

## Article

### The Influence of Pregnant Woman Lacking Chronic Energy Toward Low Birth Weight Events

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#### A B S T R A C T

*Low Birth Weight (LBW) is defined as birth weight <2500 grams and is a major global health problem. LBW is a contributor to mortality, morbidity and disability in infants and is a major cause of the Infant Mortality Rate (IMR). This problem is closely related to nutritional status. Due to the reduced function of the placenta which delivers nutritional intake from the mother to the fetus. The purpose of this study was to determine the effect of pregnant women with lacking chronic energy on incidence of low birth weight. The type and method of this research is quantitative analytic with cross-sectional research design and using Chi-square analysis. Pregnant women who experienced lacking chronic energy were 29 respondents (64.4%). From 45 respondents there were babies with low birth weight (<2500 grams) as many as 30 respondents (66.7%) and the results of the analysis test using chi-square analysis showed sig. 0.002 < 0.05 which means that there is an influence of pregnant women with lacking chronic energy on the incidence of low birth weight.*

## I. INTRODUCTION

Low Birth Weight (LBW) is defined as birth weight <2500 grams and is a major global health problem. LBW is a contributor to mortality, morbidity and disability in infants and is a major cause of the Infant Mortality Rate (IMR) (Song, 2018). According to the World Health Organization (WHO) it is estimated that Low Birth Weight (LBW) accounts for 15% to 20% of all births and represents 20 million annually. The world's target is to reduce the incidence of Low Birth Weight (LBW) in 2012 - 2025 and every

year it must decrease by 3% and around 20 million to 14 million babies with low birth weight. This problem is closely related to nutritional status. Due to reduced function of the placenta that delivers nutrition from mother to fetus. Based on the results of research conducted by WHO, poor nutritional intake can affect the incidence of preeclampsia and premature birth (WHO, 2014).

In Indonesia infant mortality reaches 185/day or with an Infant Mortality Rate (IMR) of 24/1000 live births caused by

asphyxia and Low Birth Weight (LBW) (Achadi, 2019). Based on the health profile of East Java province, Probolinggo district is ranked 6th with the highest infant mortality with 147 cases, most of which are caused by low birth weight. The prevalence of cases of low birth weight in Probolinggo district from 2018 to 2020 has increased. The Suko Health Center was ranked first in Probolinggo Regency with the highest increase from 2019, namely with 9 cases and in 2020 with 23 cases (Probolinggo District Health Profile, 2020).

The results of a preliminary study at the Suko Health Center in Maron District, there are 23 known cases of low birth weight in 2021 and in 2022 to April 2022 there are 7 cases, which means, from 2020 to 2021 there is no decrease in cases of low birth weight. And according to the coordinating midwife, no one has ever conducted research on chronic energy deficiency and low birth weight at the Suko Health Center, Maron District. The average mother who experiences chronic energy at the Suko Health Center is a mother who is still young and lacks knowledge about nutrition. The majority of mothers who gave birth to babies with LBW were of sufficient gestational age (term) and the majority gave birth at the Suko Health Center.

The increasing number of LBW is a government problem and must be addressed immediately in order to reduce the infant mortality rate (IMR). One of the government programs implemented is through maternal nutrition, namely the supplementary feeding program for pregnant women with Lacking Chronic Energy which has been regulated in Permenkes No 51 of 2016 (Ministry of Health RI, 2018). Chronic Energy Deficiency (CED) is a condition in which the mother experiences a food deficiency that lasts for years and causes health problems (Paramashanti, 2019).

To prevent the occurrence of LBW, it is necessary to carry out pregnancy checks related to nutritional status, namely measuring height, weight and upper arm circumference with the aim of detecting pregnancy risks related to nutrition, one of which is lacking chronic energy which can impact mothers giving birth to babies with low birth weight. If the size of the upper arm circumference is below normal (<23.5 cm) it indicates that the mother is malnourished or can also be called lacking chronic energy (Ningtyas, 2021).

## II. METHODS

This research is a type of research and quantitative analytical methods. The design or design of this study used cross sectional. This research was conducted at the Suko Health Center, Probolinggo Regency from July 2022 to August 2022. The sample in this study was 45 mothers. The data collection tools used in this study were the cohort and the MCH handbook. In this study using Chi-square analysis.

## III. RESULT

### Pregnant Women with Lacking Chronic Energy in the Work Area of the Suko Health Center

From research conducted with 45 respondents regarding lacking chronic energy pregnant women, the results are presented in the table.

**Table of Distribution of Lacking Chronic Energy Pregnant Women**

Category	Total	
	N	%
Lacking Chronic Energy Pregnant Women	29	64,4
Yes	16	35,6
No		
Total	45	100

The table above shows the results of the majority of pregnant women who experience lacking chronic energy as many as 29 respondents (64.4%).

**Low Birth Weight in the Work Area of the Suko Health Center**

From research conducted with 45 respondents regarding lacking chronic energy pregnant women, the results are presented in the table.

**Table Distribution Low Birth Weight**

Category	Total	
	N	%
Low Birth Weight		
Yes	30	66,7
No	15	33,3
Total	45	100

The table shows the results of most of the babies with low weight (<2500 grams) as many as 30 respondents (66.7%).

**Pregnant Women with Lacking Chronic Energy Against Low Birth Weight in the Work Area of the Suko Health Center**

From the results of research on the effect of chronic energy deficiency pregnant women on the incidence of low birth weight, a cross table can be presented as follows.

**Cross Table of Chronic Energy Deficiency Pregnant Women to the Incidence of Low Birth Weight in the Work Area of the Suko Health Center**

Variabel		LBW			
		Yes		No	
		N	%	N	%
Lacking Chronic Energy Pregnant Woman	Yes	24	53,3	5	11,1
	No	6	13,3	10	22,3

The results of the cross table above show that of the 29 respondents who experienced lacking chronic energy, 24 respondents (53.3%) who experienced lacking chronic energy gave birth to babies with low birth weight.

**Data Analys**

The statistical test results of the *chi-square* test showed a sig. 0.002 <0.05, which means that there is an influence of chronic low energy pregnant women on the incidence of low birth weight.

**IV. DISCUSSION**

The results of this study show that mothers who have an upper arm circumference below normal or <23.5 cm (CED) are more at risk of giving birth to babies with low birth weight. The size of the upper arm circumference is a better and more practical indicator for assessing the nutritional status of pregnant women. This study is in line with research conducted by Putri & Al Muqsith (2015) which stated that the size of the upper arm circumference is a factor that influences the development and growth of the fetus in the womb. And this research is also in line with research conducted by Irawati (2020) which states that nutritional deficiencies in mothers are more likely to result in low birth weight babies or general abnormalities rather than causing specific anatomic abnormalities and prolonged and continuous malnutrition in mothers during pregnancy will result in worse on the fetus than acute malnutrition. So it can be said that Chronic Energy Deficiency (CED) is someone who is malnourished with a marked upper arm circumference that is below normal, i.e. <23.5 cm. The nutritional status of the mother is very influential for the development and growth of the baby in the womb. If the mother's nutritional status is good and normal (LILA value ≥ 23.5 cm) then it will give birth to babies with normal weight.

From the results of interviews using a questionnaire, most of the mothers who experienced malnutrition status (LILA <23.5 cm) were mothers who did not check their pregnancies early in pregnancy and did not routinely check their pregnancies every month. Research conducted by Zhou, et al (2019) states that mothers who do not attend prenatal checks 5-8 times during pregnancy, do not get checks in the first trimester at risk of giving birth to babies with low body weight. At the first visit of pregnancy, there is a standard pregnancy check that will be done which is called 10T. Pregnancy checks related to nutritional status are measuring height, weight and upper arm circumference with the aim of detecting pregnancy risks related to nutrition, one of which is chronic energy deficiency (CED) which can impact mothers giving birth to babies with low birth weight.

This standard pregnancy examination is one of the government programs with the aim of detecting pregnancy risks that adversely affect the mother and baby (Ruindungan, et al. 2017). If on the first visit a pregnant woman is diagnosed with chronic energy deficiency, there is a program of providing additional food from the government in the form of biscuits. The first trimester (0-12 weeks) is the period for the mother to reflect on the physiological changes in the mother's body, the formation of organs including the head and brain cells of the fetus and the formation of the placenta. In the first trimester, the growth of the fetus is still slow, so there is not much increase in the nutritional needs of the mother. The nutritional needs of pregnant women in the first trimester are still the same as those of adult women. In the first trimester, the expected increase in pregnant women per day is 180 kcal. Therefore, according to the supplementary feeding program for pregnant women in the first trimester, it

is only recommended to consume two biscuits (180 kcal) per day to meet the nutritional needs of pregnant women with CED (Juknis, 2018). After examining the first visit and providing additional food, it is necessary to do a re-examination. Doing a re-examination is a process to monitor the nutritional status of the mother by looking at the increase or decrease in the size of the upper arm circumference and the mother's weight during pregnancy. If pregnant women whose upper arm circumference is <23.5 cm are at risk of giving birth to LBW babies because the mother is in a state of CED, which means a lack of energy which can cause a decrease in blood volume so that blood flow to the placenta is inadequate, so the baby does not get the maximum nutritional intake and is at risk born with below normal weight (Muliani, 2016).

So, to find out whether someone, especially pregnant women, has CED or not, you can make contact or meet a health worker for the first time during pregnancy. The first contact with a health worker is called the first visit so that the health worker can determine the nutritional status of pregnant women. If the nutritional status of the pregnant woman is poor or the size of the LILA is below <23.5 cm, the mother will receive additional food. One of the benefits of supplementary food is to meet the nutritional needs of the mother so that weight gain is in accordance with her body mass index because supplementary food is rich in macronutrients and micronutrients. If pregnant women experience malnutrition in the first trimester, it will result in premature birth, low birth weight, abnormalities in the nervous system structure and fetal death (miscarriage).

There are mothers who have been given additional food in the form of biscuits but are not consumed properly or not even consumed at all. And the storage of biscuits is even placed in an

inappropriate place (wrap is opened but not closed again) as a result the quality of the biscuits decreases. Food storage is carried out so that it has a long shelf life and prevents damage. Food spoilage is influenced by several factors, namely humidity, temperature, light, air, microorganisms (bacteria, fungi and others). For this reason, good storage methods are very important so that the quality of the food remains (Sari, 2013). Biscuits are practical foods with proper packaging and proper storage can extend the shelf life of biscuits (Rukmi, 2012). According to the technical guidelines for supplementary feeding for pregnant women, biscuits must be stored in a place free of animals, free of toxic drugs (mosquito repellent, rat poison) and a roof that does not leak. If the method of storing biscuits is not correct, it will affect the contents in the biscuits so that the biscuits are not optimal in providing benefits to meet the nutritional needs of pregnant women. This can affect the nutritional status of the mother and may even cause disease for the mother which will affect the condition of the fetus in the womb. According to Kusumawardani (2018) an appropriate storage method will increase the shelf life of the food and will not reduce the efficacy of the food.

Low Birth Weight Babies (LBW) is a condition in which babies are born weighing less than 2500 grams or 2.5 kilograms (Agustin, 2019). The incidence of low birth weight will affect life in the future. Some things that can be caused are growth and development delays, susceptibility to chronic diseases such as cardiovascular disease, hypertension and the risk of giving birth to babies with low birth weight if the child is a girl (WHO, 2014).

pregnant women who experience chronic energy deficiency in the working area of the Suko Health Center. The incidence of low birth weight in the working area of the Suko Health Center was 30 respondents (66.7%). And based on the results of the analysis shows the value of sig. 0.002 <0.05, which means that there is an influence of chronic low energy pregnant women on the incidence of low birth weight.

## V. CONCLUSION

From this study it can be concluded that there are 29 respondents (64.4%) of

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