



**EFFECTIVENESS OF THE SUPPLEMENTARY FOOD PROGRAM FOR  
PREGNANT WOMEN WITH KEK**

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**ABSTRACT**

Pregnant women with CED risk can cause decreased muscle capacity that supports the labor process. This can cause prolonged labor and bleeding that is dangerous for the mother. This study aims to make the program of providing additional food based on local food ingredients for pregnant women with chronic energy deficiency at the Glagah Health Center, Lamongan Regency a success. The design of this study was an experiment with a pretest and posttest design. The location of the study was in the Glagah Health Center, Lamongan. Based on PMT monitoring report data, the study population was all pregnant women with CED based on body weight and LILA indicators used in assessing nutritional status. The sample of this study was all pregnant women in the Glagah area, and used a purposive sampling technique. Statistical tests were carried out using the Paired Sample T-test with a significance value of  $<0.05$ . The study showed a significant increase after 4 months of PMT administration and monitoring was carried out which showed a difference in BB and LILA before and after PMT administration with a p value = 0.000. There is effectiveness in providing additional food based on local food ingredients to pregnant women with chronic energy deficiency in the Glagah Lamongan Health Center work area.

Keywords: chronic energy deficiency; PMT; pregnant women

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**INTRODUCTION**

A primary requirement of national development is the cultivation of high-quality human resources. One of the elements that determines the success of human resource development is good nutritional status. Because of the far-reaching effects of malnutrition, pregnant women are among the most at-risk populations when it comes to proper nutrition. Malnutrition during pregnancy can have an impact on the fetus's growth and development, increasing the likelihood that the baby will be born with low birth weight (LBW) or stunting (Ministry of Health of the Republic of Indonesia, 2023). Among the many nutritional issues that can arise during pregnancy is chronic energy deficit (Ernawati, A., 2017). The prevalence of KEK risk is 14.1% in women of childbearing age (WUS) and 17.3% in pregnant women, according to data from Riskesdas (2018). Over half of pregnant women do not consume enough calories ( $<70\%$  of energy adequacy) and nearly half of them also do not get enough protein ( $<80\%$  of the recommended adequacy).

The number of pregnant women in Lamongan Regency is 15,015, with 1,308 (8.71%) being KEK pregnant women and 1,109 (84.78%) receiving PMT, according to the Integrated Nutrition Report-RPJM 2023. There were 154 pregnant women in the Glagah Health Center area as of May 2024, with 19 of them being KEK (12.33%) and 16 of them receiving local PMT (84.21%). Report from the Lamongan Regency Health Office in 2023. A condition called Chronic Energy Deficiency (KEK), marked by a low body mass index

(BMI) of less than 23.5 cm, occurs when there is an imbalance in the nutrients that the body needs due to an imbalance in the amount of energy and protein it consumes (Ministry of Health of the Republic of Indonesia, 2019).

The state of expectant mothers. KEK patients run the danger of experiencing a decline in muscle strength during labor, which can lengthen the delivery process, cause postpartum hemorrhage, or even cause the mother's death. Possible outcomes of pregnancy complications include loss of foetal life (miscarriage), early delivery, congenital abnormalities, low birth weight (LBW), or even infant mortality. Negative effects on fetal development, including stunting, brain abnormalities, and metabolic syndrome, can lead to adult non-communicable diseases in pregnant women at risk of KEK (Ministry of Health of the Republic of Indonesia, 2019). Improper nutrition during pregnancy and illness are the direct causes of ketoembolic events. The management of pregnant women at risk of KEK is achieved through the implementation of integrated antenatal services and specific nutritional interventions across programs. Pregnant women identified as being at risk of KEK are one group that receives additional food, known as PMT (Ministry of Health of the Republic of Indonesia, 2019).

One strategy to deal with nutritional problems in pregnant women is the Provision of Additional Food (PMT) made from local food. Supporting breastfeeding, educating and counseling families on feeding, hygiene, and sanitation are all examples of how nutrition and health education can go hand in hand with PMT activities to bring about behavioral change. The goal of this community-based PMT initiative is to promote sustainable food practices and nutritional autonomy for families. With respect to biodiversity, Indonesia ranks as the world's third-largest country. In all, there are 77 distinct carbohydrate sources, 30 distinct fish, 6 distinct meats, 4 distinct poultry, 4 distinct eggs, 26 distinct nuts, 389 distinct fruits, 228 distinct vegetables, and 110 distinct spices and herbs (Food Security Agency, 2020 and Food Balance, 2022).

As a result, there is a great deal of room for improvement in the nutrition of pregnant women and toddlers, as well as in the provision of food for families generally. In 2023, it was published by the Indonesian Ministry of Health. The Non-Physical Special Allocation Fund (DAK) is a source of funding for local food-based PMT programs in Indonesia, which are overseen by the Ministry of Health. Pregnant women in Special Economic Zones in Lamongan Regency can take advantage of the 2024 Health Center BOK Fund's Provision of Local Food-Based Supplementary Food (PMT). The researchers in this study set out to learn more about the Glagah Health Center area's Supplemental Food Program for Expectant Mothers in Special Economic Zones.

## **METHOD**

This research is an experimental analytical research with a pretest and posttest design. The research location is in the Glagah Health Center work area. Data were obtained from the monitoring report on the implementation of the provision of supplementary food (PMT) based on local food at the Glagah Health Center from May to September 2024. The population of this study was all pregnant women with chronic energy deficiency based on BB/TB and LILA indicators in Glagah District, namely 16 pregnant women. The sampling technique in this study was total sampling. This supplementary feeding (PMT) activity is monitored and evaluated for intake and weight every week by the implementing team. From the results of the evaluation data, we can conclude how the development of the nutritional status of pregnant women after being given additional food compared to before. Before this

activity was carried out, pregnant women with poor nutritional status had been given socialization regarding this matter.

## RESULT

Table 1.  
Average Weight of Pregnant Women with KEK

| Group           | Min<br>(kg) | Max<br>(kg) | Mean  | SD    |
|-----------------|-------------|-------------|-------|-------|
| Weight (pre)    | 37          | 52          | 43,43 | 4.260 |
| Weight 1        | 39          | 53          | 45,65 | 4.049 |
| Weight 2        | 41          | 55          | 47,29 | 4.442 |
| Weight 3        | 42          | 57          | 49,64 | 4.923 |
| Weight 4 (post) | 42          | 58          | 51,29 | 4.894 |

Based on table 1, it can be seen that there was an increase in the average weight of pregnant women between before (pre) PMT administration, namely the smallest weight of 37 kg and the largest 52 kg. After being given PMT for 4 months (post) the smallest weight was 42 kg and the largest 58 kg. It appears that there was a consistent increase in weight from the first month the smallest was 39 kg and the largest 53 kg, the second month the smallest was 41 kg and the largest 55 kg, the 3rd month the smallest was 42 kg and the largest 57 kg, to the 4th month the smallest was 42 kg and the largest 58 kg.

Table 2.  
Average Height of Pregnant Women with Special Economic Zones

| Group  | Min<br>(cm) | Max<br>(cm) | Mean | SD    |
|--------|-------------|-------------|------|-------|
| Height | 145         | 161         | 153  | 4.416 |

Based on table 2, it can be seen that the average height of pregnant women is at least 145 cm and the highest is 161 cm.

Table 3.  
Average LILA of Pregnant Women KEK

| LILA        | Min<br>(cm) | Max<br>(cm) | Mean  | SD    |
|-------------|-------------|-------------|-------|-------|
| LILA (pre)  | 19          | 24          | 21,49 | 1.255 |
| LILA (post) | 22          | 26          | 23,74 | 1.194 |

Based on table 3, it can be seen that there was an increase in LILA from the smallest beginning, which was 19 cm and the largest was 24 cm. At the end of PMT administration, it became the smallest 22 cm and the largest 26 cm.

Table 4.  
Frequency Distribution of Weight Gain and LILA of Pregnant Women with KEK

| Weight        | N  | Mean  | SD    | Min<br>(kg) | Max<br>(kg) | P     |
|---------------|----|-------|-------|-------------|-------------|-------|
| Weight (pre)  | 16 | 43,43 | 4.260 | 37          | 52          | 0,000 |
| Weight (post) | 16 | 51,29 | 4.894 | 42          | 58          |       |
| Weight Gain   | 16 | 7,86  | 2.847 | 1           | 13          |       |
| LILA          | N  | Mean  | SD    | Min<br>(cm) | Max<br>(cm) | P     |
| LILA (pre)    | 16 | 21,49 | 1,255 | 19          | 24          | 0,000 |
| LILA (post)   | 16 | 23,74 | 1,194 | 22          | 26          |       |
| LILA Gain     | 16 | 2,25  | 0.877 | 1           | 4           |       |

It can be seen from the 16 respondents studied, the weight of pregnant women before receiving PMT was the smallest 37 kg and the largest 52 kg. After receiving PMT, the smallest weight was 42 kg and the largest 58 kg. The smallest weight gain was 1 kg and the largest 13 kg. Meanwhile, the LILA of pregnant women before being given PMT was the

lowest 19 cm and the highest LILA was 24 cm. After receiving PMT, the lowest became 22 cm and the highest 26 cm. The lowest increase in LILA was 1 cm and the highest 4 cm.

Table 5.  
Paired Sample Test

| Paired Sample Test  |            |                    |                |            |                                           |        |         |    |                 |
|---------------------|------------|--------------------|----------------|------------|-------------------------------------------|--------|---------|----|-----------------|
| Paired Samples Test |            |                    |                |            |                                           |        |         |    |                 |
|                     |            | Paired Differences |                |            |                                           |        |         |    |                 |
|                     |            |                    |                | Std. Error | 95% Confidence Interval of the Difference |        |         |    |                 |
|                     |            | Mean               | Std. Deviation | Mean       | Lower                                     | Upper  | t       | df | Sig. (2-tailed) |
| Pair 1              | Pre - Post | -2.250             | .877           | .219       | -2.717                                    | -1.783 | -10.261 | 15 | .000            |

Based on the results of the analysis using the t-test in table 5, this study can be concluded that there is a statistically significant difference ( $p < 0.05$ ) between the SD values before and after the intervention. The average change is -0.225, which means that the average SD value after the intervention has a higher value than before the intervention.

## DISCUSSION

According to Pramudieta, Mulyani, Safriana, and Rachmawati (2019), mothers suffering from malnutrition during pregnancy, also called Chronic Energy Deficiency (CED), are more likely to have babies that are born with a low birth weight. Pregnant women are particularly vulnerable to the effects of chronic energy deficiency, which can have fatal consequences. The nutritional status of sixteen pregnant women was determined to be Chronic Energy Deficiency (CED) according to BB/TB and LILA indicators in a study carried out in the work area of the Glagah Lamongan Health Center. Pregnant women's nutritional status can be directly impacted by factors such as an imbalanced diet. The Minister of Health's Regulation Number 51 of 2016 regarding Nutritional Supplement Product Standards specifies that pregnant women with CED should consume biscuits that are rich in protein, linoleic acid, carbs, and enhanced with eleven vitamins and seven minerals. According to the 2018 report by the Indonesian Ministry of Health.

When pregnant women don't get enough nutrients, it can lead to constipation. Indonesians don't get nearly enough energy (less than 70%) and protein (less than 80%) compared to their 2004 AKG levels (37%)<sup>2</sup>. Nutritional issues in pregnant women affect not only the mother's and baby's well-being, but also the newborn's quality of life. Pregnant women gain weight before receiving prenatal vitamin therapy (PMT), with the lowest recorded weight of 37 kg and the highest of 52 kg, according to the researcher's data. The range of weights after four months of PMT was 42 kg to 58 kg. Weight gain ranged from a minimum of 1 kg to a maximum of 13 kg among the respondents. Also, before receiving PMT, pregnant women's LILAs ranged in size from 19 cm at the smallest to 24 cm at the largest. The lowest LILA after PMT was 22 cm and the highest was 16 cm.

The LILA increase was smallest in pregnant women, at 1 cm, and largest, at 4 cm. Extra food is being given to pregnant women with KEK in an effort to improve their nutrition. One supplementation strategy to overcome nutritional problems is providing additional food, particularly for vulnerable groups. According to the Ministry of Health of the Republic of Indonesia (2017), one way to support the Healthy Living Community Movement (Germas) is by offering more food. This will help with providing nutritious food and speeding up the process of improving nutritional status. The Ministry of Health's 2015-2019 Strategic Plan (Renstra) (Directorate of Nutrition Development, 2015) lists six performance indicators of community nutrition development activities (IKK), one of which is the percentage of pregnant women with special economic conditions who receive additional food.

The average birth weight of infants in the treatment group was 3,248 g and in the comparison group 2,974 g. There was a difference of 274 g in average birth weight ( $p = 0.0002$ ; 95% CI:

131-416), indicating that PMT-P had a significant effect on infant birth weight, according to research conducted in Yogyakarta with a sample of 128 pregnant women (Zulaidah et al., 2014). Suboptimal delivery of targeted and sensitive nutrition is also associated with stunting, according to Supadmi (2018). Pregnant women can overcome KEK with the help of specific nutrition, which includes PMT (Izwardi, 2019).

## **CONCLUSION**

For pregnant women at the Glagah Lamongan Health Center who suffer from chronic energy deficiency, there is a statistically significant correlation between the pre- and post-intervention standard deviations of body mass index (BMI) and lower extremity length (LEL), with a mean change of 7.86 kg for BMI and 2.25 cm for LEL, and a p-value of 0.000. This proves that the Glagah Lamongan Health Center's program of supplemental meals made from locally sourced foods is helping pregnant women who suffer from chronic energy deficiency.

## **REFERENCES**

- Ministry of Health, R.I. (2018). Basic Health Research 2018. Ministry of Health of the Republic of Indonesia
- Ministry of Health of the Republic of Indonesia. (2019). P2PTM Ministry of Health of the Republic of Indonesia. Balanced Nutrition Guidelines Jakarta: Ministry of Health of the Republic of Indonesia
- Ministry of Health of the Republic of Indonesia. (2019). Performance Accountability Report 2018. Directorate of Community Nutrition, 1–52(9), 1689–1699
- Ministry of Health, R. I. (2023). Technical Instructions for Providing Additional Food Made from Local Food for Pregnant Women and Toddlers. Directorate of Community Nutrition Development, Ministry of Health of the Republic of Indonesia
- Lamongan Regency Health Office. (2024). Integrated Nutrition Report-RPJMN Kab. Lamongan.
- Lamongan District Health Office. (2023). Health Profile of Lamongan District Health Office. Lamongan
- Mulyani, E., Yulianti, L. Y., Handayani, D. O., Putri, D. W., Aisyah, F., & Lindasari, D. (2021). Factors Influencing the Occurrence of Chronic Energy Deficiency in Pregnant Women. *Surya Medika: Scientific Journal of Nursing and Public Health*, 16(2), 53-58.
- KUSWARDANI, F. (2023). Evaluation of the Supplementary Feeding Program (Pmt) for Pregnant Women with Chronic Energy Deficiency (Kek) in the Working Area of the Purwareja Klampok 1 Health Center Uptd, Banjarnegara Regency (Doctoral Dissertation, Muhammadiyah University of Gombong).

