Risk Factors of Anemia in Pregnant Women in Baktiraja Health Center Region, Humbang Hasundutan

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Abstract

Indonesia Basic health research in 2017 states that maternal mortality rate was still high (359 per 100,000 live births) and the main cause was bleeding due to anemia, (35.1%). Beside has impact on maternal health, anemia also has a bad effect on babies, namely premature birth, low birth weigh, slow growth and low intelligence levels. The proportion of anemia in Baktiraja Public Health Center increased from 2015 (25.7%) to 2016 (29.3%). This study aims to determine risk factors of anemia in pregnant women in the Baktiraja Health Center region, Humbang Hasundutan District in 2017. This was an observational analytic study with unmatched case control design. Population was all pregnant women in region of Baktiraja health center . The total sample was 114 consisting of 57 cases and 57 controls. Cases were all pregnant women who ever had Hb level <11 g/dl during pregnancy while controls were pregnant women who had Hb level ≥11 g/dl during pregnancy that taken with systematic random sampling. Data were analyzed by bivariate analysis through chi-square test and multivariate analysis through logistic regression. Bivariate analysis showed that education (p = 0.015, OR = 2.547, 95% CI = 1.423-3.458), knowledge(p = 0.002, OR = 3.578, 95% CI = 1.815-4.519), age (p = 0.007, OR = 3,292, 95% CI = 1.563-3.811), comsumption of iron tablet (p = 0.011, OR = 2.787, 95% CI = 1.543-3.622), antenatal visit (p = 0.001, OR = 3.818, 95% CI = 1.96-4.875) were significantly associated with anemia. Parity, income status, and distance of pregnancy did not associate with anemia (p≥0,05). Multivariate analysis showed that antenatal visit had most significantly association with anemia (p = 0.018, OR = 2.117, 95% CI = 1.545-3.839). Irregular antenatal visit was the strongest risk factor of anemia during pregnancy period. It wa suggested to Baktiraja health center to increase knowledge and awareness of pregnant women about prevention of anemia and also the importance regular antenatal visit for monitoring Hb level every trimester. It was also suggested to Baktiraja Health Center staff to control comsumption of iron tablet so that pregnant women who do not consume iron tablets regularly can be warned quickly.
Keywords: anemia, pregnant women, antenatal visit, iron tablet consumption

Introduction

One of the targets of Sustainable Development Goals (SDGs) is to reduce maternal mortality rates to less than 70 per 100,000 live births. Indonesia's Demographic and Health Survey in 2012 reported a maternal mortality rate of 359 per 100,000 live births. This figure is quite high and far worse than the poorest countries in Asia, such as Timor Leste, Myanmar, Bangladesh and Cambodia. The Indonesian Health Profile in 2016 stated bleeding due to anemia being one of the main causes in maternal mortality, which amounted to 35.1%. Anemia is a condition when the number of red blood cells or oxygen concentration in the blood (Hb) is insufficient for the physiological needs of the body. The group of pregnant women is the most common group with anemia, which has Hb level of less than 11gr/dl during pregnancy. The most common cause of anemia in pregnancy is iron deficiency. (Proverawati, 2011).

Anemia is a further manifestation of iron deficiency, but this symptom of anemia can actually be likened to the tip of an iceberg in the sea, where the real problem of problems related to iron deficiency is much greater. Iron is needed by the body, among others, for growth, overcoming the infection, helps the ability of the intestine to neutralize toxic substances and most importantly is needed for the formation of hemoglobin. In addition iron deficiency can cause central nervous system disorders and can reduce work performance, although sometimes it is not clear that there are signs of anemia, iron deficiency can cause adverse effects on the body, so it is necessary to detect iron deficiency as early as possible (Miyata, 2010).

The prevalence of anemia in pregnant women globally is 38.2% or about 32.4 million pregnant women who experience anemia. The prevalence of anemia in Southeast Asia is quite high at 48.7% while in Africa it is 46.3% (WHO, 2015). Iron-deficiency anemia is more likely to occur in developing countries than in developed countries, 36% or about 1,400 million suffer from anemia from an estimated population of 3,800 million people, while the prevalence with developed countries is around 8% or approximately 100 million people from estimated population of 1,200 million people. The WHO report (2015) in a review of 22 studies from Africa and Asia carried out, anemia accounts for about 20% of maternal deaths. In Africa, 30% of child deaths are also associated with severe anemia. A decrease in the average cognitive performance associated with iron deficiency anemia approaches a standard deviation of the scale used to assess intellectual development. For adults who suffer from iron deficiency anemia, a decrease in work productivity is around 10-15% depending on the severity of anemia. Overall in a population where 30% of women and 10% of men experience significant anemia, net loss of productivity approaches 2-3% of domestic products.

Pregnant women who are detected with anemia are generally known when conducting antenatal visits to health centers or health services. The Indonesian Health Profile in 2016 states that the percentage of women receiving antenatal care services has not met the target both in quantity and quality. Of the total pregnant women, about 40 percent have received information about signs of pregnancy complications, about 91 percent get services about blood pressure measurement, about 32 percent get services in the form of urine examinations,

16 percent of blood screening services, and 98 percent of stomach examination services. Of all pregnant women by 60 percent have received services in the form of iron pills or syrup.

The impact of anemia in pregnancy is varied from very mild complaints to the occurrence of interruption of pregnancy abortion, immature / premature labor, disruption of labor (inertia, atony, prolonged labor, atonic bleeding), puerperal disorders (subinvolution of the uterus, resistance to infection and less stress, low breast milk production), and fetal disorders (abortion, dysmaturity, microsomy, low birth weight, perinatal mortality etc. (Manuaba, (2010)) .The results of research conducted by Lee KA *et. al,* in 2014 at San Fransico stated during pregnancy Iron-deficiency anemia adversely affects maternal and fetal health, and is associated with increased fetal morbidity and mortality, affected mothers often experience breathing difficulties, fainting, fatigue, palpitations, and sleep difficulties.They also have an increased risk of developing perinatal infection, pre- eclampsia, and bleeding, post-partum cognitive damage and behavioral difficulties are also reported (Murray K, 2013). adverse perinatal care including intrauterine growth retardation, prematurity, and low birth weight, all with a significant risk of death, especially in developing countries. Iron deficiency during the first trimester has a more negative impact on fetal growth than anemia that develops later. This also applies to the risk of preterm labor (Falkingham et al., 2010).

There are several theories and research results on the factors that cause anemia in pregnant women. Research conducted by Suli LD, in Tanjung Medan Village in 2016 stated that there was a significant relationship between education, income, consumption of Fe tablets, and diet with the incidence of anemia. Study of Zuffo, e*t al* in Colombo in 2012 stated that there was a relationship between maternal age, consumption patterns of iron-containing foods (meat, beans, dark green leafy vegetables) and the incidence of anemia in pregnant women. Research conducted by Yunita, S in Umbulharjo II Public Health Center, Yogyakarta City in 2017 stated that there was a significant relationship between maternal age and frequency of ANC visits, but there was no correlation between parity and the incidence of anemia, this was supported by the proportion of anemia in mothers who had risky parity (> 3) and parity not at risk (≤3) does not have a significant difference. Based on the above, the incidence of anemia is multifactorial where several places have the same cause or different causes.

Based on data and information obtained from the Baktiraja Health Center, the number of mothers experiencing anemia in Baktiraja Subdistrict is still high. The proportion of mothers who experienced anemia in the work area of the Baktiraja Health Center Region increased from 2015 (25.7%) to 2016 (29.7). This is suspected to be related to education, knowledge, antenatal visits, socio-economic status and other factors. Data obtained from puskesmas reports that more pregnant women have lower education (not graduating from high school to those who are not in school), in addition antenatal visits do not meet the target (95.0%). Based on the things described above, it is very necessary to do research aimed at knowing and ascertaining the factors causing the incidence of anemia in pregnant women in Baktiraja Health Center region, Humbang Hasundutan District in 2017.

Methods

The study was analytic observational with case control design, which is to determine the factors that cause anemia in pregnant women. This research was conducted from August 2017 to October 2017 in the working area of Baktiraja Health Center in Humbang Hasundutan Regency. The population in this study were all pregnant women who came to conduct antenatal care visits at the Bakti Raja Health Center. Case samples were mothers who had antenatal care visits and had Hb levels <11gr / dl during pregnancy while control samples were mothers who had antenatal care visits and never had Hb <11gr/dl. The sampling technique was taken in case samples by taking all pregnant women who had anemia and who met the inclusion and exclusion criteria. The sampling technique in the control sample was performed on pregnant women by using random sampling system by taking all pregnant women who had anemia and who fulfill the inclusion and exclusion criteria (Notoatmodjo S, 2010).

The number of samples in this study were 114 people consisting of 57 case samples and 57 control samples. The inclusion criteria were mothers residing in the work area of the Baktiraja Community Health Center proven by the address on the identity card and willing to be examined and signed an informed consent. Exclusion criteria are mothers who experience speech disorders. Primary data includes data on pregnant women about maternal knowledge about anemia and identity of pregnant women and the acquisition of iron tablets received and consumed by conducting interviews using a questionnaire, while measurement of hemoglobin levels in the blood of respondents was carried out using the Cyanmethomoglobin method using a spectrophotometer (measuring instrument Hb) by a trained laboratory officer. Secondary data collected were demographic data and data on pregnant women in Baktiraja Health Center, as well as other data deemed necessary to support this study. Data were analyzed using a computer program, namely Statistical Package for Social Sciences (SPSS) and processed by Chi Square method to determine risk factors for anemia in pregnant women in the Baktiraja Health Center region.

Results

The results of univariate analysis showed that the proportion of anemia was higher in mothers with low education, namely 37 people (64.91%) compared to mothers with high education, namely 20 people (35.09%). The proportion of anemia was higher in mothers with low knowledge, namely 38 people (64.91%) compared to mothers with high education, namely 20 people (33.33%). The proportion of anemia was higher in women who had multigravida parity, 32 people (56.14%) compared to women who had primigravida parity of 25 people (43.86%). The proportion of anemia was higher in mothers who were unproductive age (<20 years and> 35 years), namely 35 people (61.40%) compared to mothers who were productive age (20-35 years), namely 20 people (33.33%). The proportion of anemia was higher in mothers who did not consume iron tablets regularly, which was 39 people (68.42%) compared to mothers who consumed iron tablets which were 18 people (31.58%). The proportion of anemia was higher in mothers with low income status, namely 33 people (57.89%) compared to mothers with high income status, namely 24 people (42.11%). The

proportion of anemia was higher in mothers who did irregular ANC visits, namely 37 people (64.91%) compared to mothers who didregular ANC visits, namely 20 people (35.09). The proportion of anemia was higher in mothers who had a pregnancy interval of <2 years, namely 30 people (52.63%) compared to mothers who had a pregnancy interval of ≥2 years, people namely 27 people (47.37%).

The results of bivariate analysis showed that there was a significant association between the level of education of mothers and anemia in pregnant women with p-value = 0.015, OR = 2.547, 95% CI = 1.423-3.458). it means mothers who have a low level of education have 2.547 times greater risk of having anemia compared to mothers who have higher education. The results of this study also showed that there was a significant association between the level of knowledge of mothers and anemia in pregnant women with p-value = 0.002, OR = 3,578, 95% CI = 1,815-4,519. It means mothers who have low knowledge have risk 3,578 times more likely to experience anemia than mothers who have high knowledge.

The results of this study also showed that there was a significant association between maternal and anemia in pregnant women with p-value = 0.007, OR = 3.292, 95% CI = 1.563-3.811). The results of statistical analysis mean that mothers who have unproductive age (<15 years and> 35 years) have 3.292 times greater risk of having anemia compared to mothers who have a productive age (15-35 years). The results of this study also showed that there was a significant association between consumption of iron tablets with anemia in pregnant women with p-value = 0.011, OR = 2.787, 95% CI = 1.543-3.622. The results of this statistical analysis mean that mothers who did not consume iron tablets had 2.787 times greater risk of having anemia compared to mothers who not consumed iron tablets. The results of this study also showed that there was a significant association between ANC visits with anemia in pregnant women with p-value = 0.001, OR = 3.818, 95% CI = 1.960-4.875. The results of this statistical analysis mean that mothers who do not take antenatal visits regularly have an opportunity of 3,818 times more likely to experience anemia compared to mothers who have regular antenatal visits. The results of this study indicate that there is no relationship between Parity, income status, and distance of pregnancy and anemia (p >0.05). The results of statistical analysis can be seen in the following table:

Table 1. Results of Bivariate Analysis of Risk Factors for Anemia at the Baktiraja Health Center in 2017

Variable	Anemia				p-value	OR	CI (95%)
	Cases		Control				
	f	%	f	%			
Education							
Low	37	64.91	24	42.11	0.015	2.547	1.423-3.458
High	20	35.09	33	57.89			
Knowledge							
Low	38	66.67	21	36.84	0.002	3.578	1.815-4.519
High	19	33.33	36	63.16			

Variable	n	%	n	%	Sig	Exp(B)	95% CI
Parity							
Primipara	25	43.86	15	26.32	0.128	2.112	0.887-3.251
Multigravida	32	56.14	42	73.68			
Age							
Non Productive (<20 &>35 years)	22	38.60	9	15.79	0.007	3.292	1.563-3.811
Productive (20-25 years)	35	61.40	48	84.21			
Comsumption of iron tablet							
No	39	68.42	25	43.86	0.011	2.787	1.543-3.622
Yes	18	31.58	32	56.14			
Income							
Low	33	57.89	27	47.37	0.421	1.567	0.616-2.921
HIgh	24	42.11	30	52.63			
ANC visit							
Irregular	37	64.91	19	33.33	0.001	3.818	1.960-4.875
Regular	20	35.09	38	66.67			
Distance of pregnancy							
<2 years	30	52.63	21	36.84	0.258	1.985	0.825-3.015
≥2 years	27	47.37	36	63.16			

Multivariate analysis was carried out to determine which variables most affected for anemia in Puskesmas Bakartiraja in 2017. Based on the results of the bivariate test in this study, the variables used as model candidates in the multiple logistic regression test because it has a value of $p < 0.25$ there are 6 variables namely education, knowledge , parity, age, tablet consumption and ANC visits. The results of multivariate analysis can be seen in this following table:

Table 2.Result of Multivariate Logistic Regression Test

Variable	B	Sig	Exp(B)	95%CI forExp
Constanta	-5.887			
Education	3.383	.453	5.755	0.418-8.705
Knowledge	4.321	.039	45.253	1.343-4313.227
Parity	1.856	.629	0.556	0.292-39.835
Age	1.593	.056	3.943	0.874-21.227
Consumption of Iron Tablet	4.229	.047	52.800	1.077-3660.746
ANC Visit	4.351	.018	21.174	1.545-3839.667

Based on the results of multivariate analysis, the most dominant variable affecting for anemia in pregnant women is ANC visit with p=0.018. Based on the results of the regression analysis above, the final logistic regression equation is obtained as follows:

$$Y = \beta o + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4$$

$$Y = -5.887 + 4.321(\text{knowledge}) + 4.229(\text{Comp. Iron tablet}) + 4.351(\text{ANC visit})$$

Simultaneously with the regression equation model above, the probability of anemia occurring is as follows:

$$P = \frac{1}{1 + e^{--5.887 + 4.321(\text{know ledge}) + 4.229(\text{Comp . Iron tablet}) + 4.351(\text{ANC visit})}}$$

Based on the regression equation above, it is known that the three variables (knowledge, comsumption of iron tablet, ANC visit) can affect the incidence of anemia by 77.5% (overall percentage).

Discussions

The results of bivariate analysis showed a significant relationship between education and the incidence of anemia in pregnant women in Baktiraja Public Health Center in 2017 with p = 0.015, where mothers with low education had a 2.5 times greater chance of having anemia. The results of this study are in line with Mariza A's research at BPS Yohan Way Bandar Lampung in 2015, where out of 14 respondents with low education, 11 respondents (78.6%) experienced anemia. The similarity of the results of this study can show that respondents with better education will form a good mindset.

Education influences how someone acts and seeks solutions to problems in his life. People who have high education will usually be easier to receive information about nutrition and healthy ways of life so as not to cause anemia. Mothers with higher education will be open with a variety of new information so that it will increase their knowledge in receiving information about nutritional needs during pregnancy Anemia tends to occur in groups of people with low levels of education, for various reasons. In the low-educated population group generally lacks access to information about anemia and its prevention, lack of understanding due to anemia, lack of ability to choose nutritious foods, especially those with high iron content, and less able to utilize available health services. Conversely, with a highly educated education, having sufficient knowledge and access to information about various things including health problems, especially nutrition (anemia) and how to overcome them. In this group tend to be able and able to choose food ingredients with high iron content for consumption (Irianto K, 2014).

The results of the bivariate analysis showed that there was a significant relationship between knowledge with the incidence of anemia in pregnant women in Baktiraja Public Health Center in 2017 with p = 0.002, where mothers with low knowledge had an opportunity 3.6 times greater for anemia. This is in line with the research of Iswanto (2012) at Karangdowo Klaten Health Center based on Chi-Square test, there is a significant relationship between maternal knowledge about iron deficiency anemia and compliance with consuming iron tablets. The better the knowledge of pregnant women about iron deficiency

anemia, the more obedient pregnant women will consume iron tablets. Mothers regularly consume iron tablets can avoid symptoms of anemia.

Research of Mulyati (2007) states that the knowledge possessed by pregnant women about health in pregnancy can help in caring for the health of pregnant women themselves and their contents properly, including in terms of choosing the types of food consumed during pregnancy so that risks can be adversely affected by the mother. and baby. The low level of knowledge of pregnant women will affect how pregnant women maintain their pregnancy. Less knowledge has a risk of 1.45 times more to suffer from anemia in pregnancy compared to pregnant women with good knowledge.

Pregnant women generally already understand about anemia in pregnancy because pregnant women have children so that they have experience and health information that is conveyed by health workers when pregnant women do pregnancy checks or visit health facilities. In addition, health information can also be obtained while attending posyandu activities in their neighborhood. However, some pregnant women have less knowledge about anemia due to their first pregnancy. The efforts of health workers and cadres provide counseling to pregnant women to increase knowledge and take preventive measures for anemia. (Series LA, 2013). Of the questions given related to maternal knowledge, showed that they did not understand how to maintain health during pregnancy so that anemia did not occur. According to the Juliana's study (2013), knowledge will have less influence on disease, which states that there is a correlation between knowledge with the incidence of anemia in pregnant women, due to insufficient and lack of knowledge of mothers about preventing anemia in anemia in pregnant women.

The results of bivariate analysis showed that there was a significant relationship between age and the incidence of anemia in pregnant women in Baktiraja Public Health Center in 2017 with p = 0.007, where mothers who were unproductive (<20 years and> 35 years) were 3.3 times more likely to experience anemia. This research is in line with Febriani's (2013) study that there was a significant relationship between age and the incidence of anemia at the Gandus Palembang Health Center. This condition illustrates that the age of pregnant women who are too early or too old can trigger anemia. This is also in line with the research of Salmariantity (2012) which states that at risk age (<20 years and> 35 years) the chance of getting anemia 1.8 times compared to pregnant women at age is not at risk because pregnant women who have a risky age can be detrimental maternal health and fetal growth, statistically significant with p = 0.012 which states that there is a relationship between the age of pregnant women and the incidence of anemia.

Age of mother is related to female reproductive organs. A healthy and safe reproductive life is 20-35 years. Pregnancy at age <20 and> 35 years can cause anemia because in pregnancy aged <20 years. Women who are pregnant at a young age (<20 years) in biological terms, the development of biological devices is not optimal. Socioeconomically not ready to be independent and medically often get health problems, easy to experience abortion, bleeding in pregnancy, premature birth, fetal death in utero, death at birth, and risk of LBW. Whereas at the age of> 35 years it is related to the decline and decline in endurance and various diseases that often occur at this age (Bekele et. Al, 2015).

A pregnant woman at a risky age, which is <20 years will occur a food competition between the fetus and her mother that is still in the process of growth and hormonal growth that occurs during pregnancy. Women who are pregnant less than 20 years of age tend not to be ready to be used to support additional red blood cell needs for the fetus, while the body's iron needs are quite a lot for the fetus's growth period, and pregnant women over 35 years of age tend to experience anemia due to influence decrease in iron reserves in the body due to fertilization (Proverawati, 2011).

The results of bivariate analysis showed that there was a significant relationship between consumption of Fe tablets with the incidence of anemia in pregnant women in Baktiraja Health Center in 2017 with $p = 0.011$, where mothers who did not consume tablets irregularly had a 3.8 times greater chance of anemia. The results of this study are the same as the results of research conducted in Nigeria by Adanikin, from the results of his research found that 101 respondents (54.9%) were not compliant in consuming Fe tablets given by health workers from a total of 255 respondents with a p value of 0.040. So from the results of his research, it was concluded that there was a relationship between the compliance of Fe tablets with the incidence of anemia.

The number of iron (Fe) tablets consumed by pregnant women according to the standards given by the Ministry of Health and WHO is a minimum of 90 tablets and it is recommended for pregnant women to consume additional blood tablets with a one-time daily dose during pregnancy (Depkes, 2009). Pregnant women really need the consumption of Fe tablets that contain iron to help increase hemoglobin levels and the number of red blood cells that will help in overcoming anemia during pregnancy. According to Salmaryantity, to help increase iron absorption and reserves, Fe is needed, if Fe needs are not met from the food diet can be supplemented with blood-added tablets (Fe tablets), giving blood-added tablets for a long period and a minimal dose is better than the dosage big but once given.

The results of the bivariate analysis showed that there was a significant relationship between ANC visits with the incidence of anemia in pregnant women in Baktiraja Public Health Center in 2017 with $p = 0.001$, where mothers with low knowledge had an opportunity 3.8 times greater for anemia. ANC visit variable is the variable that has the most significant effect on anemia incidence based on multivariate analysis. This research is in line with Fitriasari's research, I Tegalsari Health Center in 2016 which stated that there was a relationship between ANC frequency and anemia incidence with p-value = 0.033. Correlation coefficient values between the two variables in this study amounted to 0.265 showing a low relationship and a positive pattern, meaning that the more often pregnant women visit ANC, the lower the incidence of anemia in pregnant women. The results of this study are also in line with research conducted by Sugma (2015) revealing that there is a relationship between the regularity of the ANC and the incidence of anemia in pregnant women with a p-value of $0.002 < 0.05$. The results of the study illustrate that pregnant women who conduct antenatal care visits regularly have a lower risk of anemia than pregnant women with antenatal care visits that are not or less regular.

Regularity in conducting antenatal care visits is beneficial for pregnant women and the fetus they contain antenatal care can use to detect early occurrence of high risk of

pregnancy and childbirth can also reduce maternal mortality and monitor the condition of the fetus. Ideally, with regular antenatal care visits, it is soon known that abnormalities may occur during pregnancy so that they can be overcome immediately before they have an adverse effect on pregnancy (Wiknjosastro, 2007). According to the World Health Organization (WHO), Antenatal Care (ANC) to detect early occurrence of high risk of pregnancy and childbirth can also reduce maternal mortality and monitor the condition of the fetus. Ideally, if each pregnant woman wants to have her pregnancy checked, it aims to detect abnormalities that may or may occur in the pregnancy as soon as possible and can be quickly resolved before having an adverse effect on the pregnancy by conducting an Antenatal Care (ANC) examination (Wiknjosastro, 2007) ANC services aim to be able to identify and identify problems that arise during pregnancy so that the health of the mother and baby is conceived to be healthy until delivery. Antenatal Care Services (ANC) can be monitored by visiting pregnant women during their pregnancy check-ups (Ariani, 2016). Antenatal care is carried out in accordance with the minimum standard of antenatal care services, which is at least 4 times during pregnancy including 1 time in the first trimester, 1 time in the second trimester, and 2 times in the third trimester. Antenatal care visits routinely and regularly performed by pregnant women, the incidence of anemia can be detected as early as possible by administering Tabelt Fe and providing knowledge and information about nutrition and nutrition during pregnancy so that mothers can care for themselves during pregnancy (Obse N et al., 2012)

Conclusions and Recommedation

From the results of this study it can be concluded that the proportion of anemia cases is higher in mothers with low education, low knowledge, in multigravida mothers, in mothers of unproductive age (<20 years and> 35 years), in women who do not consume Fe tablets regularly, in low-income mothers and in mothers who make irregular ANC visits and in women who have a pregnancy interval of <2 years. From the results of the bivariate analysis it was found that there was a significant relationship between education, knowledge, age, consumption of Fe tablets, and ANC visits with the incidence of anemia in pregnant women in Baktiraja Health Center in 2017. Also known there was no significant relationship between parity, income status, and distance of pregnancy with the incidence of anemia in pregnant women in Baktiraja Public Health Center 2017. The results of univariate analysis showed that ANT visits had a significant effect on the incidence of anemia in Baktiraja Puskemas in 2017. From the results of the regression equation model, three variables were knowledge, Comsumption of Iron tablet. , ANC visit can affect the incidence of anemia by 77.5%.

It is recommended for mothers to conduct antenatal visits regularly to control the condition of pregnancy including knowing Hb levels early. It is suggested to Baktiraja health center to increase knowledge and awareness of pregnant women about prevention of anemia and also the importance of regular antenatal visit for monitoring Hb level every trimester. It was also suggested to Baktiraja Health Center staff to control the consumption of iron tablets so that pregnant women who can consume iron tablets regularly can be warned quickly. Counseling about the impact of early marriage, especially related to the risk of anemia in

pregnant women <20 years, also needs to be done by the health center so that mothers can delay pregnancy before age 20 years.

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