

Research Article



NUTRITIONAL ADDITION TO INCREASING THE WEIGHT OF PREGNANT WOMEN WITH CHRONIC ENERGY DEFICIENCY IN THE COASTAL AREA OF KENDARI CITY

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ABSTRACT

Background: Chronic energy deficiency in pregnant women is a problem of nutritional deficiency characterized by upper arm circumference < 23.5 cm, and has an impact on pregnancy complications, risk of giving birth to babies with low birth weight, so nutritional assistance is needed. The aim of this research is to determine the effect of nutritional assistance on the weight of pregnant women. Chronic energy deficiency

Methods: This type of research is a quasi-experiment, two group pretest-posttest design with control. The sample was pregnant women in the coastal area of Kendari City, 35 cases and 35 controls using purposive sampling. Data were analyzed using the Mann Whitney test

Results: The average body weight of the intervention group before nutritional assistance was 50.95 kg and after assistance was 57.86 cm. Meanwhile, the average weight of the control group was 62.67 kg and after assistance it was 71.09 kg. The results of the Mann Whitney test obtained a p value of 0.000, so there is an influence of nutritional assistance on the weight of pregnant women.

Conclusion: Nutritional assistance can increase the weight of pregnant women. Chronic energy deficiency in the coastal area of Kendari city.

Keywords: Nutrition, Support, Weight, Body, Pregnancy

INTRODUCTION

Chronic Energy Deficiency is a health problem resulting from a chronic lack of protein energy intake and is characterized by upper arm circumference $<23.5 \text{ cm}^{1,2,3,4}$. Pregnant women are prone to experiencing Chronic Energy Deficiency and the impact of Chronic Energy Deficiency on pregnant women is that it endangers the safety of the mother and fetus as well as the quality of the baby being born. The condition of Chronic Energy Deficiency pregnant women can result in prolonged labor, postpartum bleeding and even maternal death. Chronic Energy Deficiency can also cause anemia, the mother's weight does not increase normally, she is susceptible to infectious diseases, apart from that, Chronic Energy Deficiency can also cause premature labor and can interfere with the growth and development of the fetus, namely physical growth (stunting)^{5,6}.

Globally, the prevalence of Chronic Energy Deficiency is 35% to 75% and the World Health Organization also notes that in developing countries, 40% of maternal deaths are related to Chronic Energy Deficiency conditions⁷. Then in Indonesia, looking at the 2013 Basic Health Research results, the prevalence of Chronic Energy Deficiency in pregnant women aged 15-49 years was 24.2% and the results of Basic Health Research (2018) showed that the prevalence of Chronic Energy Deficiency was 17.3%⁸. Southeast Sulawesi is one of the provinces that has a moderate prevalence of Chronic Energy Deficiency in 2017 of 21.9%⁹. While the prevalence of Chronic Energy Deficiency in Kendari City in 2019 was 14.37%¹⁰. These results show that the prevalence of Chronic Energy Deficiency in pregnant women is still high because this

figure is still above the 2015-2030 SDGs target, namely that the national target for Chronic Energy Deficiency pregnant women is 5%⁶.

The government has made efforts to overcome Chronic Energy Deficiency in pregnant women, including providing additional food to Chronic Energy Deficiency pregnant women and also carrying out cross-program coordination, one of which is through an integrated examination program for pregnant women including early detection, appropriate nutritional treatment and treatment including Chronic Energy Deficiency problems, preparation for childbirth and readiness to face complications due to nutritional problems in pregnant women with Chronic Energy Deficiency, prevention of diseases and complications due to Chronic Energy Deficiency through health education and counseling¹¹.

Efforts to prevent Chronic Energy Deficiency in Kendari City have also been carried out with Chronic Energy Deficiency prevention strategies, such as providing additional food and counseling to pregnant women about good food to consume during pregnancy, then collaboration & coordination between health workers and cross-sectors and cross-programs, as well as anthropometric monitoring and evaluation. especially the upper arm circumference of pregnant women, but pregnant women with Chronic Energy Deficiency are still found on the coast of Kendari City.

Based on these problems, intensive nutritional assistance is needed to increase mothers' knowledge so that they can determine or choose the right food to consume during pregnancy and have an impact on increasing the weight of pregnant

women. Therefore, it is necessary to innovate to overcome Chronic Energy Deficiency in pregnant women in the form of implementing a nutritional assistance program that focusing on counseling programs and providing additional food in the form of moringa biscuits which are provided intensively.

Nadimin and Yadlin's 2022 research found that providing counseling increased body weight before and after nutritional counseling, with an average increase in body weight during nutritional counseling of 0.64 kg. The results of statistical tests using the paired sample t-test showed a p value 0.006, meaning that there was a difference in the weight of pregnant women between before and after nutritional counseling¹².

Pregnant women with Chronic Energy Deficiency have increased nutritional needs for both mother and fetus, so providing foods high in calories and protein is very necessary¹¹. This result is reinforced by Ferawati's opinion that pregnant women need balanced nutrition every day so they can achieve normal nutritional status¹³. Therefore, intensive nutritional assistance in the form of counseling and providing additional food is important for pregnant women to increase their weight. Based on these problems, this research aims to determine the effect of nutritional assistance on the weight of Chronic Energy Deficiency pregnant women in the coastal area of Kendari City.

METHODS

This type of research is experimental research with a Quasy Experiment approach (two group pre-test-post test with control), namely there is a control group and an intervention group. Before being given

nutritional assistance, the upper arm circumference is first determined, then intervention is given in the form of nutritional assistance and the upper arm circumference of the pregnant woman is measured again. This research was conducted in July-August 2023.

The population is all research subjects or objects studied¹⁴. The population in the study were all pregnant women in the third trimester (gestational age 27-36 weeks) who were in the coastal areas of Kendari City in 2023, while the sample was some pregnant women in the third trimester (gestational age 27-36 weeks) who were in the coastal areas of Kendari City in 2023 there will be 35 intervention groups and 35 control groups. The sampling technique uses accidental sampling.

Data collection on upper arm circumference of pregnant women was obtained using LILA tape, apart from that, leaflets and flayers were also used as media to facilitate the process of nutritional support for KEK pregnant women. The first stage of intervention carried out was measuring the LLA of KEK pregnant women before being given nutritional assistance (pre test). Then the second stage is providing nutritional assistance, then the third stage is measuring the LLA of pregnant women after being given nutritional assistance (posttest). This research data was analyzed using the Kolmogorov Smirnov data normality test. The results of the normality test obtained a p-value of $0.000 < 0.05$ so the data was not normally distributed. Therefore, a non-parametric test was carried out, namely the Mann Whitney U Test.

RESULTS

Descriptive Analysis

Table 1. Distribution of Pregnant Women's Weight in the Coastal Area of Kendari City (n=35)

Weight	Intervention		Control	
	Mean (Min-Max)	SD (Median)	Mean (Min-Max)	SD (Median)
Pregnant Women's Weight (Kg)				
<i>Pre Test</i>	50,95 (41-63)	5,86 (50)	62,67 (43-84)	9,88 (61)
<i>Post Test</i>	57,86 (46-69)	5,81 (56)	71,08 (50,3-89,4)	10,57 (70)

Table 1 shows that the results of weight measurements in the intervention group found that the average body weight before assistance was 50.95 kg, with the lowest measurement being 41 kg and the highest measurement being 63 kg, then the weight measurement results after nutritional assistance were 57.86 cm, with The lowest weight is 46 kg and the highest weight is 69 kg. Then in the control group it was found that the average weight was 62.67 kg and after assistance the average weight was 71.09 kg.

Inferential Analysis

Before carrying out parametric and non-parametric analysis, a normality test was first carried out using the Kolmogorov Smirnov test, namely a sample of 70 people consisting of 35 control groups and 35 intervention groups. The results of the data normality test obtained a p value for weight, obtained a p value <0.05 so that the data was not normally distributed and continued using the Mann Whitney test.

Table 2. Effect of nutritional assistance on the weight of pregnant women. Chronic energy deficiency

Weight (Kg)	n	Mean Rank	P value
Intervention	35	22,60	0,000*
Control	35	48,40	

* Mann Whitney test results

Table 2 shows that the mean weight rank in the intervention group was 22.60 while in the control group it was 48.4. The results of the Mann Whitney test obtained a p-value of 0.000 so that there is an effect of nutritional assistance on the weight of pregnant women, which means that nutritional assistance can increase the weight of pregnant women in the coastal area of Kendari City.

DISCUSSION

The results of the Mann Whitney test show that nutritional assistance can increase the weight of pregnant women who experience chronic energy deficiency. The average increase in body weight after intervention for 2 months in the intervention group was 6.91 kg and in the control group was 8.42 kg. The average increase in weight per week was 0.8 kg in the intervention

group and the control group was 1.05 kg per week, this is still in the normal category in terms of weight gain during pregnancy.

The nutritional assistance implemented is in the form of providing nutritional counseling regarding foods that are good for mothers to consume during pregnancy. Counseling is carried out at integrated service post, Health of both mother and child polyclinics and also at pregnant women's homes. The frequency of counseling is given at 8 meetings or for 2 months with a counseling meeting duration of around 15-30 minutes per meeting. Nutrition counseling is provided using leaflets and flayers which contain information about foods that can and cannot be consumed during pregnancy. In nutritional assistance, pregnant women are also given the flexibility to consult on nutritional issues or foods that are recommended to be consumed during pregnancy. The leaflet and Flayer media were made attractive and could be read at any time by respondents, so that the counseling provided could increase mothers' understanding of nutrition during pregnancy. The counseling material emphasizes menu recommendations for pregnant women to consume local food at cheaper prices and easily available in the local area, such as eggs, nuts, cereals, spinach, moringa leaves, valve leaves, kale, fish, tempeh, tofu.

Another form of assistance provided is providing complementary food in the form of 3-4 moringa biscuits or the equivalent of 100 mg of moringa biscuits for 30-60 days. Providing moringa biscuits according to the pregnant woman's gestational age, accompanied by monitoring and evaluation of the intake consumed. The Moringa biscuits provided are an additional

food that is processed and prepared directly by a nutritionist so that the right composition is obtained with a good taste, practical and easy to consume. Moringa biscuits are made from the Kendari City variety of moringa with fresh ingredients, high in protein, high in calories and iron. The nutritional content of Moringa biscuits plays a role in preventing anemia and is expected to contribute to increasing calorie intake in mothers during pregnancy.

This research is in line with research by Koro, et al., in 2023 which found that Moringa biscuits could increase blood hemoglobin levels in young women¹⁶. The Moringa biscuits used by Koro's research are Moringa biscuits that have a Moringa mixture or mixture that is similar to the Moringa biscuits given to pregnant women, with the hope that Moringa biscuits can not only increase blood hemoglobin but can also increase the protein and energy consumed by pregnant women¹⁵. This research is in line with research by Murniyati, et al., in 2023 that the nutritional assistance program is very effective in increasing the nutritional fulfillment behavior of pregnant women. a mother in fulfilling nutrition for herself, her children and her family¹⁶.

This research is in line with research conducted by Prawita et al., in 2017 which stated that all Chronic Energy Deficiency pregnant women given intervention experienced weight gain. The intervention provided is in the form of PMT and counseling¹. Likewise, Silitonga's research found that there was a significant relationship between the presence of nutritional counseling and the weight gain of Chronic Energy Deficiency pregnant women¹⁷.

This is reinforced by the theory which states that nutritional counseling provided to pregnant women aims to improve their nutritional status by providing food that suits the needs of pregnant women in order to achieve optimal nutritional status. This situation is also in line with service standards that pregnant women need to be provided with nutritional services in the form of providing education so that mothers can improve their nutritional status during pregnancy¹⁸. Nutrition counseling can increase the knowledge and motivation of pregnant women to adopt healthy eating patterns during pregnancy so that it has an impact on increasing normal body weight which is a manifestation of the healthy eating patterns adopted by pregnant women.

Nutritional assistance in the form of nutritional counseling and providing local food in the form of moringa biscuits given to pregnant women aims to improve their nutritional status through providing food that suits the needs of pregnant women in order to achieve optimal nutritional status and it is hoped that Chronic Energy Deficiency pregnant women can apply the information or health messages provided during assistance so that it has an impact on increasing body weight. Apart from that, it is hoped that the use of local food can be implemented more effectively for each family, especially pregnant women, so that they can meet the vitamins and minerals needed during pregnancy.

CONCLUSIONS

Nutritional assistance can increase the upper arm circumference of pregnant women in the coastal area of Kendari City. It is hoped that nutritional assistance can be used as one of the programs to prevent and control Chronic Energy Deficiency that can be

implemented in various Community Health Centers and it is hoped that future researchers will be able to continue innovations in preventing and controlling Chronic Energy Deficiency through continuous assistance by using local food and utilizing technology in monitoring and evaluation systems in providing counseling.

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