346 with standard deviation of 0.45. In the statistical test results obtained p-value of 0.000, it can be concluded that there is a significant difference to the increase in hemoglobin levels in young women before and after treatment.

The results of this study are in line with Nuraeni, et al, (2019), showing that there is an increase in hemoglobin levels before and after the given fe tablets. The result of data analysis using Wilcoxon test obtained p-value value of 0.000 with an average increase in hemoglobin levels of 1.01 gr / dl. In addition, research conducted by Ahmady, et al (2016), showed a significant difference in hemoglobin levels in respondents who took Fe tablets before and after intervention in the treatment group with a p-value of 0.000.

Giving fe tablets to young women is very beneficial in menstrual conditions because at that time there can be iron loss due to bleeding, so it can prevent the incidence of anemia in young women. Taking Fe tablets can treat women and young women who have anemia, improve learning ability, improve nutritional status and adolescent health (Sani R, 2014).

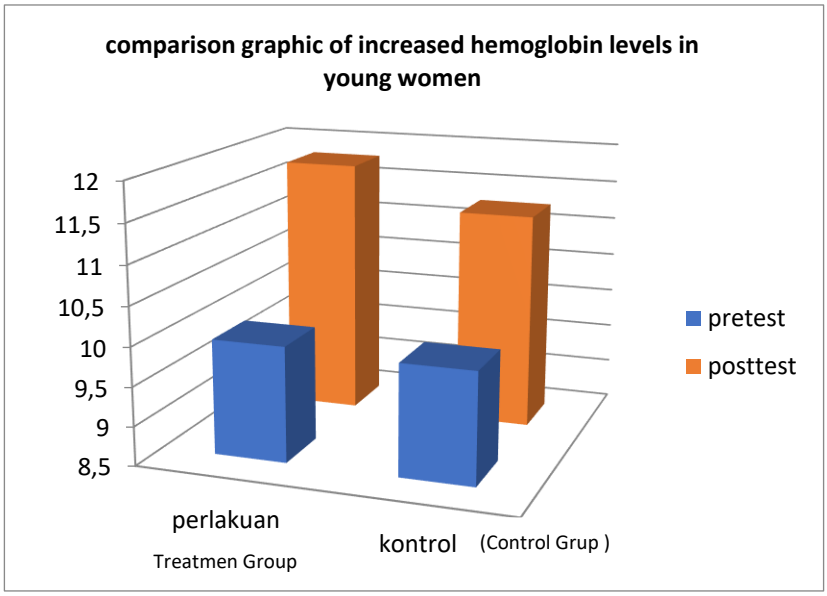
3.2.3 Differences in the incidence of anemia in young women between the control group and the treatment group

Table 6*: Independent T-test on control group and treatment group toward young women's anemia*

	Variable	Anemia of Young Women		t	Mean	*P-value*	CI
		Pretest	Posttest				
		mean±SD	mean±SD				
Pretest		9,920±0,57	9,973±0,52	0,266	0,053	0,792	0,35-o,46
Posttest		11,267±0,69	11,787±0,54	2,283	0,52	0,030	0,52-0,98

Table 6 shows that the pre-test did not show a significant difference in hemoglobin levels with an average difference of 0.266, and from the statistical test results obtained a p-value of 0.792 which can be concluded that there is no significant difference to the increase in hemoglobin levels in young women between the control and treatment groups.

In the post test showed a significant difference in hemoglobin levels with an average difference of 2,283 and from the statistical test results obtained a p-value of 0.030 which can be concluded that there is a significant difference in the increase in hemoglobin levels in young women between the control group and treatment.



***Graphic 1**. Comparison of Increased Hemoglobin Levels in Young Women between Control Group and Treatment Group*

In the treatment group the average hemoglobin levels before being given the extract of kelakai was 9,973 and after being given the extract of hemoglobin levels obtained on average increased to 11,787. In the control group hemoglobin levels before being given Fe tablets were 9,920 and after being given Fe tablets hemoglobin levels were obtained on average increased to 11,267.

The results showed that in the pre-test did not show a significant difference in hemoglobin levels with the average is 0.266, and from the statistical test results obtained a p-value of 0.792 which can be concluded that there is no significant difference to the increase in hemoglobin levels in young women between the control and treatment groups. In the post test showed a significant difference in hemoglobin levels with an average difference of 2,283 and from the statistical test results obtained a p-value of 0.030 which can be concluded that there is a significant difference in the increase in hemoglobin levels in young women between the control group and treatment.

The results of this study are supported by research conducted by the State et al (2017), showing that the extract of kelakai increases hemoglobin levels

compared to the administration of Fe tablets i.e. from the initial hemoglobin 4.9 gr / dl to 22.9 g / dl means that the extract of kelakai can increase hemoglobin levels four times that of the initial hemoglobin. According to Mahyuni, et al, (2016), it is claimed that consuming 22 days of mother's hemoglobin can increase by 1.86 gr/dl with a p-value of ≤ 0.05. This is supported also by Chai's theory (2015), that in kelakai has non-heme iron content that can increase hemoglobin levels.

However, this study is contrary to research conducted by Petricka et al. (2018), showing that giving Fe tablets higher increases hemoglobin levels compared to the administration of the extract of 0.04 gr / dl. In the study, it was consumed in the form of dishes that have been processed through heating by sautéing method, so that it can affect the reduction of Fe levels by 9-43%.

The administration of bean by extract method is an effective method in increasing hemoglobin levels, because with the extract method can bind more iron so as to produce iron and high protein in helping the formation of erythrocytes. Kelakai Extract is considered more efficient in preventing anemia and can maintain normal Hb levels to prevent anemia in young women.

4. CONCLUSIONS

A. In the treatment group obtained a p-value of 0.000, so it can be concluded that there is a significant difference to the increase in hemoglobin levels in young women before and after the administration of later extracts (*Stenochlaena palutris*).

B. In the control group obtained values of 0.000, so it can be concluded that there are significant differences in the increase in hemoglobin levels in young women before and after the administration of Ferrous fumarate.

C. The extract of Kelakai (*Stenochlaena palutris*) effectively increases hemoglobin levels compared to the control group.

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