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Research Article

Relationship Between Low Birth Weight and Pregnant Women's HB Results

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Abstract: Low Birth Weight (LBW) is one of the main risk factors that contribute to neonatal morbidity and mortality. One of the factors that can affect the incidence of LBW is the hemoglobin (Hb) level of pregnant women. Pregnant women with low Hb levels (anemia) have a higher risk of giving birth to low birth weight babies. This study was conducted to analyze the relationship between Hb levels of pregnant women and the incidence of LBW at the Motolohu Health Center, Rancangan District, Pohuwato Regency, Gorontalo Province. This study aims to determine the relationship between Hb levels of pregnant women and the incidence of LBW at Motolohu Health Center. This study used a quantitative method with a cross-sectional study design. The sample in this study amounted to 30 respondents selected using purposive sampling techniques. Data were collected through medical records and structured interviews. Data analysis was performed using the Chi-Square statistical test with a significance level of 0.05. The results of the analysis showed that there was a significant relationship between maternal Hb levels and the incidence of LBW, with a p-value of 0.000 ($p \leq 0.05$). This indicates that pregnant women with low Hb levels are at higher risk of giving birth to low birth weight babies compared to mothers with normal Hb levels. There is a significant relationship between maternal Hb levels and the incidence of LBW. Low Hb levels in pregnant women can increase the risk of delivery with low birth weight, so more attention is needed to nutritional intake and iron supplementation during pregnancy.

Keywords: Anemia; Hemoglobin Level; LBW; Motolohu Center; Pregnant Women

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1. Introduction

Low Birth Weight (LBW) is a health problem that has a major impact on children's growth and development. LBW is defined as a baby born weighing less than 2,500 grams regardless of gestational age (1). This condition can increase the risk of neonatal death, growth and developmental delays, and non-communicable diseases in adulthood (2). In Indonesia, the incidence of LBW is still a concern, especially in areas with low maternal health levels.

One of the main factors contributing to the incidence of LBW is the nutritional status of the mother during pregnancy, including hemoglobin (Hb) levels. Low Hb in pregnant women can cause anemia, which affects the supply of oxygen and nutrients to the fetus, thereby increasing the risk of premature birth and LBW (3). Anemia in pregnant women,

especially those caused by iron deficiency, is a health problem that is often found in various regions, including in Pohuwato Regency, Gorontalo Province.

Several studies have shown a relationship between maternal Hb levels and birth weight. A study conducted by (4) showed that pregnant women with Hb levels <11 g/dL had a higher risk of giving birth to low birth weight babies compared to mothers with normal Hb levels. Similar results were also found in a study by (5), which stated that anemia during pregnancy was correlated with an increase in the incidence of LBW in various health facilities.

In Motolohu Health Center, Rancangan District, Pohuwato Regency, cases of LBW are still often found. Factors such as access to health services, food consumption patterns, and compliance of pregnant women in consuming iron supplements can affect the Hb levels of pregnant women and have an impact on the weight of the baby born. However, further research is still needed to determine the extent of the relationship between the Hb levels of pregnant women and the incidence of LBW in this area.

This study aims to analyze the relationship between Hb levels of pregnant women and the incidence of LBW at the Motolohu Health Center. By knowing this relationship, it is expected to provide better recommendations in efforts to prevent LBW through interventions that focus on increasing Hb levels of pregnant women. In addition, the results of this study can be a basis for health workers in developing strategies to prevent anemia in pregnant women in order to reduce the incidence of LBW.

The method used in this study is a quantitative approach with a cross-sectional design, involving 30 respondents of pregnant women who have given birth at the Motolohu Health Center. Data were collected through medical records and interviews with pregnant women and analyzed using the Chi-Square statistical test to see the relationship between Hb levels of pregnant women and the incidence of LBW.

It is expected that this study can contribute to increasing awareness of the importance of optimal Hb levels during pregnancy. In addition, the results of this study can be used as evaluation material in maternal and child health programs, especially in efforts to prevent anemia in pregnant women in Pohuwato Regency. With the right intervention, it is expected that the incidence of LBW can be reduced, thereby improving the quality of maternal and infant health.

2. Research Methods

Design Study This use method quantitative with design cross-sectional study . Sample in study This A total of 30 respondents were selected use purposive sampling technique . Data collected through record medical And interview structured . Data analysis was performed use test Chi-Square statistics with level significance 0.05 . (Notoadmojo, 2018).

3. Results and Discussion

3.1 General Data

3.1.1 Distribution Characteristics Based on Age Mother

Table 1. Distribution Characteristics Respondents Based on Age Mother

	Age Mother	
Information	***Frequency***	***Percent***
21-30	**30**	**100.0**

Based on Table 1 above from 30 Respondent show that All of it big Age Mother namely 21-30 years as much as 30 respondents (100%).

3.1.2 Distribution of Characteristics Based on Mother's Education

Table 2. Distribution of Respondent Characteristics Based on Mother's Education

	Education Mother	
Information	*Frequency*	*Percent*
SENIOR HIGH SCHOOL	19	62.5
PT	11	37.5
Total	30	100.0

Based on table 2 above, out of 30 respondents, it shows that the majority of respondents have a high school education, as many as 19 respondents (62.5%), while a small number, 11 respondents, have a university education (37.5%).

3.1.3 Distribution of Characteristics Based on Mother's Occupation

Table 3. Distribution of Respondent Characteristics Based on Mother's Occupation

	Work Mother	
Information	*Frequency*	*Percent*
Housewife	21	43.8
Employee	6	37.5
Private	2	12.5
civil servant	1	6.2
Total	30	100.0

Based on table 3 above, out of 30 respondents, it shows that almost all respondents are housewives, as many as 21 people (43.8%), a small number of 6 respondents work as employees (37.5%), and 2 respondents are private (12.5%) and 1 respondent is a civil servant (6.2%).

Table 4. Maternal Condition * LBW Incidence C rosstabulation

Information		LBW Incident	
		LBW	Total
Mother's Condition	Anemia	30	30
Total		30	30
Chi square test			0.000

Based on the results of table 4 of the Chi Square Statistic test, the Relationship between LBW Births and the Results of Pregnant Women's HB at the Motolohu Health Center, Rancang District, Pohuwato Regency, Gorontalo Province. The results of the analysis above obtained a P value of 0.000 ≤ 0.05, which means that Ho is rejected and Ha is accepted, so it can be concluded that there is a Relationship between LBW Births and the Results of Pregnant Women's HB at the Motolohu Health Center, Rancang District, Pohuwato Regency, Gorontalo Province.

3.2 Discussion

Analyzing the Relationship between Low Birth Weight and HB Results of Pregnant Women at the Motolohu Health Center, Rancangan District, Pohuwato Regency, Gorontalo Province

Based on the results of the Chi-Square statistical test in this study, a p-value of 0.000 ($p \leq 0.05$) was obtained, which indicates that there is a significant relationship between hemoglobin (Hb) levels of pregnant women and the incidence of low birth weight (LBW) babies at the Motolohu Health Center, Rancangan District, Pohuwato Regency, Gorontalo Province. These results indicate that pregnant women with low Hb levels have a higher risk of giving birth to babies weighing less than 2,500 grams compared to mothers who have Hb levels within normal limits.

This finding is in line with research conducted by (Rahmawati & Sari, 2022), which states that anemia in pregnant women can increase the risk of LBW births. This is because low Hb levels cause the supply of oxygen and nutrients to the fetus to be limited, so that fetal growth is disrupted and has an impact on the baby's weight at birth. In addition, research by (5) also shows that pregnant women with Hb levels below 11 g/dL have a two-fold higher risk of giving birth to babies with LBW compared to mothers with normal Hb.

Factors that can affect the Hb levels of pregnant women include inadequate nutritional intake, compliance in taking iron tablets (TTD), and the presence of infectious diseases that can worsen anemia (3). Iron deficiency is the main cause of anemia in pregnancy, which has a direct impact on fetal growth in the womb. Therefore, interventions in the form of providing iron supplements and increasing nutritional education for pregnant women are needed to reduce the incidence of anemia and LBW.

In addition to biological factors, social and economic factors also contribute to the incidence of anemia and LBW. A study conducted by (7) showed that pregnant women from families with low economic status are more susceptible to anemia due to limited access to nutritious food and adequate health services. At the Motolohu Health Center, factors such as access to health services and education about the importance of iron intake for pregnant women are still challenges that need further attention.

In this study, the relationship between maternal Hb levels and the incidence of LBW showed that the lower the maternal Hb levels, the greater the likelihood of the baby being born with low birth weight. This is in line with the theory that anemia during pregnancy can cause fetal hypoxia and intrauterine growth retardation (2). This condition can also increase the risk of other pregnancy complications, such as premature birth and preeclampsia, which contribute to high neonatal morbidity and mortality rates.

To reduce the incidence of LBW, strategic steps are needed to prevent anemia in pregnant women. One effort that can be made is to increase the compliance of pregnant women in consuming iron tablets provided by health facilities . A study by (8) showed that compliance with iron tablets consumption can significantly increase the Hb levels of pregnant women and reduce the risk of LBW. Therefore, the iron tablet provision program must be supported by intensive education and routine monitoring by health workers.

From the results of this study, it can be concluded that the Hb level of pregnant women has an important role in determining the baby's birth weight. Therefore, health workers are expected to pay more attention to the Hb status of pregnant women, especially through routine examinations and appropriate nutritional interventions. In addition, there needs to be cooperation between health workers and the community in increasing awareness of the importance of nutrition during pregnancy in order to reduce the incidence of LBW in the Motolohu Health Center area.

4. Conclusions

Based on the results of the Chi-Square statistical analysis in this study, a p-value of 0.000 was obtained, indicating a significant relationship between hemoglobin (Hb) levels in pregnant women and the incidence of low birth weight (LBW) babies at the Motolohu Health Center, Rancangan District, Pohuwato Regency, Gorontalo Province. Thus, it can be concluded that pregnant women with low Hb levels have a higher risk of giving birth to low birth weight babies.

These findings emphasize the importance of monitoring Hb levels during pregnancy, considering that low Hb levels can inhibit the supply of oxygen and nutrients to the fetus, which contributes to impaired fetal growth and development. Therefore, to reduce the incidence of LBW, it is important for pregnant women to obtain sufficient iron intake through nutritious foods and iron supplements recommended by health workers.

This study provides a strong basis for the development of anemia prevention programs in pregnant women, as well as increasing public understanding of the importance of maintaining health during pregnancy to prevent LBW. Appropriate interventions, such as increasing education and monitoring of iron supplementation tablet (TTD) consumption, can reduce the prevalence of LBW in the community.

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