International Journal of Health and Medicine
Volume. 1 No. 3 July 2024
e-ISSN : 3047-793X, and p-ISSN : 3047-7948, Page. 184-189
DOI: https://doi.org/10.62951/ijhm.v1i3.89
Available online at: https://international.arikesi.or.id/index.php/IJHM

Factors Affecting the Occurrence of Low Birth Weight Babies at RSKDIA Siti Fatimah Makassar in 2024

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Abstract. *Neonatal mortality consists of early neonatal death and late neonatal death. Neonatal mortality rate is the number of neonatal deaths per 1,000 live births. Low Birth Weight is one of the risk factors that contributes to infant mortality, especially during the neonatal period. This study aims to determine the factors that influence the incidence of low birth weight babies at RSKDIA Siti Fatimah Makassar in 2024. This study is analytical with a case control approach used to determine the influence between independent variables and dependent variables. The type of research is retrospective which tries to look back. This means collecting data starting from the effects or consequences that have occurred. Then from these effects the causes or variables that influence these consequences are traced. The population in this study were all babies born in January-June 2018, totaling 759 babies. The sample in this study were babies born in the delivery room of RSKDIA Siti Fatimah Makassar in 2024 with a birth weight of > 2500 grams. Based on the research results, a p value of 0.002 was obtained, thus it can be concluded that this figure means that there is an influence of maternal age on the incidence of LBW, and the p value ρ = 0.001 means that H0 is rejected, meaning that there is an influence between nutritional status and the incidence of Low Birth Weight.*

Keywords*: Low Birth Weight, Nutritional Status, Age*

1. BACKGROUND

Low birth weight is the weight of a neonate at birth, measured within one hour of birth. Weight is the most important and most frequently used anthropometric measure in newborns (neonates). Weight is used to diagnose normal babies or Low Birth Weight Babies. LBW is a baby born weighing less than 2500 grams, regardless of gestation or gestational age. Babies below the 10th percentile are called light for gestational age (Carolin & Widiastuti, 2019).

The causes of LBW are generally multifactorial, so it is sometimes difficult to take preventive measures. However, the most common cause of LBW is premature birth. The younger the gestational age, the greater the short-term and long-term risks can occur (Najwa Sufa Hilwa, Irmiya Rachmiyani, 2020).

WHO recommends that the age considered safest for pregnancy and childbirth is 20 to 35 years. The highest percentage of babies with low birth weight is in the group of teenagers and women over 35 years old. Mothers who are too young are often emotionally and physically immature. While in older mothers, even though they are experienced, their physical condition and health have begun to decline so that it can affect the intra-uterine fetus and can cause LBW births (Profil Kesehatan, 2021).

While pregnancy over 35 years of reproductive organs are less fertile and increase the risk of birth with congenital abnormalities and are at risk of premature birth. From the results

Received: May 09, 2024; Revised: June 10, 2024; Accepted: July 30, 2024;
Published: July 30, 2024;

of a preliminary study conducted by researchers in the infant room of RSKDIA Siti Fatimah Makassar in 2022, out of 1138 births, there were 88 (12.93%) with LBW, and in 2023, it was obtained from 1644 babies there were 95 (17.30%) with LBW. (Medical Record RSKDIA Siti Fatimah Makassar, 2024). Based on the data above, the study is interested in conducting research on the factors that influence the incidence of low birth weight in PKM Bajeng in 2024.

2. THEORETICAL STUDY

Low Birth Weight is a disease that directly affects pregnancy, for example antepartum bleeding, physical and psychological trauma, diabetes mellitus and infection, while based on age, the incidence of LBW is the age of the mother under 20 years and in multigravida whose birth spacing is too close . If viewed from the fetal factor, the cause of LBW is hydramnios and multiple pregnancies (Budiarti et al., 2022).

Based on gestational age, LBW can be divided into 2 groups, namely: Pure prematurity, namely the gestational age is less than 37 weeks and the weight is in accordance with the weight for that gestational age or commonly called preterm neonates according to gestational age 9 (NKB-SMK) 2. Dysmaturis, namely babies born with a weight less than the weight they should have for that gestational age. This means that the baby experiences intrauterine growth retardation and is a baby who is small for gestational age 9 (KMK).

The reproductive age for a woman is between 20-35 years old, below or above that age will increase the risk of pregnancy and childbirth. Mothers aged <20 years and >35 years have a 3.18 times greater risk of giving birth to a LBW baby compared to mothers who give birth at the age of 20-35 years (Isnaini et al., 2021).

Anthropometric examination can be used to determine the nutritional status of pregnant women, for example by measuring weight before pregnancy, height, body mass index, and upper arm circumference (MUAC). A better assessment to assess the nutritional status of pregnant women is by measuring the MUAC, because in pregnant women with malnutrition (under or over nutrition) sometimes shows edema but rarely affects the upper arm (Falah Hasibuan et al., 2023).

3. RESEARCH METHODS

This research is analytical with a case control approach used to determine the influence between independent variables and dependent variables. The type of research is retrospective which tries to look back. This means collecting data starting from the effects or consequences

that have occurred. Then from these effects the causes or variables that influence these consequences are traced (Sugiyono, 2022).

The population in this study was all babies born in January-March 2024, totaling 40 babies. The sample is a portion of the population taken using a specific method. The number of samples taken was 1: 1 by recruiting a number of subjects with effects (case groups), then looking for other subjects with comparable characteristics but no effects (control group) totaling 40 samples. The sampling technique in this study was for cases with the total sampling technique, namely all mothers who gave birth to low birth weight (LBW) babies as many as 40 people, while the control group sampling method that will be used in this study is the simple Random Sampling technique, namely samples taken randomly as many as the number of cases, namely 40 people.

4. RESULTS AND DISCUSSION

Table 1. Analysis of the Influence Between Maternal Age and the Incidence of LBW At RSKDIA Siti Fatimah Hospital Makassar in 2024

Age	LBW Insident				TOTAL		P Value
	BBLR		Total				
	n	%	n	%	n	%	
High Risk	12	63,1	7	36,9	19	100,0	0,002
Low Risk	11	52,3	10	47,6	21	100,0	
Jumlah	**20**	**50,0**	**20**	**50,0**	**40**	**100,0**	

Source: Secondary Data, 2024

From table 1 above shows that as many as 19 respondents of high-risk maternal age status with LBW as many as 12 respondents (63.1%), and normal babies as many as 7 respondents (36.9%). While there are 21 respondents of low-risk age status with LBW 11 respondents (52.3%), and normal babies 10 respondents (47.6%). Based on the results of statistical analysis (Chi-Square Tests) obtained a p value of 0.002 thus it can be concluded that this figure means that there is an influence of maternal age on the incidence of LBW.

Table 2 Analysis of the influence between nutritional status and the incidence of LBW at RSKDIA Siti Fatimah Makassar in 2024

Nutritional status	Kejadian BBLR				Total		P Value
	BBLR		Normal				
	n	%	n	%	n	%	
High Risk	13	81,2	3	18,7	16	100,0	0,001
Low Risk	11	45,8	13	54,1	24	100,0	
Jumlah	**20**	**50**	**20**	**50**	**40**	**100,0**	

Source: Secondary Data, 2024

From table 2 above shows that as many as 16 respondents of high-risk maternal age status with LBW as many as 13 respondents (81.2%), and normal babies as many as 3 respondents (18.7%). While there are 24 respondents of low-risk age status with LBW 11 respondents (45.8%), and normal babies 13 respondents (54.1%). Based on the results of statistical analysis (Chi-Square Tests) obtained with $\rho = 0.001$ this means that H0 is rejected meaning there is an influence between nutritional status and the incidence of LBW.

The influence of age on the incidence of LBW

In general, a woman is said to be ready to get pregnant or have children determined in 3 things, namely physical readiness, mental/emotional/psychological readiness and socio-economic readiness, namely around the age of 20 when her body stops growing. Obstacles that will occur in pregnancy with an age of less than 20 years are when pregnant, less attention is paid to the pregnancy, including pregnancy control which will have an impact on increasing the risk of pregnancy complications (Maretta et al., 2022).

This is reinforced by Muryani's theory, that mothers aged <20 years have a uterus and pelvis that are not yet fully mature, resulting in long/obstructed labor, while mothers aged> 35 years have organ function and health that are starting to decline so that they are likely to experience bleeding and long labor, even babies are born LBW. Mothers with high-risk ages need more energy, especially high-risk mothers who are pregnant with a fetus need more additional energy (Sinaga & Purba, 2021).

According to the researcher's assumption, in accordance with Hikmawati's opinion (2022), a mother should get pregnant at the age of 20-35 years because at this age it is called a healthy reproductive age and is also supported by good nutritional status and regular pregnancy check-ups are carried out so that fetal development can be monitored, although at this age there is a chance of complications in pregnancy such as LBW because it is influenced by many factors other than the mother's age including pregnancy spacing that is too close, mothers who have anemia and so on also play a role during pregnancy.

The Influence of Nutritional Status on the Incidence of LBW

The causes of malnutrition in pregnant women in Indonesia are low socio-economic conditions, physical health, inadequate food intake and infectious diseases, malnutrition is also greatly influenced by the lack of public knowledge, if the mother's nutritional status is poor both before pregnancy and during pregnancy will cause low birth weight. Babies who have low birth weight will be susceptible to asphyxia, hypothermia, birth trauma, young to infection, hyperbilirubin and hypoglycemia, in addition it will also increase the risk of morbidity and mortality of infants because they are susceptible to lower respiratory tract infections and

behavioral problems (Simatupang & Tahun, 2022). In developing countries including Indonesia, nutritional problems are still a major public health problem and are the cause of maternal and child mortality. The high infant and maternal mortality rate and babies with Low Birth Weight (LBW) are essentially also determined by the nutritional status of pregnant women. Pregnant women with poor nutritional status or experiencing KEK (Chronic Energy Deficiency) tend to give birth to LBW babies and are faced with a greater risk of death compared to babies born to mothers with normal weight. There are several ways that can be used to determine the nutritional status of pregnant women, including monitoring weight gain during pregnancy. Measuring the Upper Arm Circumference (MUAC) and measuring Hb levels (Sampara & Muzakkir, 2021).

Anthropometric examinations can be used to determine the nutritional status of pregnant women, for example by measuring pre-pregnancy weight, height, body mass index, and Upper Arm Circumference (MUAC). A better assessment to assess the nutritional status of pregnant women is by measuring the MUAC, because pregnant women with malnutrition (under or over nutrition) sometimes show edema but rarely affect the upper arms (Ismawati et al., 2021).

Based on the assumptions of other anthropometric indicators, the MUAC is the most practical to use in the field, so several studies recommend that the MUAC needs to be studied further to be used in predicting pregnancy outcomes. One way to find out whether a pregnant woman is suffering from KEK or not is if the size of the Upper Arm Circumference (MUAC) is less than 23.5 cm, then the pregnant woman is said to be KEK or malnourished and at risk of giving birth to a baby with LBW. Data shows that one third (35.65%) of fertile women (WUS) suffer from KEK. This problem can inhibit fetal growth during pregnancy, thereby causing a risk to babies with LBW.

5. CONCLUSION AND SUGGESTIONS

Low Birth Weight births are largely unknown, in many cases LBW is partly influenced by low socioeconomic status, race, maternal age <16 years and >35 years, maternal activity, parity, mothers with chronic/acute diseases, multiple pregnancies, previous pregnancy history, and fetal factors such as fetal distress.

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