

Health Education of Honey Consumption in Increasing Hemoglobin Levels of pregnant Women in Trimester III in Tambusa Barat Village

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ABSTRACT

During the third trimester of pregnancy, pregnant women are expected to have a good enough hb level to prevent anemia and prepare for birth which aims to prevent postpartum hemorrhage, fetal death, maternal death and low birth weight. Based on the results of data in West Tambusai Village in 2022, there were 36 third trimester pregnant women. The purpose of this study was to find out how the understanding of third trimester pregnant women about anemia prevention with honey consumption in Tambusai Barat Village. The methodology of this research uses quasi experiment pretest-posttest design. The population in this study amounted to 36 pregnant women in the third trimester and the sample in the study was 30 pregnant women in the third trimester. Sample selection technique using purposive sampling. The results of research on education in third trimester pregnant women in Tambusai Barat Village, in the elementary school group as many as 0 people (0%), junior high school as many as 9 people (30.0%), high school as many as 16 people (53.4%), PT as many as 5 people (16.6%). BMI of pregnant women in the third trimester In Tambusai Barat Village, there is no thin group (0%), ideal body weight is 12 people (40.0%), overweight is 10 people (33.3%), overweight is about 8 people (26.7%). From the research data shows that the knowledge of third trimester pregnant women before being given health education about the benefits of honey has an average of 10.12 and after being given health education has knowledge about the benefits of honey in increasing Hb which is 13.80. It is known that the results of the statistical test of health education have a significant effect on mother's knowledge with p value < 0.05. The conclusions and suggestions that can be given are that the administration of honey is effective in increasing the hemoglobin levels of pregnant women in the third trimester, so after this research it is hoped that the third trimester pregnant women can suggest and implement it to increase hemoglobin levels while preventing anemia in third trimester pregnant women.

Keywords: *Haemoglobin, Third Trimester Pregnant Women, Health Education, Honey, West Tambusai Village*

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INTRODUCTION

Anemia is a condition in which the number and size of red blood cells or hemoglobin concentration is below the normal limit value (11 g/dL), as a result, it can interfere with the capacity of the blood to carry oxygen around the body. Anemia is an indicator of poor nutrition and poor health. Anemia in pregnant women is strongly associated with maternal and infant mortality and morbidity, including the risk of miscarriage, stillbirth, prematurity, and low birth weight. (WHO, 2014).

The percentage of anemia in pregnant women with increasing gestational age continues to increase, namely 8% in the first trimester, 12% in the second trimester, and 29% in the third trimester. In Indonesia, the main cause of maternal death is the same as in the international world, namely due to bleeding where anemia in pregnant women is the main cause of bleeding and is the main factor causing death. (Ministry of Health RI, 2013).

Physiological anemia occurs during a healthy pregnancy because the increase in plasma volume is greater than the increase in red blood cell mass. Hemoglobin and hematocrit concentrations in pregnant women who do not take iron supplements during pregnancy can continue to decline about 2gr/dl lower than pre-pregnancy hemoglobin concentrations. This condition occurs at 28-36 weeks of gestation, because transfer of iron across the placenta is most intense during this period, thereby reducing the availability of iron for maternal erythropoiesis. For this reason, it is necessary to accelerate to meet the physiological iron needs of pregnant women, both the absorption of iron from food and the mobilization of iron from body stores. Absorption of iron from foods that contain high amounts of iron is only about 3-4 mg/day. thus increased absorption of iron from food is not sufficient to meet the needs of pregnancy. In addition, many women enter pregnancy with insufficient iron stores, which causes women to develop iron deficiency during pregnancy. (Fisher, 2020).

Hemoglobin (Hb) is a parameter used to determine the prevalence of anemia. Hemoglobin is the oxygen-carrying compound in red blood cells. Low hemoglobin content indicates anemia. Reduced levels of hemoglobin in the blood in pregnant women can have an impact on decreasing uterine muscle contractions and can reduce the ability of the uterus to contract properly, causing prolonged labor and bleeding. (Durrotun M, Eni k, 2019)

WHO reports that the prevalence of pregnant women worldwide who experience anemia is 41.8%. The prevalence among pregnant women varies from 31% in South America to 64% in southern Asia. South and Southeast Asia combined contribute up to 58% of the total population experiencing anemia in developing countries. In North America, Europe and Australia, anemia is rare due to iron deficiency during pregnancy. Even in the US there are only about 5% of young children and 5-10% of women of reproductive age who suffer from iron deficiency anemia (WHO, 2015)

The prevalence of anemia in pregnancy in Indonesia was 37.1% in 2018, which reached this percentage, it increased in 2018 which reached a percentage of 48.9%. Fe as much as 90 tablets for all pregnant women during the period of pregnancy, but even so the incidence of anemia is still relatively high because there are still many pregnant women who do not comply with iron consumption. (Ministry of Health, RI 2017)

Anemia in pregnant women can increase the risk of premature birth, maternal and child mortality, and infectious diseases. Iron deficiency anemia in the mother can

affect the growth and development of the fetus/infant during pregnancy and afterward. Anemia is common in women of childbearing age. This is due to the occurrence of menstrual cycles in women every month. Iron deficiency can reduce the body's resistance so that it can cause decreased productivity. Iron intake can be obtained through foods sourced from animal protein such as liver, fish, and meat. However, not all people can consume these foods, so additional iron intake is needed from blood-added tablets (TTD). (Ministry of Health RI, 2019)

The percentage of pregnant women who received FE3 tablets in Riau Province in 2019 decreased by 14.2%, in 2018 it reached 79.3% and in 2019 it reached 65.1%. The decrease in pregnant women receiving FE3 tablets should receive attention given the importance of taking FE3 tablets to prevent anemia in pregnant women and bleeding during childbirth, and for Riau Province, 40% of maternal deaths are caused by bleeding. (Riau Provincial Health Office, 2019)

The direct cause of anemia in pregnant women is iron deficiency in the body caused by a lack of food sources containing iron, sufficient food but food sources have low iron content so that the amount of iron absorbed is less, and the food eaten contains iron. iron absorption inhibitor (Roosleyn, 2016)

Various studies show the negative impact of anemia due to iron deficiency on pregnant women and fetuses. The influence of iron nutritional anemia that occurs in pregnant women is the loss of the desire to concentrate, the face looks pale, often feels tired and lacks energy, the body feels weak and easily sleepy, and lowers the body's resistance, causing easy disease. Anemia in pregnant women, can increase the frequency of complications in pregnancy and childbirth. The risk of maternal death, the rate of prematurity, low birth weight and perinatal mortality increases. In addition, antepartum and postpartum hemorrhage are more common in anemic women and are more often fatal, because anemic women cannot tolerate blood loss. (Citrikesumasari, 2012)

One of the efforts to prevent anemia is to meet the needs of iron by providing iron-rich nutritional intake and balanced nutrition. One of the efforts to reduce the incidence of anemia in maternity is Antenatal Care (ANC). Because one of the ANC activities is the administration of 90 tablets of Fe. Basically anemia is caused by iron deficiency. Iron deficiency is a serious health problem that requires special attention to prevent and treat the problem (Durrutun M, Eni k, 2019)

Honey is a natural viscous liquid that generally tastes sweet, it is also a syrup-like liquid produced by honey bees. The sweet taste of honey is not the same as sugar or other sweeteners, the sweet taste of honey comes from the sweet liquid (nectar) found in flowers and leaf axils that bees suck.

The content of Fe, protein, vitamins, and minerals in honey can increase the production of iron in the blood. Bone marrow requires precursors such as iron, vitamin C, vitamin B12, cobalt and hormones for the formation of red blood cells and hemoglobin. All these elements are contained in honey, so consuming honey can prevent iron deficiency anemia in pregnant women (Wulandari, 2015).

Health education is a method that can be given to pregnant women to increase mothers' understanding of health information and is expected to change the behavior of pregnant women during pregnancy, so as to prevent complications during pregnancy. Based on this background, researchers are interested in conducting

research on Health Education on Consuming Honey in Increasing Hemoglobin Levels of Pregnant Women in the Third Trimester in Tambusai Barat Village.

RESEARCH METHODOLOGY

This research was conducted from June 9, 2021 to June 15, 2022 on all third trimester pregnant women in Tambusai Barat Village. In this study, the Pre-experimental method was used with a one-group pre-test-post-test design approach. The sampling technique was purposive sampling, as many as 30 pregnant women. The instrument used in this study was through a questionnaire. By conducting studies on education, BMI, Knowledge about consuming honey in increasing the hemoglobin level of pregnant women in the third trimester in Tambusai Barat Village I, Knowledge of pregnant women about health education on consuming honey in increasing the hemoglobin levels of pregnant women in the third trimester in Tambusai Barat Village after being given health education , Hb Pregnant women. Data analysis was carried out by using the T-Test or by using the Wilcoxon test.

RESULT AND DISCUSSION1

After conducting research on 30 third trimester pregnant women regarding Health Education on Consuming Honey in Increasing Hemoglobin Levels for Third Trimester Pregnant Women in West Tambusai Village, the following results were obtained:

Frequency distribution of respondents based on education in West Tambusai Village.

Table 1. Frequency distribution of respondents based on education in West Tambusai Village.

Education	Frequency	Percentage
SD	0	0%
junior high school	9	30.0%
high school	16	53.4%
PT	5	16.6%
Total	30	100.0

Based on table 1 above, it shows that education in third trimester pregnant women in West Tambusai Village, in the elementary school group as many as 0 people (0%), junior high school as many as 9 people (30.0%), high school as many as 16 people (53.4%) , PT as many as 5 people (16.6%).

Frequency distribution of respondents based on BMI in West Tambusai Village

Table 2. Frequency distribution of respondents based on BMI in West Tambusai Village.

Body mass index (IMD)	Frequency	Percentage
<18.4 bb skinny	0	0
18.5-24.9 bb ideal	12	40.0%
25-29.9 bb more	10	33.3%
30-39.9 bb fat	8	26.7%
Total	30	100.0

Based on table 4.7 above, it shows that the BMI of pregnant women in the third trimester in West Tambusai Village, in the lean group there is no (0%), ideal body weight is 12 people (40.0%), overweight is 10 people (33.3 %), obese body weight as many as 8 people (26.7%).

Distribution of the average knowledge of pregnant women in the third trimester before and after being given health education about consuming honey in increasing the hemoglobin level of pregnant women in the third trimester

Table 3 Distribution of the average knowledge of pregnant women in the third trimester before and after being given health education about consuming honey in increasing the hemoglobin level of pregnant women in the third trimester

Variable	Average \pm SD	Min-max
Knowledge of pregnant women before Health Education	10.12 13.381	7.3 -14.3
Knowledge of pregnant women after Health Education	13.80 10.250	11.7-17.4

Based on table 3 above, it shows that the knowledge of third trimester pregnant women before being given health education about the benefits of honey has an average of 10.12 and after being given health education has knowledge about the benefits of honey in increasing Hb which is 13.80.

Bivariate analysis

The following is the form of presentation and interpretation of the paired t-test (pretest-posttest) statistical test.

Table 4 The Effect of Health Education on Knowledge of Consuming Honey in Increasing Hemoglobin Levels of Trimester Pregnant Women.

Variable	Average \pm SD	P value	N
Knowledge of pregnant women before Health Education	10.12 13.381	0.0001	30

Knowledge of pregnant women after Health Education	13.80 10.250	11.7-17.4
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Based on table 4 above, it shows that the knowledge of third trimester pregnant women before being given health education about the benefits of honey has an average of 10.12 and after being given health education has knowledge about the benefits of honey in increasing Hb which is 13.80. It is known that the results of the statistical test of health education have a significant effect on mother's knowledge with p value < 0.05.

Discussion

Based on research data shows that education in third trimester pregnant women in West Tambusai Village, in the elementary school group as many as 0 people (0%), junior high school as many as 9 people (30.0%), high school as many as 16 people (53.4%), PT as many as 5 people (16.6%). From these data, it is known that the education of pregnant women is classified as secondary education, so it is expected to help the process of providing health education to pregnant women.

Based on the BMI category above, it shows that the BMI of pregnant women in the third trimester in West Tambusai Village, in the lean group there is no (0%), ideal body weight is 12 people (40.0%), overweight is 10 people (33.3 %), obese body weight as many as 8 people (26.7%). BMI data can be concluded that pregnant women are in good condition during pregnancy.

From the research data above, it shows that the knowledge of third trimester pregnant women before being given health education about the benefits of honey has an average of 10.12 and after being given health education they have knowledge about the benefits of honey in increasing Hb which is 13.80. It is known that the results of the statistical test of health education have a significant effect on mother's knowledge with p value < 0.05.

Information about the complex nutritional content and other nutritious ingredients in honey provides a variety of health benefits. In every 100 grams of pure honey, it is worth 294 calories, so 1000 grams of pure honey is the same or equivalent to 50 chicken eggs or 5.675 liters of milk or 1680 grams of meat. Meanwhile, based on USDA Nutrient database data, it was found that the nutrient content in honey is very complex, reaching 181 species. Details of the content in 100 grams of honey with the following nutrients: sugar 82.12 grams, fiber 0.2 grams, energy 304 kcal, carbohydrates 82.4 grams, fat 0 grams, protein 0.3 grams, pantothenic acid (vit B5) 0.08 mg(1%), Vitamin B6 0.024 mg (2%), folate (vit b9) 2 mg (1%), water 17.10 grams, riboflavin (vit B2) 0.038 mg (3%), Niacin (vitb3) 0.121 mg (1%), phosphorus 4 mg (1%), potassium 52 mg (1%), Vitamin C 0.5 mg (1%), calcium 6 mg (1%), iron 0.42 mg (3%), magnesium 2 mg (1%), sodium 4 mg (0%) and zinc 0.22 mg (2%) (Yuliarti, 2015). The mineral content in honey depends on the flower essence that is sucked. The dominant content in this honey also determines the color of the honey. The high content of iron, copper and manganese will make honey dark in color, while high levels of iron are closely related to the hemoglobin content. Copper is very important for humans because it is related to hemoglobin, a lack of this substance causes the body's resistance to decrease, while

iron (fe) has the function of helping the process of forming red blood cells (Yuliarti, 2015). The process of iron absorption requires vitamin C which helps in the absorption of iron and helps release iron from its storage area. Honey which contains vitamin C is useful for helping the absorption of iron so that absorption will be more in the intestines. Vitamin C or ascorbic acid has properties in the form of powder or crystal, slightly yellowish white, soluble in water, poorly soluble in ethanol and insoluble in chloroform. Sensitive to light so that when exposed to light it will turn dark in color (Yuliarti, 2015).

The results of this study are supported by research by Ria Setia Sari, et al (2021) about increasing knowledge about handling diarrhea in children through health education, stating that there are 14 (93.3%) parents (father/mother) who understand the handling of diarrhea in children and 1 (6.6%) Parents (Father/Mother) Who Are Actively Asking Questions In Activities. Furthermore, this research is also in line with research conducted by Magdalena Simatupang (2011) on the analysis of consumer knowledge of honey at PT Apiari Pramuka Cibubur, East Jakarta, which is known to have a high level of consumer knowledge that various types of honey. Consumers who know that there are various types of honey are 88.34%, but there are still many types of honey that they are not familiar with. The level of consumer knowledge about honey nutrition, benefits,

Other Research About the Importance of Health Education in Supporting Respondents' Knowledge, Among them According to Rompas, S, et al (2014) The Effect of Health Education on Adolescent Knowledge Levels and Attitudes About Sexually Transmitted Diseases at Fajar Bolaang Mongondow High School East. The Wilcoxon test results obtained P-Value = 0.000 <0.05. This indicates that there is a significant difference between the level of knowledge and attitudes of adolescents before and after the provision of health education. This study is also in line with the researcher's statement about the effect of health education on mother's knowledge and attitudes about infant parenting in the Kartasura Health Center working area, namely that there is an influence of health education on mother's knowledge and attitudes about infant care (Salafiah, et al. , 2014).

Red blood cells contain hemoglobin which is a compound protein compound that contains a non-protein element, namely heme. Heme synthesis in producing hemoglobin is assisted by pyridoxine or vitamin B6. The conversion of non-heme iron in the form of ferric to ferrous metabolic compounds will be greater when the pH in the stomach becomes more acidic. Vitamin C can help with acidity thereby increasing iron absorption by as much as 30%. The work of Fe is also assisted by the presence of folic acid which is also important for the formation of new cells, so that it can affect Fe in the blood and it is hoped that an increase in hemoglobin will occur (Nuraysih, 2015).

Based on some of the results of these studies, researchers have the assumption that health education can help increase knowledge and understanding of mothers about the benefits of honey because knowledge of the benefits of honey during pregnancy is very important because it can maximize the increase in Hb, so pregnant women can consume honey which contains complex nutrients. Iron (Fe) in honey is believed to help produce red blood cells and trigger the production of hemoglobin in the blood in people with anemia. Honey is one of the safe herbal products for pregnant women as long as it is given in the right amount and in the right way. Giving iron tablets during pregnancy as needed is also still carried out which is one of the most suitable ways for pregnant women to increase Hb levels to the desired stage.

CONCLUSIONS

From the results of research and discussion on the Effect of Consuming Honey in Increasing Hemoglobin Levels of Pregnant Women in the Third Trimester in Tambusai Barat Village. The following conclusions can be drawn:

1. The results of research on education in third trimester pregnant women in Tambusai Barat Village, in the elementary school group as many as 0 people (0%), junior high school as many as 9 people (30.0%), high school as many as 16 people (53.4%), PT as many as 5 people (16.6%).
2. BMI of pregnant women in the third trimester In Tambusai Barat Village, there is no thin group (0%), ideal body weight is 12 people (40.0%), overweight is 10 people (33.3%), overweight is about 8 people (26.7%).
3. From the research data shows that the knowledge of third trimester pregnant women before being given health education about the benefits of honey has an average of 10.12 and after being given health education has knowledge about the benefits of honey in increasing Hb which is 13.80. It is known that the results of the statistical test of health education have a significant effect on mother's knowledge with p value < 0.05.

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