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Effectiveness of Providing Local PMT and Milk on Weight Gain in Pregnant Women With Chronic Energy Deficiency Syndrome (CED) or KEK in The Working Area of UPTD Kalapanunggal Public Health Center

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Abstract

Chronic Energy Deficiency Syndrome (CED) in pregnant women can cause various health problems for the pregnant woman herself and the fetus. Factors causing CED in pregnant women include family income, parity, age, diet, maternal knowledge, and infection. However, research on its effectiveness in the Kalapanunggal Community Health Center working area is still limited. Objective: To determine the effect of PMT administration on weight gain in pregnant women with CED in the Kalapanunggal Community Health Center working area. Method: This type of research is a quantitative study with a quasi-experimental method with one group pretest-posttest. The sample in this study was all pregnant women who experienced CED at the Kalapanunggal Community Health Center, totaling 30 people. The sampling technique in this study used a purposive sampling technique. The instruments in this study were observation sheets for weight gain. Results: The results of the study showed that the average weight of pregnant women before receiving PMT can be seen that there was an increase in the average weight of pregnant women between before being given PMT (46.827±4.5343) and after being given PMT Recovery for 3 months (49.013±4.5583). Conclusion: There is an effect of providing additional food (PMT) in the form of Local PMT on the weight gain of pregnant women at the Kalapanunggal Health Center, Sukabumi Regency.

Keywords: Pregnant women, PMT, weight gain

Introduction

This Chronic energy deficiency, or KEK, is one of the four major nutritional problems in Indonesia. Chronic Energy Deficiency (KEK) is a nutritional problem

caused by insufficient energy and protein intake over a long period (years) or chronically, characterized by a MUAC measurement of ≤ 23.5 cm and weight gain during pregnancy in the first, second, and third trimesters that does not meet standards. (Ministry of Health of the Republic of Indonesia, 2018).

Chronic Energy Deficiency Syndrome (CED) in pregnant women can cause various health impacts on the growth and development of the mother and fetus, including increased risk of spontaneous abortion, intrauterine fetal death, low birth weight (LBW), congenital defects, and stunted physical and brain growth. Stunting can be caused by maternal malnutrition that occurs before and during pregnancy, as well as low maternal weight gain (<9 kg) (Siahaan et al., 2019).

Factors causing chronic energy deficiency (CED) in pregnant women include family income, age, parity, diet, maternal knowledge, and infectious diseases. Fitrianingtias' research states that diet, maternal knowledge, and infectious diseases are factors that influence the occurrence of CED. The mother's knowledge will influence the food provided; mothers with good knowledge are likely to provide good nutrition. Infectious diseases are one of the factors causing CED as a result of decreased appetite and impaired absorption in the digestive tract. (Fitrianingtyas, Pertiwi, & Rachmania, 2018).

According to the World Health Organization, 279,000 or 80% of women worldwide died during pregnancy and childbirth in 2017. The World Health Organization reported that the prevalence of anemia and CED globally during pregnancy is 35-75%, which is more significant in the third trimester compared to the first and second trimesters of pregnancy. The World Health Organization noted that 40% of maternal deaths in developing countries are related to anemia and CED, with the highest prevalence of cases of CED in pregnant women, which can cause reduced nutritional status. (WHO, 2020).

Based on data sources from the Katingan Health Office's routine report in 2020 from 34 provinces and 4,656,382 pregnant women whose upper arm circumference (MUAC) was measured, approximately 451,350 pregnant women had a MUAC <23.5 cm (at risk of CED), it can be concluded that the percentage of pregnant women at risk of CED in 2020 was 9.7% (Katingan Health Office, 2020). Strategies to prevent maternal malnutrition often involve nutrition programs with additional food coverage

for pregnant women. Given the very broad impact of chronic energy deficiency (CED), efforts are needed to overcome CED by providing additional food (PTM) to pregnant women. CED is intended as an addition, not a substitute for daily food, and increases the calorie and protein intake of pregnant women with CED. (Ministry of Health of the Republic of Indonesia, 2021)

The nutritional status of pregnant women in Indonesia remains worrying. The population of pregnant women with energy adequacy levels is still below 70%. The energy adequacy rate (AKE) is slightly higher in rural areas, at 52.9% compared to urban areas (51.5%). Meanwhile, the protein adequacy rate (AKP) is also higher in rural areas, at 55.7% compared to urban areas. 49,6% (Ministry of Health of the Republic of Indonesia, 2018).

Method

This research is a quantitative study using a quasi-experimental method with a one-group pretest-posttest. The sample consisted of all 30 pregnant women experiencing KEK at the Kalapanunggal Community Health Center. The sampling technique used was purposive sampling. The instruments used were observation sheets for weight gain, height gain, and MUAC.

Results

Table 1: Frequency Distribution of Respondent Characteristics of Pregnant Women with Special Needs at Kalapanunggal Community Health Center

No	Characteristics	Category	F	%
1	Age	<25	17	56,7
		25-35	10	33,3
		35>	3	10,0
	Total		**30**	**100**

No	Characteristics	Category	F	%
2	Education	SD	7	23,3
		SMP	13	43,3
		SMA	8	26,7
		PT	2	6,7
	Total		**30**	**100**

No	Characteristics	Category	F	%
3	Pekerjaan	IRT	6	20,0
		Karyawan Lahan	7	23,3
		Karyawan Kantor	11	36,7
		Pekerja Pabrik	4	36,7
		Swasta	2	6,7
	Total		**30**	**100**

Source: Primary data, 2024

Based on Table 1, it shows that the characteristics of respondents in this study were pregnant women with KEK at the Kalapanunggal Health Center, most of whom were aged <20 years (56.7%), this means that most of the respondents were included in the early adult age category, had a final education of junior high school (43.3%), and worked as office employees. (36,7%).

Table 2: Average Body Weight of Respondents Before

Variable	Mean	Std. Deviasi SD	Min	Max
BB Before PMT	46,827	4,5343	40	58
BB After PMT	49,013	4,5583	42	60,6

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 2, it can be seen that there was an increase in the average weight of pregnant women between before being given PMT (46.827±4.5343) and after being given Recovery PMT for 3 months. (49,013±4,5583).

Table 3: Average BMI of Respondents Before and After PMT Provision

Variable	Mean	Std. Deviasi SD	Min	Max
IMT Before PMT	46,827	4,5343	40	58
IMT After PMT	49,013	4,5583	42	60,6

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 3, it can be seen that there was an increase in the average weight of pregnant women between before being given PMT (46.827±4.5343) and after being given Recovery PMT for 3 months. (49,013±4,5583).

Table 4: Body weight before giving PMT in the form of local food PMT

Variable	N	Mean	Min-Max	Std.Deviasi (SD)
BB before provision of 90-day local food PMT	30	46,827	40-58	4,5343

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 4 above, from 30 pregnant women with KEK, it is known that the average weight before administering local PMT for 90 days was 46.827 kg, where the smallest weight was 40 kg, and the largest weight was 58 kg.

The results of the univariate analysis on the body weight of pregnant women with KEK after being given local food PMT for 90 days are as follows :

Table 6: Weight of pregnant women with KEK after 90 days of local food PMT

Variable	N	Mean	Min-Max	Std.Deviasi (SD)
BB after 90 days of local food PMT	30	49,013	42-60,6	4,5583

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 6 above, from 30 pregnant women with KEK, it is known that the average body weight after 90 days of local food PMT was 49.013 kg, where the smallest body weight was 42 kg, and the largest body weight was 60.6 kg.

Nutritional Status of Pregnant Women Before and After Receiving 90 Days of Local Food PMT.

Table 7: LILA of Pregnant Women with Special Economic Conditions Before Provision of Local Food PMT

Variable	N	Mean	Min-Max	Std.Deviasi (SD)
LILA before the provision of 90 days of local food PMT	30	22,337	20-23	0,7699

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 7 above, of 30 pregnant women with special needs (KE), the average LILA before the 90-day local food PMT was 22.337 cm with a standard deviation of 0.7699. The lowest LILA was 20 cm, and the highest was 23 cm at the Kalapanunggal Community Health Center.

Table 8 LILA of Pregnant Women with KEK After Provision of Local Food PMT

Variable	N	Mean	Min-Max	Std.Deviasi (SD)
LILA after 90 days of local food PMT provision	8	22,800	20,3-23,8	0,8200
>23,5 cm	22			
<23,5 cm				

Source: Ministry of Health of the Republic of Indonesia, 2015

Based on Table 8, the average LILA of pregnant women after receiving local food PMT was 22.800 cm with a standard deviation of 0.8200. The lowest LILA was 20.3 cm, and the highest was 23.8 cm at the Kalapanunggal Community Health Center.

Table 9: BMI of Pregnant Women with Special Economic Conditions Before Provision of Local Food PMT

Variable	N	Mean Before	*P*
BMI before provision of PMT Local Food for 90 Days >18,5 cm 5 cm	30	17,1	0,01

Source: Ningrum & Cahyaningrum, 2018

Based on Table 9, the average BMI of pregnant women before receiving local food PMT was 17.7 kg/m2 with a p-value of 0.01. The lowest BMI was 17.7 kg/m2 and the highest BMI was 18.6 kg/m2 at the Kalapanunggal Health Center.

Table 10: BMI of Pregnant Women with Special Economic Conditions After Provision of Local Food PMT

Variable	n	Mean After	*P*
BMI after provision of PMT Local Food for 90 Days >18,5 cm<18,5 cm	30	18,4	0,01

Source: Ningrum & Cahyaningrum, 2018

Based on Table 10, the average BMI of pregnant women after receiving local food PMT was 18.4 kg/m2 with a p value of 0.01. The lowest BMI was 18.4 kg/m2, and the highest BMI was 19.1 kg/m2 at the Kalapanunggal Health Center.

Table 11 The Effect of Providing Supplementary Food (PMT) in the Form of Local Food on Weight Gain in Pregnant Women with Special Needs at the Kalapanunggal Community Health Center, Sukabumi Regency

Variable	Mean	BB increase (kg)	Std. Deviasi (SD)	Min-max	P *Value*
BB Before PMT Administration	46,827	2,204	4,5343	40-58	0,000
BB After PMT Administration	49,031		4,5583	42-60,6	0,000

Source: Ningrum & Cahyaningrum, 2018

Based on Table 11, the average difference in weight of pregnant women before receiving PMT in the form of local food PMT is 46.827 with a standard deviation of 4.5343, while the average weight of pregnant women after receiving PMT in the form of local food PMT is 49.031 with a standard deviation of 4.5583. The lowest weight gain of pregnant women is 42 kg, and the highest is 60.6 kg. The results of the Paired Samples T-test statistical test obtained a p value = 0.000, where the p value ≤ 0.05 then H0 is accepted and H1 is rejected, which can be concluded statistically means there is an effect of providing additional food (PMT) in the form of local food PMT on weight gain in pregnant women with chronic energy deficiency (KEK) at the Kalapanunggal Community Health Center, Sukabumi Regency.

Table 12: The Effect of Providing Supplementary Food (PMT) in the Form of Local Food on the Increase in Body Mass Index in Pregnant Women with Special Needs at the Kalapanunggal Community Health Center, Sukabumi Regency

Variable	Mean	Peningkatan IMT (kg/m^2)	P *Value*
IMT Before Pemberian PMT	17,1	1,5	0,01
IMT After Pemberian PMT	18,6		0,01

Source: Ningrum & Cahyaningrum, 2018

Based on Table 12, the average difference in the Body Mass Index of pregnant women before receiving PMT in the form of local food PMT was 17.1 kg/m2, while the average weight of pregnant women after receiving PMT in the form of local food PMT was 18.6 kg/m2. The lowest increase in BMI of pregnant women was 18.4 kg/m2 and the highest was 19.1 kg/m2. The results of the Paired Samples T-test statistical test obtained a p value = 0.001, where the p value ≤ 0.05 so that the data shows a significant effect and there is a mean value (average) of 1.5 kg/m2, so the effect of providing additional food (PMT) in the form of local food PMT on the mother's body mass index in pregnant women with chronic energy deficiency (KEK) at the Kalapanunggal Community Health Center, Sukabumi Regency.

Discussion

Based on the research data, it shows that the characteristics of the respondents

in this study include three characteristics: age, educational background, and occupation. The characteristics of pregnant women based on age: of the 30 respondents, most were under 25 years old (17 respondents (56.7%), while the others were over 25 and over 35 years old. Age is the age of a person or individual calculated from the first day of birth until death. The age of pregnant women plays a role and influences the condition of the pregnancy. Mothers who become pregnant at a young age or too old can result in low fetal quality and less than optimal health conditions. In pregnant women who are too young, there can be competition for food between the fetus and the mother, who is still growing, during the pregnancy period. The most optimal age for pregnant women is over 20 years and under 35 years, where it is expected that the mother's nutritional status will be better for the course of the pregnancy. (Manuaba, 2015).

Respondent characteristics based on educational history show that the majority of pregnant women have a junior high school education (13 respondents (43.3%), elementary school education (7 respondents (23.3%), high school education (8 respondents (26.7%), and the remaining 2 respondents (6.7%) have a university education. According to Kuntjoroningrat, as quoted by Nursalam 2020, the higher a person's education, the easier it is to receive information and increase their knowledge. Conversely, those with a low level of education will have difficulty digesting the messages or information conveyed. This will affect a person's insight into newly introduced values, including matters related to nutrition for pregnant women.

The results of the study showed that the characteristics of respondents based on work, most pregnant women are employees who work in offices, namely 11 respondents (36.7%), pregnant women who work in the field as many as 7 respondents (23.3%), for pregnant women who are housewives as many as 6 respondents (20.0%), for pregnant women who work in factories as many as 4 respondents (36.7%) and those who work in the private sector as many as 2 respondents (6.7%). Work can describe a person's economic status, which can then lead to a lack of knowledge in fulfilling the nutrition of pregnant women during pregnancy. In addition, the work that a person has is something that This will make it easier to access various information. Work can also provide a picture of a mother's knowledge about nutrition during pregnancy through interactions with others. (Fitriana, 2018).

Based on table 4.4, the average weight of pregnant women before receiving

PMT in the form of local food PMT was 46.827 kg with a standard deviation of 4.5343. The lowest weight was 40 kg and the highest was 58 kg at the Kalapanunggal Community Health Center, Sukabumi Regency. Based on the data above, it is known that the weight of pregnant women before being given PMT in the form of local food was 100% of pregnant women with KEK due to the lack of knowledge of pregnant women about nutritional needs during pregnancy so that pregnant women consume food that is available without paying attention to the adequacy of nutrition that must be consumed during pregnancy. From the data above, it can be concluded that before being given intervention, most pregnant women still do not understand nutrition during pregnancy.

This research aligns with the objectives of Rosyadi Pastuty's 2018 study, which aimed to improve the nutritional status of pregnant women, particularly those with special economic conditions (KE). PMT is also a strategy developed by the Indonesian Ministry of Health to address macronutrient issues in pregnant women. (Rosyati Pastuty & Rochmah KM, 2018).

Based on table 4.5, the average weight of pregnant women after receiving PMT in the form of local pagan PMT was 49.013 kg with a standard deviation of 4.5583. The lowest weight was 42 kg and the highest was 60.6 kg at the Kalapanunggal Community Health Center, Sukabumi Regency.

This research aligns with research conducted by Mahirawati et al. in 2014, which stated that the PMT-P Program at the Surabaya City Community Health Center was able to improve the nutritional status of pregnant women with KEK to normal (Mahirawati & V 2014). This is similar to the results of Utami's 2018 study, which stated that there was an increase in average body weight and LILA at the end of the treatment. (Utami, 2018).

According to Marianita Manik & Rindu in 2023, dietary patterns or food consumption patterns are various information that provides an overview of the amount and type of food consumed daily by one person and are characteristic for a particular community group, including attitudes, beliefs, food availability, and food choices. Dietary patterns during pregnancy affect the health of pregnant women, which can be seen from the mother's weight gain during pregnancy. Pregnant women need healthy foods to meet their nutritional needs during pregnancy and for the growth of the fetus in

the womb. Healthy eating during pregnancy means consuming a variety of appropriate foods. Chronic energy deficiency is influenced by various factors, one of which concerns unhealthy diet and lifestyle. A healthy diet is reflected in choosing a balanced menu. When choosing food, consider not only quantity but also quality. (Marianita Menik & Rindu 2023).

According to the researcher's assumption, motivation occurs because of the needs, hopes, and interests that are obtained and can then influence a person's behavior, which in this case is related to the efforts of pregnant women to gain weight during pregnancy in order to be able to give birth to a baby with a normal birth weight, and reduce complications of pregnancy and childbirth due to chronic energy deficiency such as stunted fetal development to the death of both the mother and the baby. However, behavior arises not only because of motivation that comes from within but can also arise from outside such as family support, support from health workers, etc.

According to the researcher's assumption, the external factors that cause KEK pregnant women to not experience weight changes after being given PMT in the form of local food PMT are excessive workload and poor maternal knowledge about the importance of nutrition during pregnancy. It is known that the characteristics of the respondents are that most of them work as office employees and the education of respondents is known to be 43.3% junior high school/equivalent. This can affect the level of knowledge of pregnant women about nutrition during pregnancy.

Limitation

The manuscript should describe the limitation of the study.

Conclusion

1. General data on respondent characteristics includes age, education, and occupation. Based on age, the majority of pregnant women were under 25 years old (17 respondents) (56.7%). Based on educational characteristics, 13 pregnant women (40.3%) were in junior high school. Furthermore, based on occupation, the majority of pregnant women were office workers (11 respondents). (36,7%).
2. The difference in body weight before and after giving PMT in the form of local

food PMT was 46.827 with a standard deviation of 4.5343, while the average weight of pregnant women after receiving PMT in the form of local food PMT was 49.031 with a standard deviation of 4.5583. The lowest weight gain of pregnant women was 42 kg, and the highest was 60.6 kg, so the increase during the provision of local PMT for 90 days was 2.204 kg.

3. The effect of body weight before and after giving local PMT is an increase in the weight of pregnant women during the administration of local PMT for 90 days of 2.209 kg from an average body weight before of 46.827 kg and after being given local PMT of 49.031 kg.

Conflict of Interest

No conflict of interest among authors.

Author contribution

All authors were actively involved in every stage of the findings, from study design and data collection to statistical analysis and manuscript writing. Each author also approved the final version of the manuscript for publication and is responsible for the accuracy of the findings.

References

1. Alam, S., Ansyar, D. I., & Satrianegara, M. F. (2020). Eating pattern and educational history in women of childbearing age. *Al-Sihah*: *The Public Health Science Journal*, 12(1), 81.
2. Erma Retnaningtyas, R. P. Y. S. (2020). Analisis Kejadian Anemia Dan Kek Pada Ibu Hamil Terhadap Kejadian Bblr Di Rsud Gambiran Kediri. *Conference on Innovation and Application of Science and Technology*,(Ciastech),1073-1080
.
3. Fatimah, & Nuryaningsih. (2017). Buku Ajar Asuhan Kebidanan Kehamilan (1st ed.; M. K. Asry Novianti, ed.).
4. Fitrianingtyas, I., Pertiwi, F. D., & Rachmania, W. (2018a). Faktor-Faktor Yang Berhubungan Dengan Kejadian Kurang. *Hearty Jurnal Kesehatan Masyarakat* Vol.6 No.2 2018, 6(2).
5. Fitrianingtyas, I., Pertiwi, F. D., & Rachmania, W. (2018). Faktor-Faktor Yang Berhubungan Dengan Kejadian Kurang. 6(2).
6. Kemenkes Kesehatan RI, (2018). Laporan Kinerja Ditjen Kesehatan Masyarakat Tahun 2017. In *Kementerian Kesehatan RI.*

7. Kemenkes. (2021). Laporan Kinerja Kementrian Kesehatan Tahun 2020. *Kemenkes*, 1–209.

8. Ningrum, E. W., & Cahyaningrum, E. D. (2018). Status gizi pra hamil berpengaruh terhadap berat dan panjang badan bayi lahir. Medisains, 16(2), 89.

9. Paramata, Y., & Sandalayuk, M. (2019). Kurang Energi Kronis pada Wanita Usia Subur di Wilayah Kecamatan Limboto Kabupaten Gorontalo. Gorontalo Journal of Public Health, 2(1), 120.

10. P I Made I & Cahayaningrum I (2019). *Cara Mudah Memahami Metodologi Penelitian.* Deepublish: Yogyakarta

11. Prawirohardjo, S. (2018). Ilmu Kebidanan (5th ed.; A. B. Saifuddin, ed.). Jakarta: PT Bina Pustaka Surwono Prawirohardjo.

12. Rahayu, A., Rahman, F., & Marlinae, L. (2018). Buku Ajar 1000 HPK. In P. S. K. Rahmi (Ed.), Buku Ajar Gizi 1000 Hari Pertama Kehidupan (1st ed., p. 10).

13. Rohmah, L. (2020). Program Pemberian Makanan Tambahan pada Ibu Hamil Kekurangan Energi Kronis. HIGEIA (*Journal of Public Health Research and Development*),4(Special4), 812–823.

14. Rosyati Pastuty, Rochmah KM, T. H. (2018). Efektifitas Program Pemberian Makanan Tambahan-Pemulihan Pada Ibu Hamil Kurang Energi Kronik Di Kota Palembang *Effectiveness the Recovery Program of Food Suplement Towards Pregnancy Women With Chronic Energy Deficiency in Palembang City*. Jurnal Ilmu Kesehatan Masyarakat, 9(3), 179–188.

15. Ruaida, N., & Soumokil, O. (2018). Hubungan Status Kek Ibu Hamil Dan Bblr Dengan Kejadian Stunting Pada Balita Di Puskesmas Tawiri Kota Ambon. Jurnal Kesehatan Terpadu (*Integrated Health Journal*), 9(2), 1–7.

16. Siahaan, G., Lestrina, D., & Nainggolan, E. (2019). Effect of Supplemental Feeding on the Nutritional Status of Pregnant Women Treated at the Mandala Community Health Centre (Puskesmas) of Medan. *Pakistan Journal of Nutrition*, 18(2), 159–164.

17. WHO. (2020). World Health Statistics 2020. In *Journal of Chemical Information and Modeling* (Vol. 2).

18. Widya Larasati, E. (2018). Hubungan antara Kekurangan Energi Kronis (KEK) terhadap Kejadian Anemia pada Ibu Hamil di RSKDIA Siti Fatimah Makassar 2018. Jurnal Kesehatan Delima Pelamonia, 2(2), 131–134.

19. Veria Setyawati, V. A., & Izzah, S. A. (2021). Impact of supplementary feeding program (PMT) in chronic energy deficiency (CED) pregnant women. *Annals of Tropical Medicine & Public Health*, 24(01).