The Effectiveness of Dates and Beets on Hemoglobin Levels in Trimester II Pregnant Women at BPM Titin Sumarni

Titin Sumarni[1], Nanik Yuliwati[2]

[1,2] STIKes Abdi Nusantara Jakarta
E-mail: Ainititinsumarni@gmail.com[1]

Abstract.
Backgrounds : Low hemoglobin levels often occur in pregnant women, low hemoglobin levels are a serious problem for pregnant women because the lack of hemoglobin levels will have a negative impact during the delivery process.
Research Objectives: To determine the effectiveness of dates and beets on Hemoglobin levels in second trimester pregnant women at TPMB Titin Sumarni, Babelan Village, Babelan District, Bekasi Regency.
Research Methods : This study used a quasi-experimental with purposive sampling with a sample of 32 people. Data techniques included in uivariate analysis using frequency distribution and bivariate analysis using statistical calculations
The results of the study : Respondents in the control group and the intervention group mostly worked as housewives, in the intervention group there was an increase in hemoglobin levels in the second trimester of pregnant women, thus proving the effectiveness of giving beets and dates to increase hemoglobin levels in the second trimester pregnant women.
Conclusions and suggestions : Conclusions From the results of this study it was found that there was effectiveness in giving beets and dates to increase hemoglobin levels in the second trimester of pregnant women at BPM Titin Sumarni. Suggestions for providing information about good nutrition for pregnant women by providing health promotion and education to visiting pregnant women to reduce mortality and morbidity due to anemia.

Keywords: Dates, beets, Hemoglobin levels, pregnant women.

1. INTRODUCTION

Pregnancy is a metamorphosis or developmental process in life. When millions of sperm enter a woman's reproductive system, step by step hordes of sperm compete towards the same goal, namely to fertilize an ovum so that fertilization occurs which is called a Zygote (Setiawati, 2020).

The results of the 2018 Riskesdas stated that in Indonesia 48.9% of pregnant women had anemia. As much as 84.6% of anemia in pregnant women occurs in the age group of 15-24 years (Riskesdas, 2018). Then in 2019 there was an increase in the percentage of pregnant women who experienced anemia in Indonesia, namely 48.9% and as much as 84.6% of anemia in pregnant women occurred in the age group 15-24 (Kemenkes RI, 2020).

According to WHO, overall anemia in pregnant women is 41.8% worldwide and is divided into several in each continent, namely: 48.2% in Asia, 57.1% in Africa, 24.1% in America, and by 25.1% in Europe (Astriana, 2017).

Anemia in pregnancy is anemia due to iron deficiency, iron deficiency anemia in pregnant women is a health problem experienced by women throughout the world, especially in developing countries. World Health Organization (WHO)

Pregnancy is the union of spermatozoa and ovum and is followed by nidation. If calculated from the time of fertilization until the birth of the baby, a normal pregnancy will take place within 40 weeks or 9 months according to the international calendar. So, it can be concluded that pregnancy is the meeting of the egg and sperm inside or outside the uterus and ends with the release of the baby and placenta through the birth canal (Yulaikhah, 2019).

Hemoglobin is a very helpful protein in the blood. Located in the erythrocytes whose job is to transport oxygen in the body. Hemoglobin consists of Fe (iron) content and alpha, beta, gamma and delta (globin polypeptide) chains. The name hemoglobin is derived from the combination of the words heme and globin. Namely heme is a prosthetic group consisting of iron atoms, while globin is a protein that is broken down into amino acids. If the body's state of Hb has decreased, then the condition in the body is very at risk for anemia because the hemoglobin level decreases.

Decreased hemoglobin can occur in anemia (especially iron deficiency anemia), bleeding, increased fluid intake, and pregnancy. 10 Kidney erythropoietin will increase the number of red blood cells by 20-30% but not proportional to the increase in plasma volume so that it will result in a decrease in hemoglobin concentration from 15.0 g/dL to 12.5 g/dL, and in 6% of women it can reach below below 11.0 g/dL. The decrease in Hb in the body is also mostly caused by body activity, diet and gender. Lack of rest and frequent staying up late also makes hemoglobin levels in the body drop and cause anemia. If this happens frequently then the body cannot stabilize properly.

According to Kartono and Soekatri, the recommended adequacy of iron is the minimum amount of iron that comes 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.

Pregnant women who suffer from anemia are at risk of having a miscarriage, premature birth, low birth weight babies, and bleeding before and after giving birth. The impact on children born to anemic mothers causes babies to be born with very little iron supply in their bodies so that they are at risk of developing anemia at an early age, which can result in disruption or obstacles to child growth and development (WHO, 2015).

Low hemoglobin (Hb) levels are caused by iron deficiency. Iron deficiency can cause interference or obstacles to the growth of the fetus, both cells and body and brain cells. Abnormal Hb levels can result in fetal death in the womb, abortion, birth defects, low birth weight, abnormal Hb levels in babies who are born, this causes significantly higher maternal morbidity and mortality and perinatal death. In pregnant women whose hemoglobin levels are abnormal can increase the risk of morbidity and mortality of the mother and baby, the possibility of giving birth to babies with low birth weight and premature is also greater.

Various ways to prevent anemia in pregnant women can be done, including adequate rest, routine pregnancy checks at least 4 times during pregnancy to get FE tablets and vitamins, nutritious food which is consumed three times a day with foods that contain iron.

Dates contain high iron so they can help increase hemoglobin levels and prevent anemia. Iron needed for the production of red blood cells is absorbed into the blood to be distributed to the bone marrow and will be used to form hemoglobin in new red blood cells which functions to bind oxygen for the needs of cell metabolism, especially to the liver so that the liver can carry out its function in producing the hormone thrombopoietin, namely a glycoprotein hormone produced by hepatocytes. The function of this hormone

is to increase the number of megakaryocytes in the bone marrow and stimulate megakriocytes to produce more platelets.

Bits contain vitamins and minerals which have many benefits. Beets are able to stimulate build, cleanse and strengthen the circulatory system and red blood cells so that the blood can carry body substances and can prevent a lack of red blood cells in the body. In Eastern Europe, beetroot is well known and used for the treatment of leukemia (WHO, 2015).

RESEARCH METHODS

The research design used a quasi-experimental study with a pretest-posttest with control group design. The population and sample in this study were 32 second trimester pregnant women, the sampling technique was total sampling. The method in this research isuivariate analysis using frequency distribution and bivariate analysis using statistical calculations.

RESEARCH RESULT

Table 1 Distribution of Respondent Characteristics

	Variables;	F(n = 16) (Control)	%	F(n = 16) (Experiment)	%
21-26	Age	3	18.75	1	6,25
27-32		9	56,25	8	50
33-38		2	12.5	6	37.5
39-44		2	12.5	1	6,25
IRT	Profession	11	68.75	13	81.25
Private		5	31.25	3	18.75

Based on the table above, it can be concluded that most of the respondents in the control group were aged between 27-32 years (56.25%) and in the experimental group aged between 27-32 years (50%). Respondents in the control group worked as IRT (68.75%) and private (31.25%) and in the experimental group worked as IRT (81.25%) and private (18.75%). The age of most respondents in both the control and intervention groups ranged from 27-32 years of age.

Table 2 Average Hemoglobin Levels of the Control and Experiment Groups

Group	Variable	Means	Median	std. Dev
Control	Pre-test	10.58	10.80	0.6301
	Post test	10.99	10.80	0.5222
Experiment	Pre-test	10.64	10.60	0.5805
	Post test	11.39	11.20	0.6373

Table 3 Average Hemoglobin Levels of the Control and Experiment Groups

Group	Variable	N	Mean ± Std. Deviation	Pvalue
Control	Pre-test	16	10.58 ± 0.6301	0.148
	Post test	16	10.99 ± 0.5222	
Experiment	Pre-test	16	10.64 ± 0.5805	0.005
	Post test	16	11.39 ± 0.6373	

This table presents the results of the paired t-test conducted in the control group. The results obtained were the mean pre test of 10.58 and the post test of 10.99 so that the mean difference was 0.41 (10.99-10.58) and Pvalue = 0.148 (P > α) so it was concluded that there was no significant difference in levels hemoglobin in second trimester pregnant women at BPM Titin Sumarni in the control group. In the experimental group, the results obtained were the mean pre-test of 10.64 and the mean post-test of 11.39 so that it can be concluded that the mean difference was 0.75 (11.39 – 10.64) and Pvalue = 0.005 (P < α), so it was concluded there is the effectiveness of giving beets and dates to increasing hemoglobin levels in second trimester pregnant women at BPM Titin Sumarni experimental group.

DISCUSSION
The characteristics of the respondents were not at risk of developing anemia because they experienced an increase in hemoglobin after the intervention
Anemia is a condition in which red blood cells or hemoglobin decreases, so that the oxygen-carrying capacity for the needs of vital organs in the mother and fetus is reduced. During pregnancy, anemia is indicated if the hemoglobin concentration is less than 10.5 to 11.0 gr/dl. Anemia can occur if the release of erythrocytes from the circulation or the destruction of erythrocytes increases without being matched by an increase in production levels, or if the release of erythrocytes into the circulation decreases. Likewise if the two processes occur simultaneously. Anemia often occurs during pregnancy because the blood undergoes hemodilution (dilution) with an increase in red blood cell volume of 30% to 40%, which peaks at 32 weeks to 34 weeks of gestation. The prevalence of anemia is still high,

At the time of the study of hemoglobin levels, the respondents on average had anemia status, but on average the respondents experienced mild anemia during the pre-test. After the intervention or research the respondents experienced an increase in hemoglobin levels to become non-anemic or normal hemoglobin levels.
Differences in Pre-test and Post-test Hemoglobin Levels in the Control Group
Based on the results of the paired sample t test analysis. The results obtained were the mean pre test of 10.58 and the post test of 10.99 so that the mean difference was 0.41 (10.99-10.58) and Pvalue = 0.148 (P >) so it was concluded that there was no significant difference in hemoglobin levels in second trimester pregnant women at BPM Titin Sumarni in the control group. In the experimental group, the results obtained were the mean pre-test of 10.64 and the mean post-test of 11.39 so that it can be concluded that the mean difference was 0.75 (11.39 – 10.64) and Pvalue = 0.005 (P < α), so it was concluded there is the effectiveness of giving beets and dates to increasing hemoglobin levels in second trimester pregnant women at BPM Titin Sumarni experimental group.

The increase in hemoglobin levels in pregnant women who only consumed Fe-Fe tablets averaged 0.2 mg/dL which did not make a significant difference (Aisyah, 2014). The Ministry of Health of the Republic of Indonesia (2018) explained that pregnant women need about 800 mg of iron, food produces 8-10 mg of Fe, so they must consume at least 60 Fe tablets for iron during pregnancy and must consume vitamin C which helps the absorption of iron. in the body. There was no significant difference in hemoglobin levels in the control group which could also occur due to the timeliness of consuming Fe tablets, according to Sulistianingsih (2017)

Differences in Pre-test and Post-test Hemoglobin Levels in the Experimental Group

The magnitude of the need for iron in third trimester pregnant women requires the mother to help absorb the iron she consumes. Because there are some foods and drinks that can interfere with the absorption of iron. Based on the results of the paired sample t test analysis in the experimental group, a Pvalue of 0.005 was obtained, so that there was an effect of giving beets and dates on increasing hemoglobin levels in pregnant women in the second trimester at BPM Titin Sumarni in the experimental group.

The iron content in beets has a fairly high content of folic acid and iron, which reactivate and regenerate red blood cells and supply oxygen which is useful for the health of red cells. Beets also contain vitamin C which makes it easier for the body to absorb iron, which means that if iron can be absorbed properly the formation of new red blood cells will also occur properly and smoothly (Wenda, 2016). Bits have many advantages for health and medicine. The content of betasinin in beets is useful as an anti-cancer, because these substances can destroy tumor cells and cancer. Beets (Beta Vulgaris) contain 109 mg of folic acid and 10.0 mg of vitamin C. Anemia that occurs in pregnant women can also harm the fetus they contain.

CONCLUSION

Result obtainedin this study was that most of the respondents in the control group were aged between 27-32 years (56.25%) and in the experimental group aged between 27-32 years (50%). Respondents in the control group worked as IRT (68.75%) and private (31.25%) and in the experimental group worked as IRT (81.25%) and private (18.75%). The age of most respondents in both the control and intervention groups ranged from 27-32 years of age. Most of the respondents in the control and intervention groups worked as housewives.

Based on the results of the study, it was found that in the control group the average hemoglobin level in pregnant women in the pre-test was 10.58 g/dL and the pre-test hemoglobin level in the experimental group was 10.64 g/dl.

Based on the results of the study, it was found that in the control group the average hemoglobin level of pregnant women in the post test was 10.99gr/dL. While in the experimental group it was found that the post test was 11.39.

Dates and beetroot juice have the effectiveness of increasing hemoglobin levels in pregnant women by looking at HB levels in pregnant women who were intervened, in the experimental group the pre test results were obtained with a P value> 0.147 while in the post test the P value was > 0.103, so it can be concluded that dates and beets have effectiveness in increasing Hb levels.

BIBLIOGRAPHY

Astriana. W. (2017) 'Kejadian Anemia pada Ibu Hamil Ditinjau dari Paritas Dan usia pada populasi ibu hamil di wilayah Kerja UPTD Puskesmas Tanjung Agung KabupatenOKU.Jurnalkesehatan. (Online)2 (2).(https://media.neliti.com/media/publications/217394-kejadian-anemia-pada- ibu-hamil-ditinjau.pdf

Andita, F. (2018) 'Analisa Faktor-Faktor yang Mempengaruhi Anemia Kehamilan di Puskesmas Padang Bulan', Jurnal Kesehatan Fakultas Keperawatan Universitas SumateraUtara.

Asiyah, S., et al. 2014. Perbandingan Efek Suplementasi Tablet Tambah Darah Dengan Dan Tanpa Vitamin C Terhadap Kadar Hemoglobin Pada Ibu Hamil Dengan Usia Kehamilan 16 – 32 Minggu Di Desa Keniten Kecamatan Mojo Kabupaten Kediri. Jurnal Ilmu Kesehatan Vol.3 No.1.

Astutik, Y.R.2018. Anemia dalam Kehmilan.Kediri . Pustaka Abadi

Djamil,A.S.(2016).KurmaIndonesia.Diakses dari https://archive.org/details/AgusDjamilKurmaIndonesia Booklet1. pdf.

Nadiah, M.Z., Nazefah, A.H., Asralwirda, A.A., Shahrumi, A.R., Nain, N.A., & Fadzilah, Z.N. (2018). Beneficial effects of date palm (phoenix dactylifera) in iron deficiency anaemia: A systematic review. Current Topics in Nutraceutical Research, 16(4).

Kementerian Kesehatan Republik Indonesia. (2016). Profil Kesehatan Indonesia.Jakarta : Depkes RI. Diperoleh tanggal 04 Desember 2017 dari http://www.kemkes.go.id

Kementerian Kesehatan RI. 2015. Profil Kesehatan Indonesia 2015. Jakarta :Kementerian Kesehatan RI.

Maulina, N. & Amalasari, G. Perbandingan Efektivitas Madu dengan Ekstrak Buah Bit (Beta Vulgaris) terhadap Peningkatan Kadar Hemoglobin (Hb) Pada Mencit Putih Jantan (Mus Musculus L) Strain Double Ditsch Webster. Anatomica Medical Journal. 2018; 1

Majidah, et al. 2018. Hubungan Antara Paritas Dan Umur Ibu Dengan Anemia Pada Ibu Hamil Trimester III Di Kota Yogyakarta Tahun 2017.

Prawirohardjo, Sarwono. 2013. Ilmu Kebidanan. Jakarta : PT Bina Pustaka

Proverawati, Atika.2016. Anemia dan Anemia Kehamilan. Yogyakarta: Nuha Medika.

Riset Kesehatan Dasar (Riskesdas). 2018. Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI.

Soebahar, E., Daenuri, E., & Firmansyah, A. (2015). Mengungkap rahasia buah kurma dan zaitun dari petunjuk hadis dan penjelasan sains. Ulul Albab Jurnal Studi Islam,

S.Dian . 2021. https://gaya.tempo.co/read/1463479/ manfaat-kurma-bagi-ibu-hamil-bantu-atasi-anemia-sampai-cegah-pendarahan ,Tempo.co,Jakarta

Shafa, D. W. I., & Putri, S. (2017). Hubungan Tingkat Pengetahuan Ibu hHamil Tentang Anemia Terhadap Kepatuhan dalam Mengkonsumsi Tablet Fero Sulfat di Wilayah Kerja Puskesmas Sematang Borang Palembang tahun 2016.

Siti tyastuti, heni. 2016. Asuhan kebidanan kehamilan.jakarta

Sulistianingsih,A., Yanti, D.A.M., Oktarina, L. 2017. Hubungan Ketepatan Waktu Konsumsi Tablet Besi Dengan Kejadian Anemia Pada Ibu Hamil TM III Di Wilayah Kerja Puskesmas Pringsewu Lampung. Viva Medika Volume

Pada, A. et al. (2020) 'Analisis faktor yang berhubungan dengan kejadian anemia pada ibu hamil di puskesmas dana dan puskesmas pasir putih kabupaten muna . 84–89.

Rusmiati, D. 2019. Pengaruh Pemberian Suplemen Zat Besi Dengan Dan Tanpa Vitamin C Terhadap Kenaikan Kadar Hemoglobin Ibu Hamil. Jurnal Ilmiah Bidan Volume IV Nomor 2.

Sari, D. K. (2019) 'Hubungan Antara Pendidikan dan Kepatuhan Mengkonsumsi Tablet Fe Terhadap Kader Hb Pada Ibu Hamil Di Puskesmas Ngoro Kecamatan Ngoro Kabupaten Mojokerto Provinsi Jawa Timur', Journal of Chemical Information and Modeling,

Setiawati, D. (2020) Fisio-Patologi Kehamilan,Persalinan dan Kasih Sayang Universal. Makassar: Alauddin University Press

Waryana. (2016). Gizi Reproduksi (kedua). yogyakarta: pustaka rihama

Walyani, Elizabeth.2015.Asuhan Kebidanan Pada Kehamilan. Yogyakarta: Pustaka Baru.

WHO. (2015). Worldwide prevalence of anemia 2013-2015. WHO global database on Anaemia Geneva, World Health Organization, 2015.

Wiyono, S. (2016). Epidemiologi gizi konsep dan aplikasi. Jakarta: Sagung Seto.

Wiyono, S. (2016). Epidemiologi gizi konsep dan aplikasi. Jakarta: Sagung Seto.

WHO. (2015). Wordlwide Prevalence of Anemia 2013-2015. WHO global database on Anemia Geneva.World Health Organization, 2015