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The Relationship Between Young Pregnant Women and the Incidence of Anemia at Ir. Soekarno Regional General Hospital Morotai Island

Nuning Sulis Taba [1], Anik Purwati [2*]
[1] Mahasiswa Transfer, Fakultas Ilmu Kesehatan, RS dr. Soepraoen Institut Sains dan Teknologi Kesehatan Malang, Indonesia
[2] Dosen Kebidanan, Fakultas Ilmu Kesehatan, RS dr. Soepraoen Institut Sains dan Teknologi Kesehatan Malang, Indonesia
Email : nuningsulistaba1998@gmail.com [1], anikasyda@itsk-soepraoen.ac.id [2]

[*]Author correspondence: anikasyda@itsk-soepraoen.ac.id

Abstract, Red blood cells are essential for carrying oxygen and vital nutrients needed for the growth of the fetus, therefore anemia during pregnancy is a complex issue. It is vital for all expectant mothers to fulfill their iron needs because maternal anemia during pregnancy can result in adverse consequences for the child, such as premature birth and low birth weight. The chance of a woman developing anemia increases as she ages during pregnancy. Bleeding is a direct result of the anemia experienced during labor in 17.24% of cases. The purpose of this study was to determine the connection between the incidence of anemia and young pregnant women in Ir. Soekarno Hospital on Morotai Island. The study used an analytical survey with a cross-sectional approach, which is useful for finding relationships between two or more variables. The whole sampling technique, which included 40 participants in all, was used. A checklist was used as the study's instrument. Chi-Square analysis was used to analyze the collected data using SPSS software. The chi-square statistical analysis produced a P-value (asymp. The p-value (2-tailed) is 0.002, which is less than the 0.05 significance level. This indicates a relationship between the start of anemia and young pregnant women. Thus, it is possible to infer a link between the incidence of anemia and young pregnant women, leading to the rejection of H0 and the endorsement of H1.

Keywords: Anemia, Chi-Square Analysis, Iron Deficiency, Pregnant Women, Young Age.

1. INTRODUCTION

Hemoglobin (Hb) levels that fall below 11 grams per deciliter are seen as a sign of anemia in women who are expecting. Symptoms of this condition include tiredness, paleness, vision issues, and a rapid heartbeat. To maintain good health during pregnancy and support the growth of her baby, a woman should increase her intake of healthy foods. The mother's nutrition can significantly impact the baby's growth during this time. Since these levels can signify anemia, hemoglobin levels are tracked to evaluate a pregnant woman's nutritional health. Anemia poses a significant concern for mothers-to-be, as red blood cells play a crucial role in transporting oxygen and essential nutrients required for the baby's development. Almost 50% of pregnant women around the world experience anemia. It is vital for every mother expecting a child to meet her iron requirements to lower the chances of complications like premature birth or having a baby with a low birth weight. Studies indicate that the risks are heightened due to pregnancy-related anemia. Generally, a well-rounded diet suffices for meeting iron requirements unless a woman is pregnant. However, since diet alone may not provide enough iron during pregnancy, iron supplements are still necessary. As stated by the Ministry of Health,

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it is recommended that all pregnant women take at least 90 iron tablets throughout their pregnancy, with each tablet containing 60 mg of iron (Fajrin, 2020).

Anemia is a significant health issue worldwide, especially affecting women who can have children, young people, children in school, and those who are pregnant. The World Health Organization (WHO) indicates that this condition is among the top ten health challenges that we face today. In 2019, the WHO estimated there were 303,000 deaths related to pregnancy complications, which means there were 216 deaths for every 100,000 births. Iron deficiency is a major cause, impacting 41. 8% of pregnant women around the world, and it accounts for almost half of all anemia cases in this group (Nuristigfarin and Rifkiyatul Islami, 2022).

Data from WHO in 2018 reveals that 57. 1% of pregnant women in Africa are anemic, while the rates are 48. 2% in Asia, 25. 1% in Europe, and 24. 1% in the Americas. The WHO also states that 75% of pregnant women in countries with developing economies suffer from anemia. However, the situation has worsened in Indonesia, where the prevalence of anemia among pregnant women has increased, according to Riskesdas (2018). The rate of anemia in pregnant women rose from 37. 1% in 2013 to 48. 9% in 2018. The Riskesdas (2018) report breaks down these numbers by age, showing that 84. 6% of anemia cases are found in women aged 15 to 24, and 33. 7% are in women aged 25 to 44 (Norfitri and Rusdiana, 2023).

The Maternal Mortality Rate in North Maluku Province has generally varied. Despite the decline the previous year (Dinkes Prov Maluku Utara, 2025), the Maternal Mortality Rate in 2024 has only marginally increased, from 218 to 200 fatalities per 100,000 live births.

The ongoing high incidence of anemia in pregnant women is partially due to the fact that the majority of them are ignorant of the significance of anemia prevention and the dangers it presents. Pregnancy-related anemia can result in miscarriage, preterm labor, delayed fetal development in the uterus, infection, cardiac decompensation (Hb < 6 gr%), hydatidiform mole, hyperemesis gravidarum, antepartum hemorrhage (premature rupture of membranes), during delivery (disturbances in contractions and pushing strength, prolonged first stage, prolonged second stage, retained placenta, uterine atony, postpartum hemorrhage), and during the postpartum period (subinvolution of the uterus, decreased milk production, postpartum anemia, breast infection). Furthermore, the infant is more prone to miscarry, die in the uterus, be delivered prematurely at a high risk, have a low birth weight (LBW), have anemia at birth, have potential birth defects, have an increased risk of infections that cause perinatal death, and have low intelligence (Suryaningsih & Santosa, 2019).

The frequency of anemia during pregnancy is influenced by a number of variables, including age, maternal education, income, time since delivery, parity, iron tablet adequacy, and nutritional status (Fadli & Fatmawati, 2020). Iron deficiency anemia is the most prevalent kind of anemia in pregnancy and is caused by a bad diet brought about by less absorption, use, or bleeding. Furthermore, there are a number of possible causes of anemia during pregnancy, such as the mother's ignorance of the risks of anemia, adherence to iron tablet consumption, and prenatal checkups (Salsabilah & Suryaalamsah, 2022).

One of the most frequent risk factors for anemia in pregnant women is age. The timing of a woman's ability to give birth is determined by her reproductive system. Because of emotional instability and unfinished brain development, pregnancy is biologically undesirable in young women. This raises the possibility of shocks, which divert attention away from the necessity of meeting nutritional needs during pregnancy. However, later in life, becoming pregnant increases the likelihood of developing illnesses that are typical at this age and lowers physical endurance. All of these problems, including low birth weight, preterm birth, developmental disorders, and labor complications such as a complicated labor or an unusual fetal position (Desi Mailan Sari., et al 2022), can be caused by the insufficient nourishment provided to the mother and the developing fetus.

It is well known that getting pregnant at a very young age (under 35 years) increases the risk of health problems for both the mother and her child. A young girl's body is not fully prepared for pregnancy and delivery, which might lead to issues. Children born to young mothers are more likely to die, and those whose mothers marry early are twice as likely to die before their first birthday than those born to women in their twenties. Because of the dangers associated with preterm births, delayed pregnancies are also associated with higher death rates for both moms and babies (Sri Yunida et al., 2022).

Teen pregnancies present a variety of challenges, encompassing social, economic, emotional, and physical aspects. These pregnancies can lead to health complications like pre-eclampsia, miscarriages, growth problems in the fetus, anemia, and premature delivery. Despite the adverse consequences for both mothers and their children, the incidence of pregnancies among teenagers continues to rise. Women experiencing poor nutrition during the critical two to five weeks of pregnancy face a higher likelihood of delivering infants with brain and spinal cord damage, as this timeframe is essential for central nervous system development. Furthermore, mothers dealing with this nutritional deficiency often have babies who are born with low birth weights (under 2500 grams) (Aprilia, 2020).

Anemia among pregnant women during childbirth leads to bleeding in 17. 24% of cases. This health issue calls for immediate and specific interventions to lower the death rates for both mothers and infants. Although the government has taken steps to address anemia in expectant mothers by supplying 90 iron tablets throughout their pregnancy, anemia levels remain alarmingly high (Ramadhini and Dewi, 2021).

To combat nutritional anemia among pregnant women, a daily regimen of TTD is provided. This consists of one tablet that has 60 mg of elemental iron and 0. 4 mg of folic acid, taken for at least 90 continuous days during the pregnancy period. In East Java, 88. 9% of pregnant women finished the entire set of 90 TTD tablets in 2021 (Nuristigfarin and Rifkiyatul Islami, 2022).

Given the context of the situation described above, the research question focuses on whether there is a "Relationship between young pregnant women and the occurrence of anemia at Ir. Soekarno Hospital on Morotai Island. "

2. RESEARCH METHOD

This research used a survey method to look into the connection between young pregnant women and anemia at Ir. Soekarno Hospital on Morotai Island. It relied on data that had already been gathered from antenatal care visit records from the year 2025.

The study included all young mothers who visited the ANC in 2025, totaling 40 participants. The main focus was on young pregnant women who had anemia. The research included both independent and dependent factors, with young mothers being the independent factor and pregnant women with anemia as the dependent factor.

A full sampling method was used to gather the research sample, which comprised all young pregnant women diagnosed with anemia in 2025. As a result, all 40 individuals in the selected group were included.

For collecting information, a checklist was used that contained the names of participants along with different symptoms and other identifying details. Data was taken from the 2025 ANC medical records at Ir. Soekarno Hospital on Morotai Island.

A univariate analysis was performed on each of the variables examined in the study, resulting in frequency distributions for each variable.

Bivariate analysis was conducted on two variables that are believed to be related to see how each independent variable is connected to its related dependent variable. Since the study’s variables were categories, chi-square tests were used to find out if a relationship exists and to assess the hypothesis about the independent and dependent variables.

3. RESULTS AND DISCUSSION

Result

1. Univariate Analysis

Univariate data analysis aims to summarize the research subject by utilizing the data and variables collected from the group being studied. It also examines and determines the frequency of occurrence of each variable. The results from this single-variable analysis can be summarized as follows:

a) Overview of Young Pregnant Women

Table 1 Frequency Distribution of Young Pregnant Women at Ir. Soekarno Hospital, Morotai Island

Young Pregnant Women	F	%
10-14 years	13	32,5
15-17 years	23	57,5
18-21 years	4	10,0

As previously stated, Table 1 indicates that, of the 40 young pregnant women polled, 13 (32.5%) were between the ages of 10 and 14, 23 (57.5%) were between the ages of 15 and 17, and 4 (10.0%) were between the ages of 18 and 21. This shows that the majority (57.5%) of the 40 individuals polled were between the ages of 15 and 17.

b) Incidence of Anemia

Table 2 Frequency Distribution of Anemia Cases at Ir. Soekarno Hospital, Morotai Island

Incidence of Anemia	F	%
No Anemia (Hb >11 g%)	5	12,5
Mild Anemia (Hb 9-10 g%)	13	32,5
Moderate Anemia (Hb 7-8 g%)	16	40,0
Severe Anemia (Hb <7%)	6	15,0

Based on the information indicated in the table, out of the 40 participants who were assessed for anemia, 5 (12. 5%) were classified as non-anemic (Hb >11 g%), 13 (32. 5%) exhibited mild anemia (Hb 9-10 g%), 16 (40. 0%) were recognized with moderate anemia (Hb 7-8 g%), and 6 (15. 0%) were marked with severe anemia (Hb

7-8 g%). This indicates that the largest segment of the 40 surveyed individuals, which is 40. 0%, was categorized under moderate anemia.

2. Bivariate Analysis

Table 3 Cross Tabulation Between Young Pregnant Women and Anemia Incidence at Ir. Soekarno Hospital, Morotai Island

Young Pregnant Women	Incidence of Anemia								Total		*P-value*
	No Anemia		Mild Anemia		Moderate Anemia		Severe Anemia				
	f	%	f	%	f	%	f	%	f	%	
10-14 years	0	0	3	23,1	6	46,2	4	30,8	13	100	0,002
15-17 years	2	8,7	9	39,1	10	43,5	2	8,7	23	100	
18-21 years	3	75,0	1	25,0	0	0	0	0	4	100	

Based on the information given, in a group of 40 people, 3 (23. 1%) had mild anemia, 6 (46. 2%) were diagnosed with moderate anemia, and 4 (30. 8%) suffered from severe anemia, all within the 10 to 14 age range. For those aged 15 to 17, 2 participants (8. 7%) showed no signs of anemia, 9 participants (39. 1%) had mild anemia, 10 participants (43. 5%) experienced moderate anemia, and 2 participants (8. 7%) had severe anemia. In the age group of 18 to 21, three individuals (75. 0%) did not have anemia, while one person (25. 0%) had a mild case of it.

The Chi-square test resulted in a P-value of 0. 002, which means we can reject the null hypothesis H0 and accept the alternative hypothesis H1. This indicates that there is a link between having anemia and being a young mother.

Discussion

The statistical relationship between anemia and young pregnant women was analyzed using the Chi-Square test in SPSS. The P-value (asymp. Sig 2-tailed) of 0.002 < 0.05 demonstrates the connection between the two. We can infer that there is a link between anemia and young expectant mothers because we have rejected H0 and embraced H1.

Earlier research by Haidir Syafrullah and Yasmin Widad Chabellalia (2019) on "The Relationship Between Young Pregnant Women and Anemia at BPM 'T' Cikutra, Bandung City" is supported by the current study. The Chi-square test's P-value of 0.003 suggests that the null hypothesis should be refuted. The study's results indicate a link between the prevalence of anemia among young pregnant women in Bandung City's BPM "T" Cikutra community.

Indirect factors that contribute to high maternal mortality rates include the "4 Too's"—too old, too young, too many children, and too close together. Pregnancy during adolescence increases the likelihood of premature birth and low birth weight (LBW). A young maternal age is considered to be when a teenager becomes pregnant at the age of 20 or younger, before they are ready for it. Premature delivery, miscarriage, low birth weight (LBW), congenital abnormalities, pregnancy anemia, increased risk of infection, and death are all risk factors. During puberty, getting pregnant is also dangerous (Syafrullah, 2019).

A lack of red blood cells, which employ hemoglobin to carry oxygen throughout the tissues of the body, is the cause of anemia. This illness presents a major public health problem, especially for pregnant women and women of reproductive age. A deficiency in iron, inadequate folic acid, and instances of severe bleeding are the main causes of anemia during pregnancy. At times, these factors might combine to cause significant blood loss. The risk of anemia during pregnancy can be affected by a variety of circumstances, such as the mother's age, the number of previous pregnancies, and her employment status (Yuni Subhi Isnaini, Riska Yuliaprida, 2021).

Anemia is identified when a woman's blood does not have enough iron while she is pregnant. A situation known as anemia, often called low blood count, features a significantly reduced red blood cell count. The diagnosis usually relies on measuring hemoglobin (Hb) levels. According to the World Health Organization (Mey Elisa Safitri, 2022), an Hb level of 11 g% is used to identify anemia in 20% to 89% of pregnant women.

Factors contributing to anemia in women during pregnancy can be divided into three primary categories: main causes, secondary causes, and extra elements. These categories also reflect educational and cultural influences. The extra elements encompass the frequency of prenatal visits, previous childbirth experiences, maternal age, and the interval between pregnancies (Lily Susilowati, Yona Desni Sagita, 2021).

When exploring anemia in expectant mothers, the age of the woman plays a crucial role. Women below the age of 20 are still developing their reproductive systems, necessitating a substantial intake of nutrients for healthy growth. Consequently, if they become pregnant, their nutritional needs increase compared to women who are older than 20. A deficiency in essential nutrients can elevate the risk of developing anemia. Similarly, women aged 35 and older also encounter a heightened risk of anemia due to possibly weakened immune systems, which can lead to various pregnancy complications, including anemia (Senja Atika Sari HS, 2021).

Anemia can cause numerous problems for mothers, such as heart issues, decreased cognitive and physical performance, weakened immunity, and fatigue. For infants, potential risks include developmental delays during gestation, premature birth, stillbirth, breech delivery, breathing difficulties, and low birth weight. A lack of vitamin B12 can lead to severe birth defects, including anencephaly. It is generally safer for mothers to have two to three children, as this is perceived as a lower-risk option. Conversely, having more than three children is considered to increase the risk of developing anemia. This increased risk is primarily due to the higher likelihood of iron deficiency anemia with each subsequent pregnancy; as a woman has more children, her chances of developing anemia grow (Ni Made Ayu Yulia Raswati Teja, 2021).

Suffering from anemia during pregnancy can heighten the chances of premature births, maternal and infant fatalities, and infections. Mothers with iron deficiency anemia may impede their babies' growth and development both during pregnancy and after delivery. The Basic Health Research (Riskesdas) conducted in 2018 indicates that 48. 6% of pregnant women in Indonesia experience anemia. Among these women, 84. 6% are aged between 15 and 24. To reduce the likelihood of anemia, it is recommended that pregnant women consume a minimum of 90 iron supplements throughout their pregnancy (Mey Elisa Safitri, 2022).

During pregnancy, it is crucial for women to ensure they consume sufficient iron, which involves taking at least 90 iron supplements in addition to the iron obtained from their regular meals. There are also external and environmental elements that can contribute to anemia. These factors include irregular eating patterns, low-income situations, ongoing bleeding problems, dietary choices, other medical conditions such as malaria and tuberculosis, as well as access to healthcare. For instance, if a pregnant woman fails to adhere to a steady diet, she may not acquire adequate iron, leading to anemia. This situation is closely tied to the dietary practices of expectant mothers. Furthermore, the number of pregnancies and the experiences associated with them can influence the likelihood of developing iron deficiency anemia in pregnant women (Sri Yunida, Rostika Flora, 2022).

Starting iron supplementation is advised at 12 weeks into the pregnancy, marking the onset of the second trimester. At this stage, many pregnant women experience an improvement in their condition and are less likely to suffer from early pregnancy symptoms like nausea and vomiting, making it an ideal time to begin iron intake. This step is essential since hemoglobin (Hb) levels typically decrease by 1 g/100 ml. As the pregnancy progresses, there is an increase in blood volume, referred to as hydremia or hypervolemia. However, this rise in plasma can lead to more diluted blood. Blood is made up of around 30% plasma, 18% red blood cells, and

19% hemoglobin. The increase in blood volume commences around the 10th week of pregnancy and reaches its highest point between 32 and 36 weeks (Mey Elisa Safitri, 2022).

Iron supplements may sometimes cause slight and generally non-threatening side effects, including stomach discomfort, nausea, constipation, and dark stools. To reduce these symptoms, expectant mothers should think about taking iron tablets at night before bed and preferably after consuming fruits such as bananas, oranges, and papayas. (Indonesian Ministry of Health, 2003) Consequently, healthcare professionals should educate pregnant women on the potential side effects of iron supplements, emphasizing that these reactions are typically mild and not dangerous, while also recommending strategies to alleviate them (Purnamasari et al. , 2016).

4. CONCLUSION

The Chi-Square test showed a p-value of 0. 05, indicating a strong link between being a young mother and the risk of anemia. This result aligns with earlier studies by Haidir Syafrullah and Yasmin Widad Chabellalia from 2019, which also found a significant connection between early pregnancy and anemia, reporting a p-value of 0.

Getting pregnant before turning 20 raises the risk of anemia because young bodies are still growing and need more nutrients, particularly iron. If these nutritional needs are not met, the chance of developing anemia increases. Other factors leading to anemia in pregnant women include their past pregnancy experiences, diet, eating habits, financial situation, how often they have prenatal check-ups, existing health problems, and their age.

Anemia in pregnant women can cause serious health problems for both the mothers and their babies. These issues may include fatigue, physical difficulties, weakened immunity, premature births, low birth weight babies, and a higher risk of death for both the mother and the baby. Data from 2018 shows that youth is a major risk factor, as Riskesdas reports a high rate of anemia among pregnant women, especially those aged 15 to 24.

To prevent anemia, efforts should focus on increasing iron intake, ensuring that pregnant women take at least 90 iron tablets, following good dietary guidelines, and attending regular prenatal checks. To help expectant mothers follow these recommendations, it is important to inform them about the negative effects of anemia and how to manage any side effects of iron supplements.

The findings from this study suggest that young expectant mothers need more education about preventing anemia. This can be done by meeting their nutritional needs and regularly taking iron supplements, particularly at least 90 tablets during their pregnancy. To encourage

adherence to treatment, healthcare workers should provide clear information about the risks of teenage pregnancy and the possible side effects of iron supplements. Additionally, young people and couples planning to have children should gain more knowledge about reproductive health and think carefully about when to have children to lower the risk of issues like anemia. It is expected that the government and healthcare providers will enhance maternal health programs by supplying iron supplements, improving the quality of prenatal care, and developing health education initiatives aimed at vulnerable age groups to effectively decrease the rate of anemia in pregnant women.

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