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Analysis Of Factors Affecting The Occurrence Of Anemia In Adolescents Pregnancy

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ABSTRACT

Anemia is a common and widespread global health problem and affects 56 million women worldwide, and two-thirds of them are in Asia, one of which is Indonesia. Based on Riskesdas 2018, anemia among pregnant women aged 15-24 years was 84.6%. The aim of this study was to determine the risk factors for anemia in pregnancy among adolesents.. This study used a cross sectional design. The location of this research is in Puskesmas Negeri Lama in Negeri Lama Seberang, Bilih Hilir District, Labuhanbatu Regency, North Sumatra Province. Sample sized was 120 samples using formula difference between two proportions as sample size formula. The results showed that there was a significant relationship between compliance With IFA Consumption (P=0.000; PR:2.442), compliance with ANC visits (P=0.028; PR:1.565), mental health status (P=0.00; PR:1.408). Based on the results of this study, it is known that the risk factors that are related to the incidence of anemia are Compliance With IFA Consumption, compliance with ANC visits, and mental health status.

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INTRODUCTION

Anemia is one of the common and widespread global health issues, affecting 56 million women worldwide, with two-thirds of them residing in Asia, including Indonesia (Putri & Vera Yuanita, 2020). Based on data from the World Health Organization (WHO) in 2019, the global prevalence of anemia in 2019 was 29.9% among women of reproductive age and 36.5% among pregnant women (Adhelna et al., 2022). Based on data from the 2018 Riskesdas (National Basic Health Research) survey, the prevalence of anemia in pregnant women varies by age groups. For women aged 15-24 years, the prevalence of anemia was 84.6%. In the 25-34 age group, it was 33.7%, in the 36-44 age group, it was 33.6%, and in the 45-54 age group, it was 28%.

Adolescents pregnancy is closely associated with the occurrence of anemia (Hemoglobin less than 11 g/dL). Adolescents pregnancy are at a four times higher risk of experiencing anemia compared to non- asdolescents pregnancy. Anemia during pregnancy is a condition where a pregnant woman has a hemoglobin level below 11 g% during the first and third trimesters or a level of less than 10.5 g% during the second trimester. Anemia in pregnant women significantly affects the quality of the individuals to

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be born and the quality of the human resources of the future generation. Moreover, anemia in pregnant women can increase the incidence of miscarriages, preterm births, low birth weight infants, and can lead to maternal deaths during and after childbirth (Alam et al., 2019).

Adolescents Pregnancy carries a relatively high medical risk, and the younger the age of the pregnant mother, the greater the risk of anemia. This is because adolescents require more iron during this period for their growth, and if they become pregnant, their iron requirements increase further. Based on the age range provided by the Department of Health of the Republic of Indonesia in 2009, adolescence is categorized into two groups: Early adolescence, which includes individuals aged 12 to 16 years, and Late adolescence, which includes individuals aged 17 to 25 years (Amin, 2017).

Many factors can influence the occurrence of pregnancy-related anemia. Based on a previous study conducted by Rismawati and Etin (2017), it was explained that anemia in pregnant women can be attributed to several factors, including age, education, parity, nutritional status, iron supplementation (Fe), antenatal care, and occupation (Lestari & Wijaya, 2020).

In addition to the factors mentioned earlier, Wiknjosastro (2007) also explains that spousal support, parity, age, and antenatal care visits are indirect factors that can influence the occurrence of anemia in pregnant women. With research results showing that there is a significant relationship between parity and anemia (p=0.002) and knowledge and anemia (p=0.001). Knowledge about anemia in pregnant women and planning the number of deliveries is very important for adolescents pregnancy to know in order to prevent anemia during pregnancy (Teja,2021).

METHOD

This research is a quantitative study utilizing a cross-sectional design. The location of the study is in Puskesmas Negeri Lama in Negeri Lama Seberang, Bilih Hilir sub-district, Labuhanbatu Regency, North Sumatra Province.The population of this study consists of all teenage pregnant mothers aged 17-25 years in the year 2022, totaling 823 in the working area of the Negeri Lama Community Health Center. Based on the results of hypothesis testing using the formula for the difference between two proportions as sample size formula, a sample size of 120 was determined for this study. In this research, the sampling was conducted using proportional random sampling, the method for determining the number of samples to be taken in each village is for the first estimate the number of Adolescents Pregnancy based on the number of villages in Puskesmas Negeri Lama. After that, the sample calculation is carried out, which results in determining the number of respondents to be interviewed from each village. The dependent variable in this study is the occurrence of anemia and the independent variables are Compliance With IFA, Consumption Antenatal Care Visits, Spousal support, mental health status. The analysis used in this research involves is univariate and bivariate analyses for the research variables.

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RESULTS

Univariate Analysis

Table 1. Distribution Based on Anemia Status in Teenage Pregnant Mother

Anemia Status	N	%
Anemia	59	49.2
Non Anemia	61	50.8
Total	120	100

Based on the table 1, it is known that among adolescents pregnancy, 59 respondents (49,2%) have anemia. This figure indicates that the occurrence of anemia among adolescents pregnancy mothers in Puskesmas Negeri Lama area is relatively high, as 49,2% almost reaches half of the adolescents pregnancy who participated in the study. In comparison, according to the 2018 Riskesdas data, the prevalence of anemia in adolescents pregnancy was 48,9%.

Table 2. Distribution Based on Anemia Risk Factors in Teenage Pregnant Mothers

Variable		N	%
Compliance With IFA Consumption	Non-Compliant	71	59.2
	Compliant	49	40.8
	Toltal	120	100
Antenatal Care Visits	Non-Compliant	60	50
	Compliant	60	50
	Toltal	120	100
Spousal Support	Good	24	20
	Sufficient	46	38.3
	Insufficient	50	41.7
	Total	120	100
Mental Health Status	Disorder	50	41.7
	Not a disorder	70	58.3
	Total	120	100

Based on the table 2, it is known that a larger proportion of adolescents pregnancy do not comply with the consumption of IFA (Iron and Folic Acid Supplements), which accounts for 71 (59.2%), non-compliance of mothers in consuming IFA because mothers do not receive the complete 90 iron tablets during antenatal care visits. Additionally, mothers who do receive iron supplementation are not diligent in taking it due to not being able to tolerate the medication, boredom, forgetfulness, lack of knowledge about the benefits of iron supplements, insufficient education from healthcare services, and nausea during consumption. Regarding to spousal support, a larger group of adolescents pregnancy reported receiving inadequate support, amounting to 50 (41.7%), based on the researcher's observations, this can occur because adolescents pregnancy have a desire for their pregnancy status, leading to a strong determination to maintain their own health and the health of their pregnancy.

Additionally, based on the mental health status of adolescents pregnancy, the majority fall within the normal category, accounting for 70 pregnant women (58.3%), During pregnancy, changes in physical and psychological conditions can occur in a mother, which may affect some adolescents pregnancy, making them feel anxious, sad, easily irritated, or impatient in dealing with disruptions to what they are doing. Mental health disturbances can affect appetite, rest, and lack of attention to oneself and the fetus, which can lead to insufficient intake of iron and other important nutrients needed to

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prevent anemia. Additionally, inadequate rest can lead to maternal fatigue, resulting in a decrease in the adolescents pregnancy health status.

Bivariate Analysis

Table 3. Relationship Between Variables and the Occurrence of Anemia in Pregnant Women

Variable		Anemia Status				TOTAL		*P-Value*	PR (95% CI)
		Anemia		Non Anemia					
		N	%	N	%	N	%		
Compliance With IFA Consumption	Non-Compliant	46	38.3	25	20.8	71	59.2	0.000	2.442 (1.486-4.012)
	Compliant	13	10.8	36	30	49	40.8		
	Toltal	59	49.2	61	50.8	120	100		
Antenatal Care Visits	Non-Compliant	36	30	24	20	60	50	0.028	1.565 (1.069-2.293)
	Compliant	23	19.2	37	30.8	60	50		
	Toltal	59	49.2	61	50.8	120	100		
Spousal Support	Good	28	23.3	22	18.3	50	41.7	0.354	0.786 (0.296-2.085), 1.421 (0.527-3.833)
	Sufficient	19	15.8	27	22.5	46	38.3		
	Insufficient	12	10	12	10	24	20		
	Total	59	49.2	61	50.8	120	100		
Mental Health Status	Disorder	35	29.2	15	12.5	50	41.7	0.000	2.042 (1.408-2.961)
	Not a disorder	24	20	46	38.3	70	58.3		
	Total	59	49.2	61	50.8	120	100		

Based on the results of the statistical test at a 5% alpha level, it is evident that the P-Value is 0.000. This value indicates a significant relationship between compliance with Iron and Folic Acid Supplement (IFA) consumption and the occurrence of anemia in teenage pregnant women. The PR (Prevalence Ratio) for compliance with IFA consumption is found to be 2.442. This value suggests that teenage pregnant women who are not compliant with IFA consumption are 2.442 times more likely to experience anemia during pregnancy.

Based on the results of the statistical test on the variable of compliance with antenatal care (ANC) visits, it is found that the P-Value is 0.028, which is less than 0.05. This value indicates a significant relationship between the compliance of ANC visits by teenage pregnant women and the occurrence of anemia. Additionally, the PR (Prevalence Ratio) is calculated to be 1.565. This value suggests that teenage pregnant women who are not compliant with ANC visits are 1.565 times more likely to experience anemia during pregnancy compared to those who comply with ANC visits.

Based on the results of the statistical test on spousal support, the P-Value is 0.354, which is greater than 0.05. This value indicates that there is no significant relationship between spousal support and the occurrence of anemia in teenage pregnant women.

Based on the results of the statistical test with a 5% alpha level, it is evident that the P-Value for mental health status is 0.000. Therefore, it is concluded that there is a significant relationship between mental health and the occurrence of anemia in teenage pregnant women. Additionally, the PR (Prevalence Ratio) value of 2.042 indicates that

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teenage pregnant women with abnormal mental health are 2.042 times more at risk of experiencing anemia compared to those with normal mental health.

DISCUSSION

The Relationship Between Compliance with Iron Supplementation Tablet (TTD) Consumption and the Occurrence of Anemia in Adolescents Pregnancy

The results of this study indicate a significant relationship between compliance with iron supplementation tablet (TTD) consumption and the occurrence of anemia in adolescents pregnancy in the working area of Puskesmas Negri Lama.

This study is in line with previous research conducted at Puskesmas Marusu, Maros Regency, South Sulawesi, where statistical tests revealed a significant relationship between the compliance of pregnant women with TTD consumption and the occurrence of anemia (Nur Syolehda et al., 2021). Another study with similar conclusions to this one states that there is a relationship between compliance with iron tablet consumption and the occurrence of anemia in pregnant women in the working area of Puskesmas Sungai Jingah, Banjarmasin (Khairunnisa; et al., 2022). Additionally, previous research that also provided similar findings showed a significant relationship between compliance with iron tablet consumption and the occurrence of anemia in pregnant women at Puskesmas Rambah Hilir I, Rokan Hulu Regency, Riau (Handayani, 2020).

Based on the researcher's observations, non-compliance with iron supplementation tablet consumption by pregnant women occurs because they do not receive complete iron tablets, which should ideally be provided as 90 tablets during antenatal care visits. In addition, some pregnant women who receive iron supplementation do not consistently take the supplements due to factors such as difficulty in swallowing tablets, forgetfulness, lack of awareness about the benefits of TTD, insufficient education from healthcare providers, and experiencing nausea during TTD consumption.

If pregnant women are not compliant with TTD consumption, it can lead to a decrease in hemoglobin (Hb) levels in pregnant women, which is a health issue that can be particularly problematic during pregnancy (Rizki, Sitti, Montol, Ana B, Sineke, 2016).

According to the Indonesian Ministry of Health (2020), pregnant women can consume Iron and Folic Acid Supplements (IFA) with a content of 60 mg of elemental iron and 400 mcg of folic acid, which is the same as the IFA program (Kemenkes RI, 2020).

Based on the issues faced by pregnant women, including difficulties in complying with Iron and Folic Acid Supplement (IFA) consumption, it's worth considering the option of providing IFA tablets with an iron content of less than 60 mg. As demonstrated by a study conducted by Milman (2009) in Denmark, a daily iron supplement of 40mg is sufficient to prevent anemia in 95% of women during pregnancy and postpartum. Therefore, the government can consider offering IFA tablets with a 40mg iron content to pregnant women who may find it challenging to take the higher-dose tablets.

The Relationship Between Compliance with Antenatal Care (ANC) Visits and the Occurrence of Anemia in Adolescents Pregnancy

Based on the statistical analysis in this study, it is evident that there is a relationship between compliance with antenatal care (ANC) visits and the occurrence of anemia in adolescents pregnancy. This finding is consistent with previous research conducted in the working area of Puskesmas Passol, Ambon, where the analysis to assess the relationship between the frequency of ANC visits and the occurrence of anemia revealed a significant connection between the frequency of ANC visits and the occurrence of anemia (Dolang, 2020).

Similarly, a previous study conducted at Puskesmas Kutaraya, Kayu Agung District, Ogan Komering Ilir Regency, South Sumatra, also showed a significant relationship between ANC visits and the occurrence of anemia in pregnant women (Wirkel

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2022). Another study that aligns with this research was conducted at Puskesmas Wirolbrajan, Yogyakarta, where the statistical analysis indicated a relationship between ANC visits and the occurrence of anemia in pregnant women (Sukaisi, 2017).

Based on observations, pregnant women who do not attend ANC visits often do so because they forget the schedule or lack transportation to reach healthcare facilities (FASKEIS). Additionally, some adolescents pregnancy may not perceive any complications during their pregnancy, leading them to believe that ANC visits are unnecessary.

Antenatal care is essential because it allows for the early detection of potential health issues and risks that may arise during pregnancy. With regular and comprehensive antenatal care, early detection of abnormalities and potential problems during pregnancy can be addressed with appropriate solutions (Hardianti, 2013).

Therefore, as a reminder for pregnant women who may forget their Antenatal Care (ANC) appointment schedules and for healthcare professionals responsible for ANC visits, the implementation of an alarm reminder system, as applied in a study conducted in the Kepuharjo Village, Cangkringan District, Yogyakarta, can be beneficial. The advantages of using an alarm reminder system include the ability to remind pregnant women of their prenatal class schedules and ANC visit appointments, serving as an evaluation tool for healthcare providers, being practical and cost-effective, not relying on cellular data (internet access) and networks, making it easily accessible to rural communities regardless of geographical constraints, offering flexibility, and being available on both Android and non-Android mobile phone applications (Galuh et al., 2021).

The Relationship Between Spousal Support and The Occurrence of Anemia in Adolescents Pregnancy

Based on the results of the statistical test in this study, it is found that spousal support does not have a significant relationship with the occurrence of anemia in adolescents pregnancy in the working area of the Negeri Lama Health Center. These findings are consistent with a previous study conducted in the Ladja Health Center area, Ngada Regency, East Nusa Tenggara, where the P-Value of 0.556 indicated that there is no relationship between spousal support and the occurrence of anemia in pregnant women (Evodia, 2017). The results of this study are in contrast to a previous study conducted at the Seberang Health Center in Padang City, where there was a relationship between spousal support and the occurrence of anemia in pregnant women, with a P-Value of 0.006 (mustika sari, 2019). Another study, conducted at the Sengkol Health Center in Central Lombok Regency, provides results that do not align with the findings of this study. It indicates a relationship between spousal support and the occurrence of anemia in pregnant women (Hardaniyati & Ariendha, 2018).

The disparities in research results can be attributed to differences in sample size and sampling techniques. The study by Mustika (2019) utilized a sample size of 32 and employed accidental sampling, while the research conducted by Hardaniyati (2018) used 59 samples and applied a simple random sampling technique.

Based on the researcher's observations, these variations can be explained by the fact that adolescents pregnancy have a strong desire to maintain their pregnancy's status and are determined to keep themselves and their fetuses healthy. Additionally, adolescents pregnancy often perform various tasks independently, as evidenced by statements like "My husband provides water when I'm about to take iron and folic acid tablets." In this regard, 31.7% of adolescents pregnancy did not receive assistance from their husbands because they believed they could manage on their own. Furthermore, it is noted that adolescents pregnancy are not accustomed to or rarely receive spousal support in the form of appreciation, such as compliments about their diligence in attending prenatal check-ups and reassurances of their beauty during pregnancy.

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Certainly, apart from spousal support, the occurrence of anemia in pregnant women can be attributed to various other factors. These factors include age, education, parity (number of previous pregnancies), nutritional status, iron supplementation, antenatal care, and occupation. Anemia in pregnant women can result from a complex interplay of these variables and is a multifactorial condition. Understanding and addressing these factors are crucial for effective prevention and management of anemia during pregnancy (Rismawati Sariestya, 2017).

For future researchers, in order for the spousal support variable to have a significant relationship with the occurrence of anemia in adolescents pregnancy, it may be helpful to use a more specific spousal support questionnaire based on the categories of spousal support, which include informational support, appreciation support, instrumental support, and emotional support. Thus, researchers can investigate each variable based on these four types of spousal support in relation to the occurrence of anemia in adolescents pregnancy.

The Relationship Between Mental Health Status and The Occurrence of Anemia in Adolescents Pregnancy

Based on the results of the statistical analysis, it is evident that mental health status has a significant relationship with the occurrence of anemia in adolescents pregnancy in the working area of the Negeri Lama Health Center. These findings align with a previous study conducted in Turkey, which also reported a relationship between abnormal mental health and the occurrence of anemia in pregnant women (Hasdemir, 2022). Based on a prior study conducted in India, the results are consistent with the findings of this study, indicating a significant relationship between mental health, specifically stress, and the occurrence of anemia during pregnancy (Kumar & Mahmood, 2018).

Based on the statement regarding the mental health variable, it's noted that, on average, pregnant women experiencing anemia often report symptoms related to statement D7, "I feel trembling (e.g., in my hands)," with 15% experiencing it frequently and 14.2% experiencing it at all times. This can be attributed to the fact that anemia sufferers often exhibit symptoms as described in the statement. During pregnancy, significant changes occur in a woman's body, both physically and mentally. Hormonal changes in pregnancy can lead to emotional instability. If not managed properly, this can result in stress or depression in pregnant women, which may disrupt the growth and development of the fetus in the womb (Rukmaini, 2018).

The state of pregnancy can bring about changes in a mother's physical and psychological well-being, which may make some pregnant women feel anxious, sad, easily irritable, or impatient in dealing with disruptions to their daily activities. Mental health disturbances can affect appetite, rest, and a lack of self-care and attention to both the mother and the developing fetus. Changes in appetite can result in a reduced intake of iron and other essential nutrients required to prevent anemia. Additionally, insufficient rest can lead to maternal fatigue and a decrease in overall health. Mental health issues in pregnant women often manifest as difficulties in self-care due to a lack of motivation to maintain a healthy diet or adhere to necessary prenatal care, including the consumption of iron supplements (Nuramalia et al., 2023).

To ensure the mental health of a adolescents pregnancy remains stable, it's essential to conduct screenings. These screenings can assess the level of mental health in pregnant women and help them avoid issues such as stress, depression, and anxiety. This proactive approach can be beneficial in providing early intervention and support to pregnant women, contributing to their overall well-being during pregnancy.

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CONCLUSION

Based on the results of this research, it is evident that the factors significantly associated with the occurrence of anemia in adolescents pregnancy are compliance with Iron and Folic Acid Supplement (IFA) consumption, compliance with antenatal care (ANC) visits, employment status, and mental health status of adolescents pregnancy. However, spousal support is not significantly associated with the occurrence of anemia. For future researchers, analyzing the spousal support variable using different methods and questionnaires may yield valid results and provide concrete information to readers. Additionally, for healthcare professionals and government entities, implementing mental health screening as an intervention to monitor the mental health status of adolescents pregnancy can be a valuable approach to ensure the well-being of expectant mothers. This research contributes to a better understanding of the factors related to anemia in adolescents pregnancy and suggests areas for further investigation and intervention.

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