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Research Article

The Effectiveness of Biscuit Consumption of Pregnant Women on Increasing the Circumference of The Upper Arm in Pregnant Women With Chronic Energy Deficiency (CED) in the Karawang Kulon Health Center Area

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Abstract

Aims: This study aims to determine the effectiveness of the supplementary feeding program for CED pregnant women in the Karawang Kulon Health Center Working Area.

Methods: Pre-experimental research with a design of one group pretest-posttest design, and the statistical test is testing T. Number of samples = 20 respondents, data collection by observation before and after being given biscuits for pregnant women in the Karawang Kulon Health Center area.

Results: The upper arm circumference condition in 20 respondents of pregnant women after being given biscuits showed a Chronic Energy Deficiency (CED) value of the upper arm circumference <23.5 by 3 respondents. Meanwhile, the CED value was ≥ 23.5 for 17 respondents. In addition, the Wilcoxon Singed Rank Test results showed an effect of giving biscuits on CED pregnant women (p-value 0.000).

Conclusion: The need for guidance from the government and the surrounding environment regarding the importance of nutritious food to pregnant women so that the baby grows up healthy.

Keywords :

Inform Consent, Pregnant women chronic energy deficiency, Supplementary Food Program

INTRODUCTION

The pregnancy period is when the fetus is in the mother's womb, a period in which a woman needs a variety of nutritional elements that are much more than what is needed under ordinary circumstances. In addition to meeting the body's needs, various nutrients are also needed for the growth and development of

the fetus in its bladder (1). Therefore, the mother's nutritional status before and during pregnancy can affect the fetus's growth in the bladder. Suppose the mother's nutritional status is normal in the period before and during pregnancy. In that case, it is likely to give birth to a healthy baby enough Months with normal weight, and if the mother has A CED, then it is very likely to give birth to an unhealthy baby (2).

CED pregnant women are pregnant women with anthropometric examination results, upper arm circumference <23.5 cm. The number of pregnant women with CED is caused by insufficient consumption of nutrients (3). Pregnant women who suffer from malnutrition, especially (3) CED, are at risk of giving birth to babies with low body weight and have an impact on growth and development, intellectual development, and productivity in the future (4)

The causes of CED can be divided into two, namely direct and indirect causes. The direct cause consists of food intake or consumption patterns and infections. Indirect causes consist of barriers to the utility of nutrients, barriers to absorption due to infectious diseases or helminth infections, lack of economy, knowledge, General education and education on malnutrition, insufficient food production, good hygiene conditions, a large number of children, old maternal age, low assimilation, trade that are not smooth and uneven. The indirect cause of CED is also called disease with Cauca multi factorial and between the relationships describing the interaction between factors and the central point of deficiency.

According to data reported by the Ministry of Health of the Republic of Indonesia (2013), the prevalence of (5) CED risk in pregnant women (15-49 years) was 24.2%, especially the highest prevalence found in adolescents (15-19 years) was 38.5% compared to the older group (20-24 years) of 30.1% in CED there was an increase from 31.3% in 2010 to 38.5% in 2013. CED pregnant women are at risk of lowering muscle strength, which helps the delivery process result in long delivery, post-saline bleeding, and even maternal death. Furthermore, the risk to the baby can result in fetal death (miscarriage), premature congenital disabilities, low birth weight babies and even infant death. In addition, CED pregnant women can interfere with fetal growth and development, namely brain physical growth

(*stunting*) and metabolism, which causes non-communicable diseases in adulthood (3).

The efforts made in improving the nutrition of CED pregnant women are by providing additional food. Supplementary feeding, especially for vulnerable groups, is one of the supplementation strategies for overcoming nutritional problems. To provide healthy food and accelerate nutrition improvement within the scope of the implementation of the Healthy Living Community Movement (Germas), additional feeding is an effort that can be done in line with other GERMAS activities (6)

An energy-boosting form can be supplementary feeding to CED pregnant women. Supplementary feeding can be from local food or manufacturers and nutrient-dense beverages (3). According to research by (7), supplementary feeding has been shown to significantly affect babies' birth weight. Furthermore, according to (Nurina, 2016), the supplementary feeding program has reduced the number of pregnant women who experience CED.

Based on the description above, the author is interested in conducting research with the title Effectiveness of biscuit consumption of pregnant women on increasing the circumference of the upper arm in pregnant women with Chronic Energy Deficiency.

Problem Formulation

Based on the background of the problems that occur in many pregnant women who experience chronic energy deficiency, the research problems can be formulated as follows "what is the effectiveness of consuming pregnant women's biscuits on weight gain in pregnant women with Chronic Energy Deficiency?"

General Purpose

There are pregnant women with chronic energy deficiency to determine the effectiveness of biscuit consumption in

pregnant women against an increase in upper arm circumference.

MATERIALS AND METHODS

This type of research is a *pre-experimental* study with a *one-group pretest-posttest design* (Notoatmodjo,

2012). Observations are made before and after giving biscuits to CED pregnant women. Research place in the Karawang Kulon Health Center Area in 2022. The data were analyzed using a *Paired Sample T-test*. The population was pregnant women who experienced CED in the Karawang Kulon Health Center Area, with 20 respondents.

RESULTS

The frequency of upper arm circumference in pregnant women before being given CED pregnant women biscuits in the Karawang Kulon Health Center area is found in table 1 below:

Table 1.

No	Variable	Frequency	Percentage (%)
1	CED < 23,5	20	100
2	No CED	0	0

Based on Table 1, it was obtained if the condition characteristics of the upper arm circumference in 20 respondents of pregnant women before giving biscuits showed a chronic lack of energy (CED) value with an upper arm circumference of ≤ 23.5 kg of 100%. Meanwhile, the CED value with upper arm circumference was ≥ 23.5 by 0 respondents (0%).

The frequency of the circumference of the upper arm of pregnant women after giving biscuits to CED pregnant women in the Karawang Kulon Health Center area is found in table 2 below:

Table 2.

No	Variable	Frequency	Percentage (%)
1	CED < 23,5	3	15
2	No CED $\geq 23,5$	17	85

In Table 2, it was obtained if the characteristics of the condition Upper arm circumference in 20 respondents of pregnant women after being given biscuits showed a Chronic Energy Deficiency (CED) value of upper arm circumference \leq from 23.5 kg by 3 respondents (15%). Meanwhile, the CED value of the upper arm circumference was ≥ 23.5 by 17 respondents (85%). The effectiveness of consuming pregnant women's biscuits against the circumference of the upper arm in CED pregnant women in the Karawang Kulon Health Center area is found in table 3 below:

Table 3.

Variable	Statistics	P-Value
Upper arm circumference Before consuming biscuits	0,766	0,000
Upper arm circumference After consuming biscuits	0,856	0,007

Based on table 3, the data normality test results are not normally distributed in the upper arm circumference variable before consuming biscuits because a *p-value* value of <0.05 is obtained. So that the analysis test used to determine the effect of giving biscuits to pregnant women on the CED value was carried out using the *Wilcoxon Signed Rank Test*.

The effect of the difference in the circumference of the upper arm before and after consuming biscuits for pregnant women in the Karawang Kulon Health Center area is found in table 4 below:

Table 4.

Variable	Mean	Min-Max	Z-Wilcoxon	P-Value	α
Upper arm circumference Before consuming biscuits	22,1	20-23			
Upper arm circumference After consuming biscuits	23,7	23-25	-3.950	0,000	5%

Table 4 shows that the Wilcoxon Singed Rank Test results obtained a *p-value* of 0.000, meaning that there is an effect of giving pregnant women biscuits on the increase in the size of the upper arm circumference of pregnant women with CED after being given biscuits on the CED value. This indicates the effectiveness of biscuit consumption against an increase in the upper arm circumference of CED pregnant women.

DISCUSSION

Based on the data processed shows an increase in the circumference of the upper arm before and after consuming biscuits for pregnant women. Most of the CED pregnant women who were subjects in this study were the aged < 30 years (90%) and the age of > 30 years (10%).

This is in line with the results of a study (9) which states that the proportion of pregnant women at risk of CED is dominant at the age of 20-35 years. In addition, the level of education of pregnant women can affect the condition of the upper arm circumference of pregnant women. Because of the low level of education, pregnant women do not know nutritious foods that will affect the condition of the upper arm circumference. In addition, the availability of food will impact the condition of the upper arm circumference of pregnant women. Again, this is due to the family's purchasing power, low education, and low access to food processing and nutrition information.

CED is a condition where a person experiences malnutrition (calories and protein) that lasts a long time or is chronic, characterized by a body weight of less than 40kg and an upper arm circumference of less than 23.5 cm (10). So the results of this study show that giving biscuits can increase the size of the upper arm circumference of pregnant women.

Based on the discussion above, it can be concluded that the provision of additional food in the form of biscuits to pregnant women has been proven to increase the circumference of the upper arm in pregnant women. Thus, intervention programs with PMT can still be maintained through relevant agencies as a way to overcome low upper arm circumference rates in pregnant women. So that the results of this study follow the second hypothesis, namely, H_0 is rejected and H_a is accepted.

The results of this study are in line with research conducted by (11-13). Pregnant women before and after will increase the circumference of the upper arm.

CONCLUSION

There was a significant difference in the circumference of the upper arm at the time before and after the administration of pregnant mother biscuits in this study. This was with a sig value of $0.000 < 0.05$.

The need for guidance from the government and the surrounding environment regarding the importance of

nutritious food to pregnant mothers so that the babies born grow up healthily.

Considering that additional food in the form of biscuits made from local food for pregnant women lacks chronic energy, making a meaningful contribution to overall energy and protein consumption, it is necessary to develop local foodstuffs which are potential sources of nutrients.

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