



## Evaluation of Local Supplementary Food Provision Program (PMT) For Pregnant Women with KEK in Palu City

Miranti<sup>1</sup>, Ketut Suarayasa<sup>2</sup>

<sup>1,2</sup>Department of Public Health and Community Medicine, Faculty of Medicine, Tadulako University

### Abstract:

KEK (chronic energy deficiency) is a condition where someone suffers from chronic food short ages which is characterized by an upper arm circumference (LiLA) <23.5 cm which results in health problems. In Palu City, there are 838 pregnant women with LiLA <23.5 cm out of a total of 7,758 pregnant women (10.8%). To overcome the problem of pregnant women who experience KEK, it is necessary to organize Supplementary Food Provision (PMT) as an addition, not as a substitute for daily main food. In 2023, there were 184 KEK pregnant women who were intervened by the Palu City government, spread across 14 Health Centers in the Palu City area. The purpose of this study was to evaluate the implementation of the local-based PMT program for pregnant women with special economic conditions in Palu City, including the implementation of input, process, output indicators and their impact on increasing LiLA size in pregnant women with special economic conditions.

This research method is an evaluation research using a mix method, namely a combination of qualitative and quantitative research. Qualitative data collection was carried out by means of in-depth interviews and Focus Group Discussions (FGD). Analysis of qualitative data was processed using content analysis. While in quantitative research, data collection was carried out through questionnaires with a sample of 184 pregnant women with special economic conditions who received local-based PMT interventions.

The results of the study showed that the implementation of input, process and output indicators in local-based PMT for pregnant women with special economic conditions had gone well, according to the perspective of pregnant women with special economic conditions and health center nutrition officers. There were 168 pregnant women (91.3%) who experienced an increase in LiLA size to > 23.5 cm after PMT was given. Mean while, 16 pregnant women (8.7%) experienced an increase in LiLA size, but still < 23.5 cm. The increase in LiLA size mostly occurred after giving PMT for 60-120 days (65.8%).

Conclusion: The implementation of the local-based PMT program for KEK pregnant women has gone well, and can increase the size of LiLA pregnant women to > 23.5 cm.

**Keywords:** KEK Pregnant Women, Upper Arm Circumference (LiLA), Local-based PMT

**Corresponding Author:** Ketut Suarayasa<sup>†</sup>, Department of Public Health and Community Medicine, Faculty of Medicine, Tadulako University

**Copyright:** © 2024 The Authors. Published by Vision Publisher. This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

# Introduction

Based on the 2018 Basic Health Research (RISKESDAS), it was stated that 17.3% of pregnant women in Indonesia experienced Chronic Energy Deficiency (CED). Based on data from the Ministry of Health's performance report in 2021, it was found that there were 283,833 pregnant women with LiLA <23.5 cm (at risk of CED) out of 3,249,503 pregnant women whose LiLA was measured, so it is known that pregnant women in Indonesia with a risk of CED are 8.7% (Directorate General of Public Health, Ministry of Health, 2021). CED or KEK is a condition in which a person suffers from chronic food deficiency which is characterized by an upper arm circumference (LiLA) <23.5 cm which results in health problems. In the city of Palu, there are 838 pregnant women with LiLA <23.5 cm out of a total of 7,758 pregnant women (10.8%).

To overcome the problem of pregnant women experiencing KEK, it is necessary to organize Supplementary Feeding (PMT) as an addition, not as a substitute for daily main food (Ministry of Health of the Republic of Indonesia, 2022).

In 2022, the Palu City Government has intervened approximately 400 pregnant women experiencing chronic energy deficiency (KEK) through a number of programs to prevent low birth weight (LBW) and stunting. Meanwhile, in 2023, there were 184 KEK pregnant women who were intervened by the Palu City government, spread across 14 Health Centers in the Palu City area (Palu City Health Office, 2023).

The purpose of the study was to evaluate the Local-Based Supplementary Feeding (PMT) program for KEK Pregnant Women in Palu City, including: implementation of input, process, output indicators and the effectiveness of the Local-Based Supplementary Feeding (PMT) program for KEK Pregnant Women in Palu City.

## Research Methods

This research is an Evaluation research using a mix method, namely a combination of qualitative research and quantitative research. Informants in qualitative research consist of: Nutrition Officer of Palu City Health Office, Nutrition Officer of Health Center and 11 Posyandu cadres. Selection of informants in 14 Health Centers of Palu City based on regional characteristics, namely: characteristics of Urban Health Centers, characteristics of Sub urban Health Centers, characteristics of Health Centers in Industrial Areas. Qualitative data collection was carried out by in-depth interviews and Focus Group Discussions (FGD). Analysis of qualitative data was processed using content analysis. In the analysis process, the researcher used three triangulation techniques, namely data triangulation, theory triangulation and method triangulation. While in quantitative research, data collection was carried out through questionnaires. The number of samples in quantitative research was all pregnant women with KEK who received intervention (as many as 184 pregnant women with KEK) and had finished receiving Supplementary Food (MT) made from local ingredients. To determine the effectiveness of PMT made from local ingredients, researchers will analyze the data from the measurement of the Upper Arm Circumference (LiLA) before and after the intervention in the form of Provision of Supplementary Food (PMT) made from local ingredients. The data was processed using the Wilcoxon test to determine the differences before and after being given PMT made from local ingredients.

## Research Results

### 1. Respondent Characteristics

Qualitative research was conducted through in-depth interviews and focus group discussions (FGD) with 11 informants, with the following characteristics:

**Table 1. Characteristics of Qualitative Informants**

Variable	n	%
<b>Age</b>		
< 30 years	2	18,2
30 – 40 years	4	36,4
>40years	5	45,4
<b>Gender</b>		
Man	0	0,0
Women	11	100,0
<b>Work</b>		
Employee	5	45,5
Non Employee	6	54,5
<b>Length of Work/Task</b>		
< 5 years	2	18,2
>5 years	9	81,8

Source: Primary Data, 2024

The table above shows that most informants are > 40 years old (45.4%) with a length of work/duty of> 5 years (81.8%). With a length of work of> 5 years, it shows that the selected informants have understood the problems in this study. For qualitative research, data collection was carried out using a questionnaire on 184 pregnant women with KEK and had received interventions in the form of providing additional food (PMT) made from local ingredients. which are spread across 14 Health Centers throughout Palu City, with the following characteristics:

**Table 2. Characteristics of Pregnant Women with KEK in Palu City2023**

Variable	n	%
<b>Age</b>		
< 20 years	23	12,5
20 - 35 years	144	78,3
> 35 years	17	9,2
<b>Education</b>		
Primary (SD-SMP)	57	31,0
Secondary (SMA)	112	60,9
HigherEducation	15	8,2
<b>Work</b>		
Housewife	134	72,8
Private	31	16,8
Employee	19	10,3
<b>Gravid</b>		
Primigravida	71	38,6
Multigravida	102	55,4
Grandemultigravida	11	6,0
<b>Primary Health Center</b>		
Pantoloan	16	8,7
Tawaeli	15	8,2
Mamboro	10	5,4

Talise	24	13,0
Singgani	11	6,0
Kawatuna	11	6,0
Birobuli	10	5,4
Bulili	15	8,2
Mabelopura	15	8,2
Kamonji	4	2,2
Sangurara	19	10,3
Tipo	9	4,9
Nosarara	12	6,5
Lere	13	7,1

Source: Primary Data, 2024

From the table above, it can be seen that most respondents are aged 20-35 years (78.3%), have secondary education (60.9%), are housewives (72.8%), are multi gravida (55.4%) and come from Talise Health Center (13.0%).

## 2. Implementation of Input, Process and Output Indicators

There are several questions to evaluate the implementation of input, process and output indicators in the PMT program using local ingredients for pregnant women in KEK who receive benefits from the PMT program. The results are as follows:

**Table 3. Implementation of Input, Process and Output Indicators in the Local Supplementary Food (PMT) Program in Palu City in 2023 (According to Pregnant Women in KEK)**

No	Questions	Yes		No		Total	
		n	%	n	%	n	%
INPUT INDICATORS							
1	Health Center officers invite discussion before providing additional food	17 1	92, 9	1 3	7, 1	184	100, 0
2	Health Center officers invite discussion to determine local food menu	95	51, 6	8 9	48	184	100, 0
3	Ingredients for additional food are already made from local ingredients	15 7	85, 3	2 7	15	184	100, 0
PROCESS INDICATORS							
1	Health centers or cadres provide information about the benefits of the additional food provided	18 1	98, 4	3	1, 6	184	100, 0
2	Additional food menu (PMT) according to taste	15 7	85, 3	2 7	15	184	100, 0
3	Distribution of additional food according to expectations	11 7	63, 6	6 7	36	184	100, 0
4	Additional food arrives at home according to the expected time	10 5	57, 1	7 9	43	184	100, 0
5	Health centers orcadres provide information about the benefits of the additional food provided	14 9	81	3 5	19	184	100, 0

## OUTPUT INDICATORS

1	Provision of additional food according to expectations	17 3	94	1 1	6	184	100, 0
2	Periodic monitoring and evaluation of the provision of additional food has been carried out	16 2	88	2 2	12	184	100, 0
3	There is an increase in the size of the upper arm circumference (LiLA)	18 1	98, 4	3	1, 6	184	100, 0

Source: Primary Data, 2024

In the evaluation of input indicators, according to the views of pregnant women (48.4%) they have not been invited to discuss in determining the food menu. This was confirmed by the Puskesmas nutrition officer, that the determination of the food menu actually does not involve pregnant women. Because there are already standards from the Ministry of Health for the PMT menu. However, some pregnant women were given information regarding the menu that would be given to them, when determining the target for providing PMT for pregnant women with KEK.

*"We do not involve pregnant women in determining the additional food menu. Because there are already standards from the Ministry of Health. There is a guidebook. We just have to adjust ..." (Mrs. Yn, 48 years old)"... in our Puskesmas, we are only given information when entering the target as a PMT recipient. They ask, what types of menus will be obtained, so we inform them of the existing menu ..." (Mrs. Y, 32 years old).*

In the evaluation of process indicators, what needs to be improved is the problem of delivery time to homes, there are 42.9% of pregnant women who think that the delivery is not on time. Likewise, the process of distributing additional food that is not according to taste (36.4%).

During the Focus Group Discussion (FGD) activity, this was also revealed. Several health center officers argued that the guidelines for providing additional food (PMT) actually do not regulate the delivery mechanism to homes. PMT collection should be carried out at several points, such as cadre houses, integrated health posts, and others. But in its implementation, this did not run optimally, due to the limited points that were used as collection centers. As well as the reluctance of pregnant women to collect additional food at the collection point. So that health center officers took the initiative to deliver to homes. This has an impact on the timeliness of delivery.

Evaluation of the implementation of the Output indicator includes: Coverage of Activities, Target Accuracy, Timeliness in Providing Additional Food (PMT) made from Local Ingredients to Pregnant Women with Special Economic Zones in Palu City. The results of the study related to the output indicator showed that the majority of respondents (pregnant women) answered that the provision of additional food was as expected (94%), and monitoring and evaluation had been carried out by health center officers (88%). Interestingly, all KEK pregnant women (100%) who were given additional food experienced an increase in the size of the upper arm circumference (LiLA) with varying increases. There were 16 KEK pregnant women (8.7%) whose LiLA size was still <23.5 cm.

From the perspective of health workers, the implementation of output indicators including: recording and reporting carried out in stages, periodically, recording content (Coverage of Activities, Target Accuracy, Timeliness of Providing Additional Food), and reporting the results of PMT interventions on KEK Pregnant Women in Palu City has been going well. This is in accordance with the statement of the informant in the following in-depth interview:

*"The process of recording and reporting, first there is daily recording and reporting, there is weekly and monthly recording ... Basically we adjust to the existing instructions ... ..." (Mr. A, 36 years old)*

*"... As for the evaluation of its implementation, we do it periodically. There are various evaluations. There are daily, via WA group. Additional Food delivered to the house must be photographed and sent via WA. That the food has*

arrived. We also do periodic measurements, to assess the increase in the circumference of the upper arm of pregnant women and their BMI....” (Mrs. YM, 50 yearsold)

During the Focus Group Discussion (FGD) activity, it was revealed that the monitoring and evaluation process of the PMT program was running well. The obstacle lies in the duration of the intervention. Because there are pregnant women who started the intervention in the third trimester of pregnancy, so they were not given additional food because their mothers had given birth. Although their upper arm circumference (LiLA) increased, it was not significant and did not meet the program's expectations.

3. Evaluation of the Impact of Providing Additional Food

To evaluate the impact of providing additional food (PMT) made from local ingredients for pregnant women with KEK, measurements of the upper arm circumference (LiLA) were carried out before and after PMT was given. The results are as follows:

Table 4. Comparison of LiLA measurements before and after PMT in pregnant women with KEK in Palu City

Variable	< 23,5 cm		> 23,5 cm		Total	
	n	%	n	%	n	%
LiLA Before PMT	184	100	0	0,0	184	100,0
LiLA After PMT	16	8,7	168	91,3	184	100,0

Source: Primary Data, 2024

The data in table 4 shows that after providing supplementary food (PMT) made from local ingredients to pregnant women with KEK (LiLA, 23.5 cm), there were 16 pregnant women(8.7%) whose LiLA size was still<23.5 cm. Mean while, 168 pregnant women (91.3%) experienced an increase in LiLA to normal size (>23.5 cm).

From the results of interviews with the person in charge of the nutrition program, it was said that the 16 pregnant women with KEK experienced an increase in LiLA size, but still did not reach normal size because the previous LiLA size was very low. They also said that most pregnant women with KEK who were given additional food interventions had experienced an increase in LiLA size when given additional food for 60-120 days (65.8%). Only a small portion experienced an increase in LiLA size when given food<60 days (6.0%), as in table 5 below:

Table 5. LiLA size based on the length of PMT made from local ingredients In pregnant women with KEK in Palu City

LiLAafter PMT	LiLA< 23,5 cm		LiLA> 23,5 cm		Total	
	n	%	n	%	N	%
PMT < 60 days	0	0,0	11	6,0	11	6,0
PMT 60 - 120 days	0	0,0	121	65,8	121	65,8
PMT > 120 days	16	8,7	36	19,6	52	28,3
Total	16	8,7	168	91,3	184	100,0

Source: Primary Data, 2024

Discussion

Provision of supplementary food (PTM) is one of the efforts to improve nutrition by using supplementary food to meet nutritional needs and achieve good nutritional status. Food ingredients that can be used should be family food based on local food that meets the existing recommended requirements. Local food is a type of food that is available in the area and is generally consumed by the local community. Based on previous research, the quality of the nutritional content of local food ingredients has special features in the content of micro minerals and macro substances. In general, food ingredients come from agricultural/plantation/livestock products from the community, rivers, forests and yards (Hadju, 2023; Nurjaya, 2021).



Additional food can be categorized into two types, namely additional counselling food and additional recovery food. Additional counselling food is additional food that can be given every time a posyandu activity is carried out which aims to prevent chronic energy deficiency in pregnant women. Mean while, additional recovery food is additional food given to pregnant women with KEK and is given for 90 days of eating (Kiik, 2020).

The provision of local supplementary food needs to pay attention to the following principles (Ministry of Health of the Republic of Indonesia, 2018):












- a. In the provision of PMT made from local ingredients, it is carried out outside the health center building through a community empowerment approach and integrated with cross-program activities and other related sectors;
- b. The implementation of PMT made from local ingredients as an example of a complete menu according to the "contents of my plate" during the day for pregnant women and toddlers, and is expected to be implemented in everyday life in the family;
- c. The components of PMT for pregnant women and toddlers are in accordance with balanced nutrition guidelines, namely carbohydrates, animal and vegetable protein, fat, vitamins and minerals;
- d. In the implementation of PMT, it must be accompanied by strengthening IEC (communication, information and education).

The results of the study also showed that health workers tried to utilize local food ingredients in the health center area for their menu arrangements. According to the guide book published by the Ministry of Health, the provision of local food must meet the following requirements (Ministry of Health of the Republic of Indonesia, 2018):

- a. Acceptable in terms of taste and generally consumed daily. In its application, the shape and taste of the food made vary to avoid boredom.;
- b. In accordance with norms and religion;
- c. Using ingredients that are easy to find and process, and using cooking utensils available in the household;
- d. Having good digestibility, so that it can meet nutritional needs;
- e. Using food that is safe or does not contain preservatives, coloring agents and other addictive substances;
- f. PMT is carried out according to the type, characteristics, and nutritional content needed by each target.

In its implementation at the central and regional levels, there are the same principles for administering additional food, but in implementing the food provision schedule, education and PMT menu cycle provided will be different from the recommendations in accordance with the technical guidelines for providing additional food made from local ingredients in 2023. The implementation of different PMTs still pays attention to the quality and nutritional content through snack foods that are in accordance with the amount of composition. An example of an education schedule and local PMT menu cycle for toddler’s and pregnant women according to the recommendations of the 2023 local PMT technical guide lines is: (Ministry of Health of the Republic of Indonesia, 2020).

**Table 6. Example of Local PMT Education Schedule and Menu Cycle for Pregnant Women(Ministry of Health of the Republic of Indonesia, 2023)**

Menu	Hari 1	Hari 2	Hari 3	Hari 4	Hari 5	Hari 6	Hari 7
Edukasi 							
Pemberian MT sesuai siklus menu 	Stik rol kentang dengan daun kelor & ikan lele Buah naga	Soto mie Buah jeruk	Sempol Ayam premium	Lapis tamie isi ayam Buah pepaya	Baso rambutan Buah pepaya	Siomay ayam udang komplit Buah melon	Liwet ikan goreng dan kari Daun singkong dan ebi Buah belimbing
Demonstrasi 							

Based on the action plan for the activities of the Directorate of Community Nutrition for 2020-2025, there are 3 indirect factors causing the double burden of nutrition in Indonesia, namely (1) in adequate food intake/consumption; (2) related to disease patterns, access to health facilities, access to clean water and sanitation; (3) in adequate infant and child feeding practices (PMBA), lack of nutritious food intake in pregnant and lactating mothers, and poor parenting patterns (Kemenkes.RI, 2020).

The factor in determining the success of national health development is good nutritional status. In the group of pregnant women and toddlers, they are groups that are vulnerable to nutritional problems, so special attention is needed to prevent the impact of malnutrition. Growth and development disorders in infants and children under 2 years (toddlers) are of particular concern, because they are a period of physical and intellectual growth and development. In addition, pregnant women with chronic energy deficiency (KEK) also have an impact on the growth and health of the fetus and the baby to be born (Kemenkes RI, 2018).

## Conclusion

1. Evaluation of input, process and output indicators based on the perspective of KEK pregnant women and health center nutrition officers has been running well;
2. There is an increase in the size of the upper arm circumference (LiLA) in KEK pregnant women who are given local-based PMT interventions;
3. The increase in LiLA size in KEK pregnant women occurs most in the 60-120-day PMT intervention.

## Acknowledgements

We would like to thank the leadership of the Faculty of Medicine, Tadulako University and the Head of the Palu City Health Office, for the opportunity given to us to conduct research in Palu City. We would also like to thank the leadership of the Health Center, the person in charge of nutrition at the health center, the integrated health post cadres, pregnant women with special needs who were respondents in the study, and there search team.

## Reference

1. Astuti Dewi, S. M. (2022). Buku Resep makanan lokal Balita dan Ibu Hamil. *Kementerian Kesehatan RI*, 1–43.
2. Dinas Kesehatan Kota Palu. (2023). Profil Kesehatan Kota Palu. *Pemerintah Kota Palu*, 1(1), 1–102.
3. Direktorat Gizi dan Kesehatan Ibu dan Anak, kementerian kesehatan republik indonesia. (2023). Laporan Akuntabilitas Kinerja Instansi Pemerintah (Lakip) Direktorat Gizi Dan Kesehatan Ibu Dan Anak Tahun Anggaran 2022. *Kementerian Kesehatan Republik Indonesia*, 1–39.
4. Direktorat Jenderal Kesehatan Masyarakat. (2018). Petunjuk Teknis Pendidikan Gizi dalam Pemberian Makanan Tambahan Lokal bagi Ibu Hamil dan Balita. In *Kementerian Kesehatan Republik Indonesia*.
5. Direktorat Jenderal Kesehatan Masyarakat Kementerian Kesehatan. (2021). Laporan kuntabilitas kinerja instansi pemerintah (LAKIP) ditjen kesehatan masyarakat tahun 2021. *Kementerian Kesehatan Republik Indonesia*, 1–68. [http://www.kesmas.kemkes.go.id/assets/upload/dir\\_60248a365b4ce1e/files/Laporan-Kinerja-Ditjen-KesmasTahun-2017\\_edit-29-jan-18\\_1025.pdf](http://www.kesmas.kemkes.go.id/assets/upload/dir_60248a365b4ce1e/files/Laporan-Kinerja-Ditjen-KesmasTahun-2017_edit-29-jan-18_1025.pdf)
6. Direktur, K. K., Bina, J., Masyarakat, K., Kesehatan, K., & Katalog, R. N. (2010). PEDOMAN PELAYANAN ANTENATAL TERPADU. *PEDOMAN PELAYANAN ANTENATAL TERPADU*.
7. Kemenkes RI. (2022). Petunjuk Teknis Pemberian Makanan Tambahan (PMT) Berbahan Pangan Lokal untuk Balita dan Ibu Hamil. *Kemenkes*, June, 78–81. [https://kesmas.kemkes.go.id/assets/uploads/contents/others/20230516\\_Juknis\\_Tatalaksana\\_Gizi\\_V18.pdf](https://kesmas.kemkes.go.id/assets/uploads/contents/others/20230516_Juknis_Tatalaksana_Gizi_V18.pdf)
8. Kementerian PPN/ Bappenas. (2018). Pedoman Pelaksanaan Intervensi Penurunan Stunting Terintegrasi di Kabupaten/Kota. *Rencana Aksi Nasional Dalam Rangka Penurunan Stunting: Rembuk Stunting*, November, 1–51. <https://www.bappenas.go.id>



9. Khairiah, R., & Juliana. (2019). Effectiveness of Local Food Ingredients (Sago Flour, Red Bean Flour, And Red Fruit Juice) as A Base for Supplementary Feeding of Chronically Energy-Deficient Pregnant Women on Weight Gain of Chronically Energy-Deficient Pregnant Women. *Ilmiah Keperawatan Scientific Journal of Nursing*, Vol 9, No. <https://www.journal.stikespemkabjombang.ac.id/index.php/jikep/article/download/1597/961>
10. Menkes. (2023). Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/Menkes?2015/2023. *Petunjuk Teknis Integrasi Pelayanan Kesehatan Primer*, 1.
11. Novianti, A., Utami, T. P., Kherunnisa, R. D., & Indriani, N. (2022). Efektivitas Program Pemberian Makanan Tambahan pada Ibu Hamil Kekurangan Energi Kronik di Puskesmas Cikupa, Kabupaten Tangerang. *Idea Pengabdian Masyarakat*, 2(03), 132–140. <https://doi.org/10.53690/ipm.v2i03.121>
12. RI., K. (2021). Kegiatan Pelayanan Antenatal Care. 2011 (Diakses 12 Oktober 2018). *Majalah Farmas Etik A*.
13. WHO. (2018). WHO Recommendation on Antenatal Care for a Positive Pregnancy Experience: Summary. *The Lancet*, 387(10017), 1–10. <https://doi.org/10.1186/1742-4755-10-19.5>
14. WHO (World Health Organization). (2020). WHO | Millennium Development Goals (MDGs). *Who*.