

Analysis Affecting the Event of Low Birth Weight Babies in Aisyiyah St. Khadijah Hospital Pinrang Regency on 2020

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ABSTRACT

A child's weight at birth is an important indicator of a child's susceptibility to disease and chances of survival. Children with birth weight < 2.5 kilograms have a higher risk of early childhood death. The prevalence of low birth weight (LBW) babies in 2018 worldwide was 60% in Africa and South Asia. Indonesia is recorded as being ranked ninth in the world with an LBW percentage of more than 15.5% of births every year. In Indonesia, in 2019 there were 20,224 neonatal deaths, 35.3% due to low birth weight. In South Sulawesi, In 2019 there were 714 neonatal deaths with the highest cause of death caused by LBW (36.69%) of which 4.31% occurred in Pinrang Regency, while the data obtained from the Hospital. Aisyiyah St. Khadijah Pinrang Regency recorded 1,522 births of which 3.94% were born with low birth weight. . The purpose of this study was to determine the factors that influence the incidence of LBW in the hospital. Aisyiyah St. Khadijah Pinrang Regency in 2020. The research method used is an analytical survey with a Retrospective Cohort approach, the total sampling technique is sampling with a total sample of 1148. The results of the bivariate analysis showed that age and history of preterm delivery had a significant relationship with the incidence of LBW, while anemia and parity did not have a significant relationship with the incidence of LBW. Although in the statistical analysis on anemia and parity there was no significant relationship there were 2.7% of anemic mothers who gave birth to low birth weight babies as well as wit.

Keyword : Age, Anemia, Low birth weight, Parity, Preterm labor

INTRODUCTION

A child's weight at birth is an important indicator of a child's susceptibility to disease and chances of survival. Children with birth weight less than 2.5 kilograms have a risk of child death higher early age. (Indonesia Demographic and Health Survey 2019).

According to the World Health Organization in 2018, more than 60% of low birth weight (LBW) births occurred in Africa and South Asia. Indonesia is recorded as being ranked ninth in the world with a LBW percentage of more than 15.5% of births every year. According to the Indonesian Demographic and Health Survey (IDHS) in 2017, 94% of mothers gave birth to babies with normal birth weight, and 7% gave birth to babies with low birth weight.

The Indonesian Health Profile in 2019 stated that neonatal mortality in Indonesia

was 2,224, with the most common cause of neonatal death being low birth weight, which was 35.3%. With other causes 27% caused by asphyxia, 21.4% congenital abnormalities, 12.5% sepsis, 3.5% neonatal tetanus and other unknown causes 0.3%.

Similarly, data obtained from the Indonesia Health Profile in 2019 also showed that neonatal deaths in South Sulawesi were 714 with the highest cause of neonatal death caused by LBW, which was 36.69%. Other causes of neonatal death were asphyxia 30.95%, sepsis 3.36%, tetanus neonatorum 0.14%, congenital abnormalities 8.12, and other unknown causes 20.72%.

The South Sulawesi Health Office profile shows that in 2019 the highest percentage of LBW births in South Sulawesi based on the number of births in each district/city, namely in Sinjai Regency at 8.01%, Soppeng Regency 7.21%, Barru

Regency 7.17% , and Wajo Regency 6.09% . Meanwhile, in 2019, out of 24 regencies/cities in South Sulawesi, Pinrang Regency was ranked 13th with LBW births, which was 4.31% of the 7,191 births after previously being ranked 16th in 2017 with 3.06 LBW births. % of 7,006 births.

Although the incidence of LBW in Pinrang Regency has met the target of the 2015-2019 National Medium Term Development Plan (RPJMN), it is expected that the prevalence of LBW will decrease to 8% in 2019. However, the data shows that within two years the incidence of LBW in Pinrang Regency has experienced 1.25% increase.

Data obtained from RS. Aisyiyah St. Khadijah Pinrang Regency in 2019 stated that from 1522 the number of births was 60 (3.94%) LBW cases. Meanwhile, in 2020 from 1216 births there were 87 (7.1%) LBW cases. This shows that although the number of births in 2020 has decreased compared to 2019, the number of LBW births in 2020 is increasing compared to the previous year.

In the study of Marlenywati, et al (2015) with the title "Factors Affecting the Incidence of LBW at Dr. Soedarso Hospital Pontianak" showed that the proportion of mothers with anemia gave birth to LBW (63.3%) was greater than mothers who were not anemic. Mothers aged < 20 years and > 35 years gave birth to more LBW (33.3%) than mothers aged 20-35 years. The proportion of mothers with parity > 4 times giving birth to LBW 6 (54.5%) is smaller than mothers with parity 4 times. The proportion of mothers with gestational intervals < 2 years giving birth to LBW was 17 (23.3%), greater than mothers

with gestational intervals of 2 years. Mothers with antenatal care < 4 times gave birth to 12 LBW (29.3%), greater than mothers with antenatal care 4 times.

Based on the background of the problem above regarding the incidence of LBW, the researchers formulated the question "What factors influence the incidence of LBW in the hospital. Aisyiyah St. Khadijah, Pinrang Regency?". So the purpose of this study was to determine the factors of the incidence of LBW in the hospital. Aisyiyah St. Khadijah Pinrang Regency in terms of maternal age, parity, delivery history, and maternal hemoglobin levels.

PROCEDURE AND METHODS

This research was conducted at Aisyiyah St. Hospital. Khadijah, Pinrang Regency. The research method used is an analytic survey with a retrospective cohort approach. This research was located in RS. Aisyiyah St. Khadijah, Pinrang Regency in November 2020 to May 2021. The population in this study were 1216 newborns with a sample of 1148 newborns obtained from the total sampling data collection technique. In this study, the sample used was newborns who met the criteria.

Inclusion Criteria

Newborn in hospital. Aisyiyah St. Khadijah, Pinrang Regency in 2020 which is registered in the medical record book.

Exclusion Criteria

- 1) Fetal Death In The Womb (KJDR)
- 2) Twins born (gamelli)

- 3) Newborns born to mothers with health problems such as hepatitis B, hypertension, pre-eclampsia, eclampsia, and mothers with oligohydramnios.
- 4) Mother with incomplete medical record

Data Collection Procedure

Data collection is done by using using secondary data with research instruments using a data collection format. Data obtained from the delivery report then matched with the results of the hospital medical record. Aisyiyah St. Khadijah, Pinrang Regency.

Statistical data processing using SPSS computer software. The statistical test used is Chi-Square to determine the relationship between variables. If the p-value <0.05 indicates that there is an influence between the independent variable and the dependent variable and vice versa if the p-value > 0.05 indicates that there is no relationship between the independent variable and the dependent variable. Data analysis will be carried out using computerized techniques using SPSS. This study uses a significant level of 95%.

RESULTS AND DISCUSSION

Univariate Analysis

From the univariate results of each variable, the distribution is obtained as shown in the following table:

Table 1. Frequency distribution by birth weight of newborns in Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

BBL	Frequency (n)	Presentati on (%)
LBW (< 2500 grams)	87	7.6
BBLN (>2500 grams)	1061	92.4
Amount	1148	100

Based on table 5.1 it can be concluded that LBW is 87 (7.6%) while LBW is 1061 (92.4%).

Table 2. Frequency distribution based on maternal age at Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

Age	Frequency (n)	Presentation (%)
High Risk (Age < 20 Years and > 35 Years)	236	20.6
Low Risk (20 - 35 Years)	912	79.4
Amount	1148	100

Based on table 2 it can be concluded that the high risk age is 236 (20.6%) while the low risk age is 912 (79.4%).

Table 3. Frequency distribution based on parity of mothers giving birth at Aisyiyah St. Khadijah hospital Pinrang Regency in 2020.

parity	Frequency (n)	Presentation (%)
High Risk (Parity 4)	165	14.4
	983	85.6

Low Risk (Parity < 4)		
Amount	1148	100

Based on table 3 it can be concluded that the high risk parity is 165 (14.4%) while the low risk parity is 983 (85.6%).

Table 4 . The frequency distribution based on the history of the mother giving birth at the Aisyiyah St. Khadijah hospital Pinrang Regency in 2020.

Childbirth History	Frequency (n)	Presentation (%)
Ever Delivered Prematurely	3	0.3
Never Delivered Prematurely	1145	99.7
Amount	1148	100

Based on table 4, it can be concluded that the history of preterm delivery was 3

Bivariate Analysis

Table 6. Analysis resultsthe relationship between maternal age and the incidence of LBW in Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

Age	Birth Weight				Total		Statistics
	LBW		BBLN		F	%	
	F	%	F	%			
High Risk Age (Age < 20 Years and > 35 Years)	28	2.5	208	18.1	236	20.6	<i>P</i> = 0.005
Low Risk Age (20 – 35 Years Old)	59	5.1	853	74.3	912	79.4	
Amount	87	7.6	1061	92.4	1148	100	

(0.3%) while without a history of preterm delivery, there were 1145 (99.7%)

Table 5 . Frequency distribution based on maternal hemoglobin levels at Aisyiyah St. Khadijah hospital Pinrang Regency in 2020.

Mother's Condition	Frequency (n)	Presentation (%)
Anemia (Hb <11 gr%)	397	34.6
Normal (Hb 11 gr%)	751	65.4
Amount	1148	100

Based on table 5 shows that the condition of the mother with anemia was 397 (34.6%) while the condition of the mother who was not anemic was 751 (65.4%).

Based on table 6, it can be concluded that from 1148 samples there were 87 (7.6%) who gave birth to LBW and 1061 (92.4%) who did not give birth to LBW. Of the 87 (7.6%) who gave birth to LBW there were 28 (2.5%) with high risk age and 59 (5.1%) with low risk age. Meanwhile, from 853 (92.4%) who did not give birth to LBW, there were 208 (18.1%) with high risk age and 853 (74.3%) with low risk age.

After the Chi-Square analysis, the P value = 0.005, so that $p < \alpha$, the research hypothesis (H_a) is accepted, meaning that there is a significant relationship between maternal age and the incidence of LBW in the hospital. Aisyiyah St. Khadijah Pinrang Regency in 2020.

Table 7. Analysis resultsthe relationship between parity and the incidence of LBW at Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

parity	Birth Weight				Total		Statistics
	LBW		BBLN		F	%	
	F	%	F	%			
High Risk Parity (Parity 4)	15	1.3	150	13	165	14.3	P = 0.428
Low Risk Parity (Parity <4)	72	6.3	911	79.4	983	85.7	
Amount	87	7.6	1061	92.4	1148	100	

Based on table 7, it can be concluded that from 1148 samples there were 87 (7.6%) who gave birth to LBW and 1061 (92.4%) who did not give birth to LBW. Of the 87 (7.6%) who gave birth to LBW there were 15 (1.3%) high risk parity and 72 (6.3%) low risk parity. Meanwhile, from 1061 (92.4%) who did not give birth to LBW, there were

150 (13%) high risk age groups and 911 (79.4%) samples with low risk age.

After the Chi-Square analysis, the P value = 0.42, so that $p > \alpha$, the research hypothesis (H_a) was rejected, meaning that there was no significant relationship between the number of maternal parity and the incidence of LBW in the hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

Table 8. Analysis Results The relationship history of preterm labor with the incidence of LBW at Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

Childbirth History	Birth Weight				Total		Statistics
	LBW		BBLN		F	%	
	F	%	F	%			
Ever Delivered Prematurely	3	0.3	0	0	3	0.3	
Never Delivered Prematurely	84	7.3	1061	92.4	1145	99.7	P = 0.000
Amount	87	7.6	1061	92.4	1148	100	

Based on table 8, it can be concluded that from 1148 samples there were 87 (7.6%) who gave birth to LBW and 1061 (92.4%) who did not give birth to LBW. Of the 87 (7.6%) who There were 3 (0.3%) births with LBW with a history of preterm delivery and 84 (7.3%) without a history of preterm delivery Pinrang Regency in 2020

Meanwhile, out of 1061 (92.4%) who did not give birth to LBW, they were mothers without a previous history of preterm delivery. After conducting Chi-Square analysis using the alternative Exact Fisher Test, the value of P = 0.000, so that $p < \alpha$, the research hypothesis (H_a) was accepted, meaning that there was a significant relationship between the history of preterm labor and the incidence of LBW in the hospital. Aisyiyah ST Khadijah,

Table 9 Analysis Results the relationship between anemia and the incidence of LBW in Aisyiyah St. Khadijah hospital Pinrang Regency in 2020

Mother's Condition	Birth Weight				Total		Statistics
	LBW		BBLN		F	%	
	F	%	F	%			
Anemia (Hb <11 gr%)	31	2.7	36	31.9	39	34.6	P = 0.830
No Anemia (Hb 11 gr%)	56	4.9	69	60.5	75	65.4	
Amount	87	7.6	106	92.4	114	100	
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Based on table 5.9 it can be concluded that from 1148 samples there were 87 (7.6%) who gave birth to LBW and 1061 (92.4%) who did not give birth to LBW. Of the 87 (7.6%) who gave birth to LBW, 31 (2.7%) were anemic and 56 (4.9%) were not anemic. Meanwhile, from 1061 (92.4%) who did not

give birth to low birth weight, there were 366 (31.9%) anemia and 695 (60.5%) not anemia. This means that there is no significant relationship between anemia and the incidence of LBW in the hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

DISCUSSION

1. Relationship of Age with LBW Incidence in Hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

Based on the results of the study above, it can be seen that age is one of the factors associated with the incidence of LBW. It is said so because after the Chi-Square analysis, the value of $P = 0.005$ is obtained, which means it is smaller than (0.05). Thus it can be stated that there is a significant relationship between age and the incidence of LBW at Aisyiyah St. Hospital. Khadijah Pinrang Regency in 2020.

This study is in line with the research conducted by Veronica and Sandra (2015) with the title Relationship between Age and Mother's Parity with the Incidence of Low Birth Weight Babies, with the results that age has a relationship with the incidence of LBW, namely the p-value of 0.001 or <0.05 , which means agemothers giving birth with the incidence of LBW have a significant relationship.

Women who are pregnant at the age of <20 years are at risk of having premature labor and giving birth to low birth

weight. This happens because of the immaturity of the reproductive organs, especially the uterus which is not ready to receive the burden during pregnancy or malnutrition during pregnancy (Anggraini & Subakti, 2013). In addition, pregnancy at the age of >35 years also has the impact of giving birth to babies with low birth weight (<2500 grams). (Astuti, Susanti, Nurparindah, & Mandiri, 2017).

According to researchers, the age of the mother is closely related to the possibility of the occurrence of LBW. If the age of pregnant women is classified as a high-risk age, the more likely it is to give birth to LBW. Vice versa, if the age of pregnant women is classified as a low-risk age, the less likely it is to give birth to LBW. In addition, based on the data obtained by researchers, from 236 samples with high risk age, 61 samples aged <20 years were obtained. This means that early marriage in Pinrang Regency is still not well resolved.

2. Relationship of Parity with LBW Incidence in Hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

Based on the results of the study above, it can be seen that parity is not one

of the factors associated with the incidence of LBW. It is said so, because after the Chi-Square analysis, the p-value is 0.428 or > 0.05 , which means it is greater than the α -value. Thus it can be stated that there is no significant relationship between parity and the incidence of LBW at Aisyiyah St. Hospital. Khadijah, Pinrang Regency in 2020.

The results of this study are not in accordance with the theory which states that one of the causes of LBW from maternal factors is parity >4 . The 2004 Institute of Medicine report, mothers with high parity (delivery more than 3 times) tend to experience complications in pregnancy which ultimately affect the end of labor, and can even lead to premature labor and abortion. In mothers with parity more than 3 times, the risk of the child experiencing preterm labor is higher, this is because a pregnancy with high parity will stretch the uterus, so that it can cause abnormalities in the position of the fetus and placenta which will ultimately adversely affect the delivery process and the ability to conceive. straining during childbirth has begun to decrease in line with the age of the mother herself.

This study is in line with the research conducted by Veronica and Sandra (2015) with the title Relationship between Age and Mother's Parity with the Incidence of Low Birth Weight Babies. With the result that parity does not have a relationship with the incidence of LBW, it is obtained a p-value of 0.137 or > 0.05 , which means that parity and LBW do not have a significant relationship.

Based on the results of this study, the researcher argues that parity does not

associated with the incidence of LBW. However, based on the data obtained by the researchers, it was found that the number of high-risk parities who gave birth in the hospital. Aisyiyah St. Khadijah Pinrang Regency as many as 165 (14.4%) this means that there are still many mothers who give birth with high risk parity.

3. The Relationship of Premature Birth History with LBW Incidence in the Hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

Based on the results of the study above, it can be seen that a history of preterm delivery is one of the factors associated with the incidence of LBW. It is said that, because after the Chi-Square analysis using the alternative Exact Fisher Test, the p-value is 0.00 or < 0.05 , which means it is smaller than the α -value. Thus it can be stated that there is a significant relationship between a history of preterm labor and the incidence of LBW at Aisyiyah St. Hospital. Khadijah, Pinrang Regency in 2020.

The results of this study are in accordance with the theory which states that a history of preterm birth is strongly associated with previous preterm deliveries. The risk of repeated preterm delivery for those whose first birth was preterm increased threefold compared to women whose first baby reached term. Not only women who give birth preterm are at high risk of recurrent preterm birth, but this risk can also be passed on to their children (Cunningham, 2006).

A previous history of preterm birth is a mother who has experienced preterm labor in a previous pregnancy (Hacker,

2001). Mothers who are unable to give birth to babies until term can be caused by a weak mother's uterus or other factors whose cause is not yet known. (Amiruddin, Determinants of Maternal and Child Health, 2014).

Similarly, in a study conducted by Rohani and Wahyuni (2017) with the title The Relationship Between History of Premature Delivery and the Incidence of Low Birth Weight at Pringsewu General Hospital in 2014. With the result that a history of preterm delivery has a relationship with the incidence of LBW, the p-value is obtained 0.000 or <0.05 , which means a history of preterm labor and low birth weight have a significant relationship.

According to the researcher, the history of childbirth has a relationship with the incidence of LBW, this is evidenced from the sampling that has been carried out, there is no history of preterm labor in LBW births.

4. Relationship of Anemia with LBW Incidence in Hospital. Aisyiyah ST Khadijah, Pinrang Regency in 2020.

Based on the results of the study above, it can be seen that anemia is not a factor in the incidence of LBW. It is said so because after the Chi-Square analysis, the P value = 0.830, which means it is greater than (0.05). Thus it can be stated that there is no significant relationship between anemia and the incidence of LBW at Aisyiyah St. Hospital. Khadijah, Pinrang Regency in 2020.

The results of this study are not in accordance with the theory which states that anemia is one of the causes of LBW, low

hemoglobin at 12 weeks gestation causes a 1.7-fold risk for preterm birth. (Cunningham, 2006). Anemia can have a negative impact on the fetus, with anemia the body's metabolic ability will be reduced so that the growth and development of the fetus in the womb will be disrupted. So that it can result in abortion, intrauterine death, inhibition of fetal growth and development in the womb, high prematurity, and low birth weight. (Manuaba, 2007). So that the research was conducted by Fitri, et al (2019) with the title Relationship of Anemia and Hypertension with the Incidence of LBW at the Wates Health Center, Ujung Kulon Progo Regency.

Based on the results of this study, the researcher believes that anemia has no relationship with the incidence of LBW. However, in the results of this study, hemoglobin examination was carried out when the mother was about to give birth because at Aisyiyah St. Khadijah, Pinrang Regency, was not tested for hemoglobin during pregnancy unless there were complaints from pregnant women. However, in this study, 397 mothers gave birth with anemia, this shows that the incidence of anemia in mothers before delivery is quite high.

CONCLUSION

1. The age of the mother is closely related to the possibility of the occurrence of LBW events. If the age of pregnant women is classified as a high-risk age, the more likely it is to give birth to LBW. Vice versa, if the age of pregnant women is classified as a low-risk age,

the less likely it is to give birth to LBW. In addition, based on the data obtained by the researcher, from 236 samples with high risk age, 61 samples aged < 20 years were obtained. This means that early marriage in Pinrang Regency is still not well resolved.

2. Maternal parity has no relationship with the incidence of LBW. In addition, based on the data obtained by the researchers, it was found that the number of high-risk parities who gave birth at the hospital. Aisyiyah St. Khadijah Pinrang Regency as many as 165 (14.4%) this means that there are still many mothers who give birth with high risk parity.
3. Birth history has a relationship with the incidence of LBW, if a woman has a history of previous preterm labor, the risk of giving birth to LBW will be higher. This is evidenced from the sampling that has been done, there is no history of preterm labor in BBLN births.
4. Anemia is not associated with the incidence of LBW. In this study, hemoglobin examination was carried out when the mother was about to give birth because at the Aisyiyah St. Hospital. Khadijah, Pinrang Regency, was not tested for hemoglobin during pregnancy unless there were complaints from pregnant women. In this study, 397 mothers gave birth with anemia, this shows that the incidence of anemia in mothers before delivery is quite high.

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