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The Effect of Dragon Fruit Juice and Honey On The Improvement of Pregnant Women's Hb

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ABSTRACT
The research method used was a quasi-experimental design with control. The first observation was carried out before being given treatment (pretest) by measuring the Hb level and the second observation was carried out after being given treatment (posttest) by measuring the Hb level again. The population and sample in this study were 30 pregnant women in the first to third trimesters, which were divided into two groups, namely 15 pregnant women (case group) who were given dragon fruit juice and honey, fe and nutritional counseling, and 15 pregnant women (control group), who are fed nutritional counseling. The tool used in this study is a tool to measure hemoglobin levels in the blood, checklist. The results showed that there was no significant effect of dragon fruit juice and honey on the increase in Hb of pregnant women with a p-value of 0.719, but there was a difference in the average before and after giving dragon fruit juice with a p-value of 0.000. The conclusion of this study is dragon fruit juice and honey are not the only interventions to increase hemoglobin levels in pregnant women, they still need good nutritional fed drugs so that it can be advised to health workers, especially midwives, that they can still educate pregnant women to continue consuming nutritional food. which is good during pregnancy besides consuming dragon fruit juice and honey to accelerate the increase in hemoglobin levels. 719 but there is a difference in the average before and after giving dragon fruit juice with a p-value of 0,000.

Keywords: Dragon Fruit, Hemoglobin, Honey

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BACKGROUND

The goal of health development is the realization of healthy, intelligent, and productive human resources. The government focuses on health development on improving the quality of human resources, one of which is by reducing the incidence of non-communicable diseases, one of which is anemia. (Fauziandari, 2019)

The prevalence of anemia in Indonesia is based on data from Riskesdas (2013), reaching 21.7%. The proportion of the incidence of anemia based on gender, women dominate more than men, namely 23.9% and 18.4% men. The WHO target in 2025 is anemia in WUS 25% (Basith, et al 2017).

Anemia is caused by a lack of nutrients that play a role in forming hemoglobin. Nutrients in the form of iron, protein, vitamin B6 which have a role as a catalyst in synthetic hem in the hemoglobin molecule, vitamin C, zinc which can affect the stability of the red blood cell membrane. Anemia disease that often occurs is iron nutritional anemia. The factor that causes iron deficiency anemia is a lack of iron intake, especially in the form of iron-hem (Suroso and Paryono, 2016).

Anemia can be detected through symptoms that appear, such as pallor, fatigue, palpitations, tachycardia (heart beats faster), and shortness of breath. Iron deficiency anemia can cause health problems such as weakness, fatigue, dizziness, lack of appetite and decreased body fitness, ability to work, and immunity or immunity (Khasanah, 2018).

The period of pregnancy is a time when energy metabolism increases, therefore the need for energy and other nutrients increases during pregnancy. Lack of certain nutrients needed during pregnancy can cause the fetus to grow imperfectly. (Lubis, 2015)

Nutritional needs increase during pregnancy for fetal growth, placenta, increased blood volume, enlarged breasts, and increased basal metabolism (Mariana, 2018)

Overcoming iron deficiency anemia (Fe) pharmacologically is consuming iron mineral supplements in tablet form. However, it can give side effects of nausea and vomiting as well as hard and black stool. (Susane, et al. 2016)

Non-pharmacological treatment comes from natural ingredients, namely honey which contains high iron which can synthesize the formation of heme which can spur hemoglobin levels. (Zen, 2013). Apart from honey, there are other natural ingredients, namely Moringa oleifera leaves. (Aminah, et al, 2015). This plant contains high protein, vitamin C, and iron compared to other similar vegetables. (Nku, et all, 2015), other basic ingredients contain lots of vitamins and minerals, namely dragon fruit. Dragon fruit as a food ingredient that contains complete nutrition is high in protein, iron, vitamin A, vitamin B2, and vitamin C which play a role in the body's metabolism, thereby increasing hemoglobin levels in the blood. (Arifin, 2012)

Anemia in pregnant women is an indicator of malnutrition and ill health. Anemia in pregnancy-related to mortality and morbidity including miscarriage, stillbirth, premature, and low birth weight. Anemia can be prevented by consuming a balanced nutritious diet with sufficient iron intake to meet the body's needs. Natural ingredients that can be used as an alternative to treat anemia and are easily available and cultivated also contain protein, vitamin C, and iron. and an increase in hemoglobin is expected is dragon fruit and honey

Ripe dragon fruit contains lots of organic acids, proteins, minerals such as potassium, magnesium, calcium, iron, and vitamin C. Based on the chemical content of dragon fruit which contains lots of minerals, iron, and vitamin C, it can be used for the treatment of anemia. Ascorbic acid or vitamin C, folic acid, and protein are the main factors that can encourage the absorption of nonheme iron. Vitamin C can increase the absorption of non-haem iron up to four times. Citrate, malic, lactic, succinic, and tartaric

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acid can increase the absorption of nonheme iron under certain conditions. Vitamin C has a reducing factor that is useful in increasing the absorption (absorption) of iron by reducing ferric iron to ferrous so that iron absorption becomes more efficient and effective (Rimawati et al, 2018).

Iron is one of the most important micronutrients needed during pregnancy. In the body, iron is required for the formation of the sulfur and heme iron complexes. Iron-sulfur complexes are needed in enzyme complexes that play a role in energy metabolism. Heme is composed of a porphyrin ring with an iron atom in the center of the ring which plays a role in transporting oxygen to hemoglobin in erythrocytes (red blood cells) and myoglobin in muscles. Copper in date juice is needed by the body to consume red blood cells. Inadequate production of red blood cells, damage to high levels of red blood cells, and blood loss can cause a person to develop anemia. Dragon fruit also contains iron which is useful for forming red blood cells. The novelty of this research is that not many people know that dragon fruit and honey are very useful for overcoming and preventing anemia. This was proven during a survey through interviews with pregnant women who said that most of them did not previously know that honey and dragon fruit have benefits for the prevention and treatment of anemia. From the results of this preliminary survey, the researchers are interested in researching dragon fruit and honey in preventing anemia.

METHODS

Research design

This type of research is quantitative. The design used in this study is quasi-experimental, which is an experimental activity that aims to determine a symptom or effect caused as a result of certain interventions or treatments. This study aims to determine whether there is an effect of dragon fruit and honey in increasing hemoglobin levels.

Population and Research Sample

The population and sample in this study were 30 pregnant women who examined the PMB midwife Y in Kopo, Bandung Regency, which were divided into two groups, namely 15 pregnant women (case group) who were given dragon fruit juice and honey, nutritional counseling, and 15 pregnant women (control group) who were given fe and nutritional counseling.

Data analysis

The result sheet of the normality test with the One-sample Kalmogrow-Smirnov, if the data is normal to find out the difference in hemoglobin levels before and after both in the control group and the experimental (treatment) group using the paired t-test. To determine the differences in the effectiveness of dragon fruit and honey on the increase in hemoglobin levels, the normality test was carried out first with the Kalmogrow-Smirnov One-sample, if the data was normalized using the independent t-test.

RESULTS AND DISCUSSION

The average age of pregnant women in this study was mostly 20-35 years, the distribution of the parity frequency of pregnant women was mostly in the primiparous category, and most of the gestational age was in the third-trimester category.

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A. Univariate Analysis

Table 1. Frequency Distribution of Pregnant Women Age

Age	amount	%
<20 Years	3	9,1
20-35 Years	20	60.6
> 35 Years	7	30.3
Total	30	100.0

Table 2. Frequency Distribution of Pregnant Women Parity

Age	amount	%
Primipara	19	63.3
Multiparous	9	60.6
Grande Multi	2	30.3
Total	30	100.0

Table 3. Frequency Distribution of Pregnancy Age for Pregnant Women

Age	amount	%
Trimester I	1	3,3
Trimester II	6	20.0
Trimester III	23	76.7
Total	30	100.0

B. Bivariate Analysis

Table 4. The Difference in Average Before and After Given Dragon fruit Juice and honey, FE Tablets and Counseling

HB levels	Mean	SD	t	*P-value*
Before	9,940	0.7510	-9,219	0,000 *
After	11,000	0.6876		

Intervention Group
** Significance of 0.05*

Table 5. The Difference in average before and after given dragon fruit juice and honey, FE tablets, and counseling

HB levels	Mean	SD	t	*P-value*
Before	10,127	0.7146	-3,366	0.005 *
After	10,827	0.5535		

Control Group
** Significance of 0.05*

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Table 6. Effect of Red Dragon Fruit on HB Levels for Pregnant Women

Experiment	T	*P-Value*
Dragon fruit	0.363	0.719
Control		

** Significance of 0.05*

Subjects in this study were pregnant women, mostly aged 20-35 years and included in the healthy reproductive period. At reproductive age, women are very at risk of developing anemia due to pregnancy, so hemoglobin levels are very important to note. This is done to prevent the bad effects of anemia itself.

From Table 2 regarding the difference in the average before and after giving dragon fruit juice and honey, Fe, and counseling in the case group, it can be seen that the p-value of 0,000 can be concluded that there is a significant effect of giving the intervention. Likewise, the control group that was given fe and counseling had a significant effect with a p-value of 0.005

Anemia in pregnant women Consumption of dragon fruit during pregnancy is thought to prevent and treat anemia. That's because dragon fruit is rich in iron as the main constituent of red blood cells. In 100 grams of dragon fruit contains about 0.55 fe. This iron will be converted into red blood cells, so it is very beneficial for pregnant women who are prone to anemia, from various literature it is also stated that dragon fruit contains high amounts of iron and vitamins C Ripe dragon fruit contains lots of organic acids, proteins, minerals such as potassium, magnesium, calcium, iron and vitamin C. Based on the chemical content of dragon fruit which contains lots of minerals, iron, and vitamin C, it can be used for the treatment of anemia. Besides, honey contains vitamin C,

Ascorbic acid or vitamin C, folic acid, and protein are the main factors that can encourage the absorption of nonheme iron. Vitamin C can increase the absorption of non-haem iron up to four times. Citrate, malic, lactic, succinic, and tartaric acid can increase the absorption of nonheme iron under certain conditions. Vitamin C has a reducing factor that is useful in increasing the absorption (absorption) of iron by reducing ferric iron to ferrous so that iron absorption becomes more efficient and effective (Rimawati et al, 2018).

Iron is one of the most important micronutrients needed during pregnancy. In the body, iron is required for the formation of the sulfur and heme iron complexes. Iron-sulfur complexes are needed in enzyme complexes that play a role in energy metabolism. Heme is composed of a porphyrin ring with an iron atom in the center of the ring which plays a role in transporting oxygen to the hemoglobin in erythrocytes (red blood cells) which helps increase the amount of hemoglobin besides the content of honey combined with dragon fruit is very effective in increasing HB because honey contains iron. However, there is still a decrease in HB after the intervention giving dragon fruit juice and honey may be caused by several factors, such as gestational age factors, most of the respondents in this study were pregnant women in the second and third trimesters. In this phase, the mother will experience a hemodilution state. Plasma volume increases 45-65% starting from the second trimester of pregnancy, and is maximal in the third trimester and increases by about 1000 ml. 5 This can cause you to still suffer from anemia even after treatment has been done. Also, nutritional factors may influence the incidence of anemia.

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CONCLUSION

Based on the results of the research and discussion that has been described, it can be concluded that there is no effect between the case group and the control group in increasing hemoglobin (Hb) levels in preventing anemia and dragon fruit juice and honey are not the only interventions in increasing HB levels. to increase HB levels still requires good nutrition for pregnant women.

REFERENCES

Fauziandari Nur Erma .2019 Efektifitas Ekstrak Daun Kelor Terhadap Peningkatan Kadar Hemoglobin Pada Remaja Putri. Jurnal Kesehatan Karya Husada. P ISSN 2337-649 x/ e ISSN 2655-8874

WHO. *The global prevalence anemia in 2011*. *Geneva, Switzerland: World Health Organization*; 2015.

Lubis, Z., Sinaga, E., Siagian, A., 2015. Hubungan Asupan Protein dan Zat Besi dengan status Anemia Pada ibu hamil di desa Naga Timbul Kecamatan Tanjung Morawa Kabupaten Deli Serdang

Suroso, & Paryono. (2016). *Pengaruh Konsumsi Sari Kurma Pada Akhir Kehamilan Terhadap Kemajuan Persalinan Kala I Dan Jumlah Perdarahan Saat Persalinan Pada Primipara Di Wilayah Kerja Puskesmas Klaten Selatan*. *2*(58), 116–124.

Khasanah, U., & Nindya, T. S. (2018). Hubungan Antara Kadar Hemoglobin dan Status Gizi dengan Produktivitas Pekerja Wanita di Bagian Percetakan dan Pengemasan di UD X Sidoarjo Correlation between Hemoglobin Level , Nutritional Status and Women Employee Productivity in Stamping and Packaging S. *Amerta Nutrition*, *2*(1), 84. https://doi.org/10.20473/amnt.v2.i1.2018.83-89

Rimawati, E., Kusumawati, E., Gamelia, E., Sumarah, S., & Nugraheni, S. A. (2018). Intervensi Suplemen Makanan Untuk Meningkatkan Kadar Hemoglobin Pada Ibu Hamil. *Jurnal Ilmu Kesehatan Masyarakat*, *9*(3), 161–170. https://doi.org/10.26553/ jikm.v9i3.307.

Mariana, I., Sinta, b., Kurniawati, S. 2018. Hubungan Diet Dengan Kejadian Anemia Pada Ibu Hamil Di Wilayah Kerja Puskesmas Jalan Gedang Kota Bengkulu .

Suryani, D., Riska, H., Rinsesti, J., 2015. Analisis Pola Makan dan Anemia Gizi Besi Pada Remaja Putri Kota Bengkulu. Jurnal Kesehatan Masyarakat Andalas. ISSN 1978-3833, Vol. 10, No. 1, Hal. 11-18

Susane LMA, Ristyaning P. (2016). Madu sebagai Peningkat Kadar Hemoglobin pada Remaja Putri yang Mengalami Anemia Defisiensi Besi. *Jurnal Majority*, Vol. 5, No 1.

Zen HAT. (2013). Pengaruh Pemberian Sari Kurma (Phoenix dactylifera) terhadap Kadar Hemoglobin. *Sains Medika*, Vol. 5, No. 1

Nku, et all, 2015 Effect of Moringa oleifera Lam. Ethanol Leaf Extract on Hematology in Phenylhydrazine- induced Anemic Albino Wistar Rats. American Journal of Pharmacological Sciences. 2015;3(3):67-73.

Arifin, H., Nofiza, W. & E., 2012. Pengaruh Pemberian Jus Buah Naga (Hylocereusundatus) terhadap Jumlah Hemoglobin, Eritrosit dan Hematokrit Pada Mencit Putih Betina. Jurnal Sains dan Teknologi Farmasi, Volume 17, pp. 118-125.

Arikunto. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Rineka cipta; 2013