JURNAL MIDPRO, Vol. 14 No. 02 (December, 2022) : 235-242 **E-ISSN: 2684-6764**
Terakreditasi Nasional Peringkat 4 No. 36/E/KPT/2019
Available Online at http: http://jurnalkesehatan.unisla.ac.id/index.php/midpro

Analysis Of Factors Associated With Low Birth Weight Events

[K]Sri Dinengsih[1], Nur Rahmi Hardiyati[2], Nurul Husnul Lail[3]
[1,2,3] Midwifery, Faculty of Health Science, University National of Jakarta
Correspondence author email ([K]): dini_alba@yahoo.com

ABSTRACT

Low birth weight (LBW) babies weighing less than 2500 grams have the common condition that they are smaller than normal birth weight babies. Babies with low birth weight are a major factor in increasing infant and child neonatal mortality, morbidity and disability and have a long-term impact on their future lives.
The purpose of this study was to analyze the factors associated with the incidence of low birth weight at Aulia General Hospital, South Jakarta. The research method is the design of an analytical survey with a cross sectional approach. The sample was 64 patients who gave birth to mothers in the maternal care room at Aulia Hospital, South Jakarta. Sampling using purposive sampling with questionnaires. The analysis was carried out using the chi square test. The results of a study of 64 mothers who gave birth at Aulia Hospital, South Jakarta, obtained 50% of low birth weight babies. Bivariate analysis obtained all variables of age (p value 0.000), anemia (p value 0.001), knowledge (p value 0.024), hypertension (p value 0.002), and anxiety (p value 0.000) <0.05 had a significant effect on birth weight. low. In conclusion, mothers who are at risk, have anemia, have low knowledge, have a history of hypertension, and feel anxious tend to experience low birth weight.
Advice for pregnant women to pay attention to pregnancy and fetal condition through ANC visits to health workers.

Keywords: anemia, anxiety, hypertension

Article history :

Received: 3June 2022
Received in revised form: 11 August 2022
Accepted: 28 September 2022
Available online: 1 December 2022

Licensed by Creative Commons Attribution-ShareAlike 4.0 International License.

INTRODUCTION

Infants with low birth weight (BBLR) are among the main factors in the increase in mortality, morbidity and neonatal disability of infants and children and have a long-term impact on their future lives [1]. There are 2.7 million neonatal deaths out of 20 million births worldwide each year and 15-20% are Low Birth Weight (BBLR) babies. In other words, there are at least more than 3 million Low Birth Weight babies (BBLR) who will be born each year. Most BBLR events occur in low- and middle-income countries and are also the most vulnerable populations. The highest Regional Estimates of Low Birth Weight (BBLR) were in South Asia (28%), in sub-Saharan Africa 13%, and 9% in Latin America [2].

Based on data reported to the Directorate of Family Health in 2019, of the 29,322 deaths under five, 69% (20,244 deaths) of them occurred during the neonatal period. Of all reported neonatal deaths, 80% (16,156 deaths) occurred in the first six-day period of life. Meanwhile, 21% (6,151 deaths) occurred at the age of 29 days - 11 months and 10% (2,927 deaths) occurred at the age of 12 - 59 months. In 2019, the most common cause of neonatal death was low birth weight (BBLR) [3].

Based on the results of bps DKI Jakarta Province, the incidence of low birth weight (BBLR) in South Jakarta from 2018 to 2020 has increased, namely from 2018 as many as 342 events in 2019 and 2020 as many as 1403 [events 4].

The incidence of low birth weight at Aulia Hospital, South Jakarta, has increased from 2020 by 188 births of low birth weight babies and in 2021 there were 290 births of babies with low birth weight, this makes the reason for writing to further research the factors related to the incidence of low birth weight babies at Aulia Hospital, South Jakarta.

Maternal factors related to birth weight are factors such as maternal age, parity, occupation, disease history, TFU, nutritional status and ANC frequency. Normal and abnormal physical changes can be detected with an Antenatal Care (ANC) examination. Antenatal Care is a service provided to pregnant women periodically to maintain the health of the mother and baby. The frequency of ANC services by WHO is set at four visits by pregnant women, during pregnancy with the provision of one time in the first trimester (K1), once in the second trimester (K2) and twice in the third trimester (K4). Abdominal examination (Leopold maneuver) in line with measuring TFU (height of the uterine fundus) can be used in predicting fetal body weight [5].

Pregnancy that occurs at the age of under 20 years or over 35 years has a tendency to not meet adequate nutritional needs for fetal growth which will have an impact on the baby's birth weight. The age of mothers less than 20 years during pregnancy is at risk of BBLR 1.5-2 times greater than pregnant women aged 20-35 years. Childbirth is more than three times at risk of complications such as bleeding and infection so there is a tendency for babies to be born with BBLR [6] conditions.

The factors that play the most role in the occurrence of BBLR are maternal factors, fetal factors and placental factors. Of the three factors, the maternal factor is the easiest to identify. Maternal factors related to BBLR include the mother's age (35 years), and socioeconomic factors (low socioeconomics, heavy physical work, lack of pregnancy checks, unwanted pregnancy), and other factors (smoking mothers, drug addicts, and alcohol). However, the factors that exist in one area from one another are different, depending on geographical, socioeconomic, and cultural factors [7].

The purpose of this research is to determine the relationship between the mother's age, history of anemia, knowledge, hypertension in pregnancy and maternal anxiety with the incidence of low birth weight at Aulia Hospital, South Jakarta.

METHOD

This research was conducted at RSU Aulia South Jakarta which is located at JL. Jeruk Raya No.15 RW 01, Kel. Jagakarsa, Kec. Jagakarsa, South Jakarta. Using analytical survey research design with *a cross sectional* approach. The samples, namely maternal patients who were treated in the maternal care room at Aulia Hospital, South Jakarta, totaled 64 people. Sampling using *purposive sampling* with questionnaires. Univariate data analysis with presentation and bivariate formulas using SPSS software with *a Chi-square* test of 95% confidence degree (α=0.05).

RESULTS

Table 1 Maternal characteristics based on mother's age, history of anemia, knowledge of hypertension in pregnancy and maternal anxiety with severe incidence of the baby

Variable	Sum	%
Baby Weight		
BBLR	32	50%
Usual	32	50%
Age		
Risky	30	46,9%
No Risk	34	53,1%
Anemia (Hb)		
Anema (Hb<11 gr/dl)	31	48,4%
No Anemia (Hb>11 gr/dl)	33	51,6%
Knowledge		
Tall	31	48,4%
Low	33	51,6%
Hypertension		
Hypertension	17	26,6%
No Hypertension	47	73,4%
Anxiety		
Anxious	33	51,6%
Not Anxious	31	48,4%

Based on table 1 above, 64 childbirth mothers were treated in the maternal care room at Aulia Hospital, South Jakarta, 32 (50%) showed the baby's weight with the BBLR category < 2,500 gr and as many as 32 (50%) showed the baby's weight with a normal category of > 2,500 gr. Of the 64 mothers who gave birth at Aulia Hospital in South Jakarta, 34 (53.1%) showed no risk age of 20-35 years, 33 (51.6%) were not anemic (HB > 11 gr/dl), 33 (51.6%) were low-knowledgeable, 47 (73.4%) were not hypertensive, and 33 (51.6%) were anxious.

Table 2
Relationship of Independent Variables to BBLR events

Variable	P-value	OR (95%CI)
Age	0,000	9,127
Anemia	0,001	5,622
Knowledge	0,024	0,314
Hypertension	0,002	0,133
Anxiety	0,000	7,667

Based on Table 2 above, it can be seen that: There is a significant relationship between age, anemia, knowledge, hypertension and anxiety with the incidence of BBLR, with a p *value* of 0.000 < α (0.05).

DISCUSSION

That of the 64 mothers giving birth at Aulia Hospital, South Jakarta, as many as 30 people whose age is at risk of 23 (76.7%) experiencing BBLR. There is a significant association between age and BBLR. Mothers whose age is at risk (< 20 and >35 years) have a 9-time chance of experiencing BBLR compared to mothers whose age is not at risk (20-35 years).

The results of this study in accordance with study [8] stated that there was a meaningful relationship between the age of pregnant women and the incidence of low birth weight babies. Mothers who become pregnant at too young or too old have a 4-time risk of giving birth to a baby with BBLR. In contrast to the research results of Burhan *et al.* , (2022) stated that there is no relationship between the age of the mother and the low birth weight in the work area of the Somba Opu Health Center, Gowa Regency in 2021.

According to [10] BBLR risks can be experienced by mothers in all age groups. Each one-year increase or decrease in the mother's age will increase or decrease by 4.3 grams of the weight of the baby born.

Mothers who gave birth at Aulia Hospital, South Jakarta, were mostly aged 20-35 years (not at risk) as many as 34 people. Researchers assume that the mother's age is a risk factor for the incidence of low birth weight, because at the age of < 20 years the physiological function is not optimal and the

psyche is not mature enough so that when she is pregnant, she cannot respond well to her pregnancy. Meanwhile, at the age of > 35 years, they are susceptible to preeclampsia, hypertension, and other degenerative diseases, so premature birth can occur resulting in BBLR.

There is a significant association between anemia and BBLR. Anemic mothers have a 6-time chance of experiencing BBLR compared to mothers who are not anemic.

The results of this study in accordance with study [9] stated that there was a relationship between maternal anemia and the incidence of BBLR. Mothers with high-risk anemia are at 7 times greater risk of giving birth to BBLR than mothers with low-risk anemia.

Pregnant women with anemia can result in a reduced blood supply in the fetal placenta which can affect the function of the placenta to the fetus. The decrease in hemoglobin levels in pregnant women occurs due to an imbalance between red blood cells and blood plasma counts caused because during the pregnancy process there are physiological changes in the mother. This will affect oxygen to the uterus and interfere with intra-nutrient conditions which have an impact on mothers giving birth to BBLR [11].

The incidence of anemia in pregnant women is caused by iron deficiency (Fe). Anemia can be caused by the infrequent use of mothers doing ANC so they do not get Fe tablets in the available health services. The behavior of pregnant women who do not consume Fe tablets regularly that have been given in health services or daily food that pregnant women consume cannot be sufficient nutritional coverage for both the mother and the fetus [12]. Lack of Fe intake can disrupt the immune system which can then increase the body's susceptibility to disease infections such as genital infections, urinary tract infections, malaria, and hepatitis [13].

Midwives at Aulia Hospital, South Jakarta, mothers who gave birth at Aulia Hospital, South Jakarta, were mostly not anemic (Hb > 11 gr/dl) as many as 33 people. Researchers assume that, anemia (Hb < 11 gr/dl) in pregnancy is at risk of premature delivery and low birth weight. The lower the Hb level, the higher the risk of mothers giving birth to BBLR.

There is a significant relationship between knowledge and BBLR. Low-knowledge mothers have a 0.3 times chance of experiencing low birth weight compared to highly knowledgeable mothers.

The results of this study in accordance with study [1] stated that there is a relationship between knowledge of the incidence of low birth weight babies in the Sanggiran Health Center, West Simeulue District. In contrast to the results of the [14] study , there was no meaningful relationship between knowledge and the incidence of BBLR.

Knowledge or cognitive is a very important domain for the formation of one's behavior. The behavior of pregnant women in consuming foods with balanced nutrition both before pregnancy and during pregnancy can reduce the risk of BBLR [15]. Well-informed mothers will respond positively to the risk of BBLR events. A positive response will encourage preventive measures so that the baby's weight

remains normal

Mothers who gave birth at Aulia Hospital, South Jakarta, were mostly low-knowledge as many as 33 people. Researchers assume that, maternal knowledge is an important factor to prevent the risk of premature labor and BBLR. Low-knowledge mothers are largely unaware of what factors can influence the incidence of BBLR. The lower the knowledge of pregnant women, the higher the risk of BBLR.

There is a significant association between hypertension and BBLR. Mothers who are hypertensive have a 0.1 chance of experiencing BBLR compared to mothers who are not hypertensive.

The results of this study are in accordance with study [16] states that there is a relationship between hypertension in childbirth and the incidence of BBLR at Dr. H. Moch Ansari Saleh Banjarmasin Hospital. Maternity mothers with hypertension have a 3-time chance of experiencing BBLR compared to mothers who are not hypertensive.

Hypertension in pregnancy, needs special treatment. According to [17] when pregnant women experience hypertension, the supply of food and oxygen to the fetus is reduced due to the narrowing of blood vessels. A reduced supply of food and oxygen will cause fetal development in the womb to be hampered and an increased risk of BBLR.

Mothers who gave birth at Aulia Hospital, South Jakarta, were mostly not hypertensive as many as 47 people. Researchers assume that hypertension during pregnancy and childbirth affects the incidence of BBLR. Early detection of hypertension during pregnancy and childbirth is very important as an effort to reduce the incidence of BBLR.

There is a significant association between anxiety and BBLR. Anxious mothers have an 8-time chance of experiencing BBLR compared to non-anxious mothers.

The results of this study are in accordance with study [18] states that there is a relationship between the level of anxiety and the parity of the III trimester of pregnancy at the Jongaya Health Center, Makassar City. Meanwhile, the results of study [19] stated that there was a relationship between knowledge and maternal anxiety. This means that there will be anxiety in the mother due to lack of knowledge from the mother, the power of closeness is 65.6%.

The level of anxiety greatly affects the well-being of pregnant women and the fetus in the womb. Low levels of anxiety in pregnant women can reduce the complications caused so that it can indirectly reduce the risk of BBLR, while high levels of anxiety can aggravate complications and the incidence of BBLR [20].

Anxiety can occur during the pregnancy process, because during pregnancy the mother will experience changes in physical and psychic functions where the process of adjustment to the condition then causes anxiety. The mother's anxiety level becomes more acute and intensive in the last week of

gestational age as the birth of the baby approaches. Anxiety has proven to be a mental disorder that often occurs in pregnant women, including being more present in the third trimester of pregnancy [21].

Mothers who gave birth at Aulia Hospital, South Jakarta, mostly experienced anxiety as many as 33 people. Researchers assume that, the anxiety that occurs as a result of the mother's age being at risk and low knowledge. Anxiety during pregnancy affects the incidence of BBLR. The level of maternal knowledge, family support, and support of health workers during pregnancy are very important to reduce anxiety in pregnant women as an effort to reduce the incidence of BBLR.

CONCLUSION

Respondents whose age was not at risk as much as 53.1%, no anemia as much as 51.6%, low knowledge as much as 51.6%, no hypertension as much as 73.4%, and experienced anxiety as much as 51.6%.variables were significantly related to low birth weight in mothers giving birth at Aulia Hospital, South Jakarta. The age at risk has the most dominant chance of 9 times experiencing low birth weight compared to the age that is not at risk.

It is recommended to pregnant women to pay attention to their pregnancy and the condition of the fetus through an ANC visit to health workers.

REFERENCES

1. Herliana. *Factors Influencing the Incidence of Low Birth Weight Babies in Maternity Mothers at the Sanggiran Health Center, West Simeulue District in 2019*.; 2019.
2. WHO. Newborn Health. World Health Organization.
3. Ministry of Health. *Basic Health Research*. Balitbang Kemenkes RI; 2020.
4. BPS DKI Jakarta. Number of Babies Born, Low Birth Weight Babies (BBLR), Referred BBLR, and Less Nutritious Toddlers According to Regencies/Cities in DKI Jakarta Province 2018-2021. Central Bureau of Statistics.
5. Sabili MI. *factors influencing the incidence of low birth weight (BBLR) in the working area of the Tanralili Health Center, Maros Regency*.; 2019.
6. Rosita S, Afrianti T. Relationship of Maternal Factors with BBLR Incidence in Toddlers at the Indrajaya Health Center, Aceh Jaya Regency. *J Education, Science, and Hum*. 2021;9(3):518-525.
7. Halu SAN. The Relationship between Mother's Socioeconomic Status and the Incidence of Low Birth Weight at the La'o Health Center. *J Health Insights*. 2019;4(2):74-80.
8. Khoiriah A. The Relationship Between Age and Parity of Maternity Mothers with Low Birth Weight Babies (BBLR) at Siti Khadijah Islamic Hospital Palembang. *J Health*. 2017;8(2):310-314.
9. Burhan SL, Bujawati E, Syarfaini S, Adha AS. Maternal anemia and low birth weight in Gowa Regency, Indonesia. *Diver dis prev res integr*. 2022;2(2):98-109.
10. Sadarang RAI. Study of Low Birth Weight Incidence in Indonesia: Data Analysis of Indonesia's Demographic and Health Survey in 2017. *J Kesmas Jambi*. 2021;5(2):28-35.
11. Haryanti SY, Pangestuti DR, Kartini A. Anemia and SEZ in Pregnant Women as Risk Factors for the Incidence of Low Birth Weight Babies (BBLR) (Study in the Working Area of the Juwana Health Center, Pati Regency). *J Health Masy*. 2019;7(1):322-329.
12. Nur AF. Anemia and Incidence of Low Birth Weight at Anutapura Palu General Hospital. *J Nutrition and Health*. 2018;2(2):63-66.

13. Aditianti, Djaiman SPH. Effect of Pregnant Women's Anemia on Low Birth Weight: A Meta-Analysis Study of Several Countries From 2015 To 2019. *J Reproductive Health*. 2020;11(2):163-177.
14. Permatahati R. *Factors influencing the incidence of low birth weight (BBLR) in the Puskesmas area of Tanjung Priok District, North Jakarta in 2018*.; 2018.
15. Ramadhani F, Hano YH. Determinants of the Incidence of Low Birth Weight Babies (BBLR) in Gorontalo. *J Kesmas Untika Luwuk*. 2020;11(2):37-42.
16. Hestiyana N, Razy F. Correlation of Hypertension in Childbirth with the Incidence of Low Birth Weight Babies (BBLR) at DR. H. Moch Anshari Saleh Banjarmasin Hospital. *Natl Semin Obstetrics*. 2019;1(1):177-187.
17. Syafira IT. Relationship of Gestational Hypertension with BBLR Incidence Rate. *J med hutama*. 2021;3(1):1519-1523.
18. Salim N. *Relationship of Anxiety Level with Parity of Iii Trimester Pregnancy at Jongaya Health Center, Makassar City*.; 2020.
19. Abdulhaq M, Sumirih. The Relationship between Knowledge and Anxiety Levels of Primipara and Multipara Mothers whose Babies are Treated in the Neonate Intensive Care Unit (NICU) Room of Mh. Thamrin Salemba Hospital. *J Afiat*. 2018;4(2):571-582.
20. Siallagan D, Lestari D. Anxiety Level facing Childbirth Based on Health Status, Gravidity and Age in the Jombang Puskesmas Work Area. *J Midwivery*. 2018;1(2):104-110.
21. Silva MMJ, Nogueira DA, Clapis MJ, Leite EPRC. Anxiety in Pregnancy: Prevalence and Related Factors. *Rev Da Esc Enferm*. 2017;51:1-8.