

## ASSOCIATED FACTORS OF ANEMIA IN PREGNANT WOMEN

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### ABSTRAK : FAKTOR TERKAIT ANEMIA PADA IBU HAMIL

Latar belakang: anemia pada masa kehamilan merupakan kondisi dimana tubuh tidak memiliki cukup sel darah merah yang sehat. Sel darah merah menyediakan oksigen untuk jaringan tubuh.

Tujuan: untuk mengetahui hubungan antara pengetahuan ibu, paritas dan kepatuhan minum tablet Fe dengan anemia pada ibu hamil di wilayah kerja Puskesmas Kedaton Tahun 2021.

Metode: penelitian ini menggunakan desain penelitian survey analitik kuantitatif dengan pendekatan cross sectional. Populasi dalam penelitian ini adalah seluruh ibu hamil yang memeriksakan kehamilannya di wilayah kerja Puskesmas Kedaton. Sampel penelitian ini adalah 71 responden yang diambil secara sistematis dengan membagi jumlah sampel yang diinginkan dengan menggunakan metode random sampling. Kemudian, data yang terkumpul dianalisis dengan menggunakan analisis univariat dan bivariat.

Hasil: dari 71 responden, 52,1% responden mengalami anemia. 70,4% responden memiliki pengetahuan kurang dan 26,9% responden memiliki pengetahuan baik (26,9%). Responden yang paritasnya berisiko 47,9% dan yang paritasnya tidak berisiko 52,1%. Sedangkan 59,2% responden tidak patuh dalam mengkonsumsi tablet Fe dan 40,8% responden patuh dalam mengkonsumsi tablet Fe.

Simpulan: Berdasarkan hasil uji Chi-Square pada variabel pengetahuan diperoleh nilai p sebesar 0,036 ( $\alpha = 0,05$ ) artinya ada hubungan yang bermakna antara pengetahuan dengan kejadian anemia, pada variabel paritas p-value yang diperoleh sebesar 0,000 ( $\alpha = 0,05$ ) artinya ada hubungan yang bermakna antara paritas dengan kejadian anemia, dan pada kepatuhan konsumsi tablet Fe diperoleh p-value sebesar 0,029 ( $\alpha = 0,05$ ) artinya ada ada hubungan yang bermakna antara kepatuhan minum tablet Fe dengan anemia.

Saran : Diharapkan Puskesmas Kedaton lebih aktif dalam memberikan penyuluhan kepada bidan terkait anemia.

Kata Kunci : Anemia, Pengetahuan, Paritas, Tablet Fe

### ABSTRACT

Background: anemia during pregnancy is a condition in which the body does not have enough healthy red blood cells. Red blood cells provide oxygen for body tissues.

Objective: to determine the relationship between mothers' knowledge, parity and adherence to taking Fe tablets and anemia in pregnant women in the work area of Kedaton Public Health Center in 2021.

Methods: this study used a quantitative analytic survey research design with a cross sectional approach. The population in this study were all pregnant women who checked their pregnancy in the work area of Kedaton Public Health Center. The sample of this study was 71 respondents who were taken systematically by dividing the desired number of samples using the random sampling method. Then, the collected data were analyzed using univariate and bivariate analysis.

Results: of the 71 respondents, 52.1% respondents experienced anemia. 70.4% respondents had poor knowledge and 26.9 % respondents had good knowledge (26.9%). Respondents whose parity was at risk were 47.9% and those whose parity were not at risk were 52.1%. Meanwhile, 59.2 % respondents were disobedient in consuming Fe tablets and 40.8% respondents were obedient in consuming Fe tablets.

Conclusions: Based on the results of the Chi-square test on the knowledge variable, the p-value obtained was 0.036 ( $\alpha = 0.05$ ) meaning that there is a significant relationship between knowledge and the incidence of anemia, on the parity variable the p-value obtained was 0.000 ( $\alpha = 0.05$ ) meaning that there is a significant relationship between parity and the incidence of anemia, and on adherence in consuming Fe tablets the p-value obtained was 0.029 ( $\alpha = 0.05$ ) meaning that there is a significant relationship between adherence in consuming Fe tablets and anemia.

Suggestion: It is hoped that Kedaton Public Health Center is more active in providing counseling to midwives related to anemia.

Keywords: Anemia, Knowledge, Parity, Fe Tablets

## INTRODUCTION

Anemia is the most serious global public health problem, especially for pregnant women (Berhe et al., 2019). The data from the World Health Organization (WHO) in 2013 showed that the prevalence of anemia in pregnant women was 41.8%, then it decreased with a slow phase of 40% in 2019 (WHO in Berhe et al., 2019). The prevalence of anemia in pregnant women is quite high in developing countries such as in Africa at 57.1%, and in Ethiopia at 22% (Berhe et al., 2019). The prevalence of anemia in pregnant women in Indonesia increased from 37.1% in 2013 to 48.9% in 2018 (Kemenkes, 2018). WHO (2001, as cited in Dara, 2019) states that the classification of anemia prevalence for an area is based on the level of the problem, namely severe  $\geq 40\%$ , moderate 20% - 39.9%, mild 5% -19.9% and normal  $\leq 4.9\%$ . Thus, the prevalence of anemia in Indonesia in 2018 was classified as a serious public health problem.

Anemia during pregnancy has the potential to harm mothers and children or is also called "potential danger to mother and child" (Yanti, D.A.M et al., 2015). Therefore, anemia during pregnancy requires serious attention from all parties involved in health services, including the government. Anemia suffered by pregnant women in the first trimester can cause abortion and congenital abnormalities. In the second trimester, it can cause premature labor, antepartum bleeding, impaired fetal growth in the uterus, intrauterine asphyxia to death, low birth weight, gestosis and susceptibility to infection, and maternal death. During labor, it can cause histological disorders, the fetus born with anemia, labor with high action, the mother getting tired quickly, disrupts the course of labor, makes wounds are difficult to heal, easily becomes febrile puerperalis, and disrupts uterine involution (Ani, 2015; Manuaba, 2012; Proverawati, 2011).

The program carried out by Indonesia government to prevent anemia during pregnancy is the Maternal and Child Health Nutrition Development Program. The aim of this program is to achieve the 2015-2019 RPJMN (National Medium - Term Development Plan). The programs carried out are Community Nutrition Improvement Development, Infant, Child and Adolescent Health Development, and Maternal and Reproductive Health Development. One indicator of its achievement is the percentage of pregnant women who receive iron supplementation (blood supplement tablets, which is 98%. The standard for giving iron tablets for pregnant women is at least 90 tablets consumed in one tablet (60 mg Elemental Iron and 40.25 mg Folic Acid)

consecutively for at least 90 days during pregnancy (Kemenkes RI, 2015).

Parity is a description of the number of pregnancies experienced by a mother that have resulted in a live birth or a stillbirth. Mothers with parity more than three times are more likely to have anemia (Winkjosastro, 2012). A study conducted by Ririn Riyani (2020) showed that there is a significant relationship between maternal parity and the incidence of anemia in pregnant women, with the p-value obtained of 0.003 ( $p < 0.05$ ).

The low level of pregnant women's knowledge greatly affects how they look after their pregnancy. The existence of myths saying that pregnant women are prohibited from consuming certain foods causing most pregnant women not to consume nutritious foods. The behavior of a person or community regarding health is determined by their knowledge, attitudes, beliefs, and traditions. The pregnant women's knowledge about anemia and pregnancy can help them take good and appropriate care of themselves and their pregnancies (Mulyati, et al., 2007). A study conducted by Lindung Purbadewi (2009) showed that there is a relationship between the level of knowledge about anemia and the incidence of anemia in pregnant women at Moyudan Public Health Center in Sleman, Yogyakarta.

The adherence in consuming iron tablets is the obedience of pregnant women in carrying out the recommendations from health workers to consume iron tablets. The adherence in consuming iron tablets can be measured by the accuracy of the number of tablets consumed, the accuracy of how to consume the iron tablets, and the frequency of consumption per day. Iron supplementation or administration of Fe tablets is an important effort in preventing and treating anemia, especially iron deficiency anemia. Iron supplementation is an effective means because the iron content is complemented by folic acid which can prevent anemia due to folic acid deficiency (Afnita, 2004). Non-adherence of pregnant women taking iron tablets can lead to experiencing anemia. A study carried out by Wiwit Hidayah (2012) showed that the better the mother's adherence in consuming Fe tablets, the lower the risk of the mother experiencing anemia.

## RESEARCH METHODS

This study used a quantitative analytic survey research in which the independent variables including knowledge, parity and adherence in consuming Fe tablets and the dependent variable including the incidence of anemia in pregnant women were collected at the same time (Notoadmodjo, 2010). A cross sectional approach was used in this

study aimed to determine the relationship between the independent variables namely knowledge, parity, and adherence in consuming Fe tablets and the dependent variable namely the incidence of anemia in pregnant women. The population is the entire object of research or the object under study (Notoatmodjo, 2012). The population in this study were 250 pregnant women who checked their pregnancies from January - June 2021 in the work area of Kedaton Public Health Center. The research sample is the object under study and is considered to represent the entire population or part of the population to be studied (Notoatmodjo, 2012). The sample used in this study was 71 pregnant women. The sample used in this study was chosen non-randomly using the accidental sampling method. The

dependent variable is anemia and the independent variables include knowledge, parity and adherence in consuming Fe tablets. The data obtained were analyzed using Chi- square test.

## RESULTS AND DISCUSSION

### Relationship between mothers' knowledge and anemia

The table above shows that of the 50 respondents who had poor knowledge, 30 respondents (60.0%) had anemia, and 20 respondents (40.0%) did not have anemia. Meanwhile, of the 21 respondents who had good knowledge, 7 respondents (33.3%) had anemia and 14 respondents (66.7%) did not experience anemia.

Tabel 1

Knowledge	Anemia				Total		p-value	OR
	Yes		No		N	%		
	n	%	n	%				
Poor	30	60,0	20	40,0	50	100	0,036	3.000
Good	7	33,3	14	66,7	21	100		

Based on the results of the chi-square statistical test, the p-value obtained was 0.036 ( $\alpha = 0.05$ ) meaning that there is a significant relationship between knowledge and anemia in the work area of the Kedaton Public Health Center in 2021. Thus, the hypothesis stating that there is a relationship between knowledge and the incidence of anemia has been statistically proven. The Odds Ratio (OR) value obtained was 3,000, meaning that respondents with poor knowledge have a risk of experiencing anemia 3,000 times more than respondents with good knowledge.

The results of this study are in line with a study carried out by Lindung Purbadewi (2009) showing that out of 27 respondents who had anemia, 8 respondents (29.6%) had a good level of knowledge about anemia and 19 respondents (70.4%) had a poor level of knowledge about anemia. Then, her study also showed that of the 15 respondents who did not experience anemia, 13 respondents (86.7%) had knowledge about anemia in the good category and 2 respondents (13.3%) had knowledge about anemia in the poor category. The results of the analysis using chi-square in the study showed that the calculated chi-square value ( $X^2_{obtained}$ ) was 12.548. Based on the df (degree of freedom) value of 1 and a significance level of 5%, the  $X^2_{table}$  was 3.841, meaning that  $X^2_{obtained} > X^2_{table}$  (12.548 > 3.841). In addition, the study also showed the p-value obtained of 0.000 < 0.05 ( $p < \alpha$ ), meaning

that there was a relationship between the level of knowledge about anemia and the incidence of anemia in pregnant women at Moyudan Public Health Center Sleman, Yogyakarta.

The results of the present study are also in line with a study conducted by Rabitha Rachmaniar (2012) showing that pregnant women who had good knowledge about anemia were 20 people (20.6%), of which 7 people (7.2%) had anemia and 13 people (13.4%) did not experience anemia, pregnant women who had sufficient knowledge of anemia were 37 people (38.1%), of which 14 people (14.4%) had anemia and 23 people (23.7%) did not have anemia, and pregnant women who had poor knowledge about anemia were 40 people (41.2%), of which 27 people (27.8%) had anemia and 13 people (13.4%) did not have anemia. In other words, pregnant women who have less knowledge about anemia will increase the risk of anemia in pregnancy, compared to those who have good and sufficient knowledge about anemia. In addition, the study also showed the results of testing the hypothesis using the Chi - square test (cross tabulation) of  $X^2_{obtained} = 8.880$  with a significance value ( $p = 0.012$ ) ( $p < 0.05$ ), meaning that there was a relationship between knowledge about anemia in pregnant women in the second and third trimesters and the risk of anemia in pregnancy at Sukorame Public Health Center, Kediri. The researchers in the study assumed that mothers with good knowledge (answering questions correctly

> 50%) had less risk to experience anemia than mothers with poor knowledge (answering questions correctly < 50%). This is because knowledge is one of factors that stimulate the awareness of health behaviors. If pregnant women know and understand the consequences of anemia and how to prevent anemia, they will have good health behaviors in the hope that they can avoid the various consequences or risks of anemia in pregnancy. Such health behaviors affect the decrease of anemia in pregnant women.

**Relationship between parity and anemia**

The table above shows that of the 34 respondents whose parity was at risk, 26 respondents (76.5%) had anemia, and those who did not have anemia were 8 respondents (23.5%). Meanwhile, out of 37 respondents whose parity was not at risk, 11 respondents (29.7%) had anemia and those who did not have anemia were 26 respondents (70.3%).

**Tabel 2**

Parity	Anemia				Total		p-value	OR
	Yes		No		N	%		
	n	%	n	%				
Risky	26	76,5	8	23,5	34	100	0,000	7.682
No risk	11	29,7	26	70,3	37	100		

Based on the results of the chi-square statistical test, the p-value obtained was 0.000 ( $\alpha = 0.05$ ), meaning that there is a significant relationship between parity and anemia in the work area of Kedaton Public Health Center in 2021. Thus, the hypothesis stating that there is a relationship between parity and the incidence of anemia has been statistically proven. The Odds Ratio (OR) value obtained was 7.682, meaning that respondents whose parity is at risk are 7.682 times more likely to experience anemia than respondents whose parity is not at risk.

The results of this present study are in line with a study carried out by Jasni (2013) showing that out of 145 pregnant women who had parity at high risk, 47 pregnant women (87%) had anemia. Meanwhile, 30 pregnant women (32.9%) with low-risk parity had low risk of having anemia. The results of statistical tests in the study using chi square obtained a value p value = 0.000 ( $p < 0.05$ ), meaning that there was a relationship between parity and the incidence of anemia in pregnant women, with the OR value of 13.652 meaning that pregnant women with high-risk parity were 13 times more likely to experience anemia compared to pregnant women with low-risk parity.

The results of this study are also in line with a study conducted by Muthia Sari Mardha (2018) showing that of the 35 pregnant women (100%), 5 pregnant women (14.3%) were in primigravida parity of which 2 pregnant women were not anemic (5.7%) and 3 pregnant women (8.6%) had mild anemia. Then, out of 26 pregnant women (74.3%) with

multigravida parity, 7 pregnant women were not anemic (20.0%), 17 pregnant women had mild anemia (48.6%) and 2 pregnant women had moderate anemia (5.7%). The study also showed that of the 4 pregnant women with grande multigravida parity, 1 pregnant women had mild anemia (2.9%) and 3 pregnant women had moderate anemia (8.6%). Based on the results of the chi-square test in the study with a confidence level of 95% with  $\alpha = 0.05$ , the p-value obtained was 0.007 ( $p = 0.007 < \alpha (0.05)$ ), meaning that there was a relationship between pregnant women with parity and anemia at Hj. Dermawati Nasution Tembung maternity hospital. The researcher assumed that mothers with low-risk parity (having children < 2 - 3) have low risk of experiencing anemia compared to mothers with high-risk parity (having children > 3). It is because parity is an important factor in the incidence of iron anemia in pregnant women. Parity 1-3 is the safest parity in terms of maternal mortality. Those with high parity of more than 3 have a higher maternal mortality rate than those with low parity.

**Relationship between adherence in consuming Fe tablets and anemia**

The table above shows that of the 42 respondents who were disobedient in consuming Fe tablets, 17 respondents (40.5%) had anemia and 25 respondents (59.5%) did not experience anemia. Then, of the 29 respondents who were obedient to taking Fe tablets, 20 respondents (69.0%) had anemia and 9 respondents (31.0%) did not experience anemia.

**Tabel 3**

Adherence in Consuming Fe Tables	Anemia				Total		p-value	OR
	Yes		No		N	%		
	n	%	n	%				
Disobedient	17	40,5	25	59,5	42	100	0,029	0,306
Obedient	20	69,0	9	31,0	29	100		

Based on the results of the chi-square statistical test, the p-value obtained was 0.29 ( $\alpha = 0.05$ ) meaning that there is a significant relationship between adherence in consuming Fe tablets and anemia in the work area of Kedaton Public Health Center in 2021. Thus, the hypothesis stating that there is a relationship between adherence in consuming Fe tablets and the incidence of anemia has been statistically proven. The Odds Ratio (OR) value was 0.306, meaning that respondents who were not obedient to take Fe tablets have 0.306 times more likely to experience anemia than respondents who were obedient to take Fe tablets.

The results of this study are in line with a study conducted by Wiwit Hidayah (2010) showing that mothers who were anemic and disobedient to consume Fe tablets (62.5%) were more than those who were obedient to consume Fe tablets (37.5%). Mothers who were not anemic and obedient to consume Fe tablets (64.3%) were more than those who were non-adherent (35.7%). Then, the statistical test results using the Chi - square test showed that there was a relationship between pregnant women's adherence to consuming Fe tablets and the incidence of anemia in Pageraji Village, Cilongok District, Banyumas Regency with  $p = 0.005$ . This means that the better the mother's adherence in consuming Fe tablets, the lower the risk of the mother experiencing anemia.

The results of this present study are also in line with a study carried out by Sonia (2018) stating that there was a relationship between adherence in consuming Fe tablets and the incidence of anemia in pregnant women at Kasih II Public Health Center, Bantul. In terms of anemia characteristics, the study showed that 31 respondents (41.3%) were in non-anemic category of, 37 respondents (49.3%) had mild anemia, 7 respondents (9.3%) had moderate anemia and 0 respondents (0%) had severe anemia. Then, in terms of the level of adherence in consuming Fe tablets, 24 respondents (32.0%) were obedient, 44 respondents (58.7%) were less obedient, and 7 respondents (9.3%) who were disobedient. In addition, the results of the Kendall Tau test showed that the significance p value was  $0.000 < 0.05$ , meaning that there was a statistically significant relationship between adherence in consuming Fe tablets and the incidence of anemia in pregnant women at Kasih II Public Health Center, Bantul. The

maximum correlation coefficient value was 0.464, indicating a close relationship with a positive pattern of 5% with  $\alpha = 0.05$ ,  $p = 0.007$  ( $p = 0.007 < \alpha (0.05)$ ).

In other words, non-adherence in consuming Fe tablets will affect the incidence of anemia in pregnant women. It is because iron supplementation or iron administration is an important effort in preventing and treating anemia, especially anemia due to iron deficiency. Therefore, the adherence of pregnant women in consuming Fe as recommended can be realized if the mothers are aware of the importance of Fe for their health and pregnancies.

### CONCLUSIONS

1. There was a significant relationship between knowledge, parity and adherence in consuming Fe tablets simultaneously and anemia at Kedaton Public Health Center in 2021.
2. There was a significant relationship between knowledge partially and anemia at Kedaton Public Health Center in 2021.
3. There was a significant relationship between parity partially and anemia at Kedaton Public Health Center in 2021.
4. There was a significant relationship between adherence in consuming Fe tablets partially and anemia at Kedaton Public Health Center in 2021.

### SUGGESTIONS

1. To the Head of Kedaton Public Health Center  
The results of this study are expected to provide recommendations and information for stakeholders at Kedaton Public Health Center to be more active in providing training for health workers, especially for midwives and health workers who are directly related to the incidence of anemia to carry out every health action in accordance with SOP (Standard Operating Procedures) aiming to reduce morbidity and death rates for the welfare of society.
2. To the Rector of Universitas Kader Bangsa Palembang  
This study can be used as an additional reference related to anemia especially for students and also for other health workers so that they can improve their insight and knowledge about anemia.
3. To Future Researchers

It can be used as a recommendation material for further researchers. They can study other variables that have not been covered in this study and conduct their studies at different locations.

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