Analysis of Maternal Factors Affecting The Incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro, East Java

by Zulfa Nurusyafa Arofatulloh

Submission date: 11-Oct-2021 08:00AM (UTC+0800)
Submission ID: 1670388471
File name: rth_Weight_LBW_at_Kanor_Health_Center,_Bojonegoro,_East_Java.pdf (206.04K)
Word count: 5980
Character count: 31049

Analysis of Maternal Factors Affecting The Incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java

Zulfa Nurusyafa Arofatulloh[1], Martono Tri Utomo[2]*, and Linda Dewanti[1,3]

[1]Department of Midwifery Education, Faculty of Medicine University Airlangga 60132, Surabaya, East Java, Indonesia
[2]Department of Child Health, Faculty of Medicine University Airlangga 60132, Surabaya, East Java, Indonesia
[3]Department of Public Health And Preventive Medicine, Faculty of Medicine University Airlangga 60132, Surabaya, East Java, Indonesia
Corresponding Author : mrmartono73@gmail.com

Abstract

Background: Low birth weight (LBW) babies are one of the health problems that are a serious concern in several developing countries. Low birth weight (LBW) is a condition when a baby is born weighing < 2500 grams. LBW contributes 60%-80% of all neonatal deaths in the world. LBW can be caused by factors originating from the mother, fetus or from the surrounding environment. This study aims to analyze maternal factors that influence the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro, East Java. **Methods:** This research method is observational analytic with a case control research approach. The number of samples was 52 (26 groups of cases and 26 control groups), the sampling technique of the case group used total sampling and the control group used simple random sampling with the determination of inclusion criteria and exclusion criteria. The independent variables were Chronic Energy Deficiency (CED), maternal weight gain during pregnancy, gestational age at birth, comorbidities (anemia and pre-eclampsia), parity, pregnancy interval, and frequency of Antenatal Care (ANC). The dependent variable consisted of the case group (LBW) and the control group (Not LBW). The research data is secondary data in the from of a cohort of mothers and toddlers in January-December 2020. Data analysis is in the form of univariate and bivariate analysis. Statistical tests in the form of Chi-Square test and Fisher's Exact Test. **Results:** statistical test results obtained Chronic Energy Deficiency (CED) status p(sig)=0,100, maternal weight gain during pregnancy p(sig)=0,006, gestational age at birth p(sig)=0.014, comorbidities (anemia and preeclampsia) anemia p(sig)=1.247 and preeclampsia p(sig)=0.490, parity p(sig) = 0.554, gestational interval p(sig)=0.056, frequency of Antenatal Care (ANC) p(sig)=0.026. **Conclusion:** there is a correlation between maternal weight gain during pregnancy, gestational age at birth and frequency of Antenatal Care (ANC) and there is no significant correlation between Chronic Energy Deficiency (CED), comorbidities (anemia and preeclampsia), parity and distance pregnancy on the incidence of LBW at Kanor Health Center, Bojonegoro , East Java.

Keywords: Low Birth Weight Babies;Maternal Risk Factors;Health Problems

I. Introduction

Low birth weight (LBW) is a condition where the baby at birth weighs <2500 grams [1]. Measurement of this baby's weight should ideally be carried out a few hours after the baby is born, before significant postpartum weight loss occurs [2]. The incidence of low birth weight babies (LBW) is one of the health problems that is still a concern in various countries, especially developing countries with low socioeconomic status. The weight of the baby at birth will affect the welfare of the baby itself and will have an important effect on growth and development as well as opportunities for defense in the future [3]. Babies weighing <2500 grams when they are born will make babies vulnerable to exposure to the surrounding environment. This situation makes LBW babies often get general complications, both short-term general complications and long-term general complications [4].

The incidence of low birth weight babies (LBW) is influenced by several factors, the factors that influence the incidence of LBW are very diverse. These factors can come from the mother, the condition of the fetus and environmental factors. Maternal factors may include age, parity, pre-pregnancy body mass index, hemoglobin level, poor obstetric history (history of stillbirth/neonatal death in previous pregnancies, three or more spontaneous abortions), pre-eclampsia, and compliance with maternal visits [5]. The fetal factors that may be a factor in the incidence of LBW are related to the pathological condition of the fetus that affects the growth and development of the intrauterine fetus, so that the baby is born with low weight [6]. Conditions that can be a factor in the incidence of LBW include multiple pregnancies, hydramnios, chromosomal abnormalities, congenital defects and TORCH infections (Toxoplasma, Rubella, Cytomegalovirus and Herpes) in pregnancy [7]. In addition to maternal and fetal factors, there are also environmental factors which include exposure to cigarette smoke, both active and passive smokers, educational status and the economic status of mothers and families that affect maternal health status [8].

The incidence of low birth weight babies (LBW) contributes 60-80% of all neonatal deaths in the world, according to the global prevalence of LBW cases reaching 15.5% which means that 20 million LBW babies are born each year, and 95% of them are in developing countries. Developing [9]. The results of the study of seven multicenter areas in Indonesia obtained LBW rates with a susceptibility of 2.1-17.2%, while in East Java the infant mortality rate (IMR) and neonatal mortality rate (NMR) showed an absolute number of 4,016 babies died per year and was 4,338 children under five die per year [10]. According to statistical records, from the province of East Java from 2020 to June, Bojonegoro Regency was ranked 2nd after Jember Regency with the highest number of IMR in East Java. This case was dominated by the incidence of neonatal complications of 60% [11]. Neonatal complications include prematurity and/or low birth weight (LBW) infants, newborn infections, and infants with asphyxia. According to the Bojonegoro District Health Office report, 2020 LBW and prematurity still the main causes of infant mortality in Bojonegoro district. Data from the East Java statistical agency, Bojonegoro district, has 811 LBW cases out of 16,785 baby births in Bojonegoro district [12].

The results of the initial survey at the Kanor Health Center conducted in March 2021. It is estimated that the number of LBW in January-December 2020 reached 39 cases out of 799 births, with the number of births per month between 20-30 births assisted by midwives at the Kanor Health Center. Meanwhile, the infant mortality rate at the Kanor Public Health Center reached 8 cases from January to December 2020. From the survey results, it was also found that the characteristics of the population in Kanor sub-district, Bojonegoro district are village residents whose majority still believe in the ancestral culture that developed in the community. One of these cultures is the existence of dietary restrictions on the mother during her pregnancy, the dietary restrictions that are followed by the mother are allegedly able to affect the welfare of the mother and fetus during pregnancy. From this explanation, it is necessary to have this study with the aim of analyzing maternal factors that influence the incidence of low birth weight babies (LBW) at Kanor Health Center, Bojonegoro Regency. The hypothesis of this study is that there is a relationship between Chronic Energy Deficiency (CED), maternal weight gain during pregnancy, gestational age at birth, comorbidities (anemia and preeclampsia), exposure to cigarette smoke, parity, pregnancy interval, and frequency of Antenatal Care (ANC) to the incidence of low birth weight babies (LBW) at Kanor Health Center, Bojonegoro , East Java.

II. Method

This research is an observational analytic research type with a case control approach. The population in this study were all mothers who gave birth with the incidence of low birth weight (LBW) with a total of 39 cases and mothers who gave birth without LBW in January-December 2020 at the Kanor Health Center, Bojonegoro Regency, East Java. The sampling technique used is non-probability sampling with sampling in the case group (LBW) using total sampling and in the control group (not LBW) using simple random sampling. With a ratio of 1:1, there were 52 samples consisting of 26 case groups and 26 control groups.

The independent variables in this study were Chronic Energy Deficiency (CED), maternal weight gain during pregnancy, gestational age when the baby was born, comorbidities (anemia and preeclampsia), exposure to cigarette smoke, parity, pregnancy interval, and frequency of Antenatal Care (ANC). The dependent variable consisted of the case group (LBW) and the control group (Not LBW). In this study, the data used were secondary data in the form of cohort data for mothers and children under five who were recorded at the Kanor Health Center. Processing techniques include editing, coding, entry, cleaning, data tabulation and data analysis. Data analysis in this study used univariate and bivariate analysis. Bivariate analysis used statistical tests in the form of Chi-Square test and Fisher's Exact Test.

III. Result

Respondents in this study were 52 respondents consisting of 26 case groups, namely mothers who gave birth to low birth weight babies (LBW <2500 grams) and the control group, namely mothers who gave birth to babies with low birth weight (not LBW 2500 grams). The following table provides an overview of the characteristics of mothers who are respondents in this study:

Table 1. General Characteristics of Research Subjects in the Case Group and Control Group at Kanor Health Center, Bojonegoro Regency, East Java

Characteristics		N	%
Mother's Age	20-34 Years	44	84,62
	≥ 35 Years	8	15,38
LBW	LBW	26	50
	Not LBW	26	50
BMI Before Pregnancy	Underweight (<18,5)	8	15,38
	Normal (18,5-24,9)	35	67,31
	Overweight (25,0-29,9)	7	13,46
	Obesity (≥30)	2	3,85
Weight during childbirth	<50 Kg	3	5,77
	50-60 Kg	24	46,15
	>60 Kg	25	48,08
Height	Short 145 cm	3	5,77
	Not Short >145 cm	49	94,23
Gestational Age when the Baby is Born	Term (≥37 weeks)	37	71,15
	Premature (<37 weeks)	15	28,85

Chronic energy deficiency (CED)	CED (<23,5 cm)	12	23,08
	Not CED (≥23,5 cm)	40	76,92
Weight Gain	Normal	27	51,92
	Abnormal	25	48,08
Parity	Primipara	17	32,69
	Multipara and Grande Multipara	35	67,31
Pregnancy Distance	Close (<2 years)	4	7,69
	Not Close (≥2 years old and Primipara)	48	92,31
Comorbidities (Anemia and Preeclampsia)	Anemia	23	44,23
	No Anemia	29	55,77
	Preeclampsia	2	3,85
	No Preeclampsia	50	96,15
Frequency of Antenatal Care (ANC)	Standard (≥4 Times)	29	55,77
	Non-standard (<4 times)	23	44,23

Table 2. The Correlation of Chronic Energy Deficiency (CED) to the Incidence of Low Birth Weight Babies (LBW)

Chronic energy deficiency (CED)	**Birth Weight**				
	LBW		**Not LBW**		**Chi-square Test**
	N	**%**	**N**	**%**	**p(sig)**
CED (MUAC<23,5)	9	34,62	3	11,54	0,100
Not CED (MUAC ≥23,3)	17	65,38	23	88,46	

From table 2 it is found that p(sig)>0.05, it can be interpreted that there is no significant correlation between chronic energy deficiency (CED) and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 3. The Correlation of Maternal Weight Gain During Pregnancy to the Incidence of Low Birth Weight Babies (LBW)

Weight Gain	**Birth Weight**				
	LBW		**Not LBW**		**Chi-square Test**
	N	**%**	**N**	**%**	**p(sig)**
Abnormal	18	69,23	7	26,92	0,006
Normal	8	30,77	19	73,08	

From table 3 it is found that p(sig) < 0.05, it can be interpreted that there is a significant correlation between maternal weight gain during pregnancy and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 4. The Correlation of Gestational Age at Birth to Low Birth Weight (LBW) Babies

Gestational Age	Birth Weight				
	LBW		Not LBW		Chi-square Test
	N	%	N	%	p(sig)
Premature (<37 Weeks)	12	46,15	3	11,54	0,014
Term (≥37 Weeks)	14	53,85	23	88,46	

From table 4 it is found that p(sig) < 0.05, it can be interpreted that there is a significant correlation between gestational age when the baby is born and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 5. The Correlation of comorbid disorders (anemia and preeclampsia) to the incidence of low birth weight babies (LBW)

Anemia comorbid disorders	Birth Weight				
	LBW		Not LBW		Chi-square Test
	N	%	N	%	p(sig)
No Anemia	12	46,15	17	65,38	1,247
Anemia	14	53,85	9	34,62	
Preeclampsia comorbid disorders					
No Preeclampsia	24	92,31	26	100	0,490
Preeclampsia	2	7,69	0	0	

From table 5 it is found that p(sig)> 0.05, it can be interpreted that there is no significant correlation between comorbid disorders (anemia and preeclampsia) with the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 6. The Correlation of Parity to the Incidence of Low Birth Weight (LBW) Babies

Parity	Birth Weight				
	LBW		Not LBW		Chi-square Test
	N	%	N	%	p(sig)
Primipara	10	38,46	7	26,92	0,554
Multipara and Grande Multipara	16	61,54	19	73,08	

From table 6 it is found that p(sig)>0.05, it can be interpreted that there is no significant correlation between parity and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 7. The Correlation between Pregnancy Distance and Low Birth Weight (LBW) Infants

Pregnancy Distance	Birth Weight				
	LBW		Not LBW		*Fisher's Exact Test*
	N	%	N	%	p(sig)
Close (<2 Years)	1	6,25	3	15,79	0,610
Not Close (≥2 Years)	25	93,75	23	84,21	

From table 7 it is found that p(sig)> 0.05, it can be interpreted that there is no significant correlation between gestational distance and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

Table 8. The Correlation of Antenatal Care (ANC) Frequency to the Incidence of Low Birth Weight (LBW) Babies

Antenatal Care (ANC) Frequency	Birth Weight				
	LBW		Not LBW		Chi-square Test
	N	%	N	%	p(sig)
Non-standard (<4 Times)	16	61,54	7	44,23	0,026
Standard (≥4 Times)	10	38,46	19	55,77	

From table 8 it is found that p(sig) < 0.05, it can be interpreted that there is no significant correlation between the frequency of antenatal care (ANC) with the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

IV. Discussion

4.1 The Correlation of Chronic Energy Deficiency Status (KEK) to the Incidence of Low Birth Weight Babies (LBW)

Determination of DEC is based on the measurement of upper arm circumference (MUAC), mothers who have MUAC <23.5 belong to mothers with DEC status, mothers who have MUAC ≥23.5 belong to mothers with no DEC status. Table 2 shows that mothers who gave birth to LBW and mothers who gave birth to non-LBW were equally dominated by mothers who had no DEC status. Supported by the results of statistical tests using the chi-square test p(sig)> 0.05 which means that there is no significant correlation between chronic energy deficiency (DEC) status and the incidence of low birth weight (LBW) infants at the Kanor Health Center, Bojonegoro regency, East Java.

The results of research such as research conducted by H., Cyinthia Putri, P., siti Fatimah, and M., Zen Rahfiludin (2017) which found that there was no correlation between chronic energy deficiency (CED) status and the incidence of LBW in the work area Public health center Undaan, Undaan Subdistrict, Kudus Regency with p(sig)=0.127 [13]. However, the results of the study are not in line with the research conducted by Fatimah and Yuliani (2019) which found that there was a correlation between chronic energy deficiency (CED) status and the incidence of LBW in the work area Public health center Rajadesa p(sig) = 0.000 [14]. The MUAC measurement in Indonesia can be used to measure nutrition in early pregnancy, the MUAC measurement in Indonesia is a tool to measure nutritional estimates in early pregnancy for the mother and this method is considered effective because in general women in Indonesia do not know their pre-pregnancy weight so that BMI cannot be known for determine the nutritional status of the mother [15].

4.2 The Correlation of Maternal Weight Gain During Pregnancy To The Incident Of Low Birth Weight Babies (LBW)

Maternal weight gain during pregnancy was calculated from weight at the end of pregnancy minus weight at the beginning of pregnancy, weight gain was adjusted for weight gain according to the mother's body mass index (BMI). From table 3, mothers who gave birth to LBW were dominated by mothers who had insufficient weight gain, while mothers who gave birth to not LBW were dominated by mothers who had sufficient weight gain. Supported by the results of statistical tests using the chi-square test p(sig) <0.05, which means that there is a significant correlation between maternal weight gain and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro regency, East Java.

The results of this study are in line with research conducted by Asniatin (2017) which states that there is a correlation between weight gain during pregnancy and the incidence of LBW at the Sentolo I Health Center Kulon Progo with p(sig) = 0.011 [16]. However, this is not in line with the research conducted by Salsabila (2018) which stated that there was no correlation between weight gain during pregnancy and the incidence of LBW in Dr. Soewandhie hospital Surabaya with p(sig)=0.494 [17].

Maternal weight gain during pregnancy is often associated with components during pregnancy, namely components in the fetus and tissues in the mother [18].

4.3 The Correlation of Gestational Age at Birth to Low Birth Weight Babies (LBW)

Gestational age is defined as the gestational age at the termination of a pregnancy. Gestational age at birth is divided into 3, namely preterm gestational age (<37 weeks), term gestational age (≥37 weeks) and gestational age postterm gestational age (> 42 weeks). From table 4, it is found that at term gestational age (<37 weeks) it is dominated by mothers who give birth to LBW, while at term gestational age (≥37 weeks) it is dominated by mothers who give birth to LBW. Supported by the results of statistical tests using the chi-square test p(sig) <0.05, which means that there is a significant correlation between gestational age at birth and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro regency, East Java.

The results of this study are in line with Septiani and Ulfa (2018) which states that there is a correlation between gestational age when the baby is born with the incidence of LBW in the working area of the Peudada Public Health Center, Bireuen Regency with a value of p(sig) = 0.012 [19]. The results of this study are also in line with the research of Purwanto and Wahyuni, (2016) which states that there is a correlation between gestational age when the baby is born and the incidence of LBW at the Kedangsari Mother and Child Hospital in Surabaya [20].

4.4 The Correlation of Comorbid Disorders (Anemia and Preeclampsia) to the Incidence of Low Birth Weight Babies (LBW)

Disorders of comorbidities can be seen from the health history records of pregnant women. From table 5 it is found that in mothers who gave birth to low birth weight and had history of anemia there were 14 respondents and in mothers who did not have history of anemia there were 12 respondents. Mothers who gave birth without LBW were dominated by mothers who did not have the history of anemia. Based on the statistical test using the chi-square test p(sig)> 0.05. Meanwhile, in preeclampsia comorbid disorders, mothers who gave birth to LBW and gave birth to non-LBW were dominated by mothers who did not have comorbidities of preeclampsia. Based on the statistical test using the chi-square test p(sig)> 0.05. From these results, it can be concluded that there is no significant correlation between comorbid disorders (anemia and preeclampsia) on the incidence of low birth weight babies (LBW) at Kanor Health Center, Bojonegoro regency, East Java.

The results of this study are in line with the research of Irawati, Suyatmi Nova (2020) which showed that there was no correlation between anemia and LBW in Wirun Village, Mojolaban District, Sukoharjo Regency with p(sig)=0.266 [21]. However, this is not in line with the results of the research by Pratiwi, Ismail and Rokhanawati (2018) which showed that there was a correlation between anemia and the incidence of LBW in Banjarnegara regency by showing p(sig) of 0.000 [22]. The results of this study are in line with Lestari, Ulfa and Maryam (2015) which stated that there was no correlation between preeclampsia and the incidence of LBW in Dr. H. Moch. Ansari Saleh hospital Banjarmasin with p(sig)=0.539 [23]. However, this study is not in line with Sari (2021) who found that there was a correlation between preeclampsia and LBW mothers with p(sig)=0.000 [24].

4.5 The Correlation of Parity to the Incidence of Low Birth Weight Babies (LBW)

Parity is measured by how many mothers experience labor. Parity is divided into 3, namely primiparous mothers (first time giving birth), multipara (delivery 1 to 5 times), and grande multipara (delivery 6 times). From table 6 it is found that mothers who gave birth to LBW, as many as 10 respondents had primiparous status and 16 respondents had multipara status. In mothers who gave birth without LBW, 7 respondents were primiparous and 19 respondents were multipara. And none of the respondents had grande multipara status. Based on the results of statistical tests, the results of the chi-square test were p(sig)> 0.05. From these results, it can be concluded that there is no significant correlation between parity and the incidence of low birth weight babies (LBW) at Kanor Health Center, Bojonegoro Regency, East Java.

The results of this study are in line with Salsabila's research (2018) which shows that there is no significant correlation between parity and the incidence of LBW in Dr. Soewandhie Surabaya hospital with a large p(sig)=0,364 [17]. However, the results of the study are not in line with the research by Handayani, Fitriani and Lestari (2019) which found that there was a significant correlation between parity and the incidence of LBW in the Wates Health Center area of Kulon Progo Regency with a large p(sig)=0.037 [25]. according to statistics, mothers who have parity or the number of deliveries > 4 times will tend to increase the risk of experiencing complications in pregnancy [26].

4.6 The Correlation between Pregnancy Distance and Low Birth Weight (LBW) Infants.

The pregnancy interval in this study was categorized into two, close (<2 years) and not close (⩾2 years and primipara). From table 7, it is found that mothers who gave birth to LBW and mothers who gave birth to not LBW were both dominated by mothers whose pregnancies were not too close apart. Based on the results of statistical tests using fisher's exact test, p(sig)> 0.05. From these results, it can be concluded that there is no significant correlation between gestational distance and the incidence of low birth weight (LBW) babies at Kanor Health Center, Bojonegoro Regency, East Java.

The results of this study are in line with the research of Jayanti, Dharmawan and Aruben (2017) which showed that there was no correlation between the distance of pregnancy and the incidence of LBW in the work area of the Bangetayu Health Center Semarang City in 2016 with a large p(sig) = 0.171 [27]. However, these results are not in line with Saraswati's research (2017) which has the result that there is a correlation between the distance of pregnancy and the incidence of LBW in Dr. Wahidin Sudiro Husodo Hospital, Mojokerto Regency [28]. In theory, mothers who have too short a pregnancy interval will increase the risk of pregnancy such as bleeding complications during pregnancy, premature delivery, severe anemia which leads to low birth weight [29].

4.7 The Correlation between Antenatal Care (ANC) Frequency and the Incidence of Low Birth Weight Babies (LBW)

The frequency of antenatal care (ANC) was calculated from the number of pregnant women who made ANC visits. Antenatal care guidelines (ANC) used in this study were at least 4 times during pregnancy. According to the Regulation of the Minister of Health of the Republic of Indonesia in 2014 concerning Health Services for the Pre-pregnancy, Pregnancy, Childbirth, and Postnatal Periods,

Implementation of Contraceptive Services, and Sexual Health Services, it is stated that K4 visits to ANC are one of the indicators of maternal health during pregnancy. Table 8 shows that mothers who gave birth to LBW were dominated by mothers who had ANC frequencies that were not up to standard (<4 times) while mothers who gave birth to not LBW were dominated by mothers who had ANC frequencies according to standards (≥4 times). Based on the results of statistical tests, the results of the chi-square test p(sig) <0.05, which means that there is a significant correlation between the frequency of antenatal care (ANC) and the incidence of low birth weight (LBW) babies at the Kanor Health Center, Bojonegoro Regency, Java. East.

The results of this study are in line with the research of Fatimah, Utama and Sastri (2017) which states that there is a correlation between the frequency of ANC and the incidence of LBW in Dr. M Djamil Padang hospital with a large p(sig)=0.026 [30]. These results are also in line with the research of Riyanto, Juhaeriah and Meitriani (2019) which states that there is a correlation between the frequency of ANC and the incidence of LBW at the Rajamandala Health Center, West Bandung Regency in 2018 with a large p(sig)=0.0001 [31]. Antenatal care (ANC) is one of the efforts to increase early detection of the risk of complications that may occur to the mother during pregnancy that affect the welfare of the fetus. With ANC services at each local health service, it is expected to improve the welfare of the mother and the fetus she contains until delivery [32].

V. Conclusion

Based on the results of the analysis and discussion that have been discussed previously, regarding the correlation between Chronic Energy Deficiency (CED), maternal weight gain during pregnancy, gestational age at birth, comorbidities (anemia and preeclampsia), parity, pregnancy interval, and frequency of Antenatal Care (ANC) on the incidence of LBW at the Kanor Health Center, Bojonegoro Regency, East Java, in conclusion is :

1. There is no significant correlation between Chronic Energy Deficiency (CED) status in pregnant women and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0,100.
2. There is a significant correlation between maternal weight gain during pregnancy and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0.006.
3. There is a significant correlation between gestational age at birth and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0.014.
4. There is no significant correlation between the status of comorbidities (anemia, preeclampsia) and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig) anemia = 1,247 and p(sig) preeclampsia = 0.490 .
5. There is no significant correlation between maternal parity status and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0.554.
6. There is no significant correlation between pregnancy distance and the incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0.610.
7. There is a significant correlation between the frequency of Antenatal Care (ANC) on the incidence of Low Birth Weight Babies (LBW) at Kanor Health Center, Bojonegoro Regency, East Java with p(sig)=0.026.

VI. Acknowledgements

The author would like to express his deepest gratitude to the head of the Kanor Health Center, Bojonegoro Regency, East Java who has given permission to conduct research in that place, the supervisor who has guided during the research process and preparation of this manuscript and the researcher does not forget to thank his parents and friends. Researchers who have provided support for researchers to complete this research well.

References

[1] L. M. Stevens, C. Lynm, and R. M. Glass, "Low birth weight," J. Am. Med. Assoc., vol. 287, no. 2, p. 270, 2002, doi: 10.1001/jama.287.2.270.

[2] C. L. Cutland et al., "Low birth weight: Case definition & guidelines for data collection, analysis, and presentation of maternal immunization safety data," Vaccine, vol. 35, no. 48. Elsevier Ltd, pp. 6492–6500, Dec. 04, 2017, doi: 10.1016/j.vaccine.2017.01.049.

[3] I. Hartiningrum and N. Fitriyah, "Bayi Berat Lahir Rendah (BBLR) di Provinsi Jawa Timur Tahun 2012-2016," J. Biometrika dan Kependud., vol. 7, no. 2, p. 97, 2019, doi: 10.20473/jbk.v7i2.2018.97-104.

[4] Stanford Chlidren Health, "Low Birth Weight," 2018. https://www.stanfordchildrens.org/en/topic/default?id=low-birthweight-90-P02382 (accessed Apr. 08, 2021).

[5] G. Singh, R. Chouhan, and K. Sidhu, "Maternal factors for low birth weight babies," Med. J. Armed Forces India, vol. 65, no. 1, pp. 10–12, 2009, doi: 10.1016/S0377-1237(09)80045-2.

[6] A. Khan, F. D. Nasrullah, and R. Jaleel, "Frequency and risk factors of low birth weight in term pregnancy," Pakistan J. Med. Sci., vol. 32, no. 1, pp. 138–142, 2016, doi: 10.12669/pjms.321.8120.

[7] D. Widianingsih, "Faktor-Faktor Yang Mempengaruhi Kejadian Bayi Berat Lahir Rendah Pada Ibu Melahirkan Di Ruang Perinatologi Rumah Sakit Umum Daerah 45 Kuningan," keperawatan, 2011.

[8] A. Fajriana and A. Buanasita, "Faktor Risiko Yang Berhubungan Dengan Kejadian Bayi Berat Lahir Rendah Di Kecamatan Semampir Surabaya," Media Gizi Indones., vol. 13, no. 1, p. 71, 2018, doi: 10.20473/mgi.v13i1.71-80.

[9] "WHO | Care of the preterm and low-birth-weight newborn," WHO, 2018, Accessed: Nov. 05, 2020. [Online]. Available: http://www.who.int/maternal_child_adolescent/newborns/prematurity/en/.

[10] Dinkes Provinsi Jawa Timur, "Profil Kesehatan Jawa Timur 2018," Dinas Kesehat. Provinsi Jawa Timur, p. 100, 2019, [Online]. Available: https://www.google.com/search?client=firefox-b-d&ei=zxpWXtieKq6c4-EPzvSfyAs&q=profil+kesehatan+jawa+timur+2018&oq=profil+kesehatan+jawa+timur+2018&gs_l=psy-ab.3..0i7i30l10.98332.105008..105951...0.4..0.1459.7810.2-1j0j2j2j2j3.....0....1..gws-wiz.....0i.

[11] Dinkes Kabupaten Bojonegoro, "Dinas Kesehatan Kabupaten Bojonegoro," 2020. https://dinkes.bojonegorokab.go.id/berita/baca/49 (accessed May 22, 2021).

[12] "BPS Provinsi Jawa Timur." https://jatim.bps.go.id/statictable/2019/10/09/1675/jumlah-bayi-lahir-bayi-berat-badan-lahir-rendah-bblr-dan-bergizi-kurang-di-provinsi-jawa-timur-menurut-kabupaten-kota-2018-.html (accessed Nov. 05, 2020).

[13] C. P. H, siti F. P, and Z. R. M, "Faktor-Faktor yang Berhubungan Dengan Kejadian erat Badan Lahr Rendah (BBLR) Di Kabupaten Kudus," J. Kesehat. Masy., vol. 5, 2017.

[14] S. Fatimah and N. T. Yuliani, "Hubungan Kurang Energi Kronis (Kek) Pada Ibu Hamil Dengan Kejadian Berat Bayi Lahir Rendah (Bblr) Di Wilayah Kerja Puskesmas Rajadesa Tahun 2019," J. Midwifery Public Heal., vol. 1, no. 2, 2019, doi: 10.25157/jmph.v1i2.3029.

[15] D. E. Ariyani, E. L. Achadi, and A. Irawati, "Validitas Lingkar Lengan Atas Mendeteksi Risiko Kekurangan Energi Kronis pada Wanita Indonesia," Kesmas Natl. Public Heal. J., vol. 7, no. 2, p. 83, 2012, doi: 10.21109/kesmas.v7i2.67.

[16] N. Asniatin, "Hubungan Pertambahan Berat Badan Ibu Selama Hamil Dengan Kejadian Bayi Berat Lahir Rendah," poiliteknik kesehatan kementrian kesehatan yogyakarta, 2017.

[17] J. H. Salsabila, "Karya Tulis Ilmiah Faktor Risiko Yang Mempengaruhi Kejadian Bayi Dengan Berat Lahir Rendah (BBLR) Di RSUD DR. M.Soewandhie Surabaya," Universitas Airlangga, 2018.

[18] D. Ifalahma and F. I. Wulandari, "Hubungan Penambahan Berat Badan Ibu Selama Hamil Dengan Berat Badan Bayi Baru Lahir Di RB An-Nuur Karanganyar," J. Ilm. Rekam Medis dan Inform. Kesehat., vol. 5, no. 2, pp. 23–33, 2015.

[19] M. Septiani and M. Ulfa, "Faktor-Faktor yang Berhubungan dengan Kejadian BBLR di Wilayah Kerja Puskesmas Peudada Kabupaten Bireuen," J. Healthc. Technol. Med., vol. 4, no. 2, p. 258, 2018, doi: 10.33143/jhtm.v4i2.214.

[20] A. D. Purwanto and C. U. Wahyuni, "Hubungan Antara Umur Kehamilan, Kehamilan Ganda, Hipertensi dan Anemia Dengan Bayi Berat Lahir Rendah (BBLR)," J. Berk. Epidemiol., vol. 4, no. 3, pp. 384–395, 2016, doi: 10.20473/jbe.v4i3.

[21] S. N. Irawati, "Hubungan Anemia Dan Kekurangan Energi Kronis (KEK) Pada Ibu Hamil Dengan Kejadian Bayi Berat Lahir Rendah (BBLR) Di Desa Wirun Kecamatan Mojolaban Kabupaten Sukoharjo," Universitas Muhammadiyah Surakarta, 2020.

[22] A. M. Pratiwi, D. Ismail, and D. Rokhanawati, "Hubungan Anemia Pada Ibu Hamil Dengan Kejadian Bayi Berat Badan Lahir Rendah Di Kabupaten Banjarnegara," 'Aisyiyah Yogyakarta, 2018.

[23] R. D. Lestari, I. M. Ulfa, and S. Maryam, "Hubungan Umur, Paritas, dan Preeklampsia dengan Kejadian Berat Badan Lahir Rendah di RSUD Dr. H. Moch. Ansari Saleh Banjarmasin," J. Din. Kesehat., vol. 6, no. 1, pp. 95–106, 2015, [Online]. Available: http://akbidsarimulia.ac.id/ejurnal/downlot.php?file=reny dl dan ika mu 95-106.pdf.

[24] A. I. Sari, "Hubungan Ibu Preeklamsia dengan Kejadian BBLR di RSD Balung Kabupaten Jember," Ovary Midwifery J., pp. 77–80, 2021, [Online]. Available: http://www.ovari.id/index.php/ovari/article/view/30.

[25] F. Handayani, H. Fitriani, and C. I. Lestari, "Hubungan Umur Ibu Dan Paritas Dengan Kejadian Bblr Di Wilayah Puskesmas Wates Kabupaten Kulon Progo," Midwifery J. J. Kebidanan UM. Mataram, vol. 4, no. 2, p. 67, 2019, doi: 10.31764/mj.v4i2.808.

[26] I. Kumalasari, R. S. Tjekyan, and M. Zulkarnain, "Faktor Resiko Dan Angka Kejadian Berat Badan Lahir Rendah (Bblr) Di Rsup Dr. Mohammad Hoesin Palembang Tahun 2014," J. Ilmu Kesehat. Masy., vol. 9, no. 1, pp. 41–52, 2018, doi: 10.26553/jikm.2018.9.1.41-52.

[27] F. A. Jayanti, Y. Dharmawan, and R. Aruben, "Faktor-Faktor yang Berhubungan dengan Kejadian Berat Badan Lahir Rendah di Wilayah Kerja Puskesmas Bangetayu Kota Semarang Tahun 2016," J. Kesehat. Masy., vol. 5, no. 4, pp. 812–822, 2017.

[28] C. Saraswati, "Hubungan Jarak Kehamilan Dengan Kejadian BBLR Di RSUD Dr. Wahidin Sudrio Husodo Kab. Mojokerto," Sekolah Tinggi Ilmu Kesehatan Insan Cendekia Medika Jombang, 2017.

[29] U. Yniantini, "Hubungan Antara Usia dan Jarak Kehamilan Sebelumnya Dengan Berat Bayi Lhir Rendah Di RS Gunung Kidul Yogyakarta Tahun 2016," Universitas Aisyiyah Yogyakarta, 2017.

[30] N. Fatimah, B. I. Utama, and S. Sastri, "Hubungan Antenatal Care dengan Kejadian Bayi Berat Lahir Rendah pada Ibu Aterm di RSUP Dr. M. Djamil Padang," J. Kesehat. Andalas, vol. 6, no. 3, p. 615, 2017, doi: 10.25077/jka.v6.i3.p615-620.2017.

[31] A. Riyanto, J. Juhaeriah, and A. N. Meitriani, "Kejadian Berat Bayi Lahir Rendah Di Puskesmas

Rajamandala Kabupaten Bandung Barat Tahun 2018 (Studi Data Sekunder)," vol. 2, no. 1, pp. 104–112, 2019.

[32] W. Nuraisya, "Deteksi Risiko Tinggi Kehamilan Pada Pelayanan ANC Terpadu di Puskesmas Bendo Kabupaten Kediri," J. Kesehat. Andalas, vol. 7, no. 2, pp. 240–245, 2018.

Analysis of Maternal Factors Affecting The Incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro, East Java

ORIGINALITY REPORT

18%	15%	14%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Nur Aryani Rifai, M. Tahir Abdullah, Syamsiar S. Russeng. "Risk factors of low birth weight in Prof. Dr. H.M. Anwar Makkatutu Bantaeng general hospital in 2019", Enfermería Clínica, 2020 Publication	1%
2	Kendy Gunawan, Edy Fachrial, Adek Amansyah, Binarwan Halim. "Association between Body Mass Index (BMI) and DNA Fragmentation Index", 2021 IEEE International Conference on Health, Instrumentation & Measurement, and Natural Sciences (InHeNce), 2021 Publication	1%
3	123dok.com Internet Source	1%
4	journal.ugm.ac.id Internet Source	1%

www.cheapceus.com

5	Internet Source	1 %
6	id.123dok.com Internet Source	1 %
7	Chaoyang Li, Harsohena Kaur, Won S. Choi, Terry T.-K. Huang, Rebecca E. Lee, Jasjit S. Ahluwalia. "Additive Interactions of Maternal Prepregnancy BMI and Breast-feeding on Childhood Overweight", Obesity Research, 2005 Publication	1 %
8	academicjournals.org Internet Source	1 %
9	docplayer.info Internet Source	1 %
10	eprints.ums.ac.id Internet Source	1 %
11	medind.nic.in Internet Source	1 %
12	Ema Wahyu Ningrum, Etika Dewi Cahyaningrum. "Estimation Model On Newborn Anthropometry Based On Mid-Upper Arm Circumference (MUAC)", Jurnal Kebidanan dan Keperawatan Aisyiyah, 2020 Publication	<1 %
	akbid-dharmahusada-kediri.e-journal.id	

13	Internet Source	<1%
14	e-journal.unair.ac.id Internet Source	<1%
15	jurnal.fk.unand.ac.id Internet Source	<1%
16	Isyti'aroh ., Herni Rejeki. "Decision-Making Predictors of Place of Delivery in the Work Area of Petungkriyono Health Center, Pekalongan Regency, Central Java Indonesia", KnE Life Sciences, 2019 Publication	<1%
17	repo.upertis.ac.id Internet Source	<1%
18	Angga Arsesiana, Desi Kumala, Rena Oki Alestari. "Determinan Kejadian Bayi Berat Lahir Rendah (BBLR) di RS Panembahan Senopati Bantul", Proceeding Of Sari Mulia University Midwifery National Seminars, 2019 Publication	<1%
19	Ita Novianti, Diana Mardianti, Asrianti Safitri Muchtar. "PEMBERIAN ASI DAN BBLR BERHUBUNGAN DENGAN KEJADIAN STUNTING PADA BALITA USIA 12-36 BULAN", Jurnal Kebidanan Malahayati, 2020 Publication	<1%

20	Ratih Purnama, Aryanti Wardiyah, Rahma Ellya. "PERTAMBAHAN BERAT BADAN IBU HAMIL BERHUBUNGAN DENGAN ANGKA KEJADIAN PREEKLAMSIA", Jurnal Kebidanan Malahayati, 2021 Publication	<1 %
21	pesquisa.bvsalud.org Internet Source	<1 %
22	eprints.undip.ac.id Internet Source	<1 %
23	www.scribd.com Internet Source	<1 %
24	repository.unair.ac.id Internet Source	<1 %
25	www.ncbi.nlm.nih.gov Internet Source	<1 %
26	www.scirp.org Internet Source	<1 %
27	Hatijar Hatijar. "Faktor Risiko Bayi Berat Lahir Rendah di Rumah Sakit Umum Daerah Haji Makassar", Jurnal Kebidanan Malakbi, 2020 Publication	<1 %
28	digilib.unisayogya.ac.id Internet Source	<1 %
29	espace.curtin.edu.au Internet Source	

		<1 %
30	journal.fkm.ui.ac.id Internet Source	<1 %
31	Aspar Abdul Gani, Lucy Widasari, Anang S. Otoluwa, Veni Hadju, Sukri Palutturi, A. Razak Thaha, Sabaria Manti B. "Risk factors for stunting among children in Banggai Regency, Indonesia", Enfermería Clínica, 2020 Publication	<1 %
32	Asri Iman sari, Putri Wulandari. "Low Birth Weight Incidence In Balung Hospital Jember Regency", Jurnal Kesehatan dr. Soebandi, 2021 Publication	<1 %
33	repositori.usu.ac.id Internet Source	<1 %
34	Agus Heru Darjono, Ujang Sumarwan, Lilik Noor Yuliati, Hari Wijayanto. "The Influence of Family, Community, and Information Technology Supports on Empowerment of Diabetes Mellitus Patients Using SEM (*Structural Equation Modelling*)", Asian Journal of Applied Sciences, 2018 Publication	<1 %
35	Hardianti Mukkadas, I Made Cristian B, Wa Ode Salma. "Analysis of the Characteristics of	<1 %

Chronic Energy Deficiency in Pregnant Women during the Covid 19 Pandemic", Jurnal Kesehatan Komunitas, 2021
Publication

36	Septa Katmawanti, Hartati Eko Wardani, Rosuzeita Fauzi, Lia Dewi Ningrom, Dea Aflah. "Effectiveness of Booklet on Exclusive Breastfeeding in Improving the Knowledge and Attitudes of Mother Who Do Not Exclusively Breastfeed in the Work Area of Posyandu Sisir Batu City, East Java, Indonesia", KnE Life Sciences, 2021 Publication	<1 %
37	Siti Hamidah, Siti Mudlikah. "Hypnotherapy to Promote Weight Loss at First Trimester on Pregnant Women with Emesis Gravidarum at Muhammadiyah Gresik Hospital", Journal for Quality in Public Health, 2020 Publication	<1 %
38	Sulistiani Sulistiani. "The Analysis Factor Influence Quality of Life Erderly People in Lemper Pamekasan City", Journal for Quality in Public Health, 2020 Publication	<1 %
39	jurnal.untan.ac.id Internet Source	<1 %
40	repository.unigal.ac.id:8080 Internet Source	<1 %

41	www.atlantis-press.com Internet Source	<1%
42	"Factors Affecting the Occurrence of Mental Disability in Ponorogo District, East Java", 'Masters Program in Public Health, Sebelas Maret University', 2017 Internet Source	<1%
43	Elfa Rahmawati Fitri, Herlin Fitriana Kurniawati. "The correlation between midwives' support and accessed to Voluntary Counseling and Testing (VCT) on pregnant women", Journal of Health Technology Assessment in Midwifery, 2018 Publication	<1%
44	doi.org Internet Source	<1%
45	download.garuda.ristekdikti.go.id Internet Source	<1%
46	jikesi.fk.unand.ac.id Internet Source	<1%
47	ojs.stikesmucis.ac.id Internet Source	<1%
48	pt.scribd.com Internet Source	<1%
49	repository.poltekkes-denpasar.ac.id Internet Source	<1%

50	samples.jbpub.com Internet Source	<1%
51	www.iosrjournals.org Internet Source	<1%
52	www.neliti.com Internet Source	<1%
53	www.slideshare.net Internet Source	<1%
54	www.tandfonline.com Internet Source	<1%
55	en.wikipedia.org Internet Source	<1%

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		

Analysis of Maternal Factors Affecting The Incidence of Low Birth Weight (LBW) at Kanor Health Center, Bojonegoro, East Java

GRADEMARK REPORT

FINAL GRADE

/100

GENERAL COMMENTS

Instructor

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13