

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

Asma Hanafi¹, Chairunisah. J. Lamangantjo², Laksmyr Kadir³

¹Department of Public Health, Postgraduate, Gorontalo State University, Gorontalo City

²Department of Public Health, Postgraduate, Gorontalo State University, Gorontalo City

³Department of Public Health, Postgraduate, Gorontalo State University, Gorontalo City

ABSTRACT: Low birth weight is a health problem that requires attention in developing countries. WHO defines LBW as the condition of a baby born weighing <2500 grams. Causes of LBW include premature birth and maternal and fetal factors. This research aims to analyze the risk factors for LBW in toddlers. The research method is an observational and analytical approach, a cross-sectional Study. The sample is a portion of mothers who gave birth to LBW and non-LBW babies who were recorded in the medical records of the Gorontalo City Health Service working area. In 2023, there will be 225 people. The data analysis technique uses the chi-square statistical test. Research Results: Is a risk factor for LBW Incidents In Toddler In The City Of Gorontalo, with the value of each variable; multiple pregnancies with Ward value = 29.999 and p Value = 0.000, maternal age with Ward value = 14.663 and p Value = 0.000, MBA with Ward value = 7.166 and p Value = 0.000, history of LBW with Ward value = 4.655 and p-value = 0.031, mother's occupation Ward value = 3.861 and p-value = 0.049.

KEYWORDS: Pregnancy, Risk Factors, LBW Events

INTRODUCTION

One assessment of the degree of reproductive health is the infant mortality rate. The number of baby deaths (AKB) is the first indicator in determining the degree of health of a child. Besides That, the number of baby deaths also reflects the status of the public (Novitasari, 2020).

LBW is a health problem that requires attention in various countries, especially developing countries or countries with low socio-economic conditions. The World Health Organization (WHO) defines Heavy Baby Born Low birth weight (LBW) as a condition in which the baby is born weighing less than 2500 grams(Azzizah Nur Elsa, Faturahman Yuldan, 2021).

A baby with a Heavy Body Born Low (LBW) is Wrong. One cause of neonatal death is still high. 1961, according to the WHO, all newborn babies weighing less than 500 grams were called Low Birth Weight Infants or Heavy Body Born Low (LBW). This is closely related to the mother's nutritional status and several other maternal factors during pregnancy, which impact the baby's health (Dinkes provinsi Gorontalo, 2021).

Based on data from the Gorontalo Provincial Health Service for the last three years, the infant mortality rate has remained high. In 2020, IMR reached 12.9/1000 KH (Gorontalo Provincial Health Office Profile, 2020); in 2021, it became 11.8/1000 KH (Gorontalo Provincial Health Office Profile, 2021); and in 2022, it again experienced an enhancement as significant as 12.8/1000 KH(Dinkes Provinsi Gorontalo, 2022).

To find out Risk Analysis Incident LBW in City Gorontalo.

METHODS

This research is an analytical observational research approach. Cross-Sectional Study, Research Objectives For Risk Analysis Incident LBW in City Gorontalo. Population in study This is the population of mothers who give birth to LBW babies and not LBW babies. This number was recorded in January - October 2023 medical records in Gorontalo City, totaling 183 people. The sample in this study was some mothers who gave birth to LBW babies and not LBW recorded in the medical records of the Gorontalo city working area year 2023, totaling 225 people g. The sampling technique in this research is Accidental Sampling, which is based on chance; any baby's mother that the researcher meets during the study can be used as a sample (Sugiono, 2019). Bivariate data analysis techniques are carried out to see the relationship between independent and dependent variables. The data analysis technique used in this research is the chi-square statistical test, which aims to explain the hypothesis of the relationship between the dependent and independent variables.

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

RESULTS AND DISCUSSION

Through this bivariate analysis, the relationship between independent variables can be determined, namely risk factors including multiple pregnancies, pregnancy complications, maternal age, maternal education level, occupation, parity, pregnancy spacing, anemia, ANC frequency, Chronic Energy Deficiency (CED), weight gain, MBA (Married By Accident), and LBW history of the dependent variable or LBW events in Gorontalo City. The acceptance and rejection of the hypothesis used in this research are tested using the Chi-square test.

Table 1. Analysis of the risk of multiple pregnancies on the incidence of LBW in Gorontalo City

Multiple Pregnancy	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
High Risk	61	56	5	4.3	66	29.3	0,000
Low Risk	48	44	111	95.7	159	70.7	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

The table above shows the distribution based on multiple pregnancies among 109 LBW people. Among those at high risk, 61 people (56%), while those who were not LBW, out of 116 people, were mainly in the low-risk group, 111 people (95.7%). Based on the results of statistical analysis using the Chi-Square test, the p-value (0.000) < α (0.05) was obtained, which states that multiple pregnancies are a risk factor for the incidence of LBW.

Table 2. Risk Analysis of Pregnancy Complications on LBW Incidence in Gorontalo City

Pregnancy complications	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
There are complications	21	19.3	7	6	28	29.3	0.005
No complications	88	80.7	109	94	197	70.7	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

In the table above, you can see the distribution based on pregnancy complications of the 109 people who were LBW, most of whom were distributed among those with no complications, namely 88 people (80.7 %), while for those who were not LBW, of the 116 people, the majority were distributed in the no complications group, 109 people (94 %). Based on the results of statistical analysis using the Chi-Square test, the p-value-value (0.005) < α (0.05) was obtained, which states that pregnancy complications are a risk factor for the incidence of LBW.

Table 3. Risk Analysis of Maternal Age on LBW Incidence in Gorontalo City

Mother's Age	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
High Risk	64	58.7	5	4.3	69	30.7	0,000
Low Risk	45	41.3	111	95.7	156	69.3	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

The table above shows the distribution based on maternal age of the 109 LBW people. These are mainly among those at high risk, namely 64 people (58.7 %), while for those who are not LBW, out of 116 people, most are in the low-risk group, namely 111 people (95.7%). Based on the results of statistical analysis using the Chi-Square test at p-value (0.000) < α (0.05) state that maternal age is a risk factor for the incidence of LBW.

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

Table 4. Risk Analysis of Mother's Education Level on LBW Incidence in Gorontalo City

Mother's Education	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
Low education	46	42.2	20	17.2	66	29.3	0,000
higher education	63	57.8	96	82.8	159	70.7	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

In Table 4 above, you can see the distribution based on maternal education of the 109 LBW people. Most of them are highly educated, 63 people (57.8 %), while the majority of those who are not LBW, 116 people, are in the highly educated group, 96 people (82.8 %). Based on the results of statistical analysis using the Chi-Square test, the p-value (0.000) < α (0.05) was obtained, which states that the mother's education level is a risk factor for the incidence of LBW.

Table 5. Risk Analysis of Mother's Education Level on LBW Incidence in Gorontalo City

Mother's Job	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
High risk	40	36.7	16	13.8	56	24.9	0,000
Low risk	69	63.3	100	86.2	169	75.1	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

The table above shows the distribution based on the occupation of the 109 LBW, primarily distributed in the low-risk group, namely 69 people (63.3 %). In contrast, the majority of those who are not LBW, out of 116 people, are distributed in the low-risk group, namely 100 people (86.2 %). Based on the results of statistical analysis using the Chi-Square test, the p-value (0.000) < α (0.05) was obtained, which states that maternal employment is a risk factor for the incidence of LBW.

Table 6. Risk Analysis of Mother's Education Level on LBW Incidence in Gorontalo City

Parity	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
High risk	52	47.7	7	6	59	26.2	0,000
Low risk	57	52.3	109	94	166	73.8	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

The table above shows the distribution based on anemia. Of the 109 LBW people, the majority were in the high-risk group, 57 people (52.3 %), while the 116 who were not LBW were mainly in the low-risk group, 109 people (94 %). Based on the results of statistical analysis using the Chi-Square test, the p-value (0.000) < α (0.05) was obtained, which states that parity is a risk factor for the incidence of LBW.

Table 7. Risk Analysis of Pregnancy Distance on LBW Incidence in Gorontalo City

Pregnancy Spacing	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
High risk	59	54.1	45	38.8	104	46.2	0.030
Low risk	50	45.9	71	61.2	121	53.8	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

The table above shows the distribution based on the pregnancy distance of the 109 LBW, who were most distributed in the high-risk group, namely 59 people (54.1%). In contrast, those who were not LBW, the 116 people, were most distributed in the low-risk group, namely 71 people (61.2%). Based on the results of statistical analysis using the Chi-Square test, the p-value (0.030) < α

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

(0.05) was obtained, which states that pregnancy spacing is a risk factor for the incidence of LBW.

Table 8. ANC Frequency Risk Analysis of LBW Incidence in Gorontalo City

ANC frequency	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
Quite Risky	66	60.6	37	31.9	103	45.8	0,000
Less Risky	43	39.4	79	68.1	122	54.2	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

In the table above you can see the distribution based on ANC frequency Of the 109 people who were LBW, most of them were distributed among those who were quite at risk, namely 66 people (60.6 %), while those who were not LBW, out of 116 people, were mostly distributed in the less risky group, namely 79 people (68.1 %). Based on the results of statistical analysis using the Chi-Square test, the p value (0.000) < α (0.05) was obtained , which states that the frequency of ANC is a risk factor for the incidence of LBW.

Table 9. Risk Analysis of LBW History on LBW Events in Gorontalo City

History of LBW	LBW incident				Total		Value
	LBW		Not LBW		n	%	
	n	%	n	%			
There's History	64	58.7	7	6	71	31.6	0,000
No History	45	41.3	109	94	154	68.4	
Amount	109	100	116	100	225	100	

Source : Primary Data, 2023

In the table above, you can see the distribution based on the LBW history of the 109 people who were LBW, the most distributed among those with a history of LBW, namely 64 people (58.7%), while for those who were not LBW, out of 116 people, the majority were distributed among the group without a history of LBW, namely 109 people (94%). Based on the results of statistical analysis using the Chi-Square test, the p value (0.000) < α (0.05) was obtained , which states that a history of LBW is a risk factor for the incidence of LBW.

Analysis of the Risk of Multiple Pregnancy on the Event of LBW

Based on the results of statistical analysis using the Chi-Square test, the p value (0.000) < α (0.05) was obtained , which states that multiple pregnancies are a risk factor for the incidence of LBW.

In Gorontalo City there are still areas that are difficult for health workers to access, namely the Pilolodaa Community Health Center area, sometimes multiple pregnancies are not detected during pregnancy because community access to SpOG doctors and to level one health facilities is difficult so that ANC services for ultrasound are not served. At the Regional Health Center The city of Gorontalo will have ultrasound equipment available in September 2023 and there are still 2 community health centers that do not have ultrasound trained doctors until November 2023.

At the research location in the work area of the Gorontalo city office, based on the data obtained, there were 66 people who experienced multiple pregnancies, more than half of whom were LBW. This is caused by the mother not paying attention to nutritional needs during pregnancy and a lack of attention from the family.

During pregnancy, it is recommended that mothers diligently consult with health workers, in this case midwives/obstetricians, to obtain information on the condition of the baby's development during the pregnancy process and the nutritional needs that must be consumed by the mother to keep the mother and baby in a healthy condition until the time of delivery. and the mother's needs during pregnancy are not only the responsibility of the pregnant mother but also the responsibility of her husband and closest family so that all the mother's needs can be met during pregnancy.

Multiple or twin pregnancies can affect the growth and development of babies in the womb. In more than one pregnancy after 8 months the baby's growth begins to slow down. And entering the next month, a normal baby's weight will be better than twins, because there is more space for movement and nutritional requirements, so the food consumed by the mother must be shared between the mother and the two babies (Rahayu Muji Ria, 2021).

Twin pregnancies are one of the factors causing the incidence of low birth weight because the nutritional requirements for the growth of twins are twice that of non-twin pregnancies for both mother and baby to prevent the mother from experiencing anemia and the child's growth becomes stable.(Marsha K, 2013).

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

Analysis of the Risk of Pregnancy Complications on LBW Events

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.005) < \alpha (0.05)$ was obtained, which states that pregnancy complications are a risk factor for the incidence of LBW.

Gorontalo City has the Tancap Nikah innovation (safe sign for the bride and groom) with the aim of early detection of the risk of pregnancy in prospective couples of childbearing age, but not all pregnant women in the Gorontalo City work area during their pregnancy live in Gorontalo City, they live outside the City so difficult to detect by health workers. This condition means that the risk of pregnancy experienced by the mother at the time of giving birth cannot be known from the start because the pregnant mother will later give birth again in the Gorontalo city work area for delivery so that risk detection can be known later when the birth takes place.

In the city of Gorontalo, pregnancy complications are a risk factor for LBW because of the number of respondents who experienced pregnancy complications, only a few out of 225, there were 28 people. For pregnant women at the research location, their level of knowledge is sufficient. This can be seen from the education level of the respondents, most of whom are highly educated, however, high education and sufficient knowledge do not guarantee that a mother can do all the things that can prevent complications from occurring. This is caused by the environment where they live far from the city plus the mother's excessive activity during pregnancy which makes the mother pay less attention to the dangers/risks that she could experience during pregnancy and childbirth.

Childbirth complications such as bleeding and preeclampsia in pregnant women are some of the causes of LBW and affect the baby's growth (Nugroho, 2014). Bleeding in pregnant women occurs due to insufficient consumption of blood supplement tablets (Fe) during pregnancy so that the mother experiences pregnancy complications. Apart from that, if the mother also experiences high blood pressure during pregnancy, it will risk the safety of the mother and fetus.

Analysis of the Risk of Maternal Age on the Incidence of LBW

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.000) < \alpha (0.05)$ was obtained, which states that maternal age is a risk factor for the incidence of LBW. In the work area of the Gorontalo City Health Service, out of 225 respondents, it was found that those who were at high risk, aged less than 20 years > 35 years, most of them experienced LBW, this was caused by the mother's lack of experience in carrying out care during pregnancy and in addition to the mother's psychological condition, which is still unstable means that mothers don't know how to have a healthy pregnancy, including healthy food intake that pregnant women should consume, consumption of Fe tablets, physical activities that can and cannot be done. To prevent undesirable things affecting women's health, it is recommended that women/adolescents do not get married early or marry at a young age to avoid early pregnancy which has health risks for the pregnancy and the growth and development of the baby while in the womb which has an impact on the baby. LBW births, premature births, infant deaths, and mothers will experience CED, malnutrition and maternal death. In Gorontalo City, even though it is an urban area, there are still pregnancies under the age of 20 due to pregnancies outside of marriage and of one's own free will. Pregnancy that occurs at less than 20 years of age will allow you to experience various risks during pregnancy, including birth complications, LBW babies, and premature births. This age period includes adolescence where women at that age are in their growth period and need a lot of nutritional intake for their growth and development. If at a young age you are pregnant and the nutritional intake that enters your body is insufficient, this will affect the development of the fetus and have a risk of being born LBW. (Simbolon D & Aini N, 2013).

Risk Analysis of Mother's Education Level on the Incidence of LBW

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.000) > \alpha (0.05)$ was obtained, which states that the mother's education level is a risk factor for the incidence of LBW. Based on research results, the level of maternal education is a risk factor, because even though the majority of mothers have a high level of education, the capacity to absorb/capture health information varies so that the form of action and response to the information obtained is still not in line with our expectations so that it can affect health status. mother and baby.

Education level is one thing that influences a person's health. Having a high level of education will influence the mother's insight, having an open mind, easily accepting new information/knowledge which she thinks is useful during her pregnancy (Anggi Jayanti et al., 2017).

This research is in line with research conducted by Hamid, et al in 2020 explaining that education is closely related to the occurrence of Low Birth Weight (LBW). Because education influences a person's perspective and a person's various actions, including behavior such as providing and feeding mothers properly, practicing and utilizing maternal health services (Betalia, 2022).

Analysis of Maternal Occupational Risks on the Occurrence of LBW

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.000) < \alpha (0.05)$ was obtained, which states that maternal employment is a risk factor for the incidence of LBW. Work is one thing that can cause mothers to give birth to LBW babies. Mothers who do heavy physical work for long periods of time will cause pregnant women to experience stress. Pregnant women with stressful conditions will experience mental pressure and working mothers will cause their physical and psychological conditions to decline. Among the jobs that can cause mothers to give birth to LBW children are jobs that rarely sit, lifting heavy

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

objects, working at night and working environments that are not good and dirty.(Mahmoodi et al., 2015).

The results of research conducted in the work area of the Gorontalo City Health Service, most of the pregnant women who were respondents had low-risk jobs, where most of them were housewives, honorary workers and private sector employees, where their work was not hard work and they spent more time sitting than stand up so that the mother does not experience feelings of fatigue easily which will result in stress.

However, looking at the condition of pregnant women in Gorontalo City, not all pregnant women have taken part in the pregnancy class because mothers work and the time for holding the class for pregnant women is only during working hours and funds for holding the class for pregnant women are limited, making them less likely to receive information regarding maternal care. during pregnancy as conveyed by health workers.

Parity risk analysis of the incidence of LBW

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.000) > \alpha (0.05)$ was obtained , which states that parity is a risk factor for the incidence of LBW.

In the city of Gorontalo research, parity is a risk factor causing the incidence of LBW. This happens because mothers don't pay enough attention to the effects of a large number of people being born because there are still people in society who think that having lots of children means a lot of good fortune so they don't take seriously the reasons conveyed by health officials that parity can affect the health of mothers and babies.

Parity is related to the incidence of LBW, this occurs because mothers with parity of more than 3 will have the risk of giving birth to babies with low birth weight which is caused by repeated pregnancies which will result in decreased abdominal and uterine walls which cause the baby to lack nutrition so that the mother can give birth to the baby. with low birth weight and maternal parity of more than 3 will contribute to a higher incidence of LBW births and experience the risk of complications during pregnancy(Putri Exna Anggita Meilina et al., 2022).

According to research (Dwi Kusumawati et al., 2020), maternal parity is one of the factors in the incidence of LBW. Pregnant mothers with parity who are at risk are 1.43 times more likely to experience birth with LBW compared to pregnant mothers in the group who are not at risk.

Risk Analysis of Pregnancy Distance on LBW Events

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.030) > \alpha (0.05)$ was obtained , which states that pregnancy spacing is a risk factor for the incidence of LBW.

The research location found that pregnancy spacing was a risk factor. Pregnant women in the work area of the Gorontalo City Health Service, most of whom have a pregnancy interval of less than 2 and more than 4 years, it is known that this pregnancy interval results in the condition of the uterine wall which has not yet recovered and is forced to conceive again as well as the condition of the reproductive organs which are already decreased due to age factors. Apart from these factors, the body also needs good nutritional intake to keep the baby and mother healthy. If pregnant women and members do not pay attention to the needs of mothers and the condition of pregnant women so that they can reproduce healthily then undesirable things such as LBW could happen. Birth spacing < 2 years and > 4 years is a category of risk birth spacing for LBW births, this is because the physiological conditions of childbirth are not ready and you are not ready for the next pregnancy. Pregnant women who have pregnancies that are too close or too far apart can increase the risk of childbirth, one of which is LBW. Short or long distance pregnancies can result in LBW due to the lack of nutrition provided by the mother to the fetus and the mother's reproductive organs starting to decline(Rahajeng Vira Pebriana, 2022).

Risk Analysis of LBW History on LBW Events

Based on the results of statistical analysis using the Chi-Square test, the p value $(0.000) < \alpha (0.05)$ was obtained , which states that a history of LBW is a risk factor for the incidence of LBW.

The known causes of LBW births can be corrected with postnatal care, reducing other risk factors and limiting activities can help prevent this from happening again. If the cause of LBW birth cannot be prevented or corrected, LBW birth can be postponed.

Based on the research results, it was found that a history of LBW births is not a risk factor that can cause pregnant women to give birth to LBW children. This happens because a mother who has a history of LBW does not allow time for her pregnancy so that the mother's body does not have enough time to improve the nutrition in her body in preparation. subsequent pregnancy. Apart from that, mothers who have this history must be able to minimize risk factors based on their pregnancy experience in order to avoid the birth of babies with LBW conditions.

CONCLUSIONS

1. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that multiple pregnancies are a risk factor for the incidence of LBW.
2. The results of statistical analysis using the Chi-Square test obtained a p value $(0.005) < \alpha (0.05)$ which states that pregnancy

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

complications are a risk factor for the incidence of LBW.

3. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that maternal age is a risk factor for the incidence of LBW.
4. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that the mother's education level is a risk factor for the incidence of LBW.
5. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that maternal employment is a risk factor for the incidence of LBW.
6. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that parity is a risk factor for the incidence of LBW.
7. The results of statistical analysis using the Chi-Square test obtained a p value $(0.030) < \alpha (0.05)$ which states that pregnancy spacing is a risk factor for the incidence of LBW.
8. The results of statistical analysis using the Chi-Square test obtained a p value $(0.000) < \alpha (0.05)$ which states that a history of LBW is a risk factor for the incidence of LBW

REFERENCES

- 1) Albugis. 2008. Faktor-Faktor Yang Mempengaruhi kekurangan Energi Kronik Bayi La RSUD Tani dan Nelayan, Kabupaten Boalemo.
- 2) Anggi Jayanti, F., Dharmawan, Y., Aruben Peminatan Kesehatan Ibu dan Anak, R., & Kesehatan Masyarakat, F. 2017. Faktor-Faktor yang Berhubungan dengan Kejadian Berat Badan Lahir Rendah di Wilayah Kerja Puskesmas Bangetayu Kota Semarang Tahun 2016 (Vol. 5). <http://ejournal3.undip.ac.id/index.php/jkm>
- 3) Aprillya Wibowo Putri, Pratitis, A., Luthfiya, L., Wahyuni, S., Tarmali, A., Studi S-, P., Masyarakat, K., Ilmu Kesehatan, F., & Ngudi Waluyo, U. (2019). Faktor Ibu Terhadap Kejadian Berat Badan Lahir Rendah. <https://doi.org/10.15294/higeia/v3i1/28692>
- 4) Asniatin Nurul. 2018. hubungan pertambahan pertambahan berat badan ibu selama hamil dengan kejadian BBLR di puskesmas Sentolo I kulon Progo tahun 2017.
- 5) Azzizah Nur Elsa, Faturahman Yuldan, N. S. 2021. Faktor-faktor yang berhubungan dengan kejadian bayi berat lahir rendah (studi di RSUD Dr. Soekerdjo) Kota Tasik Malaya. *Kesehatan Komunitas Indonesia*, 17(Maret), 284–294.
- 6) Betalia. 2022. Faktor Ibu Yang Berhubungan Dengan Kejadian Berat Badan Lahir Rendah (BBLR): Literature review Naskah Publikasi.
- 7) Dwi Kusumawati, D., Septiyaningsih, R., & Al Irsyad Al Islamiyyah Cilacap, S. 2020. Hubungan Paritas dengan Kejadian BBLR di RSUD Cilacap Tahun 2014. *Jurnal MID-Z (Midwifery Zigot) Jurnal Ilmiah Kebidanan*, 3(1). <http://jurnal.unimus.ac.id/index.php/psn1>
- 8) Fatimah, N., Utama, B. I., & Sastri, S. 2017. Hubungan Antenatal Care dengan Kejadian Bayi Berat Lahir Rendah pada Ibu Aterm di RSUP Dr. M. Djamil Padang. In *Jurnal Kesehatan Andalas (Vol. 6, Issue 3)*. <http://jurnal.fk.unand.ac.id>
- 9) Festy, P. 2010. Analisa Faktor Pada Kejadian Berat Badan Lahir Rendah (BBLR) di Fitramaya.
- 10) Hafid, W., Deisi Badu, F., Lili, D., Laha, P., Kesehatan, I., Masyarakat, K., & Gorontalo, U. 2018. Analisis Determinan Kejadian Berat Bayi Lahir Rendah (BBLR) di RSUD Tani dan Nelayan (Vol. 1, Issue 1).
- 11) Hardiati, R. H., Thasliyah, D., & Info, A. 2022. Medika: Jurnal Ilmiah Kesehatan Kekurangan Energi Kronis (KEK) sebagai Faktor Risiko Bayi Berat Lahir Rendah (BBLR): Literature Review. *Medika: Jurnal Ilmiah Kesehatan*, 2(2), 6–11. <https://unu-ntb.e-journal.id/medika>
- 12) Hariyono Afrilina Ika. 2021. Hubungan Pertambahan Berat Badan Ibu Selama Hamil dengan Berat Bayi Lahir rendah (BBLR) di PMB W Banjarmasin. *Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan*, 12(1), 47–56.
- 13) Hartiningrum, I., & Fitriyah, N. 2019. Bayi Berat Lahir Rendah (BBLR). *Jurnal Biometrika Dan Kependudukan*, 7(2), 97.
- 14) Irwan ; 2021 ; Metode penelitian kesehatan, Zahir Pubishing Yogyakarta
- 15) Kusmiran Eny. 2014. Kesehatan Reproduksi Remaja dan Wanita. Salemba Medika.
- 16) Mahmoodi, Z., Karimlou, M., Sajjadi, H., Dejman, M., Vameghi, M., Dolatian, M., & Mahmoodi, A. 2015. Association of maternal working condition with low birth weight: The social determinants of health approach. *Annals of Medical and Health Sciences Research*, 5(6), 385. <https://doi.org/10.4103/2141-9248.177982>
- 17) Maria, H. A., & Fibriana, A. I. 2023. Kejadian BBLR di Wilayah Kerja Puskesmas Kedungmundu Kota Semarang. *Higeia Journal of Public Health*, 2(2), 219–228.
- 18) Mooduto, ain, & Retni, A. 2023. Jurnal Rumpun Ilmu Kesehatan Maternal Weight Gain During Pregnancy With Baby's Birth Weight at RSIA Sitti Khadijah, Gorontalo City. 3(1).

A Risk Analysis of Low Birth Weight Incidence in Gorontalo City

- 19) Mulyaningrum, D., & Rahmaniati, M. 2020. Pengaruh Kehamilan Tidak Diinginkan Dengan Berat Bayi Lahir Rendah di Perdesaan (Analisis Data Survei Demografi Kesehatan Indonesia 2017) (Vol. 1).
- 20) Munasifah, dkk. 2022. Literatu Review: Faktor Resiko yang memengaruhi terjadinya berat badan lahir rendah (BBLR).
- 21) Neldis, R. E. T. 2021. The Analysis of Factors Related to the Incidence Of Low Birth Weight In dr. Ben Mboi Ruteng Hospital, Manggarai Regency. *Jurnal Kebidanan*, 10(1), 37–42. <https://doi.org/10.35890/jkdh.v10i1.165>
- 22) Nyamasege C K, Murage Kimani EW, Wanjohi M, Kaindi MWD, Ma E, Fukushige M, & Wagatsuma Y. 2018. Determinants of low birth weight in the context of maternal nutrition education in urban informal settlements, Kenya. *Journal of Defelopmental Origins of Health and Disease*.
- 23) Proverawati. 2020. Berat Badan Lahir Rendah', in Medical Book. Provinsi Jawa Timur Tahun 2012-2016. *Jurnal Biometrika Dan Kependudukan*.
- 24) Puspita.Rani. 2014. Hubungan Tingkat Pendidikan dan Pekerjaan Ibu Dengan Kejadian BBLR di RSUD Muhamadiyah Bantul.
- 25) Putri Exna Anggita Meilina, Toyibah Afnani, & Setyarini Indah Arika. 2022. Hubungan Paritas dengan Kejadian Bayi Berat Lahir Rendah (BBLR): Studi Literature. *Malang Journal of Midwiferi*, 4(2), 102–113.
- 26) Rahadinda Anindiyasari. 2022. Hubungan Anemia Pada Ibu Hamil Dengan Kejadia BBLR Di RSUD Abdul Wahab Sdjahranie Samarinda.
- 27) Rahajeng Vira Pebriana. 2022. Hubungan paritas dan jarak kehamilan dengan kejadian BBLR di RSUD 45 Kuningan.
- 28) Rahayu Muji Ria. 2021. Hubungan kehamilan ganda dan jarak kehamilan dengan kejadian BBLR Di RSUD Abdul Moeloek Profinsi Lampung. *Jurnal Kesehatan Wira Buana*, 10(5).
- 29) Rahmawati, R., Umar, S., & Meti. 2017. Hubungan Anemia Pada Ibu Hamil resiko tingkat berat Bayi lahir rendah. *Jurnal Ilmu Kesehatan Masyarakat*.
- 30) Ratnasari, F., Citra Atsari, S., Sumarni, D. T., Andiawati, R., Pratiwi, R., Hulu, T., Fitriana, E., Adawiah, S. R., Nurhayati, S., Litaferina, V., Sugiyanti, W., & Tangerang, S. Y. 2022. Kenali Dan Cegah Kelahiran Berat Bayi Lahir Rendah Sejak Dini Recognize and Prevent Weight Birth Low Birth Babies Early. *Nusantara Hasana Journal*, 1(12), Page.
- 31) Rida Amelia, K., Sididi, M., Epidemiologi, P., & Kesehatan Masyarakat, F. 2022. Faktor Risiko Kejadian Bayi Berat Lahir Rendah (BBLR) Di Wilayah Kerja Puskesmas Kaluku Badoa Kota Makassar.
- 32) Rosita, S., Afrianti Fakultas Kesehatan Masyarakat, T., & Serambi Mekkah, U. 2021. Hubungan Faktor Ibu Dengan Kejadian Bblr Pada Balita Di Puskesmas Indrajaya Kabupaten Aceh Jaya. 9(3).
- 33) Said Wilda, Andiani, & Marwati Eri. 2018. Faktor-Faktor Yang Berhubungan Dengan Kejadian Berat Badan Lahir Rendah di Wilayah Kerja Puskesmas Kota Tahun 2018”.
- 34) Saputri Umar A. M. 2020. Hubungan usia kehamilan dan jarak Kehamilandengan kejadian berat Badan lahir rendah (bblr) Literatur riview.
- 35) Sari Darma Sagita. 2014. Hubungan paritas dan tingkat pendidikan dengan kejadian BBLR.
- 36) Sholehah, I, Munawaroh, W, Lestari.D.Y, Holilah, H, & Islam. M.R.I. 2021. Buku Ajar Asuhan Segera Bayi Baru Lahir Normal.
- 37) Simbolon D, & Aini N. (2013). Kehamilan Umur Remaja Prakondisi dampak kasus Gizi terhadap Berat badan lahir di kabupaten rejang lebong Profinsi bengkulu
- 38) Sugiono. 2019. Metode penelitian Kuantitatif kualitatif dan R & D (Sutopo, Ed.; kedua). Alfabeta cv.
- 39) Sulistiani Karlina. 2014. Faktor Risiko Kejadian Bayi Berat Lahir Rendah (Bblr) di Wilayah Kerja Puskesmas Kota Tangerang Selatan Tahun 2012- 2014.
- 40) Susilowati, E., Wilar Rocky, & Salendu Praevilia. 2016. Faktor risiko yang berhubungan dengan kejadian berat badan lahir. *E-Clinic*, 4.
- 41) Utami, K., & Huriyati, E. 2018. Resiko faktor kehamilan Usia, Dini Dengan kejadia BBLR di kabupaten Bantul Derah istimewa Yogyakarta.
- 42) Wahyuni, E., Rohaya, & Afrika, E. 2023. Faktor-Faktor yang Berhubungan dengan Kejadian Bayi Berat Lahir Rendah (BBLR) di Rumah Sakit Ak.Gani Kota Palembang. *Jurnal Ilmiah Obsgin*, 15(4), 130–142.
- 43) wahyuni Trie Winda, Wardhana Wisnu Ahmad, & Riastiti Yudanti. 2020. Hubungan anemia, usia ibu, paritas dan jarak kehamilan dengan kejadian berat bayi lahir rendah di RSUD Abdul Wahab Sjahranie Samarinda.