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Hemoglobin Levels of Pregnancy Women Against The Weight Of A Born In The Abi Ummi DW Sarmadi Clinic Palembang 2020

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Abstract : Hemoglobin (Hb) is a parameter that is widely used to determine the prevalence of anemia. The mother's hemoglobin (Hb) level greatly affects the weight of the baby to be born. Pregnant women who are anemic due to low hemoglobin in addition to endangering the mother's life also interfere with growth and development and endanger the life of the fetus. Data from the *World Health Organization* (WHO), the prevalence of anemia in pregnant women worldwide is 41.8%. The aim was to determine the relationship between maternal hemoglobin levels during pregnancy and birth weight at the Abi Ummi DW Sarmadi clinic in Palembang in 2020. The analytical survey research method used a cross sectional approach. The research population was all mothers and babies born at the Abi Ummi DW Sarmadi Clinic in Palembang at the time of the study. The research sample was taken by *purposive sampling*, amounting to 37 respondents. The results of the univariate study showed that mothers during pregnancy had normal hemoglobin levels with higher normal birth weight, namely 18 people (75.0%) compared to LBW birth weight, namely 2 people (15.4%) while mothers during pregnancy had hemoglobin levels with severe anemia. LBW births were greater, namely 11 people (84.6%) compared to normal birth weight, namely 6 people (25.0%). The results of the *Chi Square* statistical test showed that P-Value = 0.002 <∂ (0.05) means that there is a significant relationship between maternal hemoglobin levels during pregnancy and birth weight at the Abi Ummi DW Sarmadi clinic in Palembang in 2020. Advice to midwives or health workers at the Abi Ummi clinic Dw Sarmadi Palembang can improve education about anemia, check hemoglobin levels in the early and late trimesters of pregnancy during pregnancy visits so that one of the causes of anemia in pregnancy can be prevented as one of the causes of the occurrence of babies born with LBW.

Keywords: *Maternal Hemoglobin Levels During Pregnancy, Birth Weight*

1. Introduction

Anemia is one of several factors causing maternal death. In pregnant women, anemia increases the frequency of complications in pregnancy, childbirth, the risk of maternal death, prematurity, LBW, and perinatal death. Anemia can also cause antepartum and postpartum bleeding. (Puspitasari, 2013).

Anemia in pregnancy is a condition where the hemoglobin level in the blood is below normal, that is, the hemoglobin level is <11 g / dl. Anemia in pregnancy can cause fatigue, body weakness, decreased appetite, lightheaded vision, dizziness and pale lips, this is due to a lack of nutrients for blood formation, such as iron deficiency, folic acid and vitamin B12. Anemia that often occurs in pregnant women is anemia due to iron (Fe) deficiency. (Prawirohardjo, 2011).

Maternal hemoglobin (Hb) levels greatly affect the weight of the baby to be born. Anemic pregnant women due to low hemoglobin in addition to endangering the mother also disrupts the growth and mental development of the fetus. This is due to a lack of nutrition and oxygen supply to the placenta which will affect the placenta's function in the baby. The decrease in Hb levels in pregnant women will increase the risk of getting low birth weight (LBW), the risk of bleeding before and during childbirth, it can even cause the death of the mother and baby, if pregnant women suffer from severe anemia the increase in blood cells is less when compared to the increase. Plasma resulting in blood thinning is considered a physiological adjustment in pregnancy. The dilution of the blood can lighten the burden on the heart which has to work harder during pregnancy as hiremia cardiac output increases. In childbirth bleeding, the amount of iron lost will be less than if the blood remains thick. Increased blood in pregnancy has started at 10 weeks of gestation and reaches its peak from 32-36 weeks of gestation. (Manuaba, 2007).

Hemoglobin (Hb) is a parameter that is widely used to determine the prevalence of anemia. Hb is an oxygen-carrying compound in red blood cells. Hb can be measured chemically and the amount of Hb g / dl of blood can be used as an index of the oxygen-carrying capacity of the blood. A low Hb content thus indicates anemia. Hb examination and monitoring can be carried out using the sahli method which is carried out at least 2 times during pregnancy, namely the first trimester (gestational age before 12 weeks) and the third trimester (28 to 36 weeks of gestation). Pregnancy is a condition where the mother has risks that have an impact on the health of the mother and the fetus, such as the risk of anemia.

Normal birth weight babies are babies born in head presentation, vaginally without using tools, at 37-42 weeks of gestation, weight 2500-4000gram, apgar score > 7 and without congenital defects. (Rukiyah, 2010).

Factors that influence the weight of the baby and the mother include other diseases (anemia, hypertension, preeclampsia, and bladder infection), maternal age, parity, birth spacing, history of LBW, socioeconomic conditions and other causes such as fetal factors and environmental factors.

Based on data from the *Word Health Organization* (WHO), the prevalence of anemia in pregnant women worldwide is 41.8% and the prevalence of anemia in pregnant women in ASIA is estimated at 48.2%, in Africa it is 57.1%, in America it is 24, 1%, and in Europe 25.1%. (Astriana, 2017).

The incidence of anemia in Indonesia is getting higher because anemia is treated when the mother is pregnant, not before pregnancy. Based on the 2010 health profile, data shows that the K4 service coverage has increased from 80.26% (in 2007) to 86.04% (in 2008) (Depkes, 2008). According to the National Health System (SKN) in 2012, the number of pregnant women with anemia in Indonesia was 40%. Based on Basic Health Research (Riskesdas) in 2013, the prevalence of pregnant women with anemia in Indonesia was 37.1%.

Based on data from the Palembang City Health Office, pregnant women who experienced anemia in 2016 were 722 cases (2.2%) out of 32,122 pregnant women and in 2017 there was an increase in pregnant women experiencing anemia as many as 1,448 people (4.9%) from 29,610. pregnant mother. (Health Office of Palembang City, 2017)

According to data from the Abi Ummi DW Sarmadi Palembang clinic in 2019, there were 98 pregnant women with anemia (28.3%) of 346 pregnant women who made pregnancy visiting.

Based on the above background, the researchers are interested in examining the relationship between maternal hemoglobin levels during pregnancy and birth weight at the Abi Ummi DW Sarmadi Clinic, Palembang in 2020.

2. Method

The research method used an analytic survey with *a cross sectional* approach where the independent variable (maternal hemoglobin level during pregnancy) and the dependent variable (birth weight).

The population in the study were all mothers who gave birth and babies born in clinic Abi Ummi DW Sarmadi Palembang at the time of the study. The research sample was taken by *purposive sampling*, which is based on certain considerations such as the characteristics of the population that have been previously known. The research sample was 37 respondents.

The study was conducted in February - March 2020, at the Abi Ummi DW Sarmadi Clinic in Palembang.

Data was obtained manually, by recording data from the Abi Ummi DW Sarmadi clinic in Palembang. Where independent data (maternal hemoglobin levels during pregnancy) is obtained through secondary data, namely by recording data from the mother's MCH book and dependent data (birth weight) is obtained through primary data, namely by direct weighing the birth weight of the baby.

Data analysis consisted of univariate analysis and bivariate analysis. Univariate analysis to determine the frequency distribution of the independent variable (maternal hemoglobin level during pregnancy) and the dependent variable (birth weight). Meanwhile, bivariate analysis was analyzed to determine the relationship between the independent variable (maternal hemoglobin level during pregnancy) and the dependent variable (birth weight) using the Chi Square statistical test with a significant level of ∂ (0.05). Where statistical decision making is done by comparing the p-value with the value ∂ (0.05) provided that if the p-value ≤ nilai (0.05) then there is a relationship between the independent variable and the dependent variable, and if the p-value> ∂ (0.05) then there is no relationship between the independent variable and the dependent variable.

3. Results and Discussion

3.1. Univariate Analysis

This analysis is used to determine the frequency distribution and percentage of the independent variable (maternal hemoglobin level during pregnancy) and the dependent variable (birth weight). Data is presented in tabular and narrative form.

a. Maternal hemoglobin levels during pregnancy

From the research results on the independent variable maternal hemoglobin levels during pregnancy, it can be seen in the table as follows:

Table 1
Frequency distribution of maternal hemoglobin levels during pregnancy at the Abi Ummi DW Sarmadi Clinic Palembang in 2020

No	Maternal hemoglobin levels during pregnancy	F	Percentage (%)
1	Normal	20	54.1
2	Anemia	17	45.9
	Total	**37**	**100**

From table 1 above, it can be seen from 37 respondents, it shows that pregnant women who have hemoglobin levels during normal pregnancy are 20 people (54.1%) compared to pregnant women who have anemia hemoglobin levels during pregnancy, namely 17 people (45.9%).

b. Birth weight

From the research results on the dependent variable birth weight, it can be seen in the table as follows:

Table 2
Frequency distribution of birth weight at the Abi Ummi DW Sarmadi Clinic Palembang in 2020

No	Birth Weight	F	Percentage (%)
1	Normal	24	64.9
2	LBW	13	35.1
	Total	**37**	**100**

From table 2 above, it can be seen from 37 respondents, it shows that babies born with higher normal weight are 24 people (64.9%) compared to babies born with LBW, which are 13 people (35.1%).

3.2. Bivariate Analysis

Bivariate analysis was analyzed to determine the relationship between the independent variable (maternal hemoglobin level during pregnancy) and the dependent variable (birth weight) using the Chi Square statistical test with a significant level of ∂ (0.05). Where statistical decision making is done by comparing the p-value with the value ∂ (0.05) provided that if the p-value ≤ (0.05) then there is a relationship between the independent variable and the dependent variable, and if the p-value > ∂ (0.05) then there is no relationship between the independent variable and the dependent variable. Bivariate analysis can be seen in the table as follows:

Table 3
Relationship of Maternal Hemoglobin Levels During Pregnancy Against Birth Weight at the Abi Ummi DW Sarmadi Clinic Palembang in 2020

No	Hemoglobin Levels During Pregnancy	Baby Weight				Total		P-Value	OR (95% CI)
		Normal		LBW					
		n	%	n	%	N	%		
1	Normal	18	75.0	2	15.4	20	54.1	0.002	16.500 (2.818-96.615)
2	Anemia	6	25.0	11	8.6	17	45.9		
	Total	**24**	**100**	**13**	**100**	**37**	**100**		

From table 3 above, from 37 respondents, it is known that pregnant women who have normal hemoglobin levels with higher normal birth weight are 18 people (75.0%) compared to LBW birth weight, namely 2 people (15.4%) while pregnancies that have hemoglobin anemia levels with higher birth weight LBW, amounted to 11 people (84.6%) compared to normal birth weight, namely 6 people (25.0%).

Based on the results of the *Chi Square* statistical test conducted, the results obtained P-Value = 0.002 <∂ (0.05), which means that there is a significant relationship between maternal hemoglobin levels during pregnancy and birth weight at the Abi Ummi DW Sarmadi clinic in Palembang in 2020.

3.3. Discussion

a. Relationship between maternal hemoglobin levels during pregnancy and birth weight

Based on the results of research from 37 respondents, it is known that mothers during pregnancy who have normal hemoglobin levels with higher normal birth weight are 18 people (75.0%) compared to LBW birth weight, namely 2 people (15.4%) while mothers during pregnancy 11 people (84.6%) had hemoglobin anemia levels with a higher birth weight of LBW, which was 6 people (25.0%).

Based on the results of the *Chi Square* statistical test conducted, the results obtained P-Value = 0.002 <∂ (0.05), which means that there is a significant relationship between maternal hemoglobin levels during pregnancy and birth weight at the Abi Ummi DW Sarmadi clinic in Palembang in 2020.

Hemoglobin is a component of red blood cells that functions to distribute oxygen throughout the body. Hemoglobin is also the main protein in the human body which functions to transport oxygen from the lungs to the peripheral tissues and transport CO2 from the prifer to the lungs. Hemoglobin synthesis is a biochemical process that involves several nutrients. This synthesis process is related to the synthesis of heme and globin protein. (Erlina, 2015).

Maternal hemoglobin (Hb) levels greatly affect the weight of the baby to be born. Anemic pregnant women due to low hemoglobin in addition to endangering the mother also disrupts the growth and mental development of the fetus. This is due to a lack of nutrition and oxygen supply to the placenta which will affect the placenta's function in the baby. The decrease in Hb levels in pregnant women will increase the risk of getting low birth weight (LBW), the risk of bleeding before and during childbirth, it can even cause the death of the mother and baby, if pregnant women suffer from severe anemia the increase in blood cells is less when compared to the increase. Plasma resulting in blood thinning is considered a physiological adjustment in pregnancy. The dilution of the blood can lighten the burden on the heart which has to work harder during pregnancy as hiremia cardiac output increases. In childbirth bleeding, the amount of iron lost will be less than if the blood remains thick. Increased blood in pregnancy has started at 10 weeks of gestation and reaches its peak from 32-36 weeks of gestation. (Manuaba, 2007).

Hemoglobin (Hb) is a parameter that is widely used to determine the prevalence of anemia. Hb is an oxygen-carrying compound in red blood cells. Hb can be measured chemically and the amount of Hb g / dl of blood can be used as an index of the oxygen-carrying capacity of the blood. A low Hb content thus indicates anemia. Hb examination and monitoring can be carried out using the sahli method which is carried out at least 2 times during pregnancy, namely the first trimester (gestational age before 12 weeks) and the third trimester (28 to 36 weeks of gestation). Pregnancy is a condition where the mother has risks that have an impact on the health of the mother and the fetus, such as the risk of anemia.

Normal birth weight babies are babies born in head presentation, vaginally without using tools, at 37-42 weeks of gestation, weight 2500-4000gram, apgar score> 7 and without congenital defects.[10]

Factors that influence the general weight of infants from children and mothers include diseases (anemia, hypertension, preeclampsia, and bladder infection), maternal age, parity, birth spacing, history of LBW, socioeconomic conditions and other causes such as fetal factors and environmental factors.

According to Kosim, (2009), a normal newborn is born between 2500-4000 grams, is term, is born crying immediately, and there are no severe congenital defects. Birth weight is accurate when weighed within the first 1 hour after birth with a body weight of 2500-4000 gra, with a gestational age of 37 weeks to 42 weeks without congenital defects. (Rukiyah, 2010).

The results of the study are in line with Sirait's research (2017) at 5 BPM Kota Pematang Siantar with a sample of 31 people, obtained a value of r = 0.815 and a value of p = 0.000, which means that there is a relationship between the Hb level of pregnant women and the weight of the newborn.

There is no gap between theory and research results, which research results show
That mothers during pregnancy who have low hemoglobin levels or anemia have a risk of giving birth to babies with low birth weight.

4. Conclusions

1) The frequency distribution of respondents who had hemoglobin levels during normal pregnancy was higher, namely 20 people (54.1%) compared to pregnant women who had anemia during pregnancy, namely 17 people (45.9%).
2) The frequency distribution of baby respondents who were born with a higher normal weight was 24 people (64.9%) compared to 13 babies (35.1%).
3) The Chi Square statistical test results obtained P-Value = 0.002 <∂ (0.05), which means that there is a significant relationship between maternal hemoglobin levels during pregnancy and birth weight at Abi Ummi DW Sarmadi clinic, Palembang in 2020.

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