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The Impact Of Betel Nut Consumption On The Level Of Knowledge, Behavior And Hb Levels In Pregnant Women In The Rimba Jaya Health Center

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ABSTRACT

The tradition of chewing betel nut is still a tradition in Merauke, South Papua. The use of betel nut for pregnant women can affect hemoglobin levels.. This study aims to determine the effect of education on the impact of betel nut consumption on the level of knowledge, behavior and Hb levels in pregnant women in the Rimba Jaya Health Center Work Area. Quasi-experimental research design with One Group Pretest-Posttest. With a purposive sampling technique, a sample of 30 respondents, the independent variable is Education and the dependent variable is Knowledge, Behavior and HB Levels in pregnant women. A linear regression statistical test was used. The results of the study from 30 respondents were obtained, namely 30 respondents / all respondents had good knowledge after education (100%), most respondents did not consume betel nut after education as many as 29 respondents (96.7%) and most respondents with the criteria of not being anemic as many as 29 respondents (99.7%). There is an effect of education on knowledge, behavior of betel nut consumption and hemoglobin levels of pregnant women in the Rimba Jaya Health Center work area. The habit of consuming betel nut is a habit that should be changed by pregnant women, as it increases the risk of anemia in pregnant women.

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1. Introduction

Betel nut refers to nouns, namely betel plant (Piper betle) areca nut (Areca Catechu Linn) and lime; and verbs, namely the practice of chewing (betel-areca nut and lime) which is done by residents in everyday life. According to Koensoemardiyah (2017) the morphology of betel leaves is heart-shaped, has a pointed tip, grows alternately, has a stem, has a slightly rough texture when touched, and emits a distinctive aromatic odor when squeezed (Koensoemardiyah., 2017) Meanwhile, according to Silalahi, 2020, Pinang (Areca catechu L.) is a single-stemmed palm that can reach a height of 25 meters or rarely more (Silalahi, 2020)

Betel nut has functions related to health. Betel (piper betle) contains phenol compounds that function as natural antiseptics and provide freshness in the mouth. While Pinang (areca catechu) has active compounds contained such as alkaloids, flavonoids, tannins, triterpenes and steroids which are considered good for health if consumed properly and not excessively.

The habitual pattern of consuming betel nut that arises in Papuan society is carried out in daily activities as well as in customary activities, without any age and class restrictions. So it is undeniable that many teenagers and school children also have the habit of consuming betel nut. Every level of society, from officials, students, health workers, farmers, and children have a fanatical habit of consuming betel nut (Pandie, P, 2023). The main reasons why pregnant women chew betel nut are: to prevent morning sickness, to prevent bad breath, the habit of chewing betel nut and addiction. According to the 2018 study, the statistically significant impact on reducing birth weight is a reduction in BBL by 238 grams. (Yang, 2028)

Anemia is a condition in which the body has too few red blood cells (erythrocytes), which contain hemoglobin which functions to carry oxygen to all body tissues. Anemia in pregnancy is a condition in which the mother has a hemoglobin level below 11 gr/dl in the first and third trimesters or a hemoglobin level of less than 10.5 gr/dl in the second trimester. More than 50% of pregnant women have anemia, and it causes maternal morbidity and mortality. (Prakash, S., 2020). The degree of anemia based on hemoglobin levels according to the World Health Organization (WHO) is: Very mild hemoglobin level : 10 g/dl -normal limit, Mild hemoglobin level : 8 g/dl – 9,9 g/dl, Moderate hemoglobin level : 6 g/dl-7,9 g/dl, Servere hemoglobin level : < 5 g/dl (WHO, 2020)

Data from the Papua Provincial Health Service shows that the maternal mortality rate in Papua is recorded at 573/100,000 pregnant women due to bleeding (11.2%) as a result of anemia incidents of 33% (Dinas Kesehatan Merauke, 2022) Knowledge is related to the formation of a person's behavior because knowledge is a very important domain in forming behavior.

Knowledge obtained through pregnant women's sensing of health information during pregnancy will influence the behavior of pregnant women in maintaining their health (Fatimah, W.N ., 2019). If pregnant women know and understand the effects of anemia and how to prevent anemia, they will have good health behavior so that they can hopefully avoid various effects or risks of anemia in pregnancy. Such health behavior can affect the reduction of anemia in pregnant women (Purbadewi, L dan Ulvie, 2018)

Pregnant women's knowledge of nutrition can be expected to enable mothers to choose good and balanced nutritional food intake for themselves, their fetuses, and their families. With sufficient nutritional knowledge, it can help mothers in how to store, process, and use good quality food ingredients to meet their needs. Knowledge of anemia during pregnancy is very important for mothers, because knowledge is something that can influence the mother's attitude and behavior in maintaining daily eating patterns so that it can prevent anemia during pregnancy (Chandra, F., Junita, D. D., & Fatmawati, 2019)

Chewing betel nut/Areca Nut (AN) in pregnant women if excessive will cause concerns for the fetus that is born. The impact of betel nut chewing in pregnant women can cause concerns about the growth of embryogenesis and fetal growth and cause premature birth <37 weeks, miscarriage, fetal death, and BBLR (low birth weight) which is <2500 g (Ome-Kaius, 2017).

Based on the description of the problems above and information about betel nut, it is necessary to conduct research related to education on the impact of betel nut consumption on knowledge, betel nut consumption behavior and Hb levels in pregnant women in the Rimba Jaya Health Center Work Area.

2. Research Method

This study uses a Quasi Experimental research design using One Group Pretest-Posttest design, one group pre-treatment and post-treatment approach. With purposive sampling technique, a sample of 30 respondents was obtained who had met the inclusion and exclusion criteria. The independent research

variable is the influence of education and the dependent research variable is the level of knowledge, consumption behavior of betel nut and hemoglobin levels in pregnant women. Data collection using a questionnaire. Data processing techniques include Editing, Coding, Data entry, Scoring and Cleaning. Data analysis using Bivariate and Univariate consists of Shapiro-Wilk, Wilcoxon signeid rank test and simple linear regression analysis test with SPSS if the result is p = 0.000 <0.05 then H0 is rejected and H1 is accepted which means there is a relationship between the influence of education on knowledge, consumption behavior of betel nut and hemoglobin levels in pregnant women.

3. Result And Discussions

Table 1. Distribution of Respondent Characteristics

Research Results	Frekuency (f)	Percentage (%)
Age		
< 20 years	1	3,3
20-35 years	27	90
>35 Years	2	6,7
Gravida		
Primigravida	8	26,7
Multigravida	22	73,3
Grande Multigravida	0	0
ANC History		
Routine	29	96,7
Not Routine	1	3,3
Total	30	100

Source: Research Questionnaire, February 20, 2024

Based on Table 2 Distribution of Respondent Characteristics from the research results in the Rimba Jaya Health Center work area based on age showed that most pregnant women were under 35 years old, namely between 20-35 years old as many as 27 respondents (90%), based on the results of the frequency distribution it can be concluded that some of the research respondents were women who had entered productive age. This is in accordance with research from Maulidanita and Raja (2018), Pregnancy at the age of <20 years and> 35 years is a risk factor for anemia, because at an age that is too old (> 35 years) pregnant women have experienced decreased immunity and decreased iron reserves in the body due to the fertilization period which causes anemia. While at an age that is too young (<20 years) pregnant women tend not to or are not ready to pay attention to the environment and nutrition needed for fetal growth (Maulidanita R, 2018)

Respondent Characteristics The results of the study in the Rimba Jaya Health Center work area based on Gravida showed that most respondents were in the Multigravida category (pregnancy >1 time) as many as 22 respondents out of 30 respondents with a percentage (73.3%). Gravida greatly influences a person's acceptance of knowledge, the more experience a mother has in pregnancy, the easier it will be to accept knowledge. The results of this study are in line with Ni Made Ayu's research (2021) explaining that the largest number of respondents were multigravida, namely 36 respondents and had sufficient knowledge. The majority of multigravida pregnant women have sufficient knowledge because the mother has experience from previous pregnancies (Ayu, 2021)

Respondent Characteristics The results of the study in the Rimba Jaya Health Center Work Area based on ANC History found that most respondents were routine in Antenatal Care (ANC) pregnancy check-ups (> 1x during pregnancy) as many as 29 respondents with a percentage (96.7%). The more frequent ANC visits, the more pregnant women will always get knowledge about pregnancy from advice from health workers, which will increase knowledge in pregnant women to always consume nutritious foods that do not interfere with pregnancy which causes anemia.

Table 2. Distribution of Knowledge Level, Behavior and Hemoglobin Level Pre and post Education

Research Result	Pre Education		After Education	
	Frekuency	Presentage (100%)	Frekuency	Presentage (100%)
Knowledge Level				
Good	0	0	30	100
Enough	4	13,3	0	0
Less	26	86.7	0	0
Behavior Level				
Always Consume	23	76,7	0	0
Rarely Consume	6	20	1	3.3
Do Not consume	1	3,3	29	96,7
Hemoglobin Level				
Not Anemic	1	3,3	29	96,7
Mild Anemia	5	16,7	1	3,3
Moderate Anemia	20	66,7	0	0
Severe Anemia	4	13,3	0	0
Total	30	100	30	100

Source: Research Questionnaire, February 20, 2024

3.1 Level of Knowledge of Betel Nut Consumption

Based on Table 2, it is known that the results of the questions before education from 30 pregnant women respondents in the Rimba Jaya Health Center Work Area, the majority have poor knowledge of the side effects of consuming betel nut for mothers and prospective babies, with a total of 26 respondents (86.7%), while those who have sufficient knowledge before education are 4 respondents (13.3%) and after education, the majority of 30 pregnant women respondents' knowledge is categorized as good (100%).

Knowledge is one of the factors that can influence the formation of health behavior. If pregnant women have known and understood the causes and effects of anemia and how to prevent it, it will form good health behavior, so that they can avoid various consequences or risks of anemia in pregnancy. Good health behavior will affect the reduction in the incidence of anemia in pregnant women. Knowledge plays an important role in determining attitudes and behavior in consuming foods that are sources of iron in pregnant women. According to Chandra et al., 2019, mothers with good nutritional knowledge are likely to provide adequate nutrition for their babies, they will try to meet their nutritional needs and also their future babies (Chandra, F., Junita, D. D., & Fatmawati, 2019)

According to the researcher's assumption, based on the research results obtained, the more often someone gets information from various media or environments such as getting counseling from health workers, information from family and even friends, the more it will increase people's knowledge, this is in line with research conducted by (Wulidah, 2020) which shows that there is an influence of health education on pregnant women's knowledge about anemia.(Wulidah, 2020)

3.2 Betel Nut Consumption Behavior

Based on Table 2, it is known that the results of observations from 30 pregnant women respondents after education, the majority of those who have the behavior of always consuming betel nut in 1 day 2 times as much as 2 pieces or 3-4 times/week/month with a total of 23 respondents with a percentage (76.66%), while those who rarely consume betel nut with a total of 6 respondents with a percentage (20%) and based on Table 11, it is known that the results of observations from 30 pregnant women respondents after education, the majority have the behavior of not consuming (not consuming for 1 month) with a total of 29 respondents with a percentage (96.66%) and rarely consuming 1 respondent with a percentage (3.3%).

The results of the study showed that pregnant women who have the behavior of always consuming betel nut which is indicated by the low knowledge and awareness of pregnant women about the impact of consuming betel nut for pregnant women and the fetus in their womb. Knowledge plays a very important role in increasing the compliance of pregnant women not to consume betel nut. Lack of

knowledge about the impact of consuming betel nut during pregnancy greatly affects the attitudes and behavior of respondents. This is supported by the statement according to Yani and Maria (2023), education can influence a person including behavior regarding lifestyle. Generally, the higher a person's education, the easier it is to receive information and change behavior in their lives (Yani, Maria, 2023)

According to (Notoatmodjo, 2010), although behavior is a form of response or reaction to stimulus or stimulation from outside the organism (person), but in giving a response it is very dependent on the characteristics or other factors of the person concerned. This means that even though the stimulus is the same for some people, each person's response is different. Factors that differentiate responses to different stimuli are called behavioral determinants (Notoadmojo S, 2020)

According to the researcher's assumption, based on the research results obtained that there is still 1 respondent who behaves still consuming betel nut with a rare category. The reason respondents still rarely consume betel nut is because respondents do not know the impact of consuming betel nut for the mother, fetus and fulfillment of nutritional needs during pregnancy.

3.3 Hemoglobin levels regarding consumption of betel nut

Based on Table 2, it is known that the results of the hemoglobin level examination before education from 30 pregnant women respondents, the majority experienced moderate anemia with a total of 20 respondents with a percentage of (70%) and Based on Table 13, it is known that the results of the hemoglobin level examination after education from 30 respondents, 29 respondents including pregnant women, the majority did not experience anemia with a percentage of (96.66%) and only 1 pregnant woman respondent experienced mild anemia with a percentage of (3.33%).

The results of the study showed that before being given education regarding the effects of consuming betel nut during pregnancy, many pregnant women experienced mild to severe anemia. Pregnant women generally have low hemoglobin levels due to a lack of knowledge about the effects of consuming betel nut which causes anemia. One of the tannin substances contained in betel nut if consumed excessively will have a negative impact on the body, such as inhibiting the absorption of nutrients. This is supported by research from Rima et al., 2020 The substance contained in betel nut, namely tannin, can inhibit the absorption of nutrients such as iron and protein for the body. Therefore, betel nut will have a negative impact on health such as the risk of anemia if consumed excessively. Therefore, it is important for health workers to be able to provide information regarding the effects of consuming betel nut to prevent anemia experienced by pregnant women from an early age (Rima dan Pariama, 2020)

Based on research by Pandie and Froulina (2023), the high tannin content in areca nut and betel is considered to interfere with iron absorption by forming a complex with iron in the intestinal lumen, an insoluble antinutrient-mineral complex that cannot be absorbed by the body, making iron less available for absorption. Tannin has biological properties, namely as a binder of iron metal (Fe). In general, Fe binds to the adjacent hydroxyl in the galloyl group (a type of hydrolyzed tannin (tanic acid)) which is hydrolyzed by acid to form gallic acid and glucose. Each molecule of gallic acid (basic unit of polyester) contains one galloyl group. This galloyl group is involved as a structure responsible for inhibiting Fe absorption by phenolic compounds. If iron (Fe) absorption is disrupted, then hemoglobin formation will also be disrupted which ultimately causes low hemoglobin levels and anemia.(Pandie, P, 2023)

If pregnant women know and understand the effects of anemia and how to prevent anemia, they will have good health behavior so that they can hopefully avoid various effects or risks of anemia in pregnancy. Such health behavior can affect the reduction of anemia in pregnant women.

According to the researcher's assumption, based on the research results obtained, education is very influential in increasing the knowledge, attitudes and behavior of pregnant women in consuming betel nut. Monitoring the consumption of betel nut in pregnant women accompanied by education can increase the mother's knowledge about the dangers of consuming betel nut to prevent anemia. By providing advice to switch consumption to more nutritious foods that do not endanger pregnancy. It is recommended that this effort can be continued in order to reduce anemia in pregnant women in the Rimba Jaya Health Center work area which has become a routine habit of consuming betel nut in their

daily lives. This is reinforced by research from Fatimah, et al. 2019, Knowledge obtained through pregnant women's sensing of health information during pregnancy will affect the behavior of pregnant women in maintaining their health (Fatimah, W.N ., 2019)

Table 3. Specific Research Data Results

Variable	F	Sig.
Knowledge	12.600	0.001
Behavior	12.600	0.001
HB Level	12.600	0.001

Based on table 3, it is known that from the results of the simple linear regression analysis test of education and level of knowledge, behavior and hemoglobin levels, the calculated F value was obtained = 12,600 with a significance level of 0.001 <0.05, so it can be interpreted that there is an influence of education on the level of knowledge, consumption behavior of betel nut and hemoglobin levels in pregnant women in the Rimba Jaya Health Center work area.

Anemia is still a serious global health problem, especially in pregnant women. Pregnant women's knowledge about anemia can help prevent anemia. Knowledge is related to the formation of a person's behavior because knowledge is a very important domain in forming behavior. Knowledge obtained through pregnant women's sensing of health information during pregnancy will affect the behavior of pregnant women in maintaining their health.(Fatimah, W.N ., 2019). If pregnant women know and understand the effects of anemia and how to prevent anemia, they will have good health behavior so that it is expected to avoid various effects or risks of anemia in pregnancy. Such health behavior can affect the reduction of anemia in pregnant women (Purbadewi, L dan Ulvie, 2018)

Behavior is a set of actions or actions of a person in response to something and then becomes a habit because of the value. Factors that influence behavior are personal factors of health behavior, biological factors, social psychological factors and situational factors (Azzahra S, 2020) Pregnant women who have the behavior of not consuming betel nut will have a lower risk of anemia than pregnant women who routinely consume betel nut. Pregnant women who still behave disobediently should be given health education or education, either counseling or in other ways, which have a major impact on increasing the knowledge, attitudes and behavior of mothers (Azzahara S, 2020)

Factors that affect hemoglobin levels are Iron Adequacy in the Body. Iron coverage in the body is needed for hemoglobin production, so iron deficiency anemia will cause the formation of smaller red blood cells and low hemoglobin content. According to Ome-Kaius et al., 2015, Betel nut has been shown to change appetite which can result in a global reduction in food intake including essential nutrients such as iron, thereby increasing the risk of anemia. Betel nut is also associated with irritation of the lower esophagus and gastritis which can lead to chronic blood loss and anemia. In addition, the components of betel nut (tannin), if swallowed can change the ability of the digestive tract to absorb nutrients such as iron. The impact of betel nut chewing on pregnant women can raise concerns about embryogenesis and fetal growth and cause premature birth <37 weeks, miscarriage, fetal death, and LBW (low birth weight) which is <2500 grams (Ome-Kaius, 2017)

Health education about anemia is explained using easy language so that it can be understood and comprehended by pregnant women. The provision of this education must be given continuously so that the information provided can be stored and always remembered by the mother because the more often the mother is exposed to information, the better her knowledge, attitude, and behavior will be (Wolter Monginsidi No, 2022) . According to the researcher's assumption, based on the research results obtained that education is very influential on increasing knowledge, attitudes and behavior of pregnant women in consuming betel nut so that when pregnant women routinely consume it will experience a decrease in hemoglobin levels and anemia occurs in pregnant women due to iron deficiency. Based on the description above, the research conducted by the researcher in accordance with the theoretical concept and the results of the study can be defined that there is an influence of the level of knowledge, attitudes, behavior of consuming betel nut, and hemoglobin levels after being given education so that

this pharmacological therapy can be used as an alternative and implemented in midwifery care to minimize the incidence of iron deficiency anemia in pregnant women.

4. Conclusion

The level of knowledge of pregnant women before being given education shows the results of the data, namely the majority of pregnant women have sufficient knowledge 4 respondents (13.3%) and less knowledge 26 respondents (86.7%) and after being given education shows the results of the data, namely all pregnant women have good knowledge 30 respondents (100%). The behavior of pregnant women before being given education shows the results of the data, namely the majority of pregnant women who have the behavior of always consuming betel nut 23 respondents (76.7%), Rarely Consuming 6 respondents (20%), Not Consuming 1 respondent (3.3%) and the behavior of pregnant women after being given education shows the results of the data, namely the majority of pregnant women do not consume betel nut 29 respondents (96.7%) and rarely consume 1 respondent (3.3%). The hemoglobin levels of pregnant women before being given education showed that the majority experienced moderate anemia 20 respondents (66.7%), mild anemia 5 respondents (16.7%), severe anemia 4 respondents (13.3%) and no anemia 1 respondent (3.3%) and hemoglobin levels after being given education showed data results, namely 29 respondents did not experience anemia (96.7%) and 1 respondent experienced mild anemia (3.3%).

Differences in knowledge, attitudes, behavior of consuming betel nut and hemoglobin levels of pregnant women before and after being given education in the Rimba Jaya Health Center work area. A p-value of 0.000 <α = 0.05 was obtained, meaning that there was an influence of knowledge, behavior and Hb levels before and after being given education to pregnant women in the Rimba Jaya Health Center work area. The results of the linear regression analysis of the level of knowledge showed a significant p-value of 0.001 <0.05, behavior showed a significant p-value of 0.001 <0.05 and hemoglobin (Hb) levels showed a significant p-value of 0.001 <0.05. So it can be interpreted that there is an influence of education on knowledge, behavior of consuming betel nut and hemoglobin (Hb) levels in pregnant women in the Rimba Jaya Health Center work area. Consuming betel nut has become a culture, so pregnant women should reduce their consumption of betel nut or not consume betel nut during pregnancy.

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