

## The Influence of Self-Care Nursing Theory Development in Prenatal Home Care Services with Health Education and Giving of Dates Palm Juice Toward Anemia Case

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### Abstract

Indonesia has the fourth-highest anemia rate in Southeast Asia, at 30%. Prenatal home care nurses can manage anemia using a self-care approach that includes giving dates juice and health education. The purpose of this study was to determine the effect of developing self-care nursing theory in prenatal home care services with health education and the provision of date palm juice on anemia at the Batujajar Public Health Center assisted area. This study method is a pre-experiment with a one-group pre and post-test without a control group design. The sample studied was 20 people using a purposive sampling technique using the marginal homogeneity and Wilcoxon statistical tests. The results of the study with the Marginal Homogeneity test obtained  $p\text{-value} = 0.001 < \alpha (0.05)$ , and the Wilcoxon test results obtained the result  $\rho = 0.000 < \alpha (0.05)$ . This study concludes that the development of self-care nursing theory in antenatal home care services, along with health education and giving date palm juice to anemia cases at Batujajar Health Center assisted area, influences it. This study is expected to be the basis for the method of developing self-care nursing theory in providing health education and interventions to overcome anemia, especially in pregnant women.

**Keywords:** Anemia, dates palm juice, health education, self care nursing theory.

## INTRODUCTION

Anemia during pregnancy is still common in Indonesia, with a prevalence of 50.9%. Indonesia ranks fourth with 30%, along with Thailand in the Southeast Asia region. The highest cases of anemia in pregnant women still occur in rural areas, at 49.5%, and in urban areas, at 48.3% [6]. Anemia in pregnant women can be dangerous for the mother and fetus. Namely, it can result in abortion, premature birth and babies with low birth weight (LBW), defects, prenatal bleeding, and premature rupture of membranes (KPD).

Data from the West Bandung District Health Service regarding pregnant women suffering from anemia in 2023 has a total of 1.970 pregnant women. The cumulative number of mothers who were anemic during pregnancy in the Batujajar Public Health Center area in 2023 was 161 people with mild anemia, 22 people with moderate anemia, and 2 people with severe anemia. In February 2024, 48 pregnant women were anemic during pregnancy at the Batujajar Public Health Center area; namely, 41 of them had mild anemia, and 7 others had moderate anemia.

Anemia can be treated using pharmacological and non-pharmacological methods. Non-pharmacological efforts to treat anemia include consuming foods rich in nutrients, especially those containing iron, such as meat (beef or poultry), seafood, dates, pomegranates, dragon fruit, bananas, and other fruits [10]. Among these foods, researchers chose dates that have been made into juice as a therapy that can help increase the hemoglobin of pregnant women because they contain many ingredients that are good for pregnancy.

*Dates* are a food that contains high energy with an ideal composition, containing exceptionally high fiber, potassium, manganese, phosphorus, calcium, magnesium, and high levels of iron, namely 0.90mg/100g of dates (11% RDA) where iron is one of the components in the blood to carry oxygen into the body. Date juice consists of dates that are mashed, and the juice is extracted in liquid form, thick, black, sweet, and contains complete nutrients. Date palm juice can be a complementary therapy in treating anemia compared to other therapies. In this study, the date juice used was TJ date juice, which has an energy content of 140 kcal, 0 g saturated fat, 0 g dietary fiber, 34 g carbohydrates, 24 g sugar, 5 mg sodium, and 15% iron.

According to (Setyowati, 2020), the role of nurses in prenatal home care services is as care providers, namely health educators, managers, researchers, and advocates [13]. The role of a health educator, namely, to provide nursing care by educating, implementing, and monitoring compliance with the behavior of pregnant women in carrying out efforts to treat anemia, is required. So that

pregnant women can carry out this obedient behavior independently at home. Therefore, the problem of anemia in pregnant women will be resolved. In accordance with the Self Care Nursing Theory developed by Dorothea Orem, the role of nurses is to enable individuals to develop quality and adequate care needs for themselves. In this research, the self-care nursing theory aims to stabilize the hemoglobin levels of pregnant women by providing health education and giving date palm juice.

## **METHODS**

This research design uses a pre-experimental method with a one-group pre-test and post-test design without a control group design. The research was carried out in the areas supported by the Batujajar Community Health Center, Galanggang Village, and Selacau Village from January to May 2024. This sample used purposive sampling. The total sample was 20 pregnant women suffering from anemia who met the inclusion and exclusion criteria. The research instruments included an observation sheet for measuring hemoglobin levels, standard operating procedures (SOP) for measuring hemoglobin levels, SOP for administering date juice, GCHB easy touch hemoglobin level measuring instrument, and a knowledge questionnaire (16 statement items). This research uses the Marginal Homogeneity test, namely to see whether health education has an effect on pregnant women's knowledge, and the Wilcoxon test to determine the effect of giving date juice on anemia. Research ethical test permit number: 179/D-KEPK-STIKes/IV/2024.

## **RESULTS**

Information was obtained from the results of research conducted on pregnant women in the Batujajar health center area. Pregnant women in the sample were given a questionnaire with 16 questions as part of the data collection process. After all the data is collected, a frequency distribution table is created, followed by statistical data processing using a homogeneity test.

**Table 1. Description of Knowledge of Pregnant Women with Anemia Before Being Given Health Education at the Batujajar Public Health Center Area**

Knowledge Level	<i>Pre-Test</i>	
	<u>Frequency (f)</u>	<u>Percentage (%)</u>
Good	4	20
Sufficient	14	70
less	2	10
Total	20	100

Based on Table 1, the results of the analysis regarding the description of knowledge of pregnant women with anemia before being given health education to 20 pregnant women show that the majority had a good level of knowledge, namely 14 people (70%).

**Table 2. Description of Knowledge of Pregnant Women with Anemia After Being Given Health Education in the Batujajar Public Health Center Area**

Knowledge Level	<i>Post-Test</i>	
	<u>Frequency (f)</u>	<u>Percentage (%)</u>
Good	14	70
Sufficient	6	30
less	0	0
Total	20	100

Based on Table 2, the results of the analysis regarding the description of pregnant women's knowledge of anemia after being given health education to 20 pregnant women about anemia in pregnancy and date palm juice for 3 days showed that the proportion was 14 people (70%). , had a good level of knowledge.

**Table 3. Description of Hemoglobin Levels in Pregnant Women with Anemia before Being Given Date Juice at the Batujajar Public Health Center Area**

Variabel	Mean	Std. Deviasi	Min	Max	N
Pre-intervention Hb levels	10,170	0,4932	9,0	10,8	20

Based on Table 3, the description of hemoglobin levels in pregnant women with anemia before being given date palm juice in the Batujajar Public Health Center target area, pre-intervention hemoglobin levels, has an average of 10.170 g/dl with a standard deviation of 0.4932, a minimum value of 9.0 g/dl and a maximum of 10. 8 g/dl.

**Table 4. Description of Hemoglobin Levels in Pregnant Women with Anemia after Being Given Date Juice in the Batujajar Public Health Center Area**

Variabel	Mean	Std. Deviasi	Min	Max	N
Post-intervention Hb levels	10,820	0,4479	9,8	11,5	20

Based on Table 4, which describes hemoglobin levels in pregnant women with anemia after being given date palm juice in the Batujajar Public Health Center area for 6 days with 1 tablespoon 2 times a day, post-intervention hemoglobin levels have an average of 10.820 g/dl with a standard deviation of 0.4479, a minimum value of 9.8 g/dl, and a maximum of 11.5 g/dl.

**Table 5. The Influence of Health Education of Pregnant Women Knowledge with Anemia at the Batujajar Public Health Center Area under the Batujajar Public Health Center Area**

		<i>Knowledge post test (after being given health education)</i>			
		Good	Sufficient	Total	P
<i>Pre-test knowledge (before being given health education)</i>	Good	4	0	4	0,001
	Sufficient	10	4	14	
	less	0	2	2	
Total		14	6	20	

Based on Table 5, the results of the analysis of the influence of health education on knowledge among pregnant women with anemia at the Batujajar Public Health Center assisted area showed that before being given health education, there were 4 people with good knowledge, 14 people with sufficient knowledge, and 2 people with poor knowledge. After being given health education, there were 14 people with good knowledge and 6 people with sufficient knowledge.

The results of the analysis using the Marginal Homogeneity test showed a value of  $\rho=0.001 < \alpha (0.05)$ , so  $H_0$  was rejected, so it can be concluded that there is an influence of health education on the knowledge of pregnant women with anemia in the Batujajar Public Health Center area.

**Table 6. Effect of Date Juice on Hemoglobin Levels in Pregnant Women with Anemia in the Batujajar Public Health Center Area**

Variabel	Mean Rank	Sum of Rank	P Value	Z	N
Pre-intervention Hb levels	0.00	0.00	0.000	-3,955	20
Post-intervention Hb levels	10.50	210.00			

Based on Table 6, the results obtained from measuring the average hemoglobin levels of pregnant women with anemia before and after being given the date palm juice intervention from 20 respondents showed that the mean rank of hemoglobin levels before being given the intervention was 0.00 and the hemoglobin level after being given the intervention was 10.50.

The Wilcoxon test results obtained a value of  $p= 0.000 < \alpha (0.05)$ , so  $H_0$  was rejected so it can be concluded that there is an influence of date palm juice on hemoglobin levels in pregnant women with anemia in the Batujajar Public Health Center.

## **DISCUSSION**

### **1. Description of Pregnant Women's Knowledge with Anemia Before Being Given Health Education at the Batujajar Public Health Center Area**

Based on the results of the analysis in Table 1, the knowledge of pregnant women with anemia before being given health education to 20 pregnant women with anemia showed that the majority, namely 14 people (70%) had a sufficient level of knowledge. During the pre-test, many respondents answered incorrect statements regarding anemia in pregnancy, especially in statements discussing the signs and symptoms of anemia, classification of anemia in pregnancy, the function of date juice content for anemia, and the benefits of date palm juice.

The results of the researchers' findings in the field showed that respondents had an average education level of high school, even elementary and middle school. This is in accordance with a study conducted by Oktavianti (2023); the respondents in this study had an average level of education, most of whom were in high school. This study correlates with research conducted by Aliva (2021), which had the characteristics of respondents with an average high school level education or equivalent. According to (Nurmasari and Sumarni, 2019), one of the factors that can influence the receipt of information is the level of education. A low level of education will have an impact on the amount of information obtained. As a result, mothers who have more excellent knowledge will better understand what they know about maternal health during pregnancy and after birth. A good education will also help mothers receive new information about maternal health during pregnancy and after birth. In addition, mothers who have a good level of education will also be better able

to understand what they need to know about maternal health during pregnancy and after birth.

## **2. Description of Knowledge of Pregnant Women with Anemia After Being Given Health Education in the Batujajar Community Health Center Area**

Based on the results of the analysis in Table 2, knowledge of pregnant women with anemia after being given health education to 20 pregnant women with anemia shows that the majority, namely 14 people (70%), have a good level of knowledge after being given health education for 3 days according to the discussion above, the number respondents who have good knowledge have increased. However, there are still 6 respondents who still have sufficient knowledge; most of these respondents are still wrong in answering statements about signs of anemia in number 3, classification of anemia in pregnancy in statement number 4, and the benefits of date palm juice, in statements no. 11 and 12.

Notoatmodjo, 2011 stated that one method for conveying information to individuals, groups, or society is education, which aims to increase people's understanding of health problems. All pregnant women are at risk of developing anemia; they need to receive health education about this condition during pregnancy. The media used in this research for health education were leaflets. In accordance with Fajrin Hidayati's study (2022), it is known that the education level of respondents increased. Namely, 24 respondents after health education using leaflet media.

According to researchers, a 3-day health education intervention can increase knowledge by 60% on average compared to a 1-day health education intervention that can increase knowledge by 25%. Therefore, knowledge will increase the more often you read.

## **3. Description of Hemoglobin Levels in Pregnant Women with Anemia before being Given Date Juice in the Batujajar Public Health Center Area**

The results of the analysis in Table 3 of hemoglobin levels in pregnant women with anemia before being given date palm juice at the Batujajar Public Health Center target area are as follows: Pre-intervention hemoglobin levels had an average of 10.170 g/dl with a standard deviation of 0.4932, a minimum value of 9.0 g/dl and a maximum of 10.8 g/d

According to field findings in this research, age is a factor causing anemia in pregnant women. The ages of the respondents were 17 years to 39 years. In accordance with the Setianing Tiyas (2021) study, the characteristics of the majority of respondents were >35 years old. Age is one of the factors that can increase the risk of developing anemia during pregnancy because the younger the mother and the older the nutritional needs will be different. Research conducted by Gusnidarsih (2020) shows that there is a correlation between the age of pregnant women and anemia during pregnancy. Mothers under 20 years of age and mothers over 35 years of age have an influence on the incidence of anemia during pregnancy.

#### **4. Description of Hemoglobin Levels in Pregnant Women with Anemia after being Given Date Palm Juice at the Batujajar Public Health Center Area**

The results of the analysis in Table 4 show that hemoglobin levels in pregnant women with anemia after being given date palm juice in the Batujajar Community Health Center area increased post-intervention. The average was 10.820 g/dl, with a standard deviation of 0.4479, a minimum of 9.8 g/dl, and a maximum of 11.5 g/dl. These results show that date juice can increase the hemoglobin of pregnant women.

In this study, date juice was given 1 spoon twice a day, and it was consumed for 6 days or 12 drinks. However, several respondents consumed date juice <12 times, namely 10-11 times for 6 days, but the respondents' hemoglobin levels still increased by 0.5 to 0.6 gr%. When researchers conducted interviews, these respondents also failed to consume blood supplement tablets; some did not consume them at all, but the respondents consumed nutritious food. Meanwhile, respondents who regularly drank date juice 12 times for 6 days, consumed fe tablets quite well, and consumed nutritious and nutritious foods experienced an increase in hemoglobin levels of 0.7 to 0.8 gr%. The high iron content in dates, fructose, 1 gram of protein, 0 grams of total fat, 150 grams of carbohydrates, 0 grams of saturated fat, 78 grams of sugar, and 30 mg of sodium (salt) can build red blood cells, date palm juice undergoes metabolism. Foods that result in the absorption of iron, vitamin C, and protein. This is in line with research by T. Murhadi (2023), namely that pregnant women's hemoglobin can increase after giving one tablespoon of date palm juice twice a day for six days, with the average result before giving date palm juice being 9.60 g/dl, and after giving the juice. Dates, namely 11.00 g/dl. So the average increase is 1.4 gr%. In this study, the



increase in hemoglobin levels was caused by several respondents who were less compliant in consuming date juice, not at all, or less in consuming the tablets. However, it consumed foods that were high in protein and had iron. The value of the average increase in hemoglobin levels was different from respondents who Regularly consumed date juice 12 times in six days, consumed blood supplement tablets quite well, and also consumed food protein and iron. Meanwhile, in research conducted by T. Murhadi, the average respondent consumed date juice and blood-enhancing tablets regularly and also consumed foods containing iron and protein. Based on these findings, researchers can conclude that apart from consuming date juice to increase hemoglobin levels, a person's nutritional intake pattern from food is also influenced, as well as compliance with consuming blood supplement tablets.

### **5. The Influence of Health Education on the Knowledge of Pregnant Women with Anemia at the Batujajar Public Health Center Area**

In the statistical test results in Table 5, the results of the analysis regarding the influence of health education on the knowledge of pregnant women with anemia at the Batujajar Public Health Center assisted area are obtained. The knowledge of pregnant women before being given health education was found to be 4 people with good knowledge, 14 people with sufficient knowledge, and 2 people with poor knowledge. Meanwhile, after health education, it was found that 14 people had good knowledge. There were still 6 people who had sufficient knowledge because the respondent's education level was low, namely elementary school, middle school, and high school equivalent. Notoadmodjo stated that education is one of the factors that influences a person's knowledge.

The results of the research data processing show that the average knowledge level before being given health education was 1.90. The average after-health education for 3 days using leaflet media was 1.30, with an increase in knowledge of 60%. The results of analysis using the Marginal Homogeneity test produced The value  $\rho=0.001 < \alpha (0.05)$ , so  $H_0$  is rejected. Therefore, it can be concluded that health education influences the knowledge of pregnant women with anemia at the Batujajar Community Health Center assisted area. This study is strengthened by a study conducted by Fajrin Hidayati (2022) stating that  $\rho=0.000 < \alpha (0.05)$ , so it can be concluded that after health education using leaflet media, the level of knowledge of pregnant women has changed significantly

Based on the results of this research, the leaflet media used for health education for 3 days can influence the knowledge of pregnant women with anemia. The results of research conducted by Yuli Suryanti, the health education method using leaflet media carried out for 1 day, can increase respondents' knowledge by 25%. Meanwhile, in this study, health education carried out for 3 days could increase respondents' knowledge by 60%, and then 3 days of health education using leaflet media could have a more significant influence. This health promotion can also be continued by community health centers in their target areas to further increase the knowledge of pregnant women, especially about anemia, by holding promotions in nearby places or places that are easily accessible to pregnant women using the same media or other media such as video shows. Health Promotion is provided with the help of village cadres who have been trained and have adequate knowledge of pregnant women.

#### **6. Effect of Date Juice on Hemoglobin Levels in Pregnant Women with Anemia at the Batujajar Public Health Center Area**

Based on the results of statistical tests on hemoglobin levels before giving date juice to pregnant women with anemia in the Batujajar Community Health Center area, the minimum value for hemoglobin levels for pregnant women was 9.0 g/dl, and the maximum value was 10.8 g/dl. This is because the age of the respondents in this study was 17 to 39 years. After all, those aged <20 years and >35 years would be susceptible to anemia in pregnancy. After giving date palm juice for six days, one tablespoon twice a day, the minimum value of hemoglobin levels for pregnant women increased to 9.8 g/dl, and the maximum value was 11.5 g/dl because date palm juice has complete nutritional content. Hence, date palm juice has benefits for treating or preventing anemia.

The results of the analysis of research data showed that the average hemoglobin level increased after giving date palm juice, namely pre-intervention with an average result of 10.2 gr% and post-intervention 10.9 gr% with an increase in hemoglobin level of 0.7 gr%. According to the results of the Wilcoxon test analysis in Table 4.6, the value  $\rho = 0.000 < \alpha$  (0.05) is obtained, which means  $H_0$  is rejected. Thus, date palm juice influences the hemoglobin levels of pregnant women suffering from anemia in the Batujajar Community Health Center target area. This research is strengthened by a study conducted by Herayono Febby (2022) stating that the statistical test results showed that  $\rho = 0.000 < \alpha$  (0.05), that

giving date palm juice influenced the hemoglobin levels of anemic pregnant women in the Tarutung Kerinci Health Center Working Area [5]. Research conducted by Yunitasari (2020) supports this research. Statistical test results obtained Sig. (2-tailed)  $0.000 < 0.05$ . The date palm juice has a significant influence.

The results of this study prove that providing date palm juice intervention to pregnant women with anemia and health education about anemia and date palm juice is effective at the same time so that pregnant women can know how to treat anemia with herbal therapy, which can be done independently at home and also increase pregnant women's insight regarding knowledge. About anemia and date juice, especially for pregnancy. In line with the nursing theory put forward by Dorothea Orem regarding "Self Care," one of the roles of nurses is to be independent or enable individuals to develop their care needs independently. The application of self-care nursing theory has a significant influence if applied by nurses to overcome self-care deficits, which can be done by individuals at home, with assistance from the community health center to provide health education or education on how to treat anemia with herbal therapy or other treatments.

## **CONSLUSION**

Based on data from research that has been conducted regarding the influence of developing self-care nursing theory in antenatal home care services with health education and providing date palm juice on anemia at the Batujajar Public Health Center in 2024, which was carried out on 20 respondents, the results showed a p-value of  $0.001 < \alpha 0.05$  on the effect of health education on pregnant women's knowledge and p-value  $0.000 < \alpha 0.05$  on the effect of date juice on hemoglobin levels of pregnant women, then  $H_0$  is rejected, which means there is an influence of developing self-care nursing theory in Prenatal home care services with health education and giving juice dates against anemia at the Batujajar Public Health Center Assisted area in 2024.

The results of this research can provide information for the development of knowledge in the field of Maternity Nursing. This research can also be an additional scientific study for readers and a research source regarding the Influence of Self Care Nursing Theory Development

in Prenatal Home Care Services with Health Education and Giving Date Juice on Anemia. For future researchers, it can be used as a reference in researching pregnant women, and future researchers are expected to be able to develop research such as adding behavioral variables and providing other interventions that can overcome anemia, for example, spinach juice. They can use approaches with other nursing theories.

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