Risk Factor Analysis Of Low Birth Weight Events (LBW) At Kartika Husada Hospital

Santi Herawati[1*], Feva Tridiyawati[2]

[1,2] Sekolah Tinggi Ilmu Kesehatan Abdi Nusantara, Indonesia
*Corresponding Author:
Email: santiheraa82@gmail.com

Abstract.
WHO and UNICEF data, in 2013 around 22 million babies were born in the world, of which 16% of them were born with low birth weight babies. Indonesia ranks third as a country with the highest prevalence of LBW (11.1%), after India (27.6%) and South Africa (13.2%). In addition, Indonesia is also the second country with the highest prevalence of LBW among ASEAN countries, after the Philippines (21.2%). The impact of LBW on babies is at risk for degenerative diseases, and babies will experience mental disabilities if the baby experiences a lack of nutrition for a long time. Knowing the analysis of risk factors for low birth weight events. Analytical with a cross-sectional design. The sample in this study was 95 babies born at Kartika Husada Hospital Bekasi in January-June 2021 (systematic random sampling). Most pregnant women did not give birth to low birth weight babies (69.5%), aged 20-35 years (89.5%), did not have preeclampsia (94.7%), gestational age 37-42 weeks (76.8%), and did not KPD (84.2%). There is a relationship between maternal age, pre-eclampsia, gestational age and KPD with the incidence of LBW at Kartika Husada Bekasi Hospital in 2022 (p. value <0.005).There is a relationship between maternal age, pre-eclampsia, gestational age and KPD with the incidence of LBW at Kartika Husada Bekasi Hospital in 2022. It is hoped that pregnant women will try to prevent the occurrence of KPD which can cause the birth of LBW babies.

Keywords: *KPD, Maternal Age, and Gestational Age and LBW.*

I. INTRODUCTION

The infant mortality rate (IMR) is an indicator commonly used to determine the degree of public health, both at the provincial and national levels. One of the main contributing factors to infant mortality is low birth weight infants (LBW). LBW is distinguished in two categories, namely (1) LBW due to premature (gestational age less 37 weeks), and (2) LBW due to intra uterine growth retardation (IUGR), which is a baby who is born quite a month but underweight (Roesli, 2018).According to WHO (2019) reported, babies with low birth weight contribute as much as 60 to 80% of all neonatal deaths and have a risk of death 20 times greater than normal-weight babies. Based on WHO and UNICEF data, in 2013 around 22 million babies were born in the world, of which 16% were 2 born with Low Birth Weight Babies. The percentage of LBW in developing countries is 16.5% twice as large as in developed countries (7%). Indonesia is one of the developing countries that ranks third as the country with the highest prevalence of LBW (11.1%), after India (27.6%) and South Africa (13.2%). In addition, Indonesia is also the second country with the highest prevalence of LBW among other ASEAN countries, after the Philippines (21.2%) (WHO, 2020). Based on the results of Basic Health Research (RISKESDAS) in 2018, the proportion of birth weight < 2500 grams (LBW) in infants from all provinces in Indonesia is 6.2% (This percentage is the average result of all LBW cases that occur throughout Indonesia (RISKESDAS, 2018).

Low Birth Weight (LBW) is still a major public health issue, with an estimated 15-20% of all births worldwide being LBW representing more than 20 million births per year. Although there are variations in the prevalence of LBW in each country, almost 95.6% of them are in developing or low-socioeconomic countries.The World Health Assembly has targeted a 30% reduction in the incidence of LBW by 2025. This means that there is a relative decline of 3.9% per year between 2012-2025. It is therefore important to have accurate prevalence data on the LBW population and risk factors, so as to plan specific care patterns for the prevention and management of LBW infants in the maternity unit so that neonatal and perinatal morbidity and mortality rates can be significantly reduced (Zulkarnain, 2018). One of the indicators to determine the degree of health of a nation is characterized by high maternal and infant mortality rates, the Sustainable Development Goals (SDGs) target in reducing neonatal mortality has not been achieved. LBW is the leading cause of newborn death. LBW is the leading cause of prenatal death. Most babies with LBW are born in de-

veloping countries at 96.5%, especially in areas where populations are vulnerable (Tiro, 2018). The impact of LBW on mothers is that mothers will feel fear and anxiety about their children (psychological impact), while the impact on babies is at risk of developing degenerative diseases, and babies will experience mental disabilities if the baby is malnourished for a long period of time.

Babies who experience LBW can be overcome by giving exclusive breastfeeding for 6 months and given complementary foods after 6 months, and breastfeeding mothers must consume foods that can improve the quality of breast milk, such as green vegetables (Pantiawati, 2017). The occurrence of LBW can be caused by various factors such as, factors of mothers with malnutrition during pregnancy, age less than 20 years or over 35 years, the distance between pregnancy and childbirth is too close, chronic diseases of the mother (hypertension, heart, vascular disorders etc.). Too heavy a work factor. Pregnancy factors are pregnant with hydramnios, multiple pregnancy, antepartum bleeding, pregnant complications (pre-eclampsia or eclampsia, premature rupture of the amniotic). Fetal factors are congenital defects, infections in the uterus and various factors that are still unknown (Manuaba, 2018).Data obtained from medical records of Kartika Husada Hospital Bekasi, obtained the number of maternity mothers with low birth weight babies in 2019 amounted to 131 neonates (7.04%) from the number of births as many as 1,862 neonates, in 2020 the number of LBW was 130 neonates (7.89%) of the total number of births as many as 1,649 neonates, while in 2021 the number of LBWs was 111 neonates (6.47%) of the total number of births as many as 1,716 neonates. Based on the data above, researchers are interested in conducting a study entitled "Analysis of risk factors for low birth weight events at Kartika Husada Hospital Bekasi in 2022"

II. METHODS

Analytics with cross sectional design. The samples in this study were some of the babies born at Kartika Husada Hospital Bekasi in January-June 2021 as many as 95 babies (systematic random sampling). The analysis method used is univariate and bivariate analysis with chi square test

III. RESEARCH RESULTS

Table 1. Frequency Distribution of Respondents By LBW, Age, Gestational Age, Pre Eclampsia and KPD

Variabel	Frekuensi	%
LBW		
LBW	29	30,5
No LBW	66	69,5
Total	**95**	**100,0**
Age		
<20 years	0	0,0
20-35 years	85	89,5
> 35 years	10	10,5
Total	**95**	**100,0**
Pre eclampsia		
Yes	5	5,3
No	90	94,7
Total	**95**	**100,0**
Gestational Age		
Matur	73	76,8
Premature	22	23,2
Postmature	0	0,0
Total	**95**	**100,0**
KPD		
Yes	15	15,8
No	80	84,2
Total	**95**	**100,0**

Based on the table above, it can be seen that based on LBW, most respondents did not give birth to LBW as many as 66 people (69.5%), and LBW as many as 29 people (30.5%). Based on the age of most respondents aged 20-35 years as many as 85 people (89.5%), aged > 35 years as many as 10 people (10.5%)

and aged < 20 years were not found (0%). Based on pre-eclampsia, most respondents did not experience pre-eclampsia as many as 90 people (94.7%) and those who experienced pre-eclampsia as many as 5 people (5.3%). Based on gestational age, most respondents gave birth at 37-42 weeks gestational age (matur) as many as 73 people (76.8%), who gave birth at <37 weeks gestational age (premature) as many as 22 people (23.2%) and who gave birth at >42 weeks gestational age (postmatur) were not found (0%). Based on KPD, most respondents did not experience KPD as many as 80 people (8.2%) and those who experienced KPD as many as 15 people (15.8%).

Table 2. Relationship of Age to LBW Incidence

Age	LBW				Total		*P. Value*
	LBW		No LBW				
	F	%	F	%	F	%	
20-35 years	21	24,7	64	75,3	85	100,0	
>35 years	8	80,0	2	20,0	10	100,0	**0,001**
Total	**29**	**30,5**	**66**	**69,5**	**95**	**100,0**	

Based on the table above, it can be seen that of the 85 respondents aged 20-35 years, most of them did not give birth to LBW as many as 64 people (75.3%). Of the 10 respondents aged >35 years, most gave birth to LBW of 8 people (80.0%). The results of cross tabulation between age variables and LBW incidence showed that Chi-Square statistical test results obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between the age of pregnant women and the incidence of LBW.

Table 3. Relationship of Preeclampsia To LBW Occurrence

Pre eclampsia	LBW				Total		*P. Value*
	LBW		No LBW				
	F	%	F	%	F	%	
Yes	5	100,0	0	0,0	5	100,0	
No	24	26,7	66	73,3	90	100,0	**0,002**
Total	**29**	**30,5**	**66**	**69,5**	**95**	**100,0**	

Based on the table above, it can be seen that out of 5 respondents who were pre-eclampsia, all of them gave birth to LBW as many as 5 people (100.0%). Of the 90 respondents who did not pre-eclampsia, the majority gave birth without LBW as many as 66 people (73.3%). The results of cross tabulation between pre-eclampsia variables and LBW events showed that the Chi-Square statistical test results obtained a value of P.0.002 (P.Value < 0.05) which means that there is a significant relationship between pre-eclampsia and LBW incidence

Table 4. Relationship of Gestational Age to LBW Incidence

Gestational Age	LBW				Total		*P. Value*
	LBW		No LBW				
	F	%	F	%	F	%	
Mature (37-42 mg)	12	16,4	61	83,6	73	100,0	
Premature (< 37 mg)	17	77,3	5	22,7	22	100,0	**0,001**
Total	**29**	**30,5**	**66**	**69,5**	**95**	**100,0**	

Based on the table above, it can be seen that of the 73 respondents with a mature gestational age (37-42 weeks) most did not give birth to LBW as many as 61 people (83.6%). Of the 22 respondents with premature gestational age (<37 weeks) most gave birth to LBW as many as 17 people (77.3%). The results of cross-tabulation between the variables of gestational age and the incidence of LBW showed that the results of the Chi-Square statistical test obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between gestational age and the incidence of LBW

Table 5. Relationship of KPD to LBW Events

KPD	LBW				Total		*P. Value*
	LBW		No LBW				
	F	%	F	%	F	%	
Yes	10	66,7	5	33,3	15	100,0	
No	19	23,8	61	76,3	80	100,0	**0,002**
Total	**29**	**30,5**	**66**	**69,5**	**95**	**100,0**	

Based on the table above, it can be seen that out of 15 respondents who experienced KPD, most of them gave birth to LBW as many as 10 people (66.7%). Of the 80 respondents who did not KPD, most did not give birth to LBW peers 61 people (76.3%). The results of cross tabulation between the KPD variable and the LBW event showed that the Chi-Square statistical test results obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between KPD and LBW incidence.

IV. DISCUSSION

Frequency Distribution of Respondents Based on LBW, Age, Gestational Age, Pre Eclampsia and KPD

From the results of the study, it can be seen that based on LBW, most respondents did not give birth to LBW as many as 66 people (69.5%), and LBW as many as 29 people (30.5%). Based on the age of most respondents aged 20-35 years as many as 85 people (89.5%), aged > 35 years as many as 10 people (10.5%) and aged < 20 years were not found (0%). Based on pre-eclampsia, most respondents did not experience pre-eclampsia as many as 90 people (94.7%) and those who experienced pre-eclampsia as many as 5 people (5.3%). Based on gestational age, most respondents gave birth at 37-42 weeks gestational age (matur) as many as 73 people (76.8%), who gave birth at <37 weeks gestational age (premature) as many as 22 people (23.2%) and who gave birth at >42 weeks gestational age (postmatur) were not found (0%).

Based on KPD, most respondents did not experience KPD as many as 80 people (8.2%) and those who experienced KPD as many as 15 people (15.8%). From the results of this study, we can know that most respondents did not give birth to LBW, were aged 20-35 years, did not experience pre-eclampsia, gave birth at 37-42 weeks gestation (matur) and did not experience KPD. This is because the safe age for pregnancy and childbirth is the age of 20-35 years according to the theory of Wiknjosastro, (2017) which says that the optimal age for pregnancy and childbirth is in the age group of 20-35 years because at that age all reproductive organs are ready to carry out their functions, so they do not experience pre-eclampsia, KPD and mature childbirth. The highest percentage of babies with low birth weight is found in the group of women aged < 20 years and women over 40 years old. This happens because they do not yet have a placental transfer system as efficiently as adult women.

Age Relationship with LBW Incidence

The results of this study can be seen that of the 85 respondents aged 20-35 years, most of them did not give birth to LBW as many as 64 people (75.3%). Of the 10 respondents aged >35 years, most gave birth to LBW of 8 people (80.0%).The results of cross tabulation between age variables and LBW incidence showed that Chi-Square statistical test results obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between the age of pregnant women and the incidence of LBW. The results of this study are in accordance with the theory of Wiknjosastro, (2017) which says that the optimal age for pregnancy and childbirth is in the age group of 20-35 years because at that age all reproductive organs are ready to perform their functions. Low Birth Weight also correlates with the mother's age. The highest percentage of babies with low birth weight is found in the group of women aged < 20 years and women over 40 years old.

LBW births are higher in young mothers less than 20 years old. Women aged < 20 years often give birth to babies with a lower weight. This happens because they do not yet have a placental transfer system as efficiently as adult women. The results of this study are in line with the results of the research of Reineldis Elsidianastika Trisnawati (2020), who said that the Chi-square test results obtained a p-value of 0.004 (p<0.05), meaning that there is a meaningful relationship between the mother's age and the incidence of LBW.According to the opinion of researchers from the results of research conducted at Kartika Husada Hospital Bekasi, it was found that most pregnant women aged 20-35 years and did not give birth to LBW, this is because pregnant women with the age of 20-35 years are a safe productive age for pregnancy and childbirth because the reproductive organs are mature. For pregnant women aged >35 years, most of them give birth to LBW, this is because pregnant women with the age of >35 years have their reproductive organs begun to weaken so that many complications in pregnancy and childbirth have experienced many complications.

Relationship of Preeclampsia With LBW Occurrence

From the results of the study, it can be seen that out of 5 respondents who were pre-eclampsia, all of them gave birth to LBW as many as 5 people (100.0%). Of the 90 respondents who did not pre-eclampsia, the majority gave birth without LBW as many as 66 people (73.3%). The results of cross tabulation between pre-eclampsia variables and LBW events showed that the Chi-Square statistical test results obtained a value of P.0.002 (P.Value < 0.05) which means that there is a significant relationship between pre-eclampsia and LBW events. The results of this study are in accordance with the theory of Manuaba, (2018), which says that preeclampsia can cause the occurrence of LBW, high blood pressure which results in a decrease in acidic substances flowing from the mother and to the fetus conceived through the placenta, decreased blood flow to the placenta resulting in impaired placental function so that fetal growth will be disturbed causing the baby to be born with LBW.

The results of this study are in line with the results of the research of Ni Nyoman Hartati (2018), who said that there is a relationship between Preeclampsia and Low Birth Weight (LBW) with a p value of 0.000. In the opinion of researchers from the results of the study, it was found that most pregnant women did not experience preeclampsia and did not give birth to LBW. From the results of this study, there were also respondents who did not experience pre-eclampsia but gave birth to LBW, this is because what causes LBW babies to be born is not only preeclampsia but many factors such as multiple pregnancies, KPD, gestational age etc. For pregnant women who experience preeclampsia and LBW, this is caused by impaired blood flow from placenta so that fetal growth is disturbed.

The Relationship between Gestational Age and LBW Incidence

From the results of the study, it can be seen that of the 73 respondents with a mature gestational age (37-42 weeks) most did not give birth to LBW as many as 61 people (83.6%). Of the 22 respondents with premature gestational age (<37 weeks) most gave birth to LBW as many as 17 people (77.3%). The results of cross tabulation between the variables of gestational age and the incidence of LBW showed that the results of the Chi-Square statistical test obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between gestational age and the incidence of LBW. The results of this study are in accordance with Sarwono's theory (2018) which says that the most common cause of LBW is premature birth. Preterm or preterm labor is a delivery that occurs at 22-37 weeks gestation. Preterm delivery is dangerous because it has the potential to increase perinatal mortality by 65%-75%, generally associated with low birth weight. Low birth weight can be caused by preterm birth and stunted fetal growth.

The results of this study are in line with the results of the research of Reineldis Elsidianastika Trisnawati (2020), who said that the Chi-square test results obtained a p-value result of 0.023 (p<0.05), meaning that there is a relationship between gestational age and the incidence of LBW.According to the opinion of researchers from the results of research conducted at Kartika Husada Hospital Bekasi, most pregnant women give birth within matur gestational age (37-42 weeks) and most of them are not LBW, for a small number of respondents there are those who give birth to LBW, this is due to the occurrence of LBW in matur childbirth due to congenital diseases from their mothers so that they give birth to LBW babies. For respondents who gave birth in premature gestational age (<37 weeks) most gave birth to LBW babies, this is because there are several factors, one of which is inconsistent and harmonious growth due to retroplaster circulation disorders and malnutrition, and babies born less than a month old are still physically immature so they are born with LBW.

The Relationship of KPD to LBW Events

From the results of the study, it can be seen that out of 15 respondents who experienced KPD, most of them gave birth to LBW as many as 10 people (66.7%). Of the 80 respondents who did not KPD, most did not give birth to LBW peers 61 people (76.3%). The results of cross tabulation between KPD variables and LBW events showed that the results of the Chi-Square statistical test obtained a value of P.0.001 (P.Value < 0.05) which means that there is a significant relationship between KPD and LBW events The results of this study are in accordance with the theory of Nugroho (2017), which says that KPD in the latent period is the biggest cause of premature labor with all its consequences such as LBW. KPD affects the incidence of LBW in childbirth at 34-36 weeks gestation. The results of this study are in line with Septika Zahra (2018), which

shows that the results of her study found a meaningful relationship between early rupture amniotic and LBW p value 0.010.

In the opinion of researchers from the results of the study, most pregnant women who experienced KPD gave birth to LBW babies, this is because amniotic rupture early occurs at <37 weeks gestation which will cause the baby to be born LBW. Rupture of the amniotic membrane can also stimulate the onset of contractions that allow for labor to occur less than a month. Therefore, mothers with KPD must get proper treatment. Mistakes in managing KPD will lead to an increase in maternal and infant morbidity rates. In pregnancies less months the associated risk of prematurity is greater than the risk of infection after an early rupture of the amniotic. Pure prematurity when the gestation period is less than 37 weeks and the body weight is in accordance with the body weight for the gestation period or also called neonates less months according to the gestation period. KPD needs fast treatment because if there is premature labor due to KPD which is at risk of infection while the baby has LBW will facilitate an increase in morbidity and mortality in newborns with rupture of the amniotic membrane, it will occur direct connection between the outside world and the fetus. This will increase the risk of infection both in the mother and in the fetus.

V. CONCLUSION

Most pregnant women did not give birth to LBW (69.5%), aged 20-35 years (89.5%), did not preeclampsia (94.7%), gestational age 37-42 weeks (76.8%), and did not KPD (84.2%). There is a relationship between maternal age, pre-eclampsia, gestational age and KPD with the incidence of LBW at Kartika Husada Hospital Bekasi in 2022 (p. value < 0.005).

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