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The Effect of Dates Consumption on Increased Hemoglobin Levels in Third Trimester Pregnant Women at BPM "E", Serang

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ABSTRACT
This study aims to determine the effect of dates consumption on increased hemoglobin levels in third trimester pregnant women at BPM "E", Serang. This study used quasi experimental method with non-equivalent control group using a control group and experimental group. Data were collected using observation sheets of increased hemoglobin levels for 14 days. Univariate analysis showed that mean increase in hemoglobin levels in pregnant women who consumed Fe tablets was 0.3 g / dL and those who consumed dates was 1.8 g / dL. In the bivariate analysis using the paired t-test, P value of the experimental group was 0.000 (P <0.05) and independent t-test obtained P value of 0.03 (P <0.05) which can be concluded that there was an effect of dates consumption on increased hemoglobin levels in third trimester pregnant women. It is expected that pregnant women can use natural methods by consuming dates to increase hemoglobin levels.

Keywords: Third Trimester of Pregnancy, Hemoglobin, Dates

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BACKGROUND

Anemia among pregnant women is anemia caused by iron deficiency and is a health problem commonly experienced by women around the world, especially in developing countries. WHO claims that 40% of maternal deaths in developing countries related to anemia in pregnancy are caused by iron deficiency and acute bleeding. Based on data, risks of childbirth in pregnant women with iron deficiency anemia are 12-28% fetal mortality, 30% perinatal mortality and 7-10% neonatal mortality (WHO, 2017).

WHO (2017) has defined anemia in pregnancy as a condition of pregnant women with hemoglobin (Hb) concentration of less than 11.0 g/dL. Besides, according to Saifuddin (2010), anemia in pregnancy is a condition of pregnant women with Hb levels below 11.0 g/dL during first and third trimester of pregnancy or <10.5 g/dL during second trimester of pregnancy. An increase in plasma volume that exceeds increase in red blood cell volume can cause hemodilution which can reduce hemoglobin concentration.

In 2016, Banten Provincial Health Office obtained data on Maternal Mortality Ratio (MMR), one of which was in Serang which reached 10 per 100,000 live births, while in 2015 MMR reached 9 per 100,000 live births. Moreover, in 2017, MMR in Serang reached 13 per 100,000 live births. It indicates that basically MMR in Serang has increased every year (Health Profile of Serang City, 2017).

Results of Basic Health Research (RISKESDAS, 2018) demonstrated that anemia in pregnancy was mostly experienced by pregnant women aged 15 to 24 years (84.6%), followed by those aged 25-34 years (33.7%); aged 35-44 years (33.6%); and aged 45-54 years (24%) (RISKESDAS, 2018).

Efforts to overcome anemia cases are carried out by giving Iron Tablet Supplementation (Fe) which are prioritized to nutrition-prone groups, including pregnant women. According to Satuhu (2010), anemia in pregnancy can also be overcome by fulfillment of nutrients in body obtained from fruits and vegetables, one of which is by consuming dates which contain 13.7 mg of iron (per 100 grams).

Results of previous study conducted by Sugita and Kuswati (2010) found that consuming 7 dates per day for 14 days could increase hemoglobin levels in third trimester pregnant women. Based on the aforementioned background, researchers were interested in conducting a study on the Effect of Dates Consumption on Increased Hemoglonin Levels in Third Trimester Pregnant Women in Work Area of BPM “E”, Serang.

METHODS

This study used a quasi-experimental method with a nonequivalent control group design. This design involved two groups: control group (untreated group) and experimental group (treated group). Population in this study were all third trimester pregnant women with a total of 55 people. Sampling was conducted using purposive sampling method; sampling based on inclusion and exclusion criteria made by researchers (Nursalam, 2011). Sample used in this study was 32 respondents who were divided into two groups, each containing 16 respondents (Sugiyono, 2016). Accordingly, 16 respondents were in control group and 16 respondents were in experimental group. This study began in January 2021.

In this study, researchers gave treatment to experimental group by giving Fe tablets and 7 dates per day for 14 days, while control group took Fe tablets regularly. Hb was measured using Quick Check and observation sheet.

Data analysis was performed using Statistical Package for The Social Sciences (SPSS) software version 25 Parametric Paired Sample T-test statistical test to see difference in mean hemoglobin levels before and after intervention both control group and experimental group

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and to determine the effect of dates on increased hemoglobin levels. If data were normally distributed, Independent Sample T-test was used.

RESULTS

Table 1. Distribution of Mean Hemoglobin Levels in Pretest and Posttest in Third Trimester Pregnant Women at BPM "E", Serang

Group	Variable	N	Mean	Median	Stv.dev
Control	Pretest	16	10.21	10.25	0.2762
	Posttest		10.50	10.50	0.4281
Experimental	Pretest	16	10.04	10.20	0.5341
	Posttest		12.22	12.20	0.2380

Table 1 presents that variable used were control group (consuming iron tablets without consuming dates) and experimental group (consuming iron tablets and dates). Mean value of control group variable in pretest was 10.2 g/dL and in posttest was 10.5 g/dL, so the difference was 0.3 g/dL. Besides, mean value of experimental group in pretest was 10.4 g/dL and in posttest was 12.2 g/dL, so the difference was 1.8 g/dL. Thus, here, it could be concluded that there was a difference in mean hemoglobin levels in the two groups.

Table 2. Results of Paired T-test

Group	Variable	N	Mean ± Std. Deviasi	P value	Std. Error
Control	Pretest	16	10.21 ± 0.2762	0.000	0.0631
	Posttest	16	10.50 ± 0.4281		
Experimental	Pretest	16	10.04 ± 0.5341	0.000	0.1249
	Posttest	16	12.22 ± 0.2380		

Referring to Table 2, P value of control group = 0.000 (P < 0.005), indicating that there was a significant difference in control group. Moreover, in experimental group, P value = 0.000 (P < 0.005), indicating that there was a significant difference in experimental group.

Table 5 Independent T-test

No	Group	N	Mean ± Std. Deviation	P value
1	Control	16	10.50 ± 0.4281	0.031
2	Experimental	16	12.22 ± 0.2380	

Table 5 presents results of independent sample t-test of control group and experimental group in posttest from each of 16 respondents. Results obtained $P_{value} = 0.031$ ($P < \alpha$); therefore, it could be concluded that there is an effect of dates consumption on increased hemoglobin levels in third trimester pregnant women at BPM "E", Serang.

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DISCUSSION

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Descriptive statistical analysis on increased hemoglobin levels in third trimester pregnant women in control group and experimental group obtained a significant mean. Based on univariate analysis, mean value of control group variable in pretest was 10.2 g/dL and in posttest was 10.5 g/dL. Besides, mean value of experimental group in pretest was 10.4 g/dL and in posttest was 12.2 g/dL. It means that there was a significant difference in mean between the two groups. Hemoglobin test is performed to determine Hb level in blood in order to determine whether a person has anemia. Almatsier (2012) affirmed that hemoglobin functions as an oxygen carrier rich in iron in red blood cells, and oxygen is carried from lungs into tissues. Thus, it is necessary for pregnant women to have Hb test as an attempt to minimize complications or bleeding.

Results of this study are in line with results of a study conducted by Diyah Ayu (2017) which found that there was an effect of dates consumption on increased hemoglobin levels. This study performed paired sample t-test in which experimental group in pre-post obtained P value of 0.000 ($P < 0.005$), as well as independent t-test obtaining P value of 0.031 ($P < 0.005$). Based on results of this study, there was an effect of dates consumption on increased hemoglobin levels in third trimester pregnant women at BPM "E", Serang.

Results are also in accordance with Sugita (2019) who claimed that consuming 7 dates in 14 days can increase hemoglobin levels in third trimester pregnant women. This shows that dates are rich in iron which can help increase hemoglobin levels. Protein, carbohydrate and fat content in dates juice as well as glucose, Ca, Fe, Zn, Cu, P, and Niacin with palmyra which is rich in Vit A support hemoglobin synthesis. Furthermore, 100 grams of dates contain 2.81 grams of protein, 7.1 grams of fiber, 35 mg of calcium, 88.78 grams of carbohydrates, 0.4 mg of vitamin C and 1.02 mg of iron. Iron is a component of hemoglobin in red blood cells which determines oxygen-carrying capacity of blood and helps treat anemia.

Satuhu (2010) believed that one of benefits of dates in medical field is to reduce risk of anemia. Dates contain minerals needed by body, such as iron, magnesium and potassium. Iron is very important to prevent anemia, whose symptoms include fatigue, dizziness, blurred vision and difficulty concentrating. According to Proverawati (2011), pregnant women can suffer from anemia due to a lack of iron which can affect pregnancy, childbirth and fetus.

This study has shown that there is an effect of dates consumption on hemoglobin levels in both groups. Therefore, dates can be used as an option in meeting iron needs during pregnancy to minimize complications during childbirth.

CONCLUSION

This study concludes that there is an effect of dates consumption for 14 days on increased hemoglobin levels in third trimester pregnant women. Accordingly, Pregnant women who experience anemia are expected to not only consume Fe tablets but also add dates as an option in an effort to reduce risk of complications during childbirth due to anemia.

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