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# The Effect Of Date Palm Extract On Hemoglobin Levels In Third Trimester Pregnant Women At UPT Puskesmas Sekincau, West Lampung Regency, 2024

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**ABSTRACT**
Anemia in pregnant women is a classic problem that can never be treated, has a serious impact on the mother and baby, and if not treated immediately, it can prolong the latent phase, the active phase, and cause primary post-partum bleeding. In the fetus it can cause IUGR, prematurity, LBW. Data on pregnant women at the Sekincau Community Health Center in 2023 was 586 and 24.7% had anemia in pregnancy. One intervention that can be done is consuming foods high in iron and vitamin C, namely date palm juice. The aim of the research was to determine the effect of giving date palm juice on the hemoglobin levels of TM III pregnant women. Quantitative research type, Quasi-experimental research design with a two group pretest-posttest design approach. The population was 77, the sample was 30, divided into 2 groups, 15 intervntion groups and 15 control groups using purposive sampling techniques and simple random sampling techniques. The object of the research was hemoglobin levels. The research subjects were pregnant women in the third trimester with anemia. The research was conducted in July-August 2024. Data collection used observation sheets, univariate and bivariate data analysis (Independent t-test). The results of the study showed that the average hemoglobin level before being given date juice and Fe (intervention group) was 10.2 gr/dl and after the intervention was 11.4 gr/dl. Meanwhile, the average hemoglobin level before being given Fe alone (control group) was 10.0 gr/dl and after it was 10.3 gr/dl. There was an effect of giving date palm juice on the hemoglobin levels of TM III pregnant women (p-value 0.000 < α = 0.05). Advice for pregnant women: Date palm juice is a complement to increasing Hb levels in pregnant women



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## INTRODUCTION

Anemia, particularly in pregnant women, still seems to be a classic problem that can never be handled and has serious impacts on mothers and babies. According to WHO, anemia in pregnancy is established if hemoglobin (Hb) levels are <11 g/dL or hematocrit (Ht) <33%. The Center for Disease Control and Prevention defines anemia as a condition with Hb levels <11 g/dL in the first and third trimesters, Hb <10.5 g/dL in the second trimester (Nasri et al., 2022).

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Anemia in pregnancy is mostly caused by iron deficiency (iron deficiency anemia) due to lack of iron intake in food, reabsorption disorders, usage disorders, or excessive iron leaving the body, such as in bleeding. Besides being caused by iron deficiency, the possible underlying causes of anemia include excessive premature destruction of red blood cells in the body (hemolysis), blood loss or chronic bleeding, suboptimal red blood cell production, poor nutrition such as in protein absorption disorders and iron by the intestines, disorders of erythrocyte formation by bone marrow (Rosita, 2020).

According to WHO, 40% of maternal deaths in developing countries are related to anemia in pregnancy. About 95% of pregnancy anemia cases are due to iron (Fe) deficiency, usually caused by inadequate food intake, previous pregnancies, repeated normal blood loss (Proverawati, 2019). The prevalence of anemia in Indonesia is 48.9% with anemia sufferers aged 10-24 years 84.6%, ages 25-34 33.7%, ages 35-44 33.6%, and ages 45-54 24% (Ministry of Health RI, 2022). Women have the highest risk of anemia, especially pregnant women (Ministry of Health RI, 2022). Anemia in pregnant women averages 6.9%, with the highest incidence in West Papua at 20.1% and lowest in Gorontalo at 0% (Ministry of Health RI, 2022). According to 2018 Lampung Riskesdas data, it is known that the prevalence of anemia in pregnant women is 1.09% (Ministry of Health RI, 2022).

Data on pregnant women at Sekincau Health Center shows an increase in the incidence of anemia in pregnant women, known in 2021 from 511 pregnant women found 19.7% with anemia conditions, in 2022 found 592 pregnant women and found 21.3% pregnant women with anemia in 2023 found the number of pregnant women as many as 586 and 24.7% with anemia conditions in pregnancy (RM Puskesmas Sekincau, 2024).

Anemia in pregnancy that most often occurs is caused by iron deficiency as much as 62.3%, and has an influence that if not addressed immediately can cause prolongation of the latent phase by 22.2%, active phase by 66.7% (Susilawati, 2023), as much as 10.8% causes uterine atony (Purwati et al., 2022) and causes primary postpartum hemorrhage as much as 87.5% (Sinaga, 2019). While in the fetus according to research (Farhan, 2021) as much as 12.2% can cause IUGR, as much as 66.9% causes prematurity, and as much as 36.3% can cause LBW.

Government policy in handling pregnancy anemia is the provision of iron (Fe) tablets and folic acid. Pregnant women are advised to consume 60 mg of iron and 0.25 folic acid equivalent to 200 mg Ferrosulfate during pregnancy at least 90 tablets. Tablet administration has started in the first trimester of pregnancy. Iron administration for prevention dose is 1x1 tablet and for treatment dose (if Hb less than 11 g/dl) is 3x1 tablet (Lampung Health Office, 2023). The main therapy for anemia is giving Fe supplements every day 200 mg, if Hb <5-6 g% then blood transfusion needs to be done (Manuaba, 2019).

Anemia in pregnancy that most often occurs is caused by iron deficiency as much as 62.3%, and has an influence that if not addressed immediately can cause prolongation of the latent phase by 22.2%, active phase by 66.7% (Susilawati, 2023), as much as 10.8% causes uterine atony (Purwati et al., 2022) and causes primary postpartum hemorrhage as much as 87.5% (Sinaga, 2019). While in the fetus according to research (Farhan, 2021) as much as 12.2% can cause IUGR, as much as 66.9% causes prematurity, and as much as 36.3% can

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cause LBW. (Priyanti et al., 2020). According to (Lampung Health Office, 2023), there are 96 cases of maternal deaths where 25% or 24 cases are caused by bleeding. While in (Lampung Health Office, 2023), there are 5 cases of maternal deaths where 20% or 1 case is caused by bleeding.

Iron deficiency anemia is the main cause of anemia in pregnant women compared to other nutrient deficiencies. Pregnant women need higher iron, about 200-300% of the needs of non-pregnant women (Priyanti et al., 2020). Government policy in handling pregnancy anemia is the provision of iron (Fe) tablets and folic acid. Pregnant women are advised to consume 60 mg of iron and 0.25 folic acid equivalent to 200 mg Ferrosulfate during pregnancy at least 90 tablets. Tablet administration has started in the first trimester of pregnancy. Iron administration for prevention dose is 1x1 tablet and for treatment dose (if Hb less than 11 g/dl) is 3x1 tablet (Lampung Health Office, 2023). The main therapy for anemia is giving Fe supplements every day 200 mg, if Hb <5-6 g% then blood transfusion needs to be done (Manuaba, 2019).

Management of iron deficiency anemia can be in the form of food intake containing iron, oral iron supplements. (Wazaituni et al., 2023), prevention doses are given to target groups without Hb examination of pregnant women until the postpartum period is consuming one Fe tablet consecutively for at least 90 days of pregnancy until 42 days after delivery. Pregnant women are given at least 90 tablets. The national policy implemented in all Public Health Centers (Puskesmas) is giving one iron tablet a day as soon as possible after nausea disappears at the beginning of pregnancy. Iron tablets should not be taken with tea or coffee, as it will interfere with absorption. However, besides that, efforts that pregnant women can do themselves in overcoming their anemia by meeting iron needs from food intake obtained from fruits and vegetables, one of which is by consuming dates containing iron. Dates contain vitamins such as riboflavin, biotin, thiamine, folic acid and ascorbic acid which are important for the body. In 100 g of dates contain 1.2 mg iron, 5.4 mg folic acid, 6.1 mg vitamin C, 52 mg potassium and 63 mg phosphorus.

Date palm extract is dates that are mashed and extracted. Date palm extract usually has a thick texture, is black in color, tastes sweet, and has benefits that are no less than dates. The iron content in date palm extract is very good for increasing red blood cell formation. In 15 g of date palm extract there is 6% iron content. Therefore, date palm extract is also good for preventing iron deficiency anemia (Syahri, 2022). In line with previous research conducted by (Irmawati, 2020). The Effect of Date Palm Extract on Increasing Hb Levels in Pregnant Women. Based on T test results, obtained p-value of 0.000 or p-value < α (0.005), Research results from fifteen respondents showed that there was an increase in hemoglobin levels in pregnant women after being given date palm extract at Barrang Lompo Health Center. The conclusion in the study is that there is an effect of giving date palm extract to increasing hemoglobin levels in pregnant women meaning that by consuming date palm extract 3 x 2 measuring spoons/day regularly during pregnancy can increase Hb levels in pregnant women.

From the results of the pre-survey that researchers conducted in April 2024, there were 77 third trimester pregnant women at UPT Puskesmas Sekincau, West Lampung Regency. Of the 77 third trimester pregnant women, there were 38 pregnant women with anemia (36

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people with mild anemia and 2 people with moderate anemia). From 5 pregnant women with anemia, it is known that mothers do not consume Fe tablets regularly, food consumption does not pay attention to nutrients consumed and mothers have never tried to consume date palm extract in dealing with anemia. Based on the above exposure, the authors are interested in researching the effect of giving date palm extract with hemoglobin levels of third trimester pregnant women at UPT Puskesmas Sekincau, West Lampung Regency in 2024.

## METHODS

This research uses quantitative analytical research that aims to understand or analyze relationships (correlations) to determine how far these risk factors contribute to effects or an event, so that analytical research requires a research hypothesis and statistical tests (Riyanto, 2017). The research design is Quasi-experimental with a two-group pretest-posttest design approach. This research has conducted the first observation (pretest) so that researchers can test changes that occur after treatment, and in this design, there is a control group (comparison) (Riyanto, 2017). This research was conducted from July-August 2024. The research location was at UPT Puskesmas Sekincau, West Lampung Regency in 2024. The population in this study was third trimester pregnant women with mild anemia at UPT Puskesmas Sekincau, West Lampung Regency in April 2024 with an estimated 77 third trimester pregnant women. The sample in this study was pregnant women with mild anemia totaling 30 people divided into 2 groups, where 15 people as the experimental group and 15 people as the control group. The research sampling used Multistage Random Sampling technique.

The independent variable is the variable that can influence or is also called the cause variable and independent variable (Sulung, 2022). In this study, the independent variable is the administration of date palm extract. The dependent variable is the variable that is influenced by the independent variable, also called the dependent or bound variable (Sulung, 2022). The dependent variable is the hemoglobin level of third trimester pregnant women.

## RESULTS AND DISCUSSION

### Research Results

**Table 1** Respondent Characteristics

| Variable | Category | Intervention | | Control | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Age | 21 – 25 years | 6 | 40,0 | 2 | 13,3 |
| | 25 and >35 years | 9 | 60,0 | 13 | 86,7 |
| Education | Junior High | 1 | 6,7 | 0 | 0,0 |
| | High School | 11 | 73,3 | 10 | 66,7 |
| | Vocational School | 1 | 6,7 | 1 | 6,7 |
| | Bachelor | 2 | 13,3 | 4 | 26,6 |
| Occupation | Housewife | 12 | 80,0 | 12 | 80,0 |
| | Working | 3 | 20,0 | 3 | 20,0 |

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| Variable | Category | Intervention | | Control | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Parity | Primipara | 7 | 46.7 | 7 | 46.7 |
| | Multipara | 8 | 53.3 | 8 | 53.3 |
| Gestational Age | 28-33 weeks | 8 | 53,3 | 8 | 53,3 |
| | >33 weeks | 7 | 46,7 | 7 | 46,7 |
| Total | | 15 | 100 | 15 | 100 |

Source: Primary Data, 2024

Based on the table above, it is known that from 15 respondents in the intervention group with age 25 and >35 years were 9 (60.0%), respondents with high school education were 11 (73.3%), respondents working as housewives were 12 (80.0%), respondents with multipara parity were 8 (53.3%), and respondents with gestational age 28-33 weeks were 8 (53.3%). In the control group with age < 21 and > 25 years were 13 (86.7%), respondents with high school education were 10 (66.7%), respondents working as housewives were 12 (80.0%), respondents with multipara parity were 8 (53.3%), and respondents with gestational age 28-33 weeks were 8 (53.3%).

**Table 2** Average hemoglobin levels in third trimester pregnant women before being given date palm extract and Fe (intervention group) at UPT Puskesmas Sekincau

| Kelompok | Hb Level Difference (gr/dl) | SD | *p- value* |
|---|---|---|---|
| Intervention | 1,2 | 0,57 | 0,015* |
| Control | 0,3 | 0,19 | 0,000* |

Source: Primary Data, 2024

Based on the table above, the average hemoglobin level in pregnant women before being given date palm extract and Fe (intervention group) was 10.2 gr/dl with standard deviation value of 0.3 gr/dl, minimum value of 9.4 gr/dl and maximum value of 10.8 gr/dl. The average hemoglobin level in pregnant women after being given date palm extract and Fe (intervention group) was 11.4 gr/dl with standard deviation value of 0.7 gr/dl, minimum value of 9.6 gr/dl and maximum value of 12.8 gr/dl.

**Table 3** Average hemoglobin levels in third trimester pregnant women before being given Fe only (control group) at UPT Puskesmas Sekincau

| Hb Level | Mean | SD | Min | Max | N |
|---|---|---|---|---|---|
| Before | 10.0 gr/dl | 0.4 | 9.4 | 10.8 | 15 |
| After | 10.3 gr/dl | 0.3 | 9.8 | 11.0 | 15 |

Source: Primary Data, 2024

Based on the table above, the average hemoglobin level in pregnant women before being given Fe only (control group) was 10.0 gr/dl with standard deviation value of 0.4 gr/dl, minimum value of 9.4 gr/dl and maximum value of 10.8 gr/dl. The average hemoglobin level in pregnant women after being given Fe only (control group) was 10.3 gr/dl with standard deviation value of 0.3 gr/dl, minimum value of 9.8 gr/dl and maximum value of 11.0 gr/dl.

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## Bivariate Analysis

**Table 4** Effect of date palm extract administration on hemoglobin levels of third trimester pregnant women at UPT Puskesmas Sekincau

| Group | Hemoglobin Level | Mean (gr/dl) | Mean Difference | p-value |
|---|---|---|---|---|
| Date palm extract + Fe tablet | Before | 10.2 | 0.57 | 0.015* |
| | After | 11.4 | | |
| Fe tablet | Before | 10.0 | 0.15 | 0.000* |
| | After | 10.3 | | |

*Paired T-test

Based on the table above, statistical test results, p-value = 0.000 (p-value < α = 0.05) which means there is an effect of date palm extract administration on hemoglobin levels of third trimester pregnant women at UPT Puskesmas Sekincau.

**Table 5** Differences in Hb levels Before and After Treatment in Intervention Group and Control Group in Third Trimester Pregnant Women at UPT Puskesmas Sekincau

| Hb Level | Mean | SD | Min | Max | N |
|---|---|---|---|---|---|
| Before | 10.2 gr/dl | 0.3 | 9.4 | 10.8 | 15 |
| After | 11.4 gr/dl | 0.7 | 9.6 | 12.8 | 15 |

*Independent T-test

Based on table 5 above, where the group consuming date palm extract + Fe tablets experienced an increase of 1.2 gr/dl.

## Discussion

### Univariate Analysis

### Average hemoglobin levels in third trimester pregnant women before being given date palm extract and Fe (intervention group)

Based on research results, the average hemoglobin level in pregnant women before being given date palm extract and Fe (intervention group) was 10.2 g/dl with a standard deviation value of 0.3 g/dl, minimum value of 9.4 g/dl and maximum value of 10.8 g/dl. Anemia in pregnancy is mostly caused by iron deficiency (iron deficiency anemia) due to lack of iron intake in food, reabsorption disorders, usage disorders, or excessive iron leaving the body, such as in bleeding (Rosita, 2020). Various ways to overcome and prevent anemia problems that occur in pregnant women are through pharmacological and non-pharmacological means (Bakta, 2018). Pharmacological treatment for nutritional deficiency anemia is oral iron tablet or Fe tablet supplementation given 60 mg/day, while non-pharmacological methods can include consuming protein-rich materials that can be obtained from animals and plants. Meat, liver, and eggs are good protein sources for the body. Liver also contains lots of iron, vitamin A and various other minerals. Legumes, wheat, brown rice, and other B vitamins. Green vegetables, spinach, water spinach, papaya leaves, and various fruits such as dates, beetroot, dragon fruit, pineapple, banana, pomegranate that are rich in minerals both iron and other substances needed to form red blood cells and hemoglobin (Fikawati et al., 2018).

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In line with Maternity's research (2021), research results showed average Hb levels in pregnant women before being given date palm extract with Mean 10.270 g/dL, minimum value 9.3 g/dL and max value 10.8 g/dL. Herayono's research (2022) showed average hemoglobin levels in pregnant women before consuming Fe tablets and date palm extract was 10.356 g/dL. Research by Yunitasari et al., (2021) showed average Hb levels in pregnant women before being given date palm extract intervention was 10.0 with standard deviation value 6.6, minimum value 9.0 and maximum value 10.9.

Anemia is a condition where maternal Hb levels are below normal. Low Hb content can indicate anemia, with symptoms including weakness, decreased appetite, lack of energy, decreased concentration, headache, easily infected with disease, dizziness, and pale eyelids, lips, and nails. The most common cause of anemia during pregnancy is iron deficiency and acute blood loss. Often both are closely related, because excessive blood loss accompanied by loss of hemoglobin iron and depletion of iron stores in one pregnancy can be an important cause of iron deficiency anemia in subsequent pregnancies. Poor nutritional status is often associated with iron deficiency anemia.

The researcher's assumption regarding causes of anemia in pregnant women aged 21 to 35 years can include several factors, including Iron Deficiency, pregnant women often experience increased iron needs to support fetal growth. If food intake is insufficient, anemia can occur. Lack of Nutritional Intake, unbalanced diet or lack of knowledge about nutrition during pregnancy can cause deficiency of important vitamins and minerals. Chronic diseases, Some medical conditions, such as thalassemia, kidney disease, or digestive disorders, can contribute to anemia. Consecutive pregnancies, mothers who have many children in a short time may not have enough time to restore their iron reserves. socioeconomic conditions, education level and income.

In this study, there were 12 respondents (80%) working as housewives. According to researchers, pregnant women who work as housewives can experience anemia due to several factors, including physical fatigue, heavy and repetitive household tasks, such as cleaning, cooking, and childcare, can cause fatigue that impacts overall health. Inadequate nutritional intake, being busy with various tasks can make housewives have difficulty consuming nutritious food regularly, so intake of iron, folic acid, and vitamin B12 becomes insufficient. Stress and mental health, emotional burden and stress from household responsibilities can affect physical health, including the body's ability to produce red blood cells. Lack of time for self-care, busyness in managing the house and family can make mothers not have time to rest or check health regularly.

Anemia in pregnant women can be influenced by parity status, whether they are primipara (first-time pregnant women) or multipara (pregnant women who have had more than one child). Nutritional deficiency, primiparas may not have enough experience in planning nutritious diets during pregnancy, so the risk of iron deficiency and other important nutrients is higher.

Body changes, as first-time pregnant women, they may not fully realize the nutritional and health needs required during pregnancy. Stress and anxiety, anxiety about first pregnancy can cause stress, which can affect physical and mental health. While in multipara,

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depletion of iron reserves, every time a mother gives birth, iron is lost. If she has many children in a short time, iron reserves may not have time to replenish before the next pregnancy. Recurring health conditions, multipara mothers may have recurring health conditions, such as previous postpartum bleeding, which can affect their health in subsequent pregnancies.

Pregnant women aged 32-36 weeks can experience anemia due to several causes, including, Increased blood volume, as pregnancy develops, blood volume increases. If red blood cell production is not proportional, mothers can experience anemia. Certain medical conditions, infections, digestive disorders, or diseases that affect nutrient absorption can contribute to anemia. Based on the above conclusions, researchers believe that maternal age, parity, gestational age affect the occurrence of anemia. This is supported by the characteristics of the respondents studied.

**Average hemoglobin levels in third trimester pregnant women before being given Fe only (control group)**

Based on research results, the average hemoglobin level in pregnant women before being given Fe only (control group) was 10.0 g/dl with standard deviation value 0.4 g/dl, minimum value 9.4 g/dl and maximum value 10.8 g/dl. Anemia is a condition of insufficient erythrocytes to deliver tissue oxygen needs. Because this is difficult to measure, anemia is defined as low concentration of hemoglobin (Hb), erythrocyte count, and hematocrit (Hct) from normal values (Bakta, 2018). Government policy in handling pregnancy anemia is the provision of iron (Fe) tablets and folic acid. Pregnant women are advised to consume 60 mg of iron and 0.25 folic acid equivalent to 200 mg ferrosulfate during pregnancy at least 90 tablets. Tablet administration has started in the first trimester of pregnancy. Iron administration for prevention dose is 1x1 tablet and for treatment dose (if Hb less than 11 g/dl) is 3x1 tablet (Lampung Health Office, 2023).

In line with research by Herayono et al., (2022) research results showed average hemoglobin level in pregnant women before consuming Fe tablets was 10.339 g/dL. Research by Purwanti (2023) found average Hb level in pregnant women before being given Fe tablets was 10.55.

**Average hemoglobin levels in third trimester pregnant women after being given date palm extract + Fe (intervention group)**

Based on research results, the average hemoglobin level in pregnant women after being given date palm extract and Fe (intervention group) was 11.4 g/dl with standard deviation value 0.7 g/dl, minimum value 9.6 g/dl and maximum value 12.8 g/dl. Based on research results, overall respondents experienced increased Hb levels, although the increases were quite varied between 0.2 – 2.0 g/dl.

Based on the research results, it is known that overall, the respondents experienced an increase in Hb levels, although the increase was quite varied between 0.2 – 2.0 gr/dl. There were 2 mothers whose increase was only 0.2 gr/dl with a healthy reproductive age of 26 and 29 years, IRT occupation, secondary education (SMA and SMK), primipara and multipara parity. The slight increase in maternal Hb levels can be influenced by various factors such as the mother's occupation as a housewife who does not have definite working hours which sometimes requires a lot of energy to do housework from cleaning the house, washing,

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cooking and others, plus the mother's activities when she already has children under five years old who are quite tiring to care for. From these activities, if the mother's nutritional intake only relies on iron intake from date extract and Fe, it will be lacking, so it must be added with the mother's daily food intake.

From the research results, it is also known that there was 1 mother with an increase in Hb levels up to 2 gr/dl, a fairly high increase by administering date extract and Fe for 7 consecutive days. From the research results, it is known that in addition to consuming date extract and Fe tablets, mothers also consume foods that are high in iron such as kale, spinach, and green beans, thus helping to increase Hb levels which are quite high. Date extract, which is rich in its content, contains components that can increase iron absorption or play a role in the formation of red blood cells where hemoglobin is located. Date extract contains various vitamins, minerals, antioxidants, etc. In the absorption of iron in the body, it 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 with acidic compounds, such as Vitamin C or ascorbic acid (Ma'mum et al., 2020). Vitamin C contained in date extract can also increase iron absorption, especially by reducing ferric iron to ferrous iron. Apart from its role in converting ferric to ferrous before intestinal absorption, vitamin C also regulates iron homeostasis by inhibiting hepcidin expression (for example, in HepG2 cells), making vitamin C potentially helpful in alleviating iron deficiency. The metabolism of vitamin A found in date extract has implications for iron homeostasis, so vitamin A deficiency can cause iron deficiency.

Anemia in pregnancy that most often occurs is caused by iron deficiency as much as 62.3%, and has an effect which if not treated immediately can cause prolongation of the latent phase by 22.2%, the active phase by 66.7% (Susilawati, 2023). Date extract is date fruit that is mashed and the juice is taken. Date extract is usually thick, black in color, tastes sweet, and has benefits that are not inferior to dates. The iron content in date extract is very good for increasing the formation of red blood cells. In 15 g of date extract, there is an iron content of 6%. Therefore, date extract is also good for preventing iron deficiency anemia (Syahri, 2022).

In line with the research (Herayono et al., 2022), the average hemoglobin level of pregnant women after consuming Fe tablets and date extract was 11,567 g/dL. Research (Maternity et al., 2021) The average Hb level at week 7 with a Mean10 of 480 gr/dL, a min value of 9.7 gr/dL and a max value of 11.0 gr/dL, and Hb at week 14 with a Mean10 of 10.807 gr/dL min value 10.2 gr/dL and max value 11.2 gr/dL. Irmawati's research (2020) after giving date extract consisted of 13 people (86.7%) pregnant women with Hb levels ≥ 11 gr/dl, 2 people (13.3%) pregnant women with Hb levels 9-10.9 gr/dl , 0 people (0%) pregnant women with Hb levels 7-8.9 gr/dl and 0 people (0%) pregnant women with Hb levels < 7 gr/dl.

Based on the explanation above, the researchers argue that date extract and Fe can affect hemoglobin levels in pregnant women who experience anemia. This can be seen that there is an increase in the average Hb level of 0.7 gr/dl. In this study, overall the respondents experienced an increase, but there was 1 respondent who only increased by 0.2 gr/dl, this was due to other factors such as when consuming date extract and Fe tablets, the mother was still consuming tea drinks so that the absorption of iron and vitamin C was not optimal.

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Overall there was an increase in Hb levels because date extract can be categorized as an alternative choice in meeting iron needs during pregnancy and the postpartum period, as long as it is consumed regularly so that the increase in hemoglobin gets better. Based on the theory, it can be explained that folic acid and iron contained in dates and date extract can increase leukocytes and platelets within normal limits. This is supported by other factors that affect the increase in hemoglobin levels in pregnant women, namely due to diet, maternal activity, nutrition, rest patterns, and supported by the absence of a history of infectious diseases in pregnant women who are respondents, so that optimal results can be achieved.

**Average hemoglobin level in TM III pregnant women after being given Fe only (control group)**

Based on the results of the study, it is known that the average hemoglobin level in pregnant women after being given Fe only (control group) is 10.3 gr/dl with a standard deviation value of 0.3 gr/dl, a minimum value of 9.8 gr/dl and a maximum value of 11, 0 gr/dl.

Anemia is a condition of insufficient erythrocytes to deliver tissue oxygen requirements. Because this is difficult to measure, anemia is defined as a low concentration of hemoglobin (Hb), erythrocyte count, and hematocrit (Hct) from normal values (Bakta, 2018). Anemia due to iron deficiency is the main cause of anemia in pregnant women. compared to deficiencies of other substances. Pregnant women require higher iron, about 200-300% of the needs of non-pregnant women (Priyanti et al., 2020). The government's policy in dealing with pregnancy anemia is the administration of iron (Fe) tablets and folic acid. Pregnant women are advised to consume 60 mg of iron and 0.25 folic acid equivalent to 200 mg ferrous sulfate during pregnancy for at least 90 tablets. The tablet has been given since the first trimester of pregnancy. Giving iron for a prevention dose of 1x1 tablets and for a treatment dose (if Hb is less than 11 gr/dl) is 3x1 tablets (Kemenkes, 2019). The main therapy for anemia is the administration of a daily Fe supplement of 200 mg, if Hb <5-6 gr% then a blood transfusion is needed (Manuaba, 2019).

In line with Herayono et al., (2022) research, the results showed that the average hemoglobin level of pregnant women after consuming Fe tablets was 11,233 g/dL. Purwanti's research (2023) showed that the average Hb level of pregnant women after being given Fe tablets was 11.35. According to the researchers, giving Fe tablets can affect hemoglobin levels in pregnant women who experience anemia. This is supported by other factors that affect the increase in hemoglobin levels in research respondents, namely due to diet, maternal activity, nutrition, rest patterns, and supported by the absence of a history of infectious diseases in pregnant women who are respondents, so that optimal results can be achieved.

**Bivariate Analysis**

**The effect of giving date extract with hemoglobin levels of TM III pregnant women**

Based on the results of statistical tests, p-value = 0.000 (p-value < α = 0.05) which means there is an effect of giving date extract with hemoglobin levels of TM III pregnant women at UPT Puskesmas Sekincau. The difference between the groups before and after treatment in the intervention group and control group in third trimester pregnant women who consumed dates extract + Fe tablets experienced an average increase of 1.2 gr/dl.

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Anemia in pregnancy that most often occurs is caused by iron deficiency as much as 62.3%, and has an effect which if not treated immediately can cause prolongation of the latent phase by 22.2%, the active phase by 66.7% (Hanifah, 2022). In line with the research (Irmawati, 2020) there is an effect of giving date extract to increasing Hb levels in pregnant women (p value 0.000 < 0.05). Herayono's research (2022) The statistical test obtained results of 0.000, it can be concluded that there is an effect of giving Fe tablets and date extract on the hemoglobin levels of anemic pregnant women in the working area of the Tarutung Health Center, Kerinci Regency in 2022. Yunitasari's research (2021) the effect of giving date extract on increasing hemoglobin levels in pregnant women in Mekar Jaya village, the working area of the Merbau Mataram Public Health Center, South Lampung Regency in 2020. According to the researchers, dates can increase the Hb levels of anemic pregnant women. Unlike most other fruits, dates contain high carbohydrates and iron so they can help prevent and treat anemia. Besides that, the iron in dates is much more easily absorbed by the body due to the presence of glucose, fructose, and vitamin C in dates, each of which has been known to help the absorption of iron in the body.

Based on the results of the research that has been carried out that the vitamin C in dates consumed together with Fe tablets is proven to increase hemoglobin levels in respondents who experience anemia. Vitamin C has a function as absorption and metabolism of iron, vitamin C reduces iron to ferric and becomes ferrous in the small intestine so that it is easy to absorb. Vitamin C inhibits the formation of hemosiderin which is difficult to release by iron when needed. The absorption of iron in the form of nonheme increases fourfold when vitamin C is present. In addition to consuming vitamin C and Fe tablets, respondents are also advised to consume foods that contain lots of iron, as well as avoid strenuous activities, get enough rest and have a complete pregnancy check-up.

The results of the study showed that there was an increase in Hb levels that varied for each respondent, starting from the lowest increase of 0.2 gr% to the highest 0.9 gr% after the intervention, this was because the respondents followed well or not what was recommended by the researchers. They routinely drink date extract for 7 days to help increase Hb levels. In addition, the uncontrolled diet factor at home can cause the increase in HB levels not much, such as consuming drinks that interfere with the body's absorption, for example, tea, coffee, or other things that can make Hb levels not rise such as lack of rest patterns, heavy physical activity.

Based on the opinion of the researchers that the nutritional needs of pregnant women increase during pregnancy, these nutrients are used by the mother herself and the baby. If the mother lacks these substances, pregnant women suffer from anemia, in this case health workers can play a role in reducing the incidence of maternal anemia by providing counseling in the form of appropriate nutritional intake for pregnant women so that the mother does not experience anemia, increasing the mother's knowledge of foods that contain high iron, especially dates which can be made into juice plus honey for consumption.

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## CONCLUSION

It is known that the average hemoglobin level in pregnant women before being given date extract and Fe (intervention group) was 10.2 gr/dl. It is known that the average hemoglobin level in pregnant women before being given Fe only (control group) was 10.0 gr/dl. It is known that the average hemoglobin level in pregnant women after being given date extract and Fe (intervention group) was 11.4 gr/dl. It is known that the average hemoglobin level in pregnant women after being given Fe only (control group) was 10.3 gr/dl. There is an effect of giving date extract with hemoglobin levels of TM III pregnant women at UPT Puskesmas Sekincau, West Lampung Regency in 2024 (p-value = 0.000 < = 0.05).

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