SJIF Impact Factor: 5.464

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 4.
Issue: 6.
Page N. 194-198
Year: 2020

Original Article www.wjahr.com

THE EFFECT OF AGE, PARITY, AND INCOME ON LOW BIRTH WEIGHT (LBW) IN BONDOWOSO, EAST JAVA, INDONESIA

Sherly Indira Purnama Dewi*[1], Isa Ma'rufi[2], Ristya Widi Endah Yani[3]

[1]Postgraduate Student at Faculty of Public Health, Jember University.
[2]Faculty of Teacher Training and Education, Jember University.
[3]Faculty of Public Health, Jember University.

Received date: 12 October 2020 **Revised date:** 02 November 2020 **Accepted date:** 23 November 2020

***Corresponding author: Sherly Indira Purnama Dewi**

Postgraduate Student at Faculty of Public Health, Jember University.

ABSTRACT

Low Birth Weight (LBW) is the strongest predictor of mortality in the first few months of life and is a major determinant of mortality, morbidity and disability in infancy and childhood. Until now, low birth weight is still a public health problem in many countries, because it is considered to be one of the factors causing infant mortality. Some of the factors that influence the occurrence of LBW are the socio-demographic characteristics of the mother (age less than 20 and more than 34 years old), socioeconomic status, education level. Maternal medical risks before pregnancy also play a role in the incidence of LBW including maternal parity, maternal weight gain during pregnancy, whether or not she has delivered a baby with LBW, and birth spacing. The reproductive health status of the mother at risk of LBW includes the nutritional status of the mother during pregnancy, the status of antenatal care includes the frequency and quality of antenatal care, the health worker at the place for pregnancy examination, the age of the womb at the first pregnancy check-up can also be at risk of giving birth to LBW (Sistriani, 2008). This study aims to analyze the effect of age, parity and income on the incidence of low birth weight in Bondowoso Regency, East Java, Indonesia. This research is categorized into quantitative research using a case control approach, while data analysis uses bivariate data analysis with logistic regression analysis. The research sample was taken by cluster random sampling as many as 192 respondents. The results of data analysis showed the parity variable, and the income showed a value of $p < 0.05$ so that the two variables had an effect on the incidence of LBW.

KEYWORDS: Low Birth Weight, Age, Parity, Income.

INTRODUCTION

The Low Birth Weight (LBW) is an indicator of public health because the incidence of LBW is closely related to mortality, morbidity and incidence of malnutrition in the future. LBW is a baby born with a birth weight of less than 2,500 grams regardless of gestation. Infants with low birth weight are a very complex problem and contribute to various poor health outcomes because they not only increase the risk of non-communicable diseases such as diabetes and cardiovascular disease (UNICEF, 2008).[1]

The World Health Organization (WHO, 2016) states that Indonesia ranks 5th as the country with the highest number of premature babies in the world and preterm birth is identified as the biggest contributor to infant mortality. Based on 2016 data from the Central Bureau of Statistics, the infant mortality rate (IMR) reaches 25 deaths for every 1,000 babies born. Health profile of East Java Province, Bondowoso Regency according to data from the Central Statistics Agency is the third highest district in East Java with an incidence of LBW of 706 cases out of 5,315 live births (6.9%). The Bondowoso Health Service report states that the prevalence of LBW has increased every year.

Some of the factors that influence the occurrence of LBW are the socio-demographic of the mother (age less than 20 and more than 34 years old), socio-economic status, and education level. Maternal medical risks before pregnancy also play a role in the incidence of LBW including, maternal parity, maternal weight gain during pregnancy and height, having given birth to a baby with LBW, birth spacing. The reproductive health status of the mother at risk for LBW includes the nutritional status of the mother during pregnancy, infections and diseases during pregnancy, a history of pregnancy and

complications during pregnancy, the mother's Hb level during pregnancy.

METHOD

This research is a quantitative analytic study using a case control design. The sampling technique was using cluster sampling. The number of samples taken in this study were 192 respondents. This research was conducted in all Puskesmas in Bondowoso Regency. Analysis technique The data used in this research is the Logistic Regression Test.

RESULT

The characteristics of the respondents in this study are; age, occupation, and education. The distribution of respondent characteristics as many as 192 respondents can be seen in Table 1.

Table 1: Distribution of Respondent Characteristics.

		LBW			
		LBW		Non-LBW	
Qualification		**n**	**%**	**n**	**%**
Age	< 19 y.o	7	10,9	9	7,0
	20-34 y.o	53	82,8	112	87,5
	> 35 y.o	4	6,3	7	5,5
	Total	64	100	128	100
Occupation	Housewife	57	89,0	94	73,4
	Entrepreneur	6	9,4	20	15,6
	Teacher	1	1,6	12	9,4
	health workers	0	0	2	1,6
	Total	64	100	128	100
Education Level	PS	40	62,5	60	46,9
	JHS	9	14,0	29	22,7
	SHS	14	21,9	23	18,0
	DIPLOMA	0	0	4	3,0
	BACHELOR	1	1,6	12	9,4
	Total	64	100	128	100

Table 1 showed that the age of the respondents who had babies with LBW 20-34 y.o were 53 respondents (82.8%), while the age distribution who did not have babies with LBW at the age of 20-34 years was 112 respondents (87.5%) . Based on the distribution of work, the most respondents who had a history of LBW were housewife as many as 57 respondents (89.0%), while those housewife who did not have a history of LBW were 94 respondents (73.4%). Based on the education level of respondents who had babies with LBW the most were Primary School graduate as many as 40 respondents (62.5%), while for respondents who did not have babies with LBW in this category as many as 60 respondents (46.9%).

Multivariate analysis using logistic regression statistical tests showed that there was an effect of age, parity, and income variables on the incidence of LBW in Bondowoso Regency. Logistic regression analysis can be seen in Table 2:

Tabel 2: Analysis of the Effect of Nutritional Status, ANC, Parity, and Income on the LBW.

		LBW						95% CI	
No	**Category**	**LBW**		**Non-LBW**		**P value**	**EXP(B)**	***Lower***	***Uper***
		n	**%**	**n**	**%**				
1	**Age**					0,213	2,180	0,640	7,424
	<19 y.o	7	3,6	9	4,7				
	20-34 y.o	53	27,6	112	58,3				
	>35 y.o	4	2,1	7	3,6				
2	**Parity**					0,027	0,157	0,030	0,814
	<3	5	2,6	8	4,2				
	>4	59	30,7	120	62,5				
3	**Income**					0,007	2,404	1,269	4,554
	<Minimum wage	36	18,8	46	24,0				
	Minimum wage	28	14,6	82	42,7				

The results of this study indicate that the age of respondents who have LBW age is at most 20-34 years as much as 27.6%, the age variable has no influence on the occurrence of LBW because the pvalue is> 0.05, the OR variable age is 2.180. the risk of LBW. Respondents with the highest parity variable who had given birth> 4 times was 30.7%, the parity variable was not a risk factor for LBW. Parity variables had an effect on the occurrence of LBW the resulting P value <0.05. In the income variable, the most cases of LBW occurred in the category of respondents with income below minimum wage, which was 18.8%. Income has an influence on the incidence of LBW because the P value <0.05, the income variable is a risk factor for LBW, the OR value obtained is 2.404 where the OR> 1 is a risk factor for the occurrence of LBW.

DISCUSSION

The Effect of Maternal Age on Low Birth Weight.

Pregnant women when they are too young (less than 17 years) and too old (more than 34 years) have a high level of risk. Pregnancy at a young age is very risky because the reproductive organs are immature to get pregnant (the endometrium is not yet perfect) while at the age above 35 the endometrium is less fertile and increases the likelihood of suffering from congenital abnormalities, so that it can affect the health of the mother as well as the development and growth of the fetus that is being conceived. Pregnancy at the age of the mother is less than 20 years old is not biologically optimal so that her emotions tend to be unstable, her mentally immature so that she is easy to experience shocks which results in a lack of attention to meeting the needs of nutrients during pregnancy. Whereas at the age of> 34 years it is associated with decline and decreased endurance and various diseases that often afflict this age.[5]

The reproductive organs at a young age are still immature so they are still susceptible to LBW. Pregnancy at the age of> 35 years also has a higher risk of LBW birth due to degeneration of the reproductive organs and hormonal balance disorders. Inadequate function of the placenta, which results in underproduction of progesterone and affects uterine irritability, causing cervical changes which in turn lead to preterm birth. The age of pregnant women who are older is also associated with the presence of accompanying diseases.[8]

The results showed that the P value in the variable age> 0.213, age did not affect the incidence of LBW. The results of this study are in line with research conducted by Wahyu Ernawati that there is no significant relationship between maternal age and the incidence of LBW, statistically obtained a value of ρ value> 0.05, namely p-value = 0.35. The results of this study are not in line with Winkjosastro's (2007) theory which states that the healthy reproductive age is 20-34 years old. At this time is the optimal period of time for a woman to get pregnant because the female reproductive organs are now ready and mature, as well as the mother's psychology. That readiness is the growth and readiness of the baby in the mother's womb to grow optimally, while mothers who are less than 20 years old and over 35 years are at risk of giving birth to low birth weight babies (LBW).[14]

The Effect of Parity on Low Birth Weight.

In the effect of parity, mothers who have given birth to children more than three times are at risk of giving birth to LBW babies, this is because the state of the uterus is usually weak due to decreased reproductive organs so that muscle cells begin to weaken and other body parts have decreased so that can cause and increase the incidence of low birth weight.[2] Parity is the number of deliveries experienced by pregnant women before delivery or pregnancy now. In general, LBW increases with increasing maternal parity. Parity is high risk if the parity frequency is ≥4 times, and low risk if the parity frequency is <4 times. The more frequently pregnant women and giving birth, the closer the pregnancy and birth are, the more impaired the elasticity of the uterus is, as a result the uterus does not contract completely and results in post-pregnancy bleeding and preterm birth or LBW.[7]

LBW occurs because the mother's reproductive system has experienced depletion as a result of frequent childbirth. The results of this study are not in accordance with Manuaba's theory from the point of parity divided into: one parity is not safe, 2-3 parity is safe for pregnancy and childbirth and a parity of more than 3 is not safe. Because babies with LBW often occur at parity above five because at this time there has been a decline in function of the reproductive organs. High parity will have an impact on the emergence of various health problems for both mothers and babies born. One of the health impacts that may arise from high parity is associated with the incidence of LBW.[16] The results of research conducted by Wahyudi Hafid (2018) entitled Analysis of the determinants of LBW at Tani and Nelayan Hospital, stated that parity has a significant relationship to the incidence of LBW with p value = 0.000 (p <α 0, 05).[2] Mothers with parity of more than 4 have the risk of giving birth to LBW, this can be caused by multigravida mothers (parity more than 4) because mothers often give birth to the uterine wall that has begun to decline in function so that the nutrient intake to the fetus is reduced, and also the possibility will experience problems in their health including anemia, malnutrition, looseness in the abdominal wall and uterus causing LBW.[9] Parity is a high risk factor for LBW, where mothers with parity> 3 children will be at risk of 2 times giving birth to LBW.[2] Most primigravida (first time pregnant) has not been able to adapt to the hormones estrogen and gonadotropins, in contrast to muligravidas who are more prepared for physical and mental changes during pregnancy due to previous pregnancy experiences, primigravida mothers need more adaptation for their physical and mental readiness. Meanwhile, pregnancy spacing of less than 2 years and

more than 3 years (high birth spacing) can increase the risk of death in mothers who are frequently pregnant. The short pregnancy interval causes the mother to be too tired due to pregnancy, the risk of bleeding, anemia in the mother, baby disabilities, and LBW babies.[3]

The Effect of Household Income on Low Birth Weight. Income is the amount of income received by the community for a certain period of time as remuneration for the production factors produced and contributed to participating in shaping the national product. The level of income of the mother's family in this case is the income that enters a family every one month from various source of work done by family members which is stated in rupiah. Indirectly, family income will affect the incidence of LBW because generally mothers with low family income will have lower food intake both in quality and quantity which will result in low nutritional status of the pregnant woman. Mothers with low socioeconomic levels tend to have lower levels of visits to health facilities compared to pregnant women with high socioeconomic levels.[17]

The factors that influence LBW vary according to different environments. The UNICEF conceptual framework shows that socio-economic status is the root of the problem of nutrition. Socioeconomic status is also associated with the incidence of LBW (Demelash et al. 2015).[18] In low income countries, LBW is associated with a bad environment that has an independent effect on child development (Gibney et al. 2005).[19]

Household income is related to nutritional problems such as low birth weight and stunting. Research by Mauludyani et al. (2012) stated that family income is related to nutritional problems with stunting. Mother with good socioeconomic status allows pregnant women to be in a better environment, such as away from exposure to cigarette smoke and heavy work. Good socioeconomic conditions can also ensure adequate nutrition during pregnancy to obtain optimal fetal outcomes. Low economic status will have an impact on food consumption and utilization of health services. In addition, good socio-economic conditions also keep pregnant women in a state of stress which can disturb the hormonal balance of the mother (Contrada et al. 2011).[21]

The results of the multivariate test obtained a coefficient value of 0.007, this coefficient value is less than the value of a (0.05) so it can be concluded that income has an influence on the incidence of LBW. This research is also in line with the research conducted by Mai Linda Dwi Rahayu entitled the influence of maternal characteristics, behavior and socioeconomic on the birth of LBW babies in Sidoarjo district in 2016 which states that there is a relationship between income and the incidence of LBW with a P value of 0.005. Family income can affect many things, including nutritional intake, education level, stress, and also access to health services, where this can affect the incidence of LBW, especially for pregnant women.[10]

CONCLUSION

LBW is still the highest number in Bondowoso Regency where the factors that influence the occurrence of BBLR are Parity and Income. The need for public education about the number of healthy births to reduce the occurrence of LBW. The important role played by the local government is related to the UMR value and also the employment opportunities in Bondowoso Regency so that community income increases.

REFERENCE

1. UNICEF. Global Database on Low Birthweight, 2008.
2. Fatima Anggi Jayanti, Yudhy Dharmawan, Ronny Aruben. 2017. Faktor-Faktor Yang Berhubungan Dengan Kejadian Berat Badan Lahir Rendah Di Wilayah Kerja Puskesmas Bangetayu Kota Semarang Tahun 2016. Jurnal Kesehatan Masyarakat (e-Journal), Oktober 2017; 5(4). (ISSN: 2356-3346) http://ejournal3.undip.ac.id/index.php/jkm.
3. Annisa Khoiriah. 2017. Hubungan Antara Usia dan Paritas Ibu Bersalin dengan Bayi Berat Lahir Rendah (BBLR) di Rumah Sakit Islam Siti Khadijah Palembang. Jurnal Kesehatan, Agustus 2017; VIII(2): 310-314. https://ejurnal.poltekkes-tjk.ac.id/index.php/JK/article/view/508/460.
4. Chaerul Reza dan Nunik Puspitasari. Determinan Bayi dengan Berat Badan Lahir Rendah. Jurnal Biometrika dan Kependudukan, Desember 2014; 3(2): 96–106.
5. Diniyah nashitatu, AtikaR, Musafah. Faktor resiko yang berhubngan dengan berat bayi baru lahir di wilayah kerja puskesmas martapura, kabupaten banjar. Jurnal publikasi kesehatan masyarakat Indonesia, vol.3. no.3, tahun 2016. http://ppjp.unlam.ac.id/journal/index.php/jpkmi/article/view/2757, 2016.
6. Faradilla Monita, Donel Suhaimi, Yanti Ernalia. Hubungan Usia, Jarak Kelahiran Dan Kadar Hemoglobin Ibu Hamil Dengan Kejadian Berat Bayi Lahir Rendah Di Rsud Arifin Achmad Provinsi Riau. Jom FK Volume 3 No. 1 Februari, 2016.
7. Analisis Determinan Kejadian Berat Bayi Lahir Rendah (BBLR) di RSUD Tani dan Nelayan Wahyuni Hafid1), Fraining Deisi Badu2) dan Lili Pramutia Laha. Gorontalo journal of public helath, april 2018; 1(1).
8. Hasanah Nining, Titik. K, Lingga. K. Faktor-Faktor Yang Berhubungan Kejadian Bayi Berat Lahir Rendah (BBLR) Diruang BBRT Rsup Dr. Kariadi Semarang. Jurnal Dinamika Kebidanan, 2013; 4(2).
9. Manuaba, I. Ilmu Kebidanan, Penyakit Kandungan dan keluarga berencana untuk pendidikan Bidan. EGC: Jakarta, 1998.

10. P. Rochjati. Skrining Antenatal pada Ibu Hamil. Surabaya: Pusat Penerbitan dan Percetakan Unair (AUP), 2003.
11. Proverawati,Atikah. BBLR (Berat Badan Lahir Rendah). Yogyakarta: Nuha Medika, 2010.
12. Saifudin,AB. Ilmu Kebidanan edisi keempat.Jakarta. Yayasan Bina Pustaka, 2010; 775.
13. Sulistyoningsih,Hariyani. 2011. Gizi Untuk Kesehatan Ibu Dan Anak. Yogyakarta: Graha Ilmu.
14. Tanberika, Fajar S, Rokhanawati, Dewi. Hubungan Frequensi Antenatal Care Dengan Berat Bayi Lahir Rendah Di Rumah Sakit PKU Muhammadiyah Yogyakarta, Yogyakarta. Skripsi Stikes Aisyiyah Yogyakarta, 2010.
15. Winkjosastro. 2007. Ilmu kebidanan. Jakarta: yayasan Bina pustaka prawirohardjo Manuaba. Ilmu Penyakit Kebidanan, Kandungan Dan Pelayanan KB Untuk Pendidikan Bidan. EGC: Jakarta, 2007.
16. Fatimah anggi jayanti,yudhi D, Ronny A. 2017. Faktor-Faktor Yang Berhubungan Dengan Kejadian Berat Badan Lahir Rendah Di Wilayah Kerja Puskesmas Bangetayu Kota Semarang Tahun. JURNAL KESEHATAN MASYARAKAT (e-Journal), 2016; 5(4). tahun 2017. http://ejournal3.undip.ac.id/index.php/jkm.
17. Demelash H, Motbainor A, Nigatu D, Gashaw K, Melese A. Risk factors for low birth weight in Bale zone hospitals, South-East Ethiopia : case-control study. BMC Pregnancy & Children, 2015; 15(1): 264-274.
18. Gibney MJ, Margetts BM, Kaerney JM, Arab L. Gizi Kesehatan Masyarakat. Jakarta: EGC, 2005.
19. Mauludyani AVR, Fahmida U, Santika. Undernutrition prevalence among children under two years old in Indonesia during Economic crisis and its related factors. J Gizi Pangan, 2012; 7(3): 169-174.
20. Contrada RJ, Baum A. The Handbook of Stress Science: Biology, Psychology, and Health. New York: Springer Publishing Company, 2011.