**THE RELATIONSHIP BETWEEN MATERNAL CHARACTERISTICS AND FOLIC ACID INTAKE WITH THE INCIDENCE OF ANEMIA IN PREGNANT WOMEN IN PERCUT SEI TUAN SUB-DISTRICT**

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| *Keywords*:  Age of pregnant women, parity, ANC visits, folic acid intake | **ABSTRACT**  Background: Anemia is one of the nutritional problems with a high prevalence. Anemia often occurs in adolescents, women of childbearing age, and pregnant women. Objective: to determine the relationship between maternal characteristics and folic acid intake with the incidence of anemia in pregnant women Method: the design of this study is Cross Sectional. The population is all pregnant women in the second and third trimesters in three villages of Percut Sei Tuan sub-district. Sampling in this study was porpusive sampling. Data collection was conducted by interviews using questionnaires and food recall tables as research instruments. Data processing through editing, entering and tabulating. Data analysis using Chi Square test with Ci 95% Results: the results showed that mothers with a good age group did not experience anemia as much as 87.5% and mothers with a bad age group experienced anemia as much as 15.5%. Mothers with good parity group were not anemic as much as 96.9% and mothers with poor parity anemia were 37.5%. Mothers with good ANC group had anemia as much as 96.9% and mothers with ANC group not good did not experience anemia 37.5%. Pregnant women with good folic acid intake group were not anemic as much as 54.5% and mothers with poor folic acid group were anemic as much as 87.5% Conclusion: There is a relationship between parity, ANC visits and folic acid intake in pregnant women in Percut Sei Tuan District. And there is no relationship between maternal age and the incidence of anemia in Percut Sei Tuan sub-district |

**INTRODUCTION**

Anemia is one of the nutritional problems with a high prevalence. Anemia often occurs in adolescents, women of childbearing age, and pregnant women. In pregnant women, pregnancy is a period that greatly determines the quality of human resources (HR) in the future because the growth and development of children is very much determined by their conditions during the fetus and womb. Anemia in pregnant women is a condition where a mother has iron deficiency in her blood (Rismawati & Rohmatin, 2018).

Anemia is a nutritional problem in public health, especially in pregnant women. In pregnant women are said to have anemia if hemoglobin levels are less than 11.0 g / dl for the first and third trimesters and less than 10.5 g / dl for the second trimester (Asmin, Salulinggi, Titaley, & Bension, 2021). Anemia often occurs in pregnancy because the pregnancy requires additional food additives and changes in the blood and bone marrow. Heavy blood in pregnancy is commonly called hydremia or hypervolemia. However, the increase in blood cells that are less than the increase in plasma can cause thinning of the blood. This is because during pregnancy there is an increase in plasma volume in a greater proportion when compared to the increase in erythrocytes (Millah, 2019).

In addition, the cause of anemia in pregnant women is a lack of nutrients that play a role in the formation of hemoglobin, one of which is folic acid. This is because folic acid consumption can help improve Hb levels of pregnant women where folic acid helps in the formation of red blood cells (Tarigan, Sitompul, & Zahra, 2021).

According to the World Health Organization (WHO) 2018 globally, the prevalence of anemia in pregnant women worldwide is 36.5%. The prevalence of anemia in pregnant women is estimated in Asia at 47.8%, Africa 45.8%, Europe 23.5%, and America 18.9%. In Indonesia itself, according to the Ministry of Health of the Republic of Indonesia, in 2020 the prevalence rate of anemia in pregnant women in Indonesia in 2018 was 48.9%. This figure shows an increase when compared to 2013 which was 37.1%. This figure is still far from the national target of 28% (Hidayah Pramesty Dewi, 2021).

Some factors that can cause anemia in pregnancy are age, pregnancy spacing, parity, protein intake, iron intake, LILA, maternal knowledge, Antenatal Care visits, and consumption of Fe tablets (Windari, Lisnawati, & Herutomo, 2018).

Age factors are risk factors that can cause anemia in pregnant women. Because the age of a mother is related to the female reproductive organs. A good age to get pregnant is at the age of 20-35 years. At the age of <20 years, mothers have emotional and mental labile that results in lack of attention to meeting nutritional needs during pregnancy (Gusnidarsih, 2020). Women aged <20 years have a risk of anemia because at this age there is often malnutrition. This happens because at the age of adolescents crave an ideal body, therefore doing a strict diet without prioritizing nutritional balance so that they experience less nutritional status when entering pregnancy (Rahmaniah, 2019). The age of >35 years in pregnant women is associated with the deterioration and decrease in endurance and the decline in biological organs that make hemoglobin production reduced so that anemia occurs in pregnant women, this is due to fertilization which affects the decline in iron reserves in the body. When entering the first pregnancy at the age of over 35 years will also experience the risk of labor complication and the beginning of reproductive orgam functions (Septiyaningsih & Yunadi, 2021).

Paritas is a mother who has more than three children. Parity is one of the factors that cause anemia during pregnancy. This is due to too often pregnant so that it can deplete the nutritional reserves of the mother's body (Amini, Pamungkas, & Harahap, 2018). The amount of iron lost is estimated at 250 mg each time a woman gives birth (Octaviana & Indrasari, 2021).

Frequency of Antenatal Care (ANC) is a factor that can affect the incidence of anemia in pregnant women. This is because ANC is one way to prevent anemia. Maternal ANC visits during pregnancy are 1 time in the first trimester, 1 time in the second trimester, and 2 times in the third trimester (Dolang, 2020). Early screening of anemia, counseling and administration of Fe tablets obtained from ANC care. Regular ANC screening can help reduce maternal and infant morbidity and mortality (Dolang, 2020).

**RESEARCH METHODS**

This research is quantitative with cross sectional method. This research was conducted in the areas of Peace Love Village, Percut Village, and Tanjung Selamat Village, Percut Sei Tuan District, which was carried out in August 2022. The selection of the area was based on the results of a research survey, where in the three villages there were pregnant women with anemic status.

The population of this study was all pregnant women with trimesters II and III in three villages of Percut Sei Tuan District totaling 103 people. The sampling technique of this study is purposive sampling, which means that pregnant women with certain criteria amounted to 41 00

Data processing in this study went through several stages including, editing, entering and tabulating. This research analysis was conducted to explain the relationship between two variables, namely the independent variable (independent) and the dependent variable (dependent). To analyze folic acid intake, the computer program Nutrisurvey is used. Then the data was analyzed using the computer program Statistic Package for Social Science (SPSS). The analysis in this study used a statistical chi-square test and a significant level Odds Ratio of 95%. To prove the hypothesis, the p-value <0.05 (H0 is rejected) and it is concluded that there is a meaningful relationship between the independent variable and the dependent variable.

**RESULTS AND DISCUSSION**

**Table 1. Age Distribution Table for Pregnant Women in Percut Village, Peace Love Village, and Tanjung Selamat Village in 2022**

|  |  |  |
| --- | --- | --- |
| **Research Variables** | **Sum**  **(n)** | **Percentage**  **(%)** |
| **Mother's Age**  < 20 years  20-35 years  >35 years | 2  36  3 | 4.9  87.8  7.3 |
| **Parity**  1-3  ≥4 | 37  4 | 90.2  9.8 |
| **Kunjungan ANC**  ≥ 4  < 4 | 37  4 | 90.2  98.8 |
| **Folic Acid Intake**  Good  Keep  Less  Deficit | 4  16  1  20 | 9.8  39.0  2.4  48.8 |
| **Total** | 41 | 100 |

Based on Table 1 above, it shows that pregnant women with the age of >20 years are 2 people (4.9%), pregnant women with the age of 20-35 years are 36 people (87.8%), and pregnant women with the age of >35 years are 3 people (7.3%). Parity with the good category was 37 people (90.2%) and parity with the bad category was 4 people (9.8%). ANC visits with good category were 37 people (90.2%) and parity with bad category was 4 people (98.8%). Folic acid intake with a good category is as much as 4 people (9.8%). Folic acid intake with moderate category is 16 people (39.0%), folic acid intake with less category is as much as 1 person (2.4%), and folic acid intake with deficit category is as many as 20 people (48.8%).

**Table 2. Relationship of Maternal Characteristics and Folic Acid Intake with the Incidence of Anemia in Pregnant Women**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Variable Independe** | **Status Anemia** | | | | **Total** | **%** | ***P*-*value*** |
| **Anemia**  **(n)** | **%** | **Tidak Anemia**  **(n)** | **%** |  |
| 1 | **Mother's Age**  Good  Bad | 7  1 | 87.5  12.5 | 28  5 | 84.4  15.5 | 35  6 | 85.3  14.6 | **0,669** |
| 2 | **Parity**  Good  Bad | 5  3 | 62.5  37.5 | 32  1 | 96.9  3.0 | 37  4 | 90.2  9.8 | **0.019** |
| 3 | **Visit ANC**  Good  Bad | 5  3 | 62.5  37.5 | 32  1 | 96.9  3.0 | 37  4 | 90.2  9.7 | **0.019** |
| 4. | **Folic Acid Intake**  Good  Bad | 1  7 | 12.5  87.5 | 18  15 | 54.5  45.4 | 19  22 | 46.3  53.7 | **0.037** |
| Total | | 8 | 100 | 33 | 99.9 | 41 | 100 |

The results showed that there was no relationship between maternal age and the incidence of anemia in pregnant women in Percut Village, Peace Love Village, and Tanjung Selamat Village, Percut Sei Tuan District 2022. The results of the statistical test showed *a p value*  of 0.669 (*>0.05). Based on the results of the study, most respondents in the category of 20-35 years as many as 36 people with 28 respondents not having anemia, and as many as 7 respondents experiencing anemia with the age of <20 years and >35 years. This is in line with research* (Purwaningtyas & Prameswari, 2017) tidak terdapat hubungan antara usia dengan anemia pada ibu hamil (*p value* 1,000). Ibu dengan usia 20-35 tahun merupakan usia yang baik untuk kehamilan sebab terjadi gangguan atau komplikasi pada kehamilan dan persalinan sangat kecil.

There was no association between age and anemia in pregnant women (*p value* 1,000). Mothers aged 20-35 years are a good age for pregnancy because there are disorders or complications in pregnancy and childbirth is very small.

Mothers aged 20-35 years are psychologically ready so that they can control emotions that will affect the growth and development of the fetus. Mothers aged <20 years have unstable emotions so it is difficult to control fetal growth and development. In addition, mothers aged < 20 years still have growth that requires more nutrients compared to the age of 20-35 years. So that the main causes of death in women aged 15-19 years are complications of pregnancy, childbirth, and complications of miscarriage

(Leny, 2019). Pregnancies that occur in mothers who are before adolescence fully develop, can also pose significant risks to the baby including injury during delivery, low birth weight, and lower chances of survival for the baby.

Similarly, mothers aged > 35 years, mothers aged >35 years have a risk of anemia due to the influence of maternal immunity so that they are susceptible to contracting diseases during pregnancy. Women with the age of > 35 years are more likely to have an abortion whether the fetus is normal or abnormal (Leny, 2019).

At the age of 20-35 years female reproductive organs are healthy and safe to get pregnant. Biologically, the age of under 20-35 years has a mentality that is not optimal with emotions that tend to be unstable so that it is easy to experience shocks that result in lack of consumption of nutrients. Then the age over 35 years is also susceptible to various diseases at this age (Amini et al., 2018).

The results of statistical tests show that *p value* 0.019 (<0.05) means that parity affects the incidence of anemia in pregnancy, the more often a woman gets pregnant and gives birth, the greater the risk of anemia because pregnancy uses iron reserves in the body. Based on the results of the study, mothers with good category did not experience anemia as many as 32 people (96.9%) and mothers with bad category experienced anemia as many as 3 people (37.5%). This is in line with research Teja et al., 2021 There is an association between parity and the incidence of anemia in pregnant women (*p value* 0.002). Women who often experience pregnancy and childbirth will be at risk of anemia due to iron loss, this happens because of the use of iron reserves in the body.

Mothers with a parity of ≥4 times can increase the frequency of complications in pregnancy and childbirth, such as an increased risk of fetal death in the womb and bleeding before and after childbirth which is fatal. This is because women who have given birth often can result in damage to blood vessels and vascularity of the uterine wall due to past labor, so that blood flow to the placenta is inadequate which can eventually reduce its function and affect nutrition to the fetus (Leny, 2019).

The statistical results show that *a p value of* 0.019 (<0.05) means that a high risk of anemia in pregnancy is found in pregnant women who are irregular in making ANC or antenal care visits during their pregnancy. According to (Nanda and Rodiani, 2017) that pregnant women who are irregular in making ANC visits that can increase pregnancy are at high risk, one of which is anemia so that the continuity of health checks during pregnancy can be seen from the first visit (K1) to K4 visits with visit times according to the trimester of pregnancy. Therefore, it is necessary to carry out ANC or antenal care to provide an overview of the condition of pregnant women, fetuses in the womb, and general health.

Mothers do not routinely do ANC because they have experienced pregnancy before so they already know what to do during pregnancy. In addition, mothers with many children feel embarrassed to visit health services such as puskesmas or clinics to make ANC visits. ANC visits are carried out to produce a healthy pregnancy through physical examination, iron supplements and counseling on the health of pregnant women (Akhirin et al., 2021).

The results showed that the *p value*  of 0.037 (<0.05) means that the proportion of folic acid consumption in pregnant women who do not consume folic acid is greater than pregnant women who consume folic acid. This is because folic acid consumption is a behavior carried out by pregnant women in fulfilling their nutrients. This is in line with research. In line with research (Nugrahani, 2020) There is a relationship between folic acid intake and the incidence of anemia with a *p value of* 0.001. Folic acid is a major component in the formation of blood cells, as is the case with the formation of DNA so it is also necessary for cell development and growth.

The results of the food recall show that most respondents do not often consume green vegetables, chicken liver, beef liver. This causes some of the respondents to have poor folic acid intake, because green vegetables, chicken liver, and beef liver are sources of folic acid. As well as the habit of eating food that is not good and often consuming snack foods such as grilled meatballs, waffers, chips, and so on which causes pregnant women to feel full quickly.

Folic acid serves as the formation of red blood cells and white blood cells in the bone marrow. If the occurrence of cells formed abnormally or abnormally, it will result in megaloblastic anemia caused by lack of folic acid intake in the body. Folic acid plays an important role in DNA synthesis and cell growth. Folic acid deficiency can result in imperfect DNA synthesis and red blood cells cannot mature properly so that red blood cells cannot carry oxygen to the health of the body resulting in anemia (Putri, Nirmala, Aprillani, Dewi, & Wijaya, 2019).

**CONCLUSION**

There is a relationship between parity, ANC visits, and folic acid intake in pregnant women in Percut Sei Tuan District in 2022. Before pregnancy, mothers need to get counseling or counseling about nutrition during pregnancy so that mothers and children are carried out with normal weight and before pregnancy are sought by mothers with normal and healthy Hb conditions.

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