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Research Article

The Influence of Maternal Age, Pregnancy Stress, Nutritional Status and Utilization of Anc against the Incidence of Low Birth Weight Infant in Public Hospital Public, Bantaeng Regency

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Abstract: Low Birth Weight infant (LBWI) is a newborn baby which has weight less than 2500 grams regardless of pregnancy period. Low birth weight infant is still a matter of public health in many countries, because it is one of the causes of infant mortality. This study agreed to determine the influence of maternal age, pregnancy stress, nutritional status and the utilization of ANC against the incidence of low birth weight infant. The research used is an analytic observation with case control design which has a large sample of 126 people consisting of 63 cases groups and 63 control groups with a ratio of 1:1, the data analyzed using Linear regression Multiple. The results found that two variables influence the LBWI, which is pregnancy stress $P = 0,005$, and nutritional status $P = 0,006$, with the significance of each Value p (< 0.05). While the maternal age variable and the use of the ANC has no influence on the LBWI. Expectant mothers are advised to do positive things like exercising, a healthy lifestyle, good communication with family and others is expected to reduce stress on pregnant mothers, as well as maintain a good nutritional condition with the efforts of eating consumption and monitoring of weight gain.
Keywords: LBWI, maternal age, pregnancy stress, nutritional Status, ANC utilization.

INTRODUCTION

Low Birth Weight infant (LBWI) are defined by the world health organization World Health Organization (WHO) is body weight at birth less than 2500 grams. LBW is always a significant public health problem globally and is associated with various short-term and long-term consequences. In general, it is estimated that 15% - 20% of all births in the world experience low birth weight, which represents more than 20 million births per year (WHO, 2014).

Infant Mortality Rate (IMR) is the first indicator in determining the child's health status. In addition, infant mortality is also a reflection of the health status of the community. Most of the causes of infant and toddler deaths are problems that occur in newborn / neonatal (age 0-28 days). One of the high rates of infant mortality (IMR) is caused by babies with low birth weight. This means that the condition of the mother's condition before and during pregnancy greatly determines the condition of the baby. The challenge ahead is to prepare prospective mothers to be fully prepared for pregnancy and childbirth and to maintain environmental health that is able to protect babies from infection (Strategic Plan, 2015).

The incidence of LBWI in Indonesia from 2010 to 2018 shows a decline. In 2010 it amounted to 11.1%, to 10.2% in 2013, and in 2018 was 6.2%, the highest prevalence occurred in Central Sulawesi at 8.9%, and the lowest in Jambi was 2.6% (Basic Health Research, 2018). The incidence of LBWI in South Sulawesi Province shows a decline. In 2010 it was 16.5% to 12.3% in 2013, and in 2018 the incidence of LBW of 7.1% was ranked as the 8th highest in Indonesia but the second highest ranking in the island of Sulawesi after Central Sulawesi (Basic Health Research, 2018). Even though the incidence of LBW in South Sulawesi Province has decreased, the results have

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not yet reached the target of the 2016 National Health Indicator Survey (Sirkesnas), which amounted to 6.9%.

Data reports on the number of LBWI incidence in the last 3 years according to data obtained from the Bantaeng District General Hospital, namely in 2016 the LBW incidence is 101 per 1,000 live births, in 2017 it has increased by 125 per 1,000 live births and in 2018 experienced a significant increase of 163 per 1,000 live births. Every year the incidence of LBWI increases.

This number has significant meaning because low birth weight babies have a high risk of morbidity and mortality. The lower the birth weight, the higher the risk of neonatal mortality. The results of the 2001 Household Health Survey (SKRT) mortality study showed that the highest proportion of causes of neonatal mortality in the 0-7 day age group was premature and low birth weight (35%) (Fatimah, 2018).

METHODOLOGY
Research design
This type of research is observational analytic with case control design which is a study that uses a retropective approach. This research was conducted at the Bantaeng District General Hospital, South Sulawesi Province.

Population and Samples
The population in this study were all mothers giving birth at the Bantaeng District General Hospital during 2018. A sample of 126 mothers in which the case group were mothers who gave birth to LBW and the control group were mothers who gave birth Normal Birth Weight (NBW), with a comparison of case samples : control is 1: 1, so the minimum number of samples is 63: 63. The withdrawal of case and control samples was based on the inclusion criteria of all mothers who gave birth at the Bantaeng District General Hospital.

Collecting Data
Data collection was obtained through secondary data from the Bantaeng District General Hospital. Primary data is obtained by conducting guided and directed interviews from house to house using a questionnaire to explore information about the variables to be analyzed in this study that are closely related to the incidence of LBW.

Data Analysis
Data on general characteristics of respondents, independent variables and dependent variables were processed using SPSS. To find out the effect of maternal age, pregnancy stress, nutritional status and utilization of ANC on the incidence of LBW in mothers giving birth at the Bantaeng District General Hospital used data analysis using univariate analysis and multivariate analysis with multiple linear regression.

RESULTS

Table 1. Distribution of the general characteristics of giving birth at the Bantaeng District General Hospital

Variable	Birth Weight			
	Case		Control	
	n	%	n	%
Type of work				
Housewife	49	77,8	52	82,5
Farmer	2	3,2	1	1,6
Workers / employees	8	12,7	5	7,9
Civil servants	2	3,2	2	3,2
entrepreneur	2	3,2	3	4,8
Level of education				
Low	24	38,1	27	42,9
High	39	61,9	36	57,1
Age of Last Childbirth Pregnancy				
Preterm	32	50,8	1,6	26,2
Aterm	31	49,2	98,4	73,8
Total	63	100,0	63	100,0

Source: Primary Data, 2019

Table 1 shows a comparison of the proportion of occupations between cases and controls, the type of work with the lowest presentation was on farmers where the case group was higher (3.2%) than the control group (1.6%). The type of work with presentation was highest on Housewife where the case group was lower (77.8%) than the control group (82.5%). Comparing the proportion of education levels between cases and controls, the education level with the lowest presentation was at the low education level where the control group was higher (42.9%) than the case group (38.1%). The education level with the highest presentation was at the higher education level where the case group was higher (61.9%) than the case group (57.1%). Comparison of the proportion of the last delivery pregnancy, the last gestational age with the lowest presentation was preterm where the case group was higher (50.8%) than the control group (1.6%).

Table 2. Results of Multivariate Analysis of Influence of Maternal Age, Pregnancy Stress, Nutritional Status and Use of ANC on LBWI Occurrence in Bantaeng District General Hospital

Model	Unstandardized coefficients		Standardize coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1113,882	670,375		1,662	0,099
Mother's age	-6,850	7,412	-0,079	-0,924	0,357
Pregnancy Stress	-39,935	13,934	-0,241	-2,866	0,005
Nutritional status	75,681	27,038	0,243	2,799	0,006
Utilization of ANC	53,539	34,450	0,134	1,554	0,123

Source: Primary Data, 2019

Table 2 shows that from the analysis results obtained variables that are thought to influence the occurrence of LBWI births in pregnant women in the work area of the District General Hospital. Bantaeng, shows: the results of multiple linear regression tests, which are assessed through significance (Sig.). From the analysis results obtained only the stress variables of pregnancy with a value of p = 0.005 and nutritional status with a value of p = 0.006 which has a significant effect on the incidence of low birth weight babies (p value = <0.05). While the age of the mother with a value of p = 0.357 and the use of ANC with a value of p = 0.123 did not have a significant effect on the incidence of low birth weight babies (p value => 0.05).

DISCUSSION

In this study, it can be seen that of the four variables studied there were two variables that significantly influence the incidence of LBWI, namely nutritional status and stress of pregnancy. Two variables that did not significantly influence the incidence of LBWI, namely, maternal age and use of ANC.

Mother's age does not have an influence on the incidence of LBWI, with a significance level of p = 0.357 (> 0.05), age factor is not the only one that causes LBWI, age also does not always have a negative influence on one's health. This is influenced by the factors of employment and maternal education that are still low. Pregnant women with a low level of education have a risk of 19,190 times greater for giving birth to LBWI than pregnant women with a higher education level. Low maternal education influences the knowledge of mothers, so that mothers are affected by life habits that do not support lifestyle such as non-nutritious food (only carbohydrates, little vegetables, little meat) and many restrictions - dietary restrictions for pregnant women by traditional rules of ancestors. The higher the level of education, the more insight the mother has and the mindset that is open to accepting new knowledge that is considered useful during pregnancy (Rini, 2013).

Pregnancy at the age of the mother <20 years is biologically not optimal so her emotions tend to be unstable, mentally immature so that they easily experience shocks which result in a lack of attention to meeting the nutritional needs during pregnancy (Monita, 2015). In adolescence, more food is needed by the body itself because it is still in the stage of growth, while the fetus it contains also requires high nutritional input, besides physical development is not perfect, including reproductive organs (Retni, 2016).

In addition, mothers who give birth at the age of> 35 years are not recommended and are very dangerous, considering that from this age often appear diseases such as hypertension, benign peranakan tumors, or degenerative diseases of the spinal and hip joints (Setianingrum, 2005). Mothers who are> 35 years old need a lot of energy because the function of the organ which is getting weaker and is required to work optimally requires additional energy to support the ongoing pregnancy (Muazizah, 2012).

Although statistically the results of this study indicate that there is no significant influence between the age of the mother and the incidence of LBWI with a p value = 0.357, mothers who give birth at that risky age must be avoided because the optimal reproductive age for a mother is between 20-35 years . And even though there are mothers who are <20 and> 35 years old but the fulfillment of maternal nutrition so that weight gain is in accordance with the period of pregnancy.

The results of this study are in line with the research conducted by Ernawati (2016) in Bantul which shows that there is no relationship between maternal age and the incidence of low birth weight babies with significant values on the results showing p value = 0.35 (> 0.05). However, the results of this study are not in line with other studies that show that maternal age is at risk of LBWI incidence according to research conducted by Marlenywati (2015), showing the results of statistical tests with a value of p = 0,000, it can be concluded that there is a significant relationship between the age of mothers with LBWI. The results of the analysis obtained OR = 5.333 means that mothers aged <20 years and> 35 years had a risk of 5,333 births for LBWI compared to mothers aged 20-35 years.

Pregnancy, besides giving extraordinary happiness, is also very stressful for the majority of women. In some women with ambivalent feelings about pregnancy and stress increases. Responses to stress can

be seen as visible or invisible (American college of obstetricians and gynecologists, 2010).

Dietz *et al.,* (2007) said that stress during pregnancy can be caused by several factors such as neuroendocrine, biochemical, psychological, social, genetic and personality, or reciprocal relationships between these factors which are further aggravated by hormonal imbalances. Pregnancy causes mothers to tend to worry too much about some things including fetal health and also technical things such as a frightening birth process. If the feeling of anxiety and worry is not managed properly can lead to stress and even depression.

Based on the results of the study, the severe stress experienced during pregnancy had a significant influence (p = 0.005) on the incidence of LBWI. In theory and several studies suggest that pregnant women experience various physical or psychological stresses. This is caused by various factors including the bad experience of mothers before pregnancy, the effects of pregnancy that have an impact on life, especially if the mother of a career woman has new responsibilities or additional burdens, anxiety about being a mother, financial and home affairs, acceptance of pregnancy by others and discomfort during pregnancy such as nausea, fatigue, changes in taste. This condition triggers an increase in the hormone cortisol and stimulates the prostaglandin hormone for the uterus to contract prematurely which causes blood vessels to constrict so that the fetus experiences a deficiency of nutrients through the placenta and the potential to give birth to LBWI (Rasyid, 2013).

This research is in line with the research conducted by (Endera, 2009) in New York found that stress in pregnant women had a significant influence on the incidence of LBWI birth. However, this study is not in line with the research conducted by Lobel (2008) who found that there was no significant relationship between pregnancy stress and the incidence of LBWI.

Maternal weight before pregnancy and weight gain during pregnancy less (underweight) or more (overweight) than normal will make pregnancy a risk (low risk). Less maternal weight will be at risk of giving birth to a baby with less weight or Low Birth Weight Infant (LBWI). In the event of malnutrition in pregnant women, the blood volume decreases, the size of the placenta decreases and the transfer of nutrients through the placenta decreases so that the fetus grows slowly or is disrupted (IUGR). Pregnant women with malnutrition tend to give birth prematurely or LBWI (Yulianti *et al.,* 2016)

Based on the results of the study, the nutritional status of pregnant women with SEZ had a significant influence (p = 0.006) on the incidence of

LBWI. During pregnancy, the mother needs energy reserves and other nutrients that are important for the health of the mother and the growth of the fetus. Pregnant women are a group that is quite vulnerable to nutrition. Malnutrition in pregnant women has a considerable impact on the process of fetal growth in the womb and the baby to be born.

This research is in line with the research conducted by Muliani (2016) in the Work Area of Pantoloan Public Health Center with the results of research on the nutritional status of SEZs that are significantly associated with the incidence of LBWI with a value of p = 0.017 (p <0.05). Another researcher Rahmawati (2017) at RSKDIA Siti Fatimah Makassar 2016 with research results on maternal nutritional status during pregnancy, with a value of p = 0.001 with a large risk assessed through OR = 8.121 that means that pregnant women with SEZs risk significantly p = 0.001 for the incidence of LBWI with a risk of 8.121 times greater than for pregnant women who are non-SEZ.

Antenatal care is a health service provided to mothers during their pregnancy according to the antenatal care standard set out in the antenatal care manual for community health centers. Complete antenatal care is not only in quantity (at least 4 times during pregnancy) but also includes many things including anamnesia, physical examination (general and midwifery), laboratory examinations of indications and basic and special interventions (according to existing risks including counseling and counseling). During pregnancy the mother is expected to get the quality of antenatal care in accordance with the prescribed standards which are included in the standard antenatal care is 5T (Weight Weigh, Measure fundus height, Fe Tablet, TT Immunization) (Rini, 2013).

Antenatal services aim to maintain the physical / mental health of mothers and babies by providing education on nutrition, self-efficacy, and childbirth, detecting abnormalities that occur and immediately managing medical, surgical, or obstetric complications during pregnancy and managing them (Rini, 2013)

This study shows that the use of ANC does not have an effect on the incidence of LBWI with a significance level of p = 0.123 (> 0.05), ANC aims to make it easier for mothers to access information early signs and dangers in pregnancy, but the information obtained is not necessarily can change understanding especially if the mother is low educated, so she cannot directly apply the information during pregnancy.

This research is in line with the research conducted by Purwati (2016) in Manado, that there is no relationship between ANC to the incidence of LBWI with a significance value indicating p = 0.121 (> 0.05), OR = 1.449. The low incidence of LBWI groups in the Purwati study (2015) was influenced by the high

frequency of antenatal care visits as well as the majority of mothers were IRTs which allowed more time to check their pregnancies.

However, this study is not in line with the research conducted by Marlenywati (2015) in Pontianak with the results of statistical tests obtained p = 0.014, it can be concluded that there is a significant relationship between antenatal care and LBWI. The results of the analysis obtained OR = 3.345, meaning that mothers with antenatal care <4 times had a risk of 3,345 LBWI births compared to mothers with antenatal care ≥ 4 times.

CONCLUSION

Based on the results of research and discussion with reference to the formulation of the problem and research hypothesis, the results of the study can be concluded that there is an influence of pregnancy stress and nutritional status on the incidence of low birth weight babies. There was no influence of maternal age and ANC utilization on the incidence of low birth weight babies. Pregnant women are advised to do positive things such as exercise, a healthy lifestyle, good communication with family and others are expected to reduce stress on mothers who are pregnant. Nutritional status before pregnancy and during pregnancy is a factor that affects the baby's birth weight, it is recommended to maintain good nutritional conditions by making efforts to regulate food consumption and monitoring weight gain and measurement of LILA. For husbands and families to always provide happiness, support for mothers both materially and non-materially so that mothers feel comfortable, safe and happy to undergo pregnancy.

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