

# Relationship between Age, Pregnancy Distance, Anc Visits with the Incidence of Anemia in Pregnant Women at Health Center 4 Ulu, Seberang Ulu District 1 Palembang City in 2021

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## ABSTRACT

Anemia in pregnancy is a decrease in hemoglobin levels that occurs during pregnancy due to iron deficiency or folate deficiency. The prevalence of anemia in Indonesia in pregnant women according to the SKRT is still quite high, namely 40.1%. Factors that can cause anemia in pregnancy include age, gestational distance, parity, education level, economic status, knowledge, attitude, food intake, ANC visits and adherence to Fe tablet consumption. The purpose of this study was to determine the relationship between age, gestational age, ANC visits simultaneously with the incidence of anemia in pregnant women at Puskesmas 4 Ulu, Seberang Ulu 1 District, Palembang City in 2021. The research design used in this study was an analytic survey with a cross sectional design. . The population in this study was the sample in this study as many as 70 pregnant women who did a pregnancy check at the 4 Ulu Health Center, Seberang Ulu 1 District, Palembang City until December 2021. Based on the results of research using the chi-square statistical test, it was found that there was a significant relationship between age and the incidence of anemia in pregnant women obtained p. value = 0.001, there is a significant relationship between the distance of pregnancy with the incidence of anemia in pregnant women, obtained p. value = 0.001, there is a significant relationship between ANC visits and the incidence of anemia in pregnant women, obtained p. value = 0.000, it can be concluded that there is a significant relationship between age, gestational distance and ANC visits with the incidence of anemia in pregnant women.

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## 1. Introduction

Pregnancy is defined as the process of fertilization or union of spermatozoa and ovum followed by nidation or implantation. When calculated from the time of fertilization to the birth of the baby, a normal pregnancy will take place within 40 weeks or 10 months or 9 months according to the international calendar. Pregnancy is divided into 3 trimesters, where the first trimester lasts for 12 weeks, the second trimester is 15 weeks (weeks 13 to 27), the third trimester is 13 weeks (weeks 28 to 40). The problem that often arises in pregnancy is anemia. Anemia during pregnancy can cause complications in childbirth such as bleeding [1].

Data from the World Health Organization (WHO), it is estimated that about 33% of people in the world suffer from anemia, with iron deficiency being considered the main cause, and anemia accounting for almost 9% year on year with disability problems. It is also estimated that worldwide 32 million pregnant women are anemic and 496 million non-pregnant women are anemic [2].

The prevalence of anemia in Indonesia in pregnant women according to the SKRT is still quite high, namely 40.1%. The results of the Basic Health Research show that 73.2% of women aged 15-

49 years have received blood-supplement tablets containing iron-folic acid. However, the incidence of anemia in pregnant women still reaches 40 - 50%, meaning that 5 out of 10 pregnant women in Indonesia experience anemia [3].

Based on data from the South Sumatra Provincial Health Office Health South Sumatra Province, the prevalence of mild anemia in 2018 from 17 districts and cities amounted to 22,681, the highest being in Muara Enim Regency 4,391 people, Banyuasin 3,269 people and Palembang City 1,780 people. Data on the prevalence of severe anemia from 17 districts amounted to 1,012 people, the highest was in Banyuasin Regency with 165 people, Muara Enim 153 people, Musi Rawas 124 people and Palembang City 13 people. In 2019, the prevalence of mild anemia was 24,404, the highest was Banyuasin Regency, which amounted to 4,216 people, Muara Enim 3,499 people and Palembang City 2,644 people. Meanwhile, the prevalence of severe anemia is 1,078 people, the highest is Musi Rawas Regency, which is 254 people. Muara Enim 160 people and Palembang 145 people [4].

According to data from the Palembang City Health Office in 2018, there were 1,017 pregnant women from 181,086 pregnant women, the number of pregnant women with anemia in 2019 was 1,001 out of 176,027 pregnant women, and in 2020 the number of pregnant women with anemia was 1,028 out of 174,076 pregnant women. While the number of pregnant women who have received Fe tablets, in 2018 as many as 8,607 pregnant women, in 2019 18,849 pregnant women, and in 2020 20,617 pregnant women [5].

Anemia causes insufficient blood to bind and transport oxygen from the lungs to the rest of the body. If the oxygen needed is not enough, it can cause difficulty concentrating, low physical endurance so easily tired, decreased physical activity, easy to get sick due to low endurance, As a result, they rarely attend school or work. As a result of this anemia if not given intervention for a long time will cause several diseases such as congestive heart failure, bacterial infections, thalassemia, immune system disorders, and meningitis [3]. Based on some of the problems above, researchers are interested in taking the title "Relationship of Age, Pregnancy Distance, ANC Visits with the Incidence of Anemia in Pregnant Women at Health Center 4 Ulu, Seberang Ulu District 1 Palembang City in 2021".

## 2. Methods

This research is an analytical survey research using a cross sectional research design, the study was conducted in January 2022, the sample in this study pregnant women who come and check their contents at the 4 Ulu Health Center, Seberang Ulu 1 District, Palembang City.

## 3. Research Results and Discussion

### 3.1 Univariate Analysis

**Tabel 1**

Distribution of Frequency and Percentage of Respondents Based on The incidence of anemia at the Empat Ulu Health Center in 2021

No.	Anemia	Frequency (n)	Percentage (%)
1.	Anemia	49	70
2.	No Anemia	21	30
	Total	<b>70</b>	<b>100</b>

Based on table 1 above, it can be seen that from 70 respondents, 49 respondents (70%) had anemia, and 21 respondents (30%), did not have anemia.

**Tabel 2**

Distribution of Frequency and Percentage of Respondents Based on Age Variable at Empat Ulu Health Center in 2021

No.	Age	Frequency (n)	Percentage (%)
1.	High Risk (< 20 years / > 35 years)	42	60%
2.	Low Risk (20-35 years old)	28	40%
	Total	<b>70</b>	<b>100</b>

Based on Table 2 above, it can be seen that of the 70 respondents, 42 respondents (60%) were

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in the high risk age category and 28 respondents 40%) were in the low risk age category.

**Tabel 3**

Distribution of Frequency and Percentage of Respondents Based on Pregnancy Distance Variables at the Empat Ulu Health Center in 2021

No.	Pregnancy Distance	Frequency (n)	Frequency (%)
1.	High risk (< 2 years)	41	58.6%
2.	Low Risk (≥ 2 years)	29	41.4%
	Total	70	100

Based on table 3 above, it can be seen that from 70 respondents, there were 41 respondents (58.6%), classified as high risk parity and 29 people (41.4%) belonging to low risk parity.

**Table 4**

Distribution of Frequency and Percentage of Respondents Based on ANC Visit at Empat Ulu Health Center in 2021

No.	ANC Kunjungan visit	Frequency (n)	Frequency (%)
1.	Not Up to Standard	42	60%
2.	Standard	28	40%
	Total	70	100

Based on Table 4 above, it can be seen that from 70 respondents it was found that 42 respondents (60%) did ANC not according to standard, and 28 people (40%) did ANC according to standard.

### 3.2 Bivariate Analysis

**Tabel 5**

The Relationship between Age and the Incidence of Anemia at the Empat Ulu Health Center in Palembang City in 2021

Age	Anemia						p- Value	OR
	Anemia		No Anemia		Amount			
	n	%	n	%	N	%		
High risk	38	90.5	4	4.5	42	100	0.001	5.6
Low Risk	11	39.3	17	60.7	28	100		
Total	49		21		70			

Based on table 5 above, it can be seen that, from 42 respondents who are at risk age high there are 38 (90.5%) experienced anemia, while from 28 respondents who were in the low risk age category, 21 people (60.7) did not experience anemia. From the results of the chi-square test, p value = 0.001 < 0.05, thus there is a significant relationship between age and the incidence of anemia. Thus the hypothesis that there is a partial relationship between age and the incidence of anemia at the Empat Ulu Health Center in Palembang City in 2021 is statistically proven. From the test results obtained OR value of 5.6, this can be interpreted that pregnant women at high risk age have 5.6 times the chance to experience anemia compared to pregnant women at low risk.

**Tabel 6**

Relationship between Pregnancy Distance and Anemia Incidence at the Empat Ulu Health Center in Palembang City in 2021

Pregnancy interval	Anemia						p- Value	OR
	Anemia		No Anemia		Amount			
	n	%	n	%	N	%		
High risk	33	80.5	8	19.5	42	100	0.001	5.68
Low Risk	6	20.7	23	79.3	29	100		
Total	39		31		70			

Table 6 above, it can be seen that, from 41 respondents with high-risk pregnancies were 33 respondents (80.5%) who had anemia, while from 29 respondents with low-risk pregnancies, 23 respondents (79.3%) did not experience anemia. The results of the chi-square test obtained p value

= 0.001 0.05, thus there is a significant relationship between the distance between pregnancies and the incidence of anemia. Thus the hypothesis which states that there is a relationship between gestational distance and the incidence of anemia is statistically proven. From the test results, the OR value of 5.68 means that pregnant women with high-risk pregnancies have 5.68 times the chance to experience anemia compared to pregnant women with low-risk pregnancies.

**Tabel 7**  
Relationship between ANC visits and the incidence of anemia at the Empat Ulu Health Center in Palembang City in 2021

ANC Kunjungan visit	Anemia						p- Value	OR
	Anemia		No Anemia		Amount			
	n	%	n	%	N	%		
Not up to standard	38	90.5	4	9.5	42	100	0.000	7.27
Standard	11	39.3	17	60.7	28	100		
Total	49		21		70			

Based on table 7 above, it can be seen that, from 42 respondents who did ANC not according to standards, there were 38 respondents (90.5%) who had anemia, from 28 respondents who did ANC regularly there were 17 people (60.7%) who did not. anemia. The results of the statistical test showed that the p value = 0.000 0.05, thus there was a significant relationship between adherence to ANC visits and the incidence of anemia. Thus the hypothesis that there is a relationship between ANC visits and the incidence of anemia is statistically proven. From the test results obtained an OR value of 7.27, this means that mothers who do not comply with ANC will have a 7.27 times chance to experience anemia.

### 3.3 Discussion

#### a. Incidence of Anemia

The results showed that 70 respondents were found as many as 49 respondents (70%) had anemia, and 21 respondents (30%), did not have anemia. Anemia is a reduced level of hemoglobin (Hb) in the blood. Pregnant women have a high metabolic rate. Anemia is a symptom of an underlying condition, such as loss of blood components, inadequate elements or lack of nutrients needed for the formation of red blood cells resulting in decreased oxygen-carrying capacity of the blood. During pregnancy there is a process of formation of fetal body tissues, formation of fetal organs, and the process of energy production so that pregnant women can still carry out normal daily activities. Thus, pregnant women need more iron than non-pregnant women.

While Varney (2016), defines anemia as a decrease in the number of red blood cells or a decrease in the concentration of hemoglobin in the blood circulation. The generally accepted definition of anemia is an Hb level of less than 12.0 grams per 100 milliliters (12 grams/deciliter) for non-pregnant women and less than 10.0 grams per 100 milliliters (10 grams/deciliter) for pregnant women [6].

Winkjosastro (2016), states that anemia in pregnancy in Indonesia is defined as Hb < 11 g% in the first and third trimesters or Hb < 10.5 g% in the second trimester. This is because around the second trimester (gestational age 24-30 weeks) hemodilution occurs, which is a hemodynamic change during pregnancy [7]. Irianto (2019), in his research stated that Factors that can cause anemia in pregnancy include age, gestational distance, parity, education level, economic status, knowledge, attitude, food intake, ANC visits and adherence to Fe tablet consumption [8].

Yunita (2018), in her research also found that pregnancy distance has a close relationship with the incidence of anemia in third trimester pregnant women at the Umbulharjo II Health Center [9]. Furthermore, Nurmasari (2019), in her research entitled The Relationship of Regularity of Antenatal Care Visits and Compliance with Fe Tablet Consumption with the Incidence of Anemia in Third Trimester Pregnant Women in Maron Probolinggo District. The results showed that there was a relationship between the regularity of Antenatal Care (ANC) visits (p=0.001; OR=4) and adherence to Fe tablet consumption (p=0.001; OR=3.46) and the incidence of anemia. Pregnant women who do not regularly visit ANC have a 4 times greater risk of developing anemia, while pregnant women who do not comply with taking Fe tablets have a 3.46 times greater risk of developing anemia [10].

**b. The Relationship between Age and the Incidence of Anemia at the Empat Ulu Health Center, Palembang City in 2021**

The results of the univariate analysis showed that from 70 respondents, 42 respondents (60%) were in the high risk age category and 28 respondents (40%) in the low risk age category. Based on the results of the chi-square test,  $p$  value = 0.001 or 0.05 ( $\alpha$ ), then based on the basis of the decision above, it can be concluded that  $H_a$  is accepted and  $H_o$  is rejected. Age distribution with the incidence of anemia from 42 respondents who are at risk age thih there are 38 (90.5%) experienced anemia, while from 28 respondents who were in the low risk age category, 21 people (60.7) did not experience anemia. From the results of the Chi-square test, it was found that the  $p$  value = 0.001 0.05. Thus there is a significant relationship between age and the incidence of anemia. From the test results, the OR value of 5.6 means that pregnant women who are at high risk have 5.6 times the chance to experience anemia compared to pregnant women at low risk.

Age is the length of time living or existing (since born or held). While the age of pregnant women is the age of the mother obtained through filling out a questionnaire. According to Elisabeth (2015), the age of an individual is calculated from the time of birth to birthday. Pregnancy under 20 years and above 35 years can cause anemia [12]. Winkjosastro (2016), states that a safe gestational age for mothers is between 20 to 35 years. Age under 20 years and above 35 years is a vulnerable age for pregnancy. The physical condition of pregnant women aged > 35 years will determine the birth process [7].

In line with this theory Sulistyawati (2015), stated that The safe gestational age for the mother is between 20 and 35 years. Age under 20 years and above 35 years is a vulnerable age for pregnancy. Mothers who are pregnant at a young age (<20 years) have incomplete reproductive organs and are not mentally ready to become a mother, so pregnancy can end in a miscarriage, low birth weight (LBW) baby, and can be accompanied by obstructed labor. And the physical condition of pregnant women with the age of more than 35 years will greatly determine the birth process. This also affects the condition of the fetus. In the process of fertilization, the quality of women's eggs at this age has decreased compared to eggs in women with healthy reproductive age, which is 20 to 35 years [12].

This research is in line with Amiruddin's theory (2017), which states that pregnancies under 20 years old and above 35 years old can cause anemia because at the age of 20 years pregnancy is biologically not optimal, the emotions tend to be unstable, mentally immature so that it is easy to experience shocks resulting in shock. lack of attention to the fulfillment of nutritional needs during pregnancy, while at the age of > 35 years it is associated with decline and decrease in body resistance and various diseases that often afflict at this age [13].

Furthermore, the results of this study are in line with research conducted by Sari (2021), which shows that there is a relationship between age and the incidence of anemia in pregnant women where pregnant women under the age of 20 years and above the age of 35 years have a risk of 3,921 times greater likelihood of anemia in pregnancy compared with pregnant women between the ages of 20 to 35 years [14]. Furthermore, Jasmin (2016), in his research also states that pregnancy at the age of <20 years is very risky because at that age the mother still needs a lot of iron for growth and the fetus in her womb [15].

Based on the results of the study and the quotation above, the authors assume that at the age of <20 years, the reproductive organs are not mature enough and the mother is still in the growth stage so that food competition occurs between the mother's body and the fetus and causes anemia.

**c. Relationship between Pregnancy Distance with Anemia Incidence at Empat Ulu Health Center Palembang City in 2021**

The results of univariate analysis showed that from 70 respondents, 41 respondents (58.6%) were classified as high risk parity and 29 people (41.4%) belonged to low risk parity. Based on the results of the chi-square test, the  $p$  value = 0.001 0.05, so based on the basis of the decision above, it can be concluded that  $H_a$  is accepted and  $H_o$  is rejected. Thus there is a significant relationship between the distance of pregnancy with the incidence of anemia.

Distribution of distance between pregnancy and the incidence of anemia, from 51 respondents who experienced anemia, most of which 36 respondents (81.8%) were classified as having high risk pregnancy intervals and 15 respondents (44.1%) classified as having low risk pregnancy intervals, 41 respondents with distance pregnancies. 33 respondents (80.5%) experienced high-risk

pregnancies, while from 29 respondents with low-risk pregnancies, 23 respondents (79.3%) did not experience anemia. From the test results, the OR value of 5,700 means that pregnant women with high-risk pregnancy intervals have a 5.68 times chance of experiencing anemia compared to pregnant women with low-risk pregnancies. According to the BKKBN (2015), the most appropriate pregnancy interval is 2 years or more. A short pregnancy interval will result in the mother's body not recovering after giving birth. Thus increasing the risk of weakness and maternal death [16].

According to Prawirohardjo, (2016), pregnancy distance is the interval between two consecutive births of a woman. Judging from the impact of birth spacing, it is divided into two, namely: high risk: < 2 years, low risk: 2 years [1]. Proverawati (2016), in her book mentions that the birth spacing that tends to be short can cause several negative effects both on the health of the woman and the health of the baby she is carrying. After giving birth, women need sufficient time to recover and prepare for the next pregnancy and delivery. Pregnancy spacing that is too close or less than a year can cause poor nutritional status of pregnant women which triggers anemia [17].

This study is in line with the statement of Handayani and Budianingrum (2018), obtained  $p$  value = 0.047, this indicates that there is an influence between Pregnancy Distance on the incidence of KEK. The delivery distance is too close (< 2 years) will cause low quality of the fetus or child and will also harm the health of the mother. The delivery distance that is too close will cause the mother to not get the opportunity to repair her own body where the mother needs enough energy to recover after giving birth to her child [18]. Furthermore, Efrinita's research (2018), which states that there is a statistically significant relationship between pregnancy spacing and anemia. The distance between good pregnancies to maintain the health of mother and child should not be less than 2 years [19].

From the results of the study and the description above, the authors assume that the distance of pregnancy that is too close will harm the mother and fetus in the womb. In addition to mothers needing time for recovery, mothers who are pregnant too close will take time and energy to take care of children who have been born before, maintain a healthy body and womb, fiber must carry out the role of housewives or employees, so pregnant women tend to ignore rest patterns. diet so they are very susceptible to anemia during pregnancy.

#### **d. The relationship between ANC visits and the incidence of anemia at the Empat Ulu Health Center in Palembang City in 2021**

The results of the univariate analysis showed that from 70 respondents it was found that 42 respondents (60%) performed ANC not according to standards, and 28 people (40%) performed ANC according to standards. 05 then based on the basis of the decision above, it can be concluded that  $H_a$  is accepted and  $H_0$  is rejected. Thus there is a significant relationship between ANC visits and the incidence of anemia. Thus the hypothesis that there is a relationship between ANC visits and the incidence of anemia is statistically proven. Distribution of ANC visits with the incidence of anemia from 42 respondents who did ANC not according to standards there were 38 respondents (90.5%) who had anemia, from 28 respondents who did ANC regularly there were 17 people (60.7%) who did not experience anemia. Examination during pregnancy (Antenatal care), aims to monitor and improve the welfare of the mother and fetus [19]. Pregnancy examinations are carried out at least 4 (four) times during pregnancy, namely 1 examination in the first trimester, 1 examination in the second trimester, and 2 examinations in the third trimester [1].

In line with this theory, Sulistyawati (2015), also explained that midwives provide at least four antenatal services and careful monitoring of the mother and fetus to assess whether development is normal. Midwives must also be aware of high-risk pregnancies or abnormalities, especially anemia, malnutrition, hypertension, STDs/HIV infection; Provide immunization services, advice and health education as well as other related tasks given by the puskesmas. They should record proper data on visits. If abnormalities are found, they should be able to take the necessary action and refer them for further action [12].

The results of this study are in line with the research conducted by Nanda (2017), in his research showing that the regularity of good antenatal visits can reduce the incidence of anemia in pregnant women. A high risk of anemia in pregnancy is found in pregnant women who do not regularly conduct ANC visits during their pregnancy [20]. Hasriah (2021), The relationship between Antenatal Care visits and the incidence of Anemia in pregnant women at RSIA Siti Khadijah Makasar in 2020. The results showed that mothers who attended ANC visits with non-anemic status were 84.4%, while pregnant women who did not attend ANC visits had anemia status of 72.5 %. and after being analyzed by the Chi-square method, the  $p$ -value is 0.01, and the contingency coefficient value

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is 0.470, which means it is quite strong [21].

Furthermore, Nurmasari (2019), in her research entitled *The Relationship of Regularity of Antenatal Care Visits and Compliance with Fe Tablet Consumption with the Incidence of Anemia in Third Trimester Pregnant Women in Maron Probolinggo District*. The results showed that there was a relationship between the regularity of Antenatal Care (ANC) visits ( $p=0.001$ ;  $OR=4$ ) and adherence to Fe tablet consumption ( $p=0.001$ ;  $OR=3.46$ ) and the incidence of anemia. Pregnant women who do not regularly visit ANC have a 4 times greater risk of developing anemia, while pregnant women who do not comply with taking Fe tablets have a 3.46 times greater risk of developing anemia [10]. From the results of the study and the description above, the authors assume that ANC visits carried out by following the 10 T service standard will greatly help the mother to undergo a healthy pregnancy and the growth and development of the fetus in the womb is also monitored, so that complications during pregnancy and delivery complications can be detected. and can be addressed immediately.

## 4. Conclusion

There is a significant relationship between age, gestational distance and ANC compliance simultaneously with the incidence of anemia in pregnant women at the Empat Ulu Health Center, Palembang City in 2021.

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