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EFFECTIVENESS OF "ISI PIRINGKU" IN PREGNANT WOMEN WITH CHRONIC ENERGY DEFICIENCY

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ABSTRACT
This research is a 2024 KEMERDIKBUDRISTEK Grant research which is a development of one form of innovation in accordance with Health Technology Assessment which is able to answer the problems of pregnant women with chronic energy deficiency by providing measuring plates that can be a tool to help mothers every time they are going to eat. Objective to test the effectiveness of the "Isi Piringku" guidelines in improving the nutritional status of pregnant women with chronic energy deficiency. in this study is a Pre-Post Experimental Design with a one-group pretest posttest without control group design with a total sampling technique. The number of research respondents was 15 pregnant women who were studied for 1 month. The "Isi Piringku" media is effective in improving the nutritional status of pregnant women with chronic energy deficiency. The "Isi Piringku" media can be used for pregnant women with chronic energy deficiency in regulating meal portions to improve their nutritional status.

Keywords: chronic energy deficiency; isi piringku; nutrition; plate contents

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INTRODUCTION

Women experience physiological changes during pregnancy that occur starting from conception to childbirth with a gestation period of between 38-40 weeks or 226-280 days (Feri Ahmad, 2019). These changes are caused by the needs of the fetus, the supply of nutrients to the mother, and the mother's lifestyle behavior before and during pregnancy (Olivia Anggraeni, 2017). Supporting the occurrence of several of these changes requires diverse and balanced nutrients, namely not excessive and not lacking, because it will have an impact on the body's metabolic processes, such as affecting the endocrine balance (insulin hormone) in the body so as to increase the risk of disease, and have an impact on the growth and development of internal organs can be inhibited (Adibin et al., 2022).

The problem related to nutritional intake that is often experienced by pregnant women is Chronic Energy Deficiency (CED). CED is a condition when the mother experiences a long-term (chronic) lack of food, causing health problems for the mother, which is characterized by a weak body, a pale face, and an Upper Arm Circumference ≤ 23 cm (Ramadhani & Ronoatmodjo, 2023). Chronic energy deficiency not only affects the mother, but also the fetus she is carrying, such as stunted fetal growth and can increase the risk of several diseases (Lama et al., 2022). Diseases that can be caused by mothers experiencing CED to the fetus are anemia in babies, babies born with Low Birth Weight (LBW), stunting, intrapartum asphyxia, miscarriage, abortion, and stillbirth (Moediarso et al., 2020).Berdasarkan Riset Kesehatan Dasar (Riskesdas) 2018 didapatkan prevalensi CED di Indonesia pada ibu hamil 17,3% (15-49 tahun) dengan kelompok usia yang berisiko tinggi 15-19 tahun sebesar 33,5% dan pada

usia yang lebih tua 20-24 tahun sebesar 23,3% dan prevalensi CED pada ibu yang tidak hamil 14.5% (Safrida Sitompul, 2021). Based on the results of interviews conducted with the nutrition sector, during the last three years from January 2021 to January 2024 there were 104 pregnant women with CED. The need for nutrition and health of pregnant women is highly dependent on the diet they consume daily, both before pregnancy and before delivery (Nutrition Sector, 2024). In reality, many mothers do not know how to regulate the correct portion of food. Lack of knowledge of pregnant women regarding the nutritional intake needed during pregnancy is one of the most common causes of pregnant women with CED (Nurul Hasanah, 2023). Therefore, proper handling is needed to reduce the incidence of CED in pregnant women that is easy and safe. The purpose of this study was to test the effectiveness of the "Isi Piringku" guidelines in improving the nutritional status of pregnant women with CED.

METHOD

This study is a Pre-Post Experimental Design with a one-group pretest posttest without control group design, which is an experimental study in which 1 group is given an assessment before and after treatment and then the results are observed. The treatment given is the provision of "Isi Piringku" guidelines and monitoring of the food of pregnant women with CED for 1 month in the month from September 21 to October 19, 2024. This study uses total sampling in taking samples with a total of 15 pregnant women with CED. Furthermore, data analysis uses SPSS assistance.

RESULT

Table 1.
Frequency Distribution Analysis of arm circumference of Pregnant Women with CED

Respondent Characteristics	Pregnant Women with CED	
	f	%
Age of Pregnant Mother		
20-35 Years Old	11	73.3
>=35 Years Old	4	26.7
total	15	100.0
Mother's last education		
elementary school	7	46.7
Junior high school	4	26.7
Senior High School	4	26.7
total	15	100.0
Mother's gestational age		
Trimester 1 (0-12 Weeks)	4	26.7
Trimester 2 (13-28 Weeks)	4	26.7
Trimester 3 (> 28 Weeks)	7	46.7

*Deskriptive Statistic Frequencies & Chi-square

Tabel 2.
Frequency Distribution Analysis of Arm Circumference of Pregnant Women with CED

pregnant women's arm circumference (cm)			pregnant women's arm circumference (cm)		
Pretest	f	%	Posttest	f	%
21	2	13.3	22	1	6.7
21.5	2	13.3	23	2	13.3
22	3	20.0	23.3	1	6.7
22.5	2	13.3	23.5	3	20.0
23	6	40.0	24	3	20.0

*Deskriptive Statistic Frequencies

Tabel 3.
Frequency Distribution of Pregnant Women's Weight with CED

Weight (kg)			Weight (kg)		
Pretest	f	%	Posttest	f	%
46	2	13.3	55	1	6.7
47	3	20.0	57	2	13.3
48	3	20.0	58	2	13.3
49	3	20.0	59	3	20.0
50	3	20.0	60	5	33.3
56	1	6.7	62	1	6.7

*Deskriptive Statistic Frequencies

Tabel 4.
Analysis of the influence of the contents of "Isi Piringku" on the increase in Arm Circumference in pregnant women with CED

Measurement	N	Mean±SD	P.value
arm circumference (Pre)	15	22.267±0.7528	0.001
arm circumference (Post)	15	23.887±0.8983	

*Uji Wilcoxon

Based on the table, the descriptive mean of pre-test and post-test is 22.267 <23.887, meaning there is a difference in the average of arm circumference before and after the mean difference of 1.62. From the results of the paired differences analysis, the Sig. (2-tailed) p value is 0.001 <0.05, so it can be concluded that there is a difference in the average arm circumference before and after the intervention.

Tabel 5.
Analysis of the Influence of the Contents of "Isi Piringku" on the Increase in arm circumference in the Weight Gain of Pregnant Women with CED

Measurement	N	Mean±SD	P.value
Weight (Pre)	15	48.67±2.440	0.001
Weight (Post)	15	59.47±2.900	

*Uji Wilcoxon

Based on the table, the descriptive mean of pre-test and post-test is 48.67 <59.47, meaning there is a difference in the average of the pre-test and post-test with a mean difference of 10.8. This proves that the difference in the average of pregnant women is quite large. From the results of the paired differents analysis, the Sig. (2-tailed) p value is 0.001 <0.05, so it can be concluded that there is a difference in the average BB before and after the intervention is given.

Tabel 6.
Effectiveness of "Isi Piringku" Contents on ARM CIRCUMFERENCEand BB:

		Group	
Hasil	Mean	Minimum	Maximum
arm circumference	2,0831	0,65	3,23
Weight	21,0860	16,67	28,30

*Uji N Gain

The average value of arm circumference is 2.0831 or 2% with a minimum value of 0.65% and a maximum of 3%. While for the average test results on BB obtained a result of 21.0860 or 21% with an effective category. For a minimum value of 16.67% and a maximum of 28%. Based on these results, it can be concluded that the effectiveness of the contents of "Isi Piringku" effectively affects arm circumference and BB.

DISCUSSION

The use of the “Isi Piringku” media in this study is in line with previous studies that also used aids as a medium for delivering health information given to pregnant women in health center services because of the lack of knowledge regarding portion size regulation for pregnant women with CED (Elsera et al., 2021; Guntur et al., 2020). Furthermore, other studies also revealed the same thing with the help of media such as booklets or other aids that researchers used as aids to increase the knowledge of pregnant women with CED towards reducing arm circumference numbers (Ansar et al., 2023; Zaidah & Maisuroh, 2022). In this study, when viewed from the univariate analysis table, the increase in arm circumference for each mother was no more than 2 cm. This was due to the length of time the activity was only carried out for one month of the “Isi Piringku” intervention. However, in the bivariate analysis table, the results of this study found a difference in the average increase in arm circumference in pregnant women with CED. This finding is supported because pregnant women are very susceptible to weight gain or loss, this is influenced by several factors, including the role of midwives in monitoring the nutrition of pregnant women (Widiyanti & Nirmaya Mariana, 2021).

The findings of this study are in line with previous studies that conducted a study to evaluate the provision of additional food to pregnant women with CED based on arm circumference wear. The study was conducted from April to May or was carried out for two months with the results of a significant increase in the nutritional status of pregnant women with an increase in the arm circumference of pregnant women with CED (Pujiastuti et al., 2023). Furthermore, several other studies that also conducted experiments on feeding pregnant women with CED which aimed to measure the increase in maternal nutrition found that the results of the analysis p value = 0.000, which means that there is a relationship or is effective in improving maternal nutritional status (Fatmawati et al., 2023; Iskandar et al., 2022; Misnaniarti et al., 2023). The findings of the "Isi Piringku" intervention found that the difference in the arm circumference of pregnant women pretest and posttest was between 0.5 cm and 2 cm, this is in line with previous studies conducted in Indonesia. This study provided additional food to pregnant women with CED for three months with the result that there was an increase in arm circumference of pregnant women by 3 cm (Mutalazimah et al., 2020).

Another study that also used an experimental method found an increase in arm circumference in pregnant women with CED who were given nutritional assistance found that the p value = 0.000, which means that there is an effect of providing additional food on the increase in arm circumference of pregnant women (Abadi & Putri, 2020; Restua et al., 2017). This study also found that there was an increase in body weight in pregnant women with CED, in line with previous studies that also found an increase in body weight in their studies on providing additional food to pregnant women with CED (Rahmah et al., 2022; Zavier Xyn Lie., 2022). Furthermore, in other studies that provided additional food to both pregnant women with CED and pregnant women with CED, it was found that in the two groups there was an increase in body weight with a p value = 0.000 (Sampeangin et al., 2018).

CONCLUSION

The use of the “Isi Piringku” guidelines can be used for pregnant women with CED to improve nutritional status, including increasing arm circumference and maternal weight.

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