

THE EFFECTIVENESS OF GIVING BADUY HONEY ON INCREASED HEMOGLOBIN IN PREGNANT WOMEN AT UPT PUSKESMAS DTP SAKETI

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Abstract

Background: Anemia in pregnancy is usually caused by a lack of nutritional intake during pregnancy where the need for iron increases. One effort is to consume natural ingredients such as honey. Honey has many ingredients that are beneficial for the body, especially pregnant women, where 100 grams of honey contains 0.42 mg of Fe/iron and 2 micrograms of folate, 0.5 mg of vitamin C. **Research purposes:** To find out the benefits of giving Baduy honey in increasing hemoglobin levels in pregnant women. **Research methods:** This type of research is quantitative research, The research method used by the author is a quasi-experimental method (Quasi Experiment). "This research method is a way of solving a research problem that is carried out in a planned and careful manner to obtain facts and conclusions that can be understood. The research design used is a pretest-posttest with control group design to determine the effect of treatment in the intervention group by comparing it with the control group. This design uses 2 experimental groups and a control group. **Research result:** The results of the chi square test obtained a value of $p=0.002$, which means that if the α value <0.05 the value has a significant influence, so it can be concluded that there is a significant influence between the consumption of Baduy honey on the incidence of anemia in TM III pregnant women at the Saketi Health Center. **Conclusion:** There is a significant influence between the consumption of Baduy honey on the incidence of anemia in TM III pregnant women at the Saketi Community Health Center.

Keywords: Honey, Hemoglobin Levels, Pregnant Women

Introduction

The World Health Organization (WHO) states that maternal and child health is a concern in the world. WHO estimates that every year 210 million pregnancies occur worldwide. Of this number, 20 million women experience pain as a result of pregnancy and childbirth. In the United States, 2,300 people have died due to anxiety during the birth phase. WHO also estimates that every year 500,000 people die due to pregnancy and childbirth.

The maternal mortality rate (MMR) in Indonesia continues to decline, although in general the maternal mortality rate (MMR) in Indonesia related to pregnancy, childbirth and postpartum is still high, although on the other hand there has been a decline from 359/100,000 live births in the Demographic Survey and Indonesia's health in 2019 will be 273/100,000 live births in 2020. When compared with the target to be achieved in 2025, the number of MMR in Indonesia is still far from what was expected, namely 125/100,000 live births (Ministry of Health of the Republic of Indonesia, 2020).

Iron anemia is common in Indonesia, the figure reaches 40.1%, in pregnant women the need for iron increases to 200-300%. It is estimated that around 10 - 40 mg is accumulated during pregnancy, of which 300 mg is transferred to the fetus, 200 mg is lost during childbirth, 50 - 75 mg is for placenta formation, and 450 mg is needed only for diet, therefore giving iron supplements is very necessary. The Maternal Mortality Rate (MMR) in Indonesia is relatively high, namely 262 per 100,00 live births, this

means that every hour there is 1 mother who dies due to pregnancy and childbirth. In fact, the Maternal Mortality Rate (MMR) is an indicator of the success of health services in a country. A pregnant woman who has a hemoglobin (Hb) level of less than 11 gr% is said to be anemic.

Various studies show the negative impact of anemia due to iron deficiency on pregnant women and fetuses. The effects of iron nutrient anemia that occur in pregnant women are loss of desire to concentrate, the face looks pale, often feels tired and lacks energy, the body feels weak and gets sleepy easily, and lowers the body's resistance, making it easier to get sick (Sulistiowati, 2018).

Honey is a medicine for all kinds of diseases. There are various types of honey, one of which is honey that comes from the Baduy area. Baduy honey is associated with increasing hemoglobin levels in the blood because it contains many special healthy nutrients such as vitamins, zinc, minerals, calcium, amino acids, magnesium, manganese sugar, niacin, iron, potassium, riboflavin, phosphorus, antioxidants from phenols and flavonoids, acids phantothenate (Healthy Doctor, 2017).

According to research (Irmawati S Rosdiana, 2020), it was found that there was an effect of giving honey on increasing hemoglobin levels during pregnancy. Honey is an effective liquid source produced by bees from the essence of various plants. The benefits of honey also have a special place in traditional medicine. The healing properties of honey are that honey comes from hives and trees which contain medicines to cure various diseases.

The quality of Baduy honey can be influenced by the type of food source in the form of pollen and nectar. Different nectar sources cause varying honey quality because Baduy forest honey bees live in heterogeneous forests, so the honey produced comes from various types of plants, so the quality is good. The reducing sugar (glucose) content of honey is also influenced by the origin of the nectar source as raw material. Honey, natural Baduy geographic origin, friendly climate, traditional processing and traditional storage.

In previous research (Andi Hariati, 2020) it was found that giving honey to pregnant women who experienced anemia in the group with a relationship between interventions experienced an increase in blood Hb levels, the mineral content in honey could help in the process of producing hemoglobin in the body. Anemia sufferers who consume Adu Baduy regularly will experience a significant increase in energy. Apart from that, consuming honey also helps increase calcium absorption, hemoglobin levels and also treats and prevents anemia due to nutritional factors or certain factors.

Seeing the many functions of Baduy honey for health, especially in the success of increasing hemoglobin levels in pregnant women, the researchers were interested in conducting research with the title "Effectiveness of Giving Baduy Honey to Increase Hemoglobin in Pregnant Women at the Saketi Community Health Center."

Research Methods

This research uses a quantitative approach in conducting research, the research method used by the author is a quasi-experimental method (Quasi Experiment). The research design used was a pretest-posttest with control group design to determine the effect of treatment in the intervention group by comparing it with the control group.

The population in this study was 30 third trimester pregnant women in the Saketi Community Health Center working area.

The sampling technique in this research is total sampling. According to (Sugiyono, 2019) total sampling is a sampling technique where the number of samples taken is the same as the population.

Research Result

This study aims to determine the effect of Baduy honey consumption on the incidence of anemia in TM III pregnant women at the Saketi Community Health Center. The data used in this research is primary data that was successful from observing Hb levels, the number of respondents was 30 TM III pregnant women, honey consumption was given to 15 intervention respondents.

Data collection for this research was obtained from the results of a puskesmas survey, then the researchers contacted respondents via chat media and determined a visit schedule adjusted to the schedule of pregnant women starting from December 2023 to January 2023 by scheduling visits for each pregnant mother, so that researchers could easily perform data retrieval. The first step of the research was to explain to the respondent and the respondent's family about the research that would be carried out and ask for approval by signing an informed consent sheet. After the respondent agreed, the researcher carried out a pre-test and then provided the Baduy honey intervention.

The intervention group was given Baduy honey for 14 days, at a dose once a day (1 teaspoon). In the control group, Baduy honey was not given, previously a pre-test was carried out by checking Hb levels and at the end a post-test was carried out at the respondent's house, monitoring compliance in consumption was carried out using Madia Chat, namely the WhatsApp application and an observation sheet by visiting the respondent's house directly and monitoring via WhatsApp, respondents were asked to show proof that they had consumed Baduy honey by photographing the remaining Baduy honey and the process of consuming it. Researchers also asked the respondents' families whether Baduy honey was consumed regularly.

A. Research result

1. Univariate Analysis Results

- a. Characteristics of TM III pregnant women at the Saketi Community Health Center

Table 4.1 Characteristics of TM III Pregnant Women at the Saketi Community Health Center

Research Characteristics	Intervention		Control	
	n	%	N	%
Gestational Age				
20-35 years	12	80%	10	67%
>35 years	3	20%	5	33%
Parity				
Primigravida	5	33%	6	40%
Multigravida	10	67%	9	60%
Education				
Elementary (Elementary-3 Middle School)		20%	3	20%
Intermediate (High School)	9	6%	11	73%
Height (PT)	3	20%	1	7%
Job status				
Work	7	47%	5	33%
Doesn't work (Housewife)	8	53%	10	67%
Husband's Income				
< Minimum wage	4	27%	6	40%
≥ Minimum wage	11	73%	9	60%

Based on table 4.1, it is known that the age of TM III pregnant women in the intervention and control groups was mostly between 20-35 years in the intervention group as many as 12 respondents (67%). The number of parities in the intervention and control groups was mostly multigravida, where in the intervention group there were 10 respondents (67%) and in the control group there were 9 respondents (60%). The education level in the intervention and control groups mostly had secondary education (SMA), where in the intervention group there were 9 respondents (60%) and in the control group 11 respondents (73%). Most of the employment status in the intervention and control groups were not working, where in the intervention group there were 8 respondents (53%) and in the control group there were 10 respondents (67%). Most of the income in the treatment and control groups was \geq minimum wage, where in the control group there were 11 respondents (73%) and in the control group there were 9 respondents (60%).

b. Incidence of anemia in TM III pregnant women at Saketi Community Health Center

Table 4.2 Frequency Distribution of Anemia Incidents in TM III Pregnant Women at the Saketi Community Health Center

Anemia Occurrence	Treatment		Control	
	N	%	n	%
Anemia	15	100	10	66.7
not anemic	0	0	5	33.3
Total	15	100	15	100

Based on Table 4.2, it shows that the majority of TM III pregnant women in the intervention group experienced mild anemia and moderate anemia as many as 15 respondents (100%) and pregnant women who were not anemic were 0 respondents (0%). In the control group, the majority of TM III pregnant women experienced anemia as many as 5 respondents (33.3%).

Table 4.3 Frequency Distribution of Anemia Events in TM III Pregnant Women at the Saketi Health Center After Intervention

Anemia Occurrence	Treatment		Control	
	N	%	n	%
Anemia	0	0	8	53.3
not anemic	15	100	7	46.7
Total	15	100	15	100

Based on table 4.3, it shows that the majority of TM III pregnant women in the intervention group were not anemic, 15 respondents (100%) and 0 respondents (0%) were anemic pregnant women. In the control group, the majority of TM III pregnant women experienced mild anemia, 8 respondents (53.3%) and 7 respondents (46.7%) who were not anemic.

2. Bivariate Analysis

- a. The effect of Baduy honey consumption on the incidence of anemia in TM III pregnant women at the Saketi Community Health Center

Table 4.4. The Effect of Consuming Baduy Honey on the Incidence of Anemia in TM III Pregnant Women at the Saketi Community Health Center

Anemia Occurrence	Intervention		Control		P	CI	RR
	N	%	N	%			
Anemia	0	0	8	53.3			
Not anemic	15	100	7	46.7	0.002	1,705-5,794	3.14
Total	15	100	15	100			

Based on table 4.4, it shows that 8 respondents (55.3%) of TM III pregnant women who did not consume Baduy honey experienced anemia and 15 respondents (100%) of TM III pregnant women who consumed Baduy honey did not experience anemia. The results of the chi square test obtained a value of $p=0.002$, which means that if the α value <0.05 the value has a significant influence, so it can be concluded that there is a significant influence between the consumption of Baduy honey on the incidence of anemia in TM III pregnant women at the Saketi Community Health Center. The result of the Confidence Interval (CI) value is 1.705 – 5.794 (95%), which means the level of confidence that the sample contains 95% of the parameter values, the result of the relative risk (RR) value is 3.14, which means that respondents who do not consume Baduy honey have a probability of 3.14 times experienced anemia compared to those who consumed Baduy honey.

Discussion

A. Characteristics of TM III Pregnant Women at the Saketi Community Health Center

1. Age

The results of the study showed that in the intervention group the majority of TM III pregnant women aged 20-35 years were 12 respondents (80%) and those aged > 35 years were 3 respondents (20%), in the control group the majority of TM III pregnant women were aged 20-35 years. 35 years as many as 10 respondents (67%) and those aged >35 years were 5 respondents (33%).

Age is a risk factor for anemia in pregnant women. A mother's age is related to the condition of the woman's reproductive organs. Based on table 4.1, the age of most TM III pregnant women is 20-35 years. How is the analysis related to pregnancy and anemia, pregnancy aged <20 years and over 35 years can cause anemia because in pregnancies aged <20 years biologically they are not yet optimal, their emotions tend to be unstable, they are mentally immature so they easily experience shock which results in a lack of attention to meeting their nutritional needs. – nutrition during pregnancy. Meanwhile, at the age of >35 years, it is associated with setbacks and decreased endurance as well as various diseases that often occur at this age (Rahmi, 2020). Research shows that there is a relationship between age and the incidence of anemia in pregnant women at the UPT Puskesmas DTP Saketi with the statistical test value proven to be p value = $0.018 < 0.005$.

2. Parity

The results of the study showed that in the intervention group the majority of TM III pregnant women were multigravida as many as 10 respondents (67%) and primigravida as many as 5 respondents (33%), in the control group the majority of pregnant women were TM III

multigravida as many as 9 respondents (60%) and primigravida as many 6 respondents (40%). The more often a person experiences the birth process, the risk of anemia they will have if they do not pay attention to the nutrition they consume because during pregnancy, the nutrients will be divided between the mother and the fetus in the womb (Afriyanti, 2020).

Pregnancy anemia which is influenced by gravida, according to research, women who frequently experience pregnancy and give birth become more anemic because they lose a lot of iron. This is because during pregnancy women use up the iron reserves in their body.

Research results (Adawiyah Wijayanti, 2021) stated that 44.6% of primigravida pregnant women experienced pregnancy anemia, while 12.8% of multigravida mothers experienced pregnancy anemia. This is because primigravida mothers do not have experience in maintaining healthy pregnancies from previous pregnancies.

3. Education

The results showed that in the intervention group, the majority of TM III pregnant women had secondary education, 9 respondents (60%), 3 respondents (20%) had basic education, and 3 respondents had high education (3%), while in the control group, the majority of TM III pregnant women 11 respondents (73%) had secondary education, 3 respondents (20%) had basic education, and 1 respondent had a high level of education (7%).

The results show that in both groups the most education is secondary. In general, the higher a person's education, the better their knowledge, increasing a person's age can also influence the increase in knowledge obtained. Knowledge is the result of a knowing process that occurs after someone senses a particular object (Notoatmodjo, 2020). A person's level of education can influence a person's level of knowledge. The higher a person's education, the higher a person's understanding of the information received which contributes to a person's higher knowledge.

Education is needed to determine the mother's level of understanding regarding anemia in pregnant women in order to improve the quality of life. It is explained that education influences decision making, mothers who have a high level of education will use rational considerations and knowledge about food nutrition or physiological considerations more prominently (Iriyanto, 2019).

4. Work

The results showed that in the intervention group the majority of TM III pregnant women did not work as many as 8 respondents (53%) and 7 respondents (47%) worked, while in the control group the majority of TM III pregnant women did not work as many as 10 respondents (67%) and work as many as 5 respondents (33%).

Pregnant women whose employment status is not working only as a housewife is a risk factor for anemia because most of their income depends on their husband's income to meet their needs, some of these housewives are at a low socio-economic level. Anemia is found when the monthly income is low (Iriyanto, 2019).

Respondents who do not work tend to have a lower socioeconomic status and they have to do hard work during pregnancy to meet their needs. This causes inadequate nutritional needs, short birth spacing, inadequate antenatal care (Rizkah & Mahmudiono, 2019).

5. Income

Family support, especially the husband, has an effect on the mother's health because the family environment, husband's income, knowledge, and attitudes of family members regarding anemia in pregnancy will influence the behavior of pregnant women towards anemia in pregnancy. A husband's high income level tends to be better able to meet the needs for adequate nutritional

intake during pregnancy. So the risk of pregnant women experiencing anemia tends to be less (Angraini et al., 2019). is the main factor determining the adequacy of nutritional intake and quality of life. The higher the income, the higher the standard of living (Setiawan and Hakim, 2019).

The results of research conducted by Rai et al., (2019) stated that there was no relationship between hemoglobin (Hb) levels and husband's income. There is also research that explains that statistically significant results were obtained between income and hemoglobin levels. Where low socioeconomic status is associated with an increased risk of anemia in pregnancy. It is clear that with low income, the prevalence of anemia increases (Darmawati et al., 2019).

B. Description of the incidence of anemia in TM III pregnant women at the Bangetayu Community Health Center, Semarang City before and after consuming date juice and honey

The results of the study showed that before the research was carried out, 15 respondents of TM III pregnant women in the intervention group experienced anemia (100%) and 0 respondents (0%) were pregnant women who were not anemic. In the control group TM III pregnant women experienced anemia as many as 10 respondents (66.7%) and those who were not anemic were 5 respondents (33.3%). After being given the TM III intervention, 15 respondents (100%) were not anemic in the intervention group and 0 respondents (0%) were anemic pregnant women. In the control group TM III pregnant women experienced anemia as many as 8 respondents (53.3%) and those who were not anemic were 7 respondents (46.7%).

Research by Lestariningsih (2019) In the intervention, Baduy honey was given once a day (1 spoon) recommended before eating for 2 weeks. Based on the results of test data on measuring Hb levels before consuming Baduy honey, the lowest Hb was 8.5 gr/dL and the highest Hb level was 11.9 gr/dL. measurement of Hb levels after consuming Baduy honey was the lowest Hb level was 8.60 gr/dL and the highest Hb level was 13.5 gr/dL. In the test results $p=0.031$ ($p<0.05$). So statistically there is an effect of consumption of Baduy honey on increasing Hb levels in class X MA DarulA'mal students.

In line with research conducted by Darmawati et al., (2018), the results of measuring hemoglobin levels before and after giving honey showed that the average hemoglobin level before giving honey was 13.45 gr/dl, while the average hemoglobin level after giving honey. is 14.69 gr/dl. This shows an increase in hemoglobin levels before and after treatment.

Anemia is more common in pregnancy, this is because during pregnancy the need for food substances increases and changes occur in the blood and bone marrow. Blood increases during pregnancy, which is commonly called hydremia or hypervolemia. However, the increase in blood cells is less than the increase in plasma, resulting in blood thinning. Blood thinning is considered a physiological adjustment in pregnancy and is beneficial for women because it relieves the burden on the heart which has to work harder during pregnancy (Darmawati et al., 2018).

Natural physiological changes that occur during pregnancy will affect the normal number of red blood cells in pregnancy. The increase in maternal blood volume mainly occurs due to an increase in plasma, not due to an increase in red blood cells. Although there is an increase in the number of red blood cells in circulation, the number is not balanced with the increase. plasma volume, this imbalance will be seen in the form of a decrease in hemoglobin (Hb) levels. Blood thinning (hemodilution) in pregnant women often occurs with an increase in plasma volume of 30%-40%, an increase in red blood cells of 18%-30% and hemoglobin of 19%. Physiologically, hemodilution helps ease the work of the heart (Parulian et al., 2019). occurs from 10 weeks of pregnancy and reaches its peak at 32-34 weeks of pregnancy (Kamaruddin et al., 2019).

Pathophysiology of Anemia in Pregnancy During pregnancy there is an increase in blood volume (hypervolemia). Hypervolemia is the result of an increase in the volume of plasma and erythrocytes (red blood cells) in the body, but this increase is not balanced, namely the increase in plasma volume is much

greater, thus having the effect of reducing the hemoglobin concentration from 12 gr/100 ml. Blood thinning (hemodilution) in pregnant women often occurs with an increase in plasma volume of 30%-40%, an increase in 14 blood cells of 18%-30% and hemoglobin of 19% (Mariana et al., 2019).

There are several factors why pregnant women do not experience anemia, namely mothers who regularly consume iron. Iron is a vital element for the formation of hemoglobin, apart from that, iron is an important component in respiratory enzyme systems such as cytochrome-oxidase, catalase peroxidase (Silalahi & Hulu, 2019). Consuming Fe tablets regularly and correctly will help the absorption of iron itself in the mother's body so that the mother avoids iron deficiency. For good iron absorption, vitamin C is needed, which is found in abundance in oranges, various juices, broccoli, tomatoes (Sibagariang, 2019).

The presence of animal protein and vitamin C are factors that influence iron absorption. Meanwhile, those that inhibit absorption are coffee, tea, calcium and magnesium salts, because they bind iron, which is an important component of the respiratory enzyme system such as cytochrome-oxidase, catalase peroxidase (Silalahi & Hulu, 2019). Consuming Fe tablets regularly and correctly will help the absorption of iron itself in the mother's body so that the mother avoids iron deficiency. For good iron absorption, vitamin C is needed, which is found in abundance in oranges, various juices, broccoli, tomatoes (Sibagariang, 2019).

The presence of animal protein and vitamin C are factors that influence iron absorption. Meanwhile, those that inhibit absorption are coffee, tea, calcium and magnesium salts, because they bind iron. Iron is not only obtained through Fe tablets obtained from health facilities. Adequate maternal nutritional intake, where foods containing lots of iron from animal meat, fruit and green vegetables can be consumed sufficiently. Sources of iron are foods that come from animals, namely meat, chicken, eggs and nuts, seeds and green vegetables (Silalahi & Hulu, 2019).

The factor that causes anemia is a lack of nutrients in the food consumed. The causes are poverty and changes in diet, culture, gender inequality, suboptimal iron absorption, for example due to diarrhea, digestive tract surgery, some iron is absorbed in the duodenum, the influence of intrinsic hormones produced by the stomach, large blood loss due to wounds, bleeding due to certain diseases (Mariza, 2019).

Apart from that, the causes of anemia in pregnant women are insufficient intake of food sources for the formation of red blood cells due to vomiting, abstinence, dislike of certain types of food and food allergies, too frequent pregnancies and childbirth resulting in low Fe stores, increased Fe needs, and impaired Fe absorption (Purwaningtyas & Prameswari, 2018).

C. The effect of Baduy honey consumption on the incidence of anemia in TM II pregnant women at the Saketi Community Health Center

Based on table 4.4, the research shows that there is a significant influence between the consumption of Baduy honey juice on the incidence of anemia in TM III pregnant women at the Bangetayu Community Health Center, Semarang City ($p=0.002$). The influence of consumption of date juice and honey on the incidence of anemia in TM III pregnant women is because date juice and honey contain protein, carbohydrates and fat. Date juice and honey support the process of hemoglobin (Hb) synthesis (Sotolu et al., 2018).

Based on research conducted by Himawan et al. (2018) giving 100% honey has been proven to increase Hb levels in male Wistar white rats fed low-Fe feed. Existing iron supplements, such as ferrous sulfate, have side effects such as nausea, constipation, black stools and diarrhea. If used correctly and with the right dosage, honey can be an iron supplement without causing the side effects of nausea, vomiting, headaches, and anorexia that can be caused by iron supplementation.

Research by (Widowati et al., 2019) states that honey can increase hemoglobin levels. High iron can be used to treat anemia. Anemia is a condition where the number of red blood cells or the amount

of hemoglobin (oxygen-carrying protein) in red blood cells is below normal. The iron in dates is later absorbed by the intestines and carried by the blood for hemopoiesis (the process of blood formation). Other research states that honey has the property of being able to support increased erythropoietin synthesis by the liver to stimulate the spinal cord to produce more red blood cells or haemotopoiesis.

Honey, which is rich in ingredients, contains components that can increase iron absorption or play a role in the formation of red blood cells where hemoglobin is located. Date juice and honey contain various vitamins, minerals, antioxidants etc. Iron absorption in the body is closely related to the acidic environment that helps iron absorption, which occurs in the first and second parts of the small intestine. Therefore iron absorption is enhanced by co-administration of acidic compounds, such as Vitamin C or ascorbic acid. Vitamin C contained in date juice and honey can also increase iron absorption, especially by reducing ferric iron to ferrous iron. Apart from its role in converting Ferric to Ferro prior to intestinal absorption, vitamin C also regulates iron homeostasis by inhibiting hepcidin expression (for example, in HepG2 cells), making vitamin C potentially helpful in attenuating iron deficiency (Abu Ouf, 2019).

The metabolism of vitamin A in honey has implications for iron homeostasis, so that vitamin A deficiency can cause iron deficiency (Apriyanti, 2021). The formation of red blood cells is greatly influenced by the presence of vitamin B12 and folic acid. Vitamin B12 will activate folic acid. The active form of folic acid can improve the function of cells such as bone marrow. Vitamin B12 is also a cofactor for two types of enzymes in humans, namely methionine synthetase and metimalonyl-CoA mutase. The methioninsetase reaction involves folic acid.

Based on table 4.4, it can be seen that the RR value is 3.14, which means that respondents who do not consume Baduy honey are 3.14 times more likely to experience anemia than those who consume Baduy honey. It can be seen that TM III pregnant women who did not consume honey mostly experienced anemia as many as 8 respondents (53.3%) and TM III pregnant women who consumed some honey did not experience anemia as many as 15 respondents (100%).

These results are supported by research conducted by Tambuwun et al., (2019) on 30 pregnant women, divided into two groups, namely 15 pregnant women in the control group and 15 pregnant women in the intervention group. The research results obtained showed that giving honey could increase hemoglobin levels in pregnant women with anemia who were given intervention, which increased by 1.10 gr%. Giving honey can increase hemoglobin levels in 100 pregnant women with anemia with an average increase of 1.1 gr% and is statistically significant with a significance value of 0.000. Giving Fe tablets can help increase hemoglobin levels in pregnant women with an average increase in hemoglobin levels of 0.41% and statistically significant with a value of 0.004.

This is also in line with research by (Harnetacia, 2020) stating that the experimental intervention group (giving honey) and 25 mothers would be used as the control group (without honey), and in the honey group respondents consumed multi micronutrients (MMN). The research results showed that honey was more effective than MMN with a value of $p=0.045$ ($p<0.05$).

Based on the results table 4.4 of the research, it was still found that TM III pregnant women did not consume Baduy honey but did not experience anemia. This is influenced by other factors such as age at pregnancy, education level, parity, occupation of the pregnant woman, husband's income, upper arm circumference (Wiraprasisi, 2018).

Age 20-35 years is a safe age to accept pregnancy and childbirth. Parity 2 to 3 is the safest parity in terms of maternal mortality and the health of the mother and baby. Parity 4 has a high risk of developing anemia, this is because the large number of births (parity) can affect the mother's health condition so that the mother is susceptible to anemia (Amini et al., 2018).

Educational factors can influence a person's anemia status in relation to the choice of food consumed. Education level, especially women's education level, influences health status. A person's level of education influences his knowledge and understanding of something and directs him to positive behavior, as well as health behavior, so it can be said that the higher a person's education, the better his

level of knowledge regarding anemia. On the other hand, the lower the level of education, the lower the mindset so that the ability to absorb information also decreases (Amini, 2019).

Housewives who do not have a job are a risk factor for anemia because most housewives depend on their husbands' income to meet their needs. Some of these housewives have low socio-economic status. Anemia is found in women whose monthly income is low (Alfathan & Darmawati, 2018).

Research conducted by Alfathan & Darmawati (2018) regarding work is associated with anemia in pregnancy. Women who don't work tend to have a lower socio-economic status so they have to work harder during pregnancy. This has a huge impact on pregnant women, resulting in poor nutrition, short birth intervals, and low antenatal care visits. According to Alamsyah (2020), who conducted research in Ethiopia, stated that monthly income is significantly related to the incidence of anemia during pregnancy. This is explained by the fact that Ethiopians spend 57% of expenditure on food. So if a pregnant woman with a low income becomes difficult to get adequate nutrition and is at risk of developing anemia.

The LILA measure describes the nutritional status of pregnant women and to determine the risk of CED or malnutrition. The LILA WUS threshold for CED risk in Indonesia is <23.5 cm. If the LILA size is ≥ 23.5 cm then there is no risk of CED (Purwaningtyas & Prameswari, 2017). Research conducted by (Putri & Al Muqsith, 2018) using multivariate analysis shows that years of schooling, nutritional status of upper arm circumference (LILA) are significantly related to hemoglobin levels of pregnant women.

Maternal nutritional status as measured through LILA reflects the nutritional reserves and nutritional status of the mother in the pre-pregnancy period. Malnutrition before pregnancy will affect the mother's nutritional status during pregnancy, which makes her nutritional needs higher than mothers who are not malnourished, to meet the needs of the mother and fetus. If during pregnancy, the mother experiences chronic energy deficiency (CED) it will result in anemia (Amini et al., 2018).

D. Research Limitations

These limitations are obstacles that researchers cannot reach in carrying out research in carrying out this research, namely:

1. Researchers could not control the nutrients or other foods consumed by respondents, namely pregnant women TM III
2. Researchers could not control respondents when they consumed date juice and honey
3. Researchers did not give anything to the control group.

Conclusions

Based on the results of research on "Effectiveness of Giving Baduy Honey on Increasing Hemoglobin in Pregnant Women" This research was conducted to see the effect of giving Baduy honey on increasing hemoglobin in pregnant women with anemia. Based on the results of the research that has been carried out, several conclusions are obtained as follows:

1. Description of the incidence of anemia in TM III pregnant women at the Saketi Community Health Center before the intervention was carried out, it was found that the majority of TM III pregnant women experienced anemia, 15 respondents (100%) in the intervention group. In the control group, 10 respondents (66.7%) were anemic and 5 respondents (33.3%) were not anemic.
2. The description of the incidence of anemia in TM III pregnant women at the Saketi Community Health Center after the intervention was given with Baduy honey was that 15 respondents (100%) in the intervention group did not experience anemia in TM III pregnant women. In the control group, 8 respondents (53.3%) were anemic and 7 respondents (46.7%) were not anemic.

3. There is a significant influence between the consumption of Baduy honey on the incidence of anemia in TM III pregnant women at the Saketi Community Health Center with a value of $p=0.002 < \alpha=0.05$. The RR value is 3.14, which means that respondents who do not consume Baduy honey are 3.14 times more likely to suffer from anemia than those who consume Baduy honey.

Suggestions

1. For Pregnant Women

Pregnant women are expected to get enough iron during pregnancy and prevent anemia by consuming healthy foods that can increase HB levels, such as Baduy honey.

2. For Midwives

Midwives can consider giving Baduy honey to pregnant women to meet pregnant women's need for iron during TM III pregnancy with anemia without reducing consumption of iron tablets.

3. For Researchers

Future researchers are advised to involve more research subjects so that the results obtained can be generalized to a wider group of subjects and can be compared with other foods that increase iron levels such as spinach or beets.

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