"LITERATURE REVIEW OF DETERMINANTS OF LOW BIRTH WEIGHT (LBW) AND SUPPORT PARTNERS" Yulia Nur Khayati^{1,3}, Widya Hary Cahyati^{2*}

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Abstract. The infant mortality rate (IMR) is an indicator of public health. The IMR in 2021 has decreased when compared to 2020. The highest causes of neonatal death are caused by LBW (34.5%), asphyxia (27.8%), and other causes of death (20.2%). The most common causes of IMR in Central Java were LBW (41.1%), and asphyxia (28.7%). AKN contributed to 74.3% of infant deaths in Central Java and the highest cause was LBW (37.44%). This research was written using the narrative literature review method. The unit of analysis for this study is the determinants of the causes of LBW and efforts to treat LBW related to the husband's role which are published in international and national journals in English and Indonesian. The source of information on articles as the main subject of the research being reviewed came from the Google Scholar and PubMed search engines for the period 2014 to 2022 with keywords using English, namely Low birth weight, determinant, Indonesia, support, and partner. From the criteria obtained 8 articles. Determinants of the causes of LBW include the mother's education, husband's education, history of ANC, mother's nutritional status, the distance between home and health service, economic status, gender, parity, the distance between births, marital status, mother's job status, mother's role in decision making Health and Gameli. There is the influence of support and the role of the husband in reducing the incidence of LBW. Increasing husband's knowledge in reducing and early detection of LBW events. Optimizing the husband's role in pregnancy assistance and improving programs for providing information about pregnancy and the husband's role.

Keywords: [LBW, Causes, Support, Partner]

INTRODUCTION

Infant and child health is an asset to prepare a healthy, intelligent, and quality generation in the future. Efforts to maintain children's health have been carried out from the time the fetus is in the womb, birth, and after birth until the age of 18 years. The infant mortality rate (IMR) is an indicator of public health. IMR in 2021 has decreased when compared to 2020. The highest causes of neonatal death are caused by LBW (34.5%), asphyxia (27.8%), and other causes of death (20.2%) which are caused by congenital abnormalities, COVID infection 19, Tetanus neonatorum, and others. In postnatal deaths (29 days-11 months) the highest causes were pneumonia (14.4%) and diarrhea (14.0%) (Ministry of Health, 2022).

The Infant Mortality Rate in Central Java in 2021 is 7.9 per 1000 live births. The highest IMR was occupied by the city of Magelang, which was 15.6 per 1000 live births, followed by the city of Salatiga, which was 13.7 per 1000 live births. The most common causes of IMR in Central Java were LBW (41.1%), and asphyxia (28.7%). AKN contributed to 74.3% of infant deaths in Central Java and the highest cause was LBW (37.44%).

According to Riskesdas data (2018), the incidence of low birth weight in Central Java was 6.1% with a total weighted 6,272 babies born. According to the characteristics of infants who experience LBW, most are female and born to families in rural areas, parents do not work and parents' education is not attending school or not completing elementary school. WHO data states that the incidence of LBW in the world is 20 million (15.5%) every year and developing countries have the largest contribution, namely 96.5% (WHO, 2018).

The neonatal period is the period that is most vulnerable and has the highest risk of health problems because during this period there are many changes and adjustments to life from inside the womb to life outside the womb so this age you must get the right treatment so that it doesn't have fatal consequences. Some of the efforts made by the Ministry of Health are delivery services assisted by health workers in health service facilities and guaranteeing neonatal visit services (Ministry of Health, 2022).

Low birth weight (LBW) is the main cause of IMR, LBW conditions are caused by the condition of the mother during pregnancy, namely teenage pregnancy, malnutrition, pregnancy complications, gemeli, fetal abnormalities, and placental disorders. LBW have a greater risk of experiencing stunting

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and metabolic syndrome as adults.LBW complications can be prevented and managed, but are constrained by access to health services, socio-economic conditions, referral systems that are not working properly, delays in early detection, and parents' awareness to seek medical help.

Babies with Low Birth Weight (LBW) are a risk factor for infant death. LBW complications can be prevented and managed, but are constrained by access to health services, socio-economic conditions, referral systems that are not working properly, delays in early detection, and parents' awareness to seek medical help. Therefore, one of the efforts to prevent infant mortality is the handling of LBW. Babies born with LBW need serious treatment because in these conditions babies easily experience hypothermia, disorders of the respiratory system, central nervous system, cardiovascular, hematology, gastrointestinal, kidney, and thermoregulation and these complications will be the main causes of infant death (RI Ministry of Health, 2022; Central Java Health Office, 2022).

The decline in IMR cannot be separated from community empowerment, one of which is the class program for pregnant women and the birth planning and complication prevention (P4K) program. National coverage for pregnant women in 2021 has reached 83.5%, this figure is higher than in 2020, which was 69.9% (Ministry of Health, 2022).

Reducing maternal mortality, infant mortality, and under-five still has many challenges. Various efforts have been made to reduce maternal and child mortality by strengthening the health system and health services that are a continuum of care. The implementation of this program requires the involvement of various relevant stakeholders, including universities, think tanks private institutions, and the community. One of the strategies of the Ministry of Health and Higher Education is through community empowerment. For this reason, program coordination and collaboration are needed to increase community participation in health efforts.

In efforts to reduce the incidence of LBW babies, it is necessary to find out more about the determinants of the causes of LBW both in the world and in Indonesia and analyze the various efforts that have been made by the world community to reduce LBW. Therefore the researchers conducted a study based on a literature review related to the determinants of the causes and treatment of LBW.

METHODS

This research was written using the narrative literature review method. The unit of analysis for this study is the determinants of the causes of LBW and efforts to treat LBW related to the husband's role which are published in international and national journals in English and Indonesian. The source of information on articles as the main subject of the research being reviewed came from Google Scholar and PubMed search engines, spanning 2014 to 2022 with keywords using English, namely Low birth weight, determinant, Indonesia, support, and partner.

Criteria	inclusion	exclusion		
Population	Articles that include the determinants of the	Articles that do not include the determinants of		
	causes of LBW and Support partners	the causes of LBW and Support Partners		
intervention	Free intervention (with treatment or not)	Not about the causes of LBW and partner		
		support		
comparison	There may be comparisons or not	-		
Outcome Explaining the determinants of the causes		Does not explain the determinants of LBW		
	LBW and Support partners			
Year of Publication	2014-2022	Before 2016		
Language	Indonesian English	-		

 Table 1. Article search criteria

RESULTS AND DISCUSSION

Based on the literature study found as many as 8 journal articles consisting of 5 articles explaining the determinants of the causes of LBW and 3 articles discussing partner support in handling LBW. Table 2 Analysis of Determinant Journals of the Causes of LBW and support partners that have been carried out.

Table 2. Analysis of Determinant Journals of the Causes of LBW and support partners

Writer	Title	Sample	Variable	Method	Results
Khayati,	Multilevel	120 infants	Fixed effect:	Case-control	In this study, there was the
YN, et al	Analysis on the	with the	mother's age,	using	influence of the variable fixed
(2016)	Factors	method of	mother's education,	Multilevel	effect, namely education, history
	Associated with	taking case-	family income,	analysis	of ANC mothers, and nutritional
	Low Birth		history of ANC, and		status of mothers, and the

	Weight in Temanggung, Central Java	control with 1:2	mother's nutritional status Random effect: distance from home to health services		random effect was also statistically significant, namely the distance between the house and the health facility
Mishra, P et. All(2021)	Newborn low birth weight: Does socio- economic inequality persist in India?	Using National family health survey (NFHS) data for 2015- 2016, which includes 601,509 households. And obtained data on babies who were weighed at birth as many as 259,627 children, and data obtained for 193,358 who experienced LBW	Baby's birth weight, mother's age, BMI, history of ANC, parity and spacing of pregnancies, parents' education, caste, ethnicity, religion, economic status, place of residence, child's sex, geographic location, source of drinking water, toilet conditions, and use of fuel for cooking	Using national health survey data	There is the influence of maternal age under 19 years, mothers with low nutritional status, mothers who do not perform ANC, mothers with low economic status, female babies with a large number of priorities and close spacing of pregnancies, and poor areas also affect the incidence of LBW in India.
Tessema, Z. et all (2021)	Prevalence of low birth weight and its associated factors at birth in Sub-Saharan Africa: A generalized linear mixed model	Using secondary health survey data from 35 sub-Saharan countries, the total sample is 202,878 birth data.	Independent variable: Birth weight dependent variable : 1. Individual level variables include: mother and husband's education, mother's age, marital status, family wealth level, mother's employment status, women's health decision makers, number of ANC visits, distance of previous births, parity, sex of child, type of delivery and FE supplementation 2. Community level variables: regions categorized as West Africa, East Africa, South Africa, place of residence, and country	This cross- sectional research method uses survey data and performs univariate, and multivariate analyses using mixed logistic regression. data is processed using STATA 14	 Factors that influence the incidence of LBW in this study include: 1. Mothers aged 15-19 years are more at risk of having a baby with LBW babies 2. Mothers who do not go to school have the greatest risk of having LBW babies, and husbands who are uneducated are also at risk for mothers giving birth to LBW babies 3. Mothers who are more at risk of giving birth with LBW 4. Middle and upper economies are less at risk of experiencing LBW 5. Working mothers also have a smaller risk of LBW than mothers who do not participate in decision-making are more vulnerable to LBW 7. Mothers whose ANC visits are 1-4 reduce the risk of LBW births 8. Parity at risk of giving birth to LBW is parity 1-2 9. Baby girls tend to experiencing LBW 10. Gameli is also more at risk of experiencing LBW The high LBW rate in sub-Saharan countries occurs because maternal and infant mortality control programs are inadequate. The results in this study are ANC
Safîtri, H, et. all	Determinant factors of low	The sample in this research is	Variable in this research is	This research method is	The results in this study are ANC visits, mothers who do not go to

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	birth weight in Indonesia: Findings from the 2017 Indonesian Demographic and health survey	14,239 respondents	Independent: Birth weight Dependent: ANC visits, mother's education	cross- sectional using the 2017 IDHS data	school and have low education greatly influence the incidence of LBW in Indonesia
Andriani, Helen	Birth weight and childhood obesity: effect modification by residence and household wealth	The sample in this study was taken from the 2013 Riskesdas data, a population of 63,237 (children aged 0-5 years)	The variables in this study were birth weight, childhood obesity, place of residence, and economic status	This research method is cross- sectional using the 2013 Riskesdas data	Children with a history of LBW are 6 times more likely to be obese. And children who have a history of LBW and live in villages are more at risk of experiencing obesity, so it is very necessary to intervene to reduce LBW and there is a need for intervention for babies born with LBW as early as possible.
Monisha K, Rebekah E, Katherine P	Partner Support and Impact on birth outcomes among teen pregnancies in the United States	The population in this research is women who experience teenage pregnancy. The sample is 5609 (aged 10- 19 years) women who are experiencing teenage pregnancy with probability sampling which aims to homogeneity the sample The way to obtain the data is by interviewing	Variables in this study were: teenage pregnancy, birth weight, partner support, preterm delivery, condition of the baby at birth, education, race (black, white, and others), Hispanic ethnicity, income, smoking status in pregnancy, family support old, ANC status in the first trimester of pregnancy.	This research method is cross- sectional using national survey data on family growth in 2006-2010 Data processing methods are univariate, bivariate (Rao-Chi Square), and multivariate with logistic regression	Women with partner support are 63% less likely to experience LBW births compared to women who are not supported by partners. There is a relationship between partner support and care for pregnancy and childbirth. The weakness in this study is using survey data that observes retrospectively and the couple here does not mean husband because some are not married.
Pamela S. et all	Paternal Involvement and Support and Risk of preterm birth: Findings from the Boston Birth Cohort	Population and sample The population in this study were mothers who gave birth in 1998-2015 and were recorded at the Boston Birth Cohort (BBC) The sample in this study were mothers who gave birth in 1998-2015 and were recorded at the Boston Birth Cohort (BBC) who were not gamelious and had birth	The variables in this study are Independent variables: father's involvement, father's support, social support of family and friends Dependent variable: preterm delivery, small gestational age (LBW dysmaturity)	Using Boston Birth Cohort data is processed with multiple logistic regression	There is a relationship between the lack of father's involvement with preterm birth, there is a relationship between the father's support, and small gestational age (LBW dysmaturity), but there is no relationship between family and friend support with the incidence of preterm delivery and small gestational age (LBW dysmaturity).

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		defects with a sample of 7074			
		mothers.			
Setyowati	The	The population	Dependent variable:	This research	The results of the multivariate
R. Erna	Relationship	in this study	husband's role in	method is	analysis of this study are that
K. Ibnu Z	between	were husbands	preventing LBW	conservational	there is a relationship between
	Knowledge,	who had babies	Independent	analytic with a	access to information and the
	Attitude, and	aged 0-3	Variables:	cross-	husband's role in preventing
	Information	months	husband's	sectional	LBW. With easy access to
	Exposure with	The sample in	knowledge,	approach	information, the husband will
	the Husband's	this study was	husband's attitude,		know and prevent LBW
	Role in the	taken by	access to		
	Prevention of	cluster random	information		
	Low Birth	sampling of			
	Weight Babies	100			
	at the Ii	respondents			
	Sumbang and				
	Kedungbanteng				
	Health Centers				

In Khayati's research, Y (2016), with the title Multilevel analysis of causes of low birth weight in Temanggung Regency, stated that several factors caused LBW 3 factors at the individual level which included maternal education, history of ANC examinations, and maternal nutritional status, and there was a role contextual, namely at the community level, namely the distance between the pregnant woman's house and the distance to health services. ANC treatment greatly affects the incidence of LBW because with routine pregnancy monitoring, early detection of the weight of the baby in the womb can be carried out and more interventions can be made so that LBW does not occur. Meanwhile, factors at the contextual level, namely the distance between the pregnant mother's house and health facilities greatly affect the mother's ability to perform ANC so that if the distance to health service facilities is close enough and easily accessible, pregnant women will have easier access to health services. This research is in line with the research conducted by Demelash. et al 2015, assessed the factors that influence the incidence of LBW, including sociocultural factors consisting of family income, education, and location of residence. Maternal factors consist of age at delivery, height, mother's illness during pregnancy, mother's BMI, mother's height, the distance between pregnancies, and regularity of ANC visits. Environmental factors include: using firewood for cooking, washing hands with water only, do not have a separate kitchen. Fetal factors, disease factors, and placental factors.

Research conducted by Mishra, P et. All (2021) states that there is an influence of maternal age under 19 years, mothers with low nutritional status, mothers who do not perform ANC, mothers with low economic status, female babies, and with large numbers of parties and close spacing of pregnancies, and poor areas affect the incidence of LBW in India.

Tessema, Z. et al. (2021) in the results of his research obtained results. living at home, low economic status, mothers who do not work, mothers who do not participate in health decision making, parity at risk of giving birth to LBW are parity 1-2, female babies tend to experience LBW, Gameli is also more at risk of having LBW at her ANC visits 1- 4 reduce the risk of LBW births. Working mothers are considered to be less at risk of experiencing LBW because working mothers can carry out pregnancy care. After all, they have sufficient income.

Safitri, H, et. All (2022) conducted research using secondary data from the results of the 2017 IDHS and obtained the results that the causes of LBW in Indonesia were ANC visits, mothers who did not go to school, and low education. Andriani, Helen (2021), conducted research based on data from Riskesdas Indonesia in 2013, which showed that children with a history of LBW were 6 times more likely to experience obesity. And children who have a history of LBW and live in villages are more at risk of experiencing obesity, so it is very necessary to intervene to reduce LBW and there is a need for intervention for babies born with LBW as early as possible.

Seeing the various factors that cause LBW that have been analyzed from various research results and considering the impact of LBW is that there is a greater potential for metabolic syndrome to occur in adulthood, as well as being the main cause of AKI and the many negative conditions caused by LBW, it is necessary to have an intervention program and implement it properly to reduce the incidence of LBW in Indonesia which is still high.

From several articles that searched for support from partners for LBW events, it was found that

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women with partner support were 63% less likely to have LBW births compared to women who were not supported by partners. There is a relationship between partner support and pregnancy and childbirth care. Monisha K, Rebekah E, Katherine P (2014). There is a relationship between lack of father involvement and preterm birth, and there is a relationship between father support and small gestational age (LBW dysmaturity), but there is no relationship between family and friend support with the incidence of preterm delivery and small gestational age (LBW dysmaturity). Pamela S. et all (2019)). There is a relationship between access to information and the husband's role in preventing LBW. With easy access to information, the husband will know and prevent LBW Setyowati R. Erna K. Ibnu Z. (2017). Husbands or partners are the closest people to pregnant women and from the results of the research above, it should be the target for providing assistance programs to pregnant women to reduce the incidence of LBW.

CONCLUSION

The determinants of the causes of LBW include the mother's education, husband's education, history of ANC, nutritional status of the mother, distance between home and health service, economic status, gender, parity, distance between births, marital status, mother's employment status, mother's role in health decision making. and Gameli. There is the influence of support and the role of the husband in reducing the incidence of LBW.

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