



ANALYSIS OF NUTRITIONAL PROGRAM IMPLEMENTATION IN PREGNANT WOMEN WITH CHRONIC ENERGY DEFICIENCY WITH INCREASED WEIGHT

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ABSTRACT

Chronic Energy Deficiency (CED/ KEK) is a nutritional problem in pregnant women that cannot be handled properly. So public health policies are needed that guarantee the availability of nutritious food for pregnant women, such as providing nutritious food for pregnant women, increasing the knowledge of pregnant women so they can provide food for their nutritional needs. The aim of this research is to analyze the implementation of nutritional programs in pregnant women with CED (chronic energy deficiency) with increased body weight. This research is a type of quasi-experimental research. The location used for this research was the Pabuaran Community Health Center, Serang Regency, Banten Province in December 2023. In this study, the population used was a limited population, namely all pregnant women registered in the "Cheerful Space" nutrition program, 53 pregnant women with a diagnosis of CED. Samples were taken using total sampling technique. Univariate analysis was used to see mean differences, and the analysis used after going through the data normality test was the Mann Whitney U test. The results of the Mann-Whitney test show a p value of $0.041 < 0.05$, so it can be concluded that the analysis of nutrition and ANC programs by measuring differences in body weight is considered effective in overcoming the problem of pregnant women diagnosed with chronic energy deficiency (CED).

Keywords: chronic energy deficiency; nutrition; pregnant women

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INTRODUCTION

The maternal mortality rate in Indonesia is still quite high. Data compiled by the Ministry of Health shows that in 2020 there was an increase in maternal mortality in Indonesia, which was 4,627 cases of death. This number has increased from 2019, where in 2019 there were 4,221 maternal deaths, Most maternal deaths in 2020 were caused by bleeding with 1,330 cases, hypertension in pregnancy with 1,110 cases, and circulatory disorders with 230 cases. Based on these data, bleeding is the most common cause of maternal death. The bleeding itself can occur due to various conditions such as anemia or Chronic Energy Deficiency (CED) in pregnant women (Kurniawan, 2021). Chronic Energy Deficiency (CED) is a nutritional problem in pregnant women that cannot be handled properly. Data from the United Nations International Children's Emergency Fund (UNICEF) shows that the prevalence of CED in pregnant women in the world reaches 41% (Novianti, 2022). Chronic Lack of Energy (CED) is one of the many nutritional problems that occur in pregnancy. Chronic Energy Deficiency in pregnant women is a condition of pregnant women due to an imbalance in energy and protein nutrient intake, so that the substances needed by the body are not fulfilled (Novianti, 2022).

The prevalence of pregnant women at risk of CED in 2020 in Indonesia is 9.7%, in Aceh the prevalence of pregnant women at risk of CED is 8.5%. CED is caused by insufficient energy and protein intake in pregnant women. Pregnant women with CED at risk of giving birth to low birth weight babies (BBLR) can also be an indirect cause of maternal death. In addition, it also has an impact on the increasing prevalence of stunting in Indonesia (Erna, 2023). The high prevalence has made the determination of reducing the percentage of CED pregnant women to be one of several Strategic Targets of the Ministry of Health for 2020-2024 in the Ministry of Health's Strategic Plan in 2020. Within five years, it is expected that the percentage of SEZs in pregnant women in Indonesia can decrease to 16% (Heryunanto, 2022). Nutritional deficiencies during pregnancy are also associated with the risk of chronic diseases in adulthood, namely obesity, heart and blood vessel disease, hypertension, stroke and diabetes. During pregnancy, the nutrition of pregnant women must meet the nutritional needs for themselves and for the growth and development of the fetus because fetal nutrition depends on maternal nutrition and the nutritional needs of the mother must also be met (Heryunanto, 2022).

The occurrence of CED in pregnant women is caused by various buckets. Previous research conducted (Harismayanti, 2021) showed that CED problems were influenced by several buckets, namely embal consumption patterns, parity, nutritional intake, economy, knowledge, consumption of additional foods, and consumption of FE tablets (Kurnianti, 2022). In addition, there are buckets that are very influential on the incidence of CED, namely the consumption pattern of pregnant women and the weight (BB) of mothers before pregnancy. Changes in consumption patterns in pregnant women can occur due to decreased appetite caused by nausea, causing changes in consumption patterns (Mansoben, 2022). The average weight of mothers before pregnancy shows that the body weight is below normal weight (Harismayanti, 2021).(Hasyim, 2023)

So that public health policies are needed that ensure the availability of nutritious food for pregnant women such as providing nutritious food for pregnant women, increasing the knowledge of pregnant women so that they can provide food that suits their nutritional needs (Bourassa, 2019). Efforts to provide additional food for CED pregnant women are the realization of health efforts in the form of curative as well as preventive to improve the nutritional status of pregnant women, in order to give birth to children who do not have nutritional problems (Erna, 2023) The form of supplementary food for CED pregnant women according to the Regulation of the Minister of Health Number 51 of 2016 concerning Nutritional Supplementation Product Standards is that contains protein, carbohydrates, and is enriched with 11 vitamins and 7 minerals, the basic principles of supplementary feeding are carried out to meet the nutritional adequacy of pregnant women (Rachmawati, 2019), PMT provisions are given to CED pregnant women, namely pregnant women who have a LiLA size below 23.5 cm, PMT in pregnant women is integrated with Antenatal Care (ANC) services. Each pack of Supplementary Food (MT) for pregnant women contains 3 pieces of embali lapis (60 grams). In the first trimester of pregnancy, 2 pieces per day are given until pregnant women are no longer in the CED category according to the LiLA examination. In the second and third trimester of pregnancy, 3 pieces per day are given until pregnant women are no longer in the SEZ category according to the LiLA examination (Pertiwi, 2020).

Based on preliminary studies conducted at the Pabuaran Health Center, there has been a "Ruang ceria" program that aims to educate and network brides-to-be (catin) since 2019. The

program, which has been running for 4 years, is now still carrying out nutritional interventions in the form of PMT, counseling and monitoring for 34 pregnant women who have LILA < 23.5 cm. However, statistical analyses for the success and significance of the program have never been conducted. The aimed of this study is to analyze the implementation of nutrition programs in CED (chronic lack of energy) pregnant women with increased body weight in the work area of the Pabuaran Health Center, Serang Regency in 2023.

METHOD

This research is a type of intervention research with an experimental quasy design. The location used for this research is at the Pabuaran Health Center, Serang Regency, Banten Province in December 2023. In this study, the population used a limited population, namely all pregnant women who were recorded in the "Ruang Ceria" nutrition program and received intervention because they experienced CED, it was recorded that until November there were still 53 pregnant women with CED diagnoses. Samples are taken by total sampling technique. The study began by providing a nutrition program intervention called "cheerful room" in the sample group, namely supplementary feeding and education from the Puskesmas nutrition team for pregnant women who experienced CED and were monitored intensively for at least 1 month and evaluated. The outcome of the study was measured by looking at differences in sample body weight before and after the program ended. Univariate analysis is used to see mean differences, and the analysis used after the data normality test is the Mann Whitney U test.

RESULTS

Table 1.
Distribution of Average Frequency of Body Weight of Pregnant Women Before and After the Nutrition Program

	Before the Program	After Program
Average (mean)	45.57 kg	46.85 Kg
Standard Deviation	3.18	2.88
Minimum	38 Kg	43 kg
Maximum	52 kg	55 kg

Tabel 1, it is reported that nutrition programs carried out on pregnant women who are indicated by chronic energy deficiency (CED) can increase the average body weight, minimum value and also the maximum value of body weight. It can be seen in the table that after participating in the nutrition program, the average weight of pregnant women is 46.85 Kilograms (Kg), up 1.28 Kg from before the program, which was 45.57 Kg. The minimum body weight of respondents after the program increased quite significantly, reaching 5 Kg from 38 Kg to 43 Kg. Likewise, the maximum weight of respondents after the program increased to 55 Kg from previously only 52 Kg. However, the upper arm circumference indicator still does not show results and changes that Significant.

Table 2.
Normality Test Results

Result	Test Of Normality					
	Kolmogrov-Smirnova			Shapiro - Wilk		
	Statistics	Df	Sig	Statistics	Df	Sig
Before the Program	,137	53	,015	,963	53	,095
After the program	,196	53	,000	,898	53	,000

Table 2 shows that the resulting value of Sig value is 0.015 in the value before the program which means that the data is not normally distributed because the Sig value is < 0.05 and after

the program the Sig value is 0.000 which means that the data is also not normally distributed because the Sig value is < 0.05 , since the values of the two variables above are not normally distributed, the next step is the *Mann Whitney U-Test*.

Table 3.
The Effectiveness of the Nutrition Program on Weight Increase of SEZ Pregnant Women
Mann-Whitney Test

Result	95 Confidence Interval					Df	Sig (2-tailed)
	Mean Rank before	Z	Mean Rank after	Lower	Upper		
Before – after the program	47.46	2.04	59.54	45.61	46.80	53	.041

The *Mann-Whitney* test is a non-parametric test method to assess the effectiveness of treatment assuming the group is not normally distributed, characterized by differences in average before and average after treatment. The *Mann-Whitney test* in this study was conducted to analyze the success of nutrition programs by measuring the effect of nutrition program administration on the weight increase of pregnant women who are indicated by chronic energy deficiency at the Pabuaran Health Center, Serang Regency, Banten in 2023. The results of the *Mann-Whitney* test where in pairs before the program and after the program obtained Sig.2-tailed values of $0.041 < 0.05$, it can be concluded that there is an average difference in body weight before and after the program. Based on the results of the table above, it can be concluded that the analysis of nutrition programs by measuring weight differences is considered effective in overcoming the problem of pregnant women with a diagnosis of chronic energy deficiency (CED).

DISCUSSION

Univariate Analysis

Based on univariate analysis, it is reported that nutrition and ANC programs carried out on pregnant women who are indicated by chronic energy deficiency (CED) can increase the average body weight, minimum value and also the maximum value of body weight. It can be seen in the table that after participating in the nutrition program, the average weight of pregnant women is 46.85 Kilograms (Kg), up 1.28 Kg from before the program, which was 45.57 Kg. The minimum body weight of respondents after the program increased quite significantly, reaching 5 Kg from 38 Kg to 43 Kg. Likewise, the maximum weight of respondents after the program increased to 55 Kg from previously only 52 Kg. However, the upper arm circumference indicator still does not show results and changes that Significant.

This result is in line with research conducted by (Nursihhah, 2022) which states that the provision of nutrition programs can increase the weight of CED pregnant women with the average initial weight measurement in pregnant women is 43.83 with a standard deviation of 5.86. The average initial weight measurement in pregnant women was 43.83 with a marker deviation of 5.86. While in the last measurement obtained an average of 48.94 with a standard deviation of 5.88. It can be seen that the mean value different between the initial and last measurement is 5.11 with a standard deviation of 0.02. The results of statistical tests using the paired sample t test method obtained a probability value (p value) of $p = 0.000$.

CED conditions in pregnant women have health impacts on mothers and children in the womb, including increasing the risk of babies with low birth weight (BBLR), miscarriage, premature birth and death, so it takes weight gain during pregnancy ranging from 11 kg -12.5

kg or 20% of body weight before pregnancy, weight gain of about 0.5 kg in the first trimester and 0.5 kg every week in the next trimester. The Ministry of Health of the Republic of Indonesia recommends a normal increase for pregnant women of 7-12 kg (Sukmawati, 2018). Pregnant women need increased nutrients due to increased energy metabolism and support for fetal growth and development. Pregnant women need the addition of all nutrients, only those that are often neglected are usually protein energy and some minerals, such as iron and calcium. Pregnancy causes increased energy metabolism, therefore the need for energy and other nutrients increases during pregnancy (Simbolon, 2019).

The increase in energy and nutrients is needed for fetal growth and development, increase in the size of the uterine organs, changes in the composition and metabolism of the mother's body. So that the lack of certain nutrients needed during pregnancy can cause the fetus to grow imperfectly. Nutritional needs will continue to increase, especially after entering the second trimester of pregnancy. Because at that time, fetal growth was very fast (Puspitaningrum, 2018).

Bivariate Analysis

The results of the normality test show the resulting value at the Sig value of 0.015 at the value before the program which means that the data is not normally distributed because the Sig value is < 0.05 and after the program the Sig value is 0.000 which means that the data is also not normally distributed because the Sig value is < 0.05 , since the values of the two variables above are not normally distributed, the next step is the *Mann Whitney U-Test*. Based on the bivariate analysis table showing the results of the *Mann-Whitney test where in pairs before the program and after the program* obtained Sig.2-tailed values of $0.041 < 0.05$, it can be concluded that there is an average difference in body weight before and after the program. Based on the results of the table above, it can be concluded that the analysis of nutrition programs and ANC by measuring weight differences is considered effective in overcoming the problem of pregnant women with a diagnosis of chronic energy deficiency (CED).

This result is in line with (Utami, 2018) which states that supplementary feeding (PMT) in the nutrition program has effectiveness in increasing the body weight of CED pregnant women with the parameters of the results showing an increase in average body weight, LILA, and average total energy intake at the end of treatment. There is a significant effect of giving recovery PMT for 3 months on improving the nutritional status of pregnant women with CED based on LILA measurements ($p = 0.000$). The nutrition program is not only the provision of PMT, but also accompanied by intensive assistance so that it can improve the behavior of pregnant women in meeting their nutritional needs because according to the theory of effective nutrition assistance to increase knowledge, positive attitudes and actions of CED pregnant women in fulfilling nutrition (Nurdin, 2018). Nutrition assistance by cadres who have been trained and fostered are more empowered to provide assistance, so that there is a significant increase in the average knowledge score, attitudes and actions of CED pregnant women (Simbolon, 2019).

In addition, there is nutrition counseling carried out through nutrition assistance programs as one of the approaches that can be taken to increase knowledge so as to produce good behavior change (Amalina, 2022). The counseling intervention carried out by the Puskesmas health team has an effect on increasing maternal knowledge in groups of pregnant women indicated by CED (Dewi Taurisiawati, 2019). With counseling, CED mothers understand and understand and are willing and able to carry out what is advised so that they can take better care of their nutrition (Silawati, 2019). Analysis of success is assessed using weight changes

because the adequacy of maternal food intake during pregnancy can be seen from maternal weight gain during pregnancy, the average total weight gain of pregnant women ranges from 11.5 - 16 kg based on the recommendations of the Institute of Medicine (IOM) (Mukkadas, 2021), with an average of 12 kg in order to increase the possibility of giving birth to full-term babies with sufficient birth weight and reduce the risk of complications in mothers and babies (Fitri, 2018). The nutrition program added in routine examination / antenatal care provides an extra effect and acceleration of goals in increasing the weight of CED pregnant women (Pastuty, 2018), even research explains that antenatal care is needed as one of the best instruments to increase intrauterine fetal growth because *antenatal care* adequate health can improve maternal health so as to improve the health of babies to be born through integrated MCH nutrition services (Fatahilah, 2020) (Nurfulaini, 2021).

CONCLUSION

The results of the Mann-Whitney test where in pairs before the program and after the program obtained Sig.2-tailed values of $0.041 < 0.05$, it can be concluded that there is an average difference in body weight before and after the program. Based on the results of the table above, it can be concluded that the analysis of nutrition programs and ANC by measuring weight differences is considered effective in overcoming the problem of pregnant women with a diagnosis of chronic energy deficiency (CED). It is hoped that this research can be used as input on midwifery practice in various health service settings in Educational, Social and Community Independent Institutions which can be used as a source of information in conducting midwifery services in the form of ANC integrated with nutrition programs as an effort to reduce the rate of chronic energy deficiency in pregnant women.

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