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# EVALUATION OF THE IMPLEMENTATION OF THE LOCAL-BASED SUPPLEMENTARY FEEDING PROGRAM AND SPECIAL DIETARY PROCESSED FOODS FOR TODDLERS WITH WASTING WITH WASTING

*Evaluasi Pelaksanaan Program PMT Bahan Lokal Dan Pangan Olahan Diet Khusus (PDK) bagi Balita Wasting*

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***ABSTRAK***

*Wasting* pada balita masih menjadi masalah gizi utama di Indonesia, termasuk di Kabupaten Bojonegoro Jawa Timur. Kabupaten Bojonegoro menerapkan kebijakan pemberian PMT jenis pangan olahan diet khusus (PDK) dan PMT lokal dalam penanganan *wasting*. Penelitian ini mengkaji lebih dalam pelaksanaan kombinasi dua jenis PMT di tingkat daerah. Tujuan penelitian untuk mengetahui tenaga pelaksana, daya terima, kepatuhan konsumsi, mekanisme distribusi dan monitoring, peningkatan berat badan dan status gizi, dan kendala pelaksanaan. Penelitian ini merupakan penelitian *mix methode*, melibatkan 17 informan. Data kualitatif didapatkan melalui wawancara dengan 1 pengelola gizi dinas kesehatan menggunakan 6 butir pertanyaan terbuka, pengisian kuesioner melalui *google form* untuk 4 petugas gizi dan 12 kader menggunakan 5 pertanyaan terbuka, yang selanjutnya dilakukan analisis tematik. Data kuantitatif daya terima, berat badan, status gizi didapatkan dengan studi dokumentasi pada laporan dinas kesehatan. Analisa data perbedaan berat badan setelah intervensi menggunakan *paired t-test*, perbedaan status gizi menggunakan *McNemar*. Secara umum pelaksanaan program PMT berjalan baik. Dilakukan pendampingan program oleh tenaga kesehatan dan kader. Kurangnya kesadaran ibu balita akan manfaat program PMT bagi balita menjadi kendala utama. Sebanyak 95% balita mempunyai daya terima baik terhadap konsumsi PMT jenis PDK. Sebanyak 69% balita mengalami kenaikan berat badan yang signifikan dengan rata-rata peningkatan berat badan 700 gram. Sebanyak 40% balita mengalami kenaikan status gizi walaupun tidak semua balita yang naik berat mengalami kenaikan status gizi namun secara statistik terdapat perbedaan yang signifikan setelah intervensi. Dukungan kebijakan daerah, pelibatan kader, serta strategi kombinatif dalam pelaksanaan PMT menjadi kunci keberhasilan program.

**Kata Kunci:** *wasting*, makanan tambahan, PDK, PMT lokal

***ABSTRACT***

*Wasting among children under five remains a major nutritional issue in Indonesia, including in Bojonegoro Regency, East Java. Bojonegoro Regency has implemented two types of supplementary feeding programs: specially formulated dietary food (PDK) and locally sourced PMT in the management of wasting. This study aimed to examine the combined use of these two types of PMT at the regional level and identified the implementing personnel, assessing acceptability, compliance with consumption, distribution and monitoring mechanisms, weight and nutritional status improvements, and implementation challenges. This is a mixed-methods study involving 17 informants. Qualitative data were obtained through an interview with one nutrition program from the district health office, online questionnaires via google form distributed to four nutrition*



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*officers and twelve posyandu cadres.The qualitative data were analyzed using thematic analysis. Quantitative data on acceptability, weight, and nutritional status were collected from official documentation reports of the district health office. The difference in weight after intervention was analyzed using paired t-test, while changes in nutritional status were analyzed using the McNemar test. In general, the program was well implemented. The main challenge was mothers' limited awareness of PMT program benefits. 95% of children demonstrated good acceptability, 69% of children experienced significant weight gain, with an average increase of 700 grams. 40% of children showed an improvement in nutritional status. Statistical analysis showed a significant post-intervention change in nutritional status. Regional policy support, involvement of community health cadres, and the combined implementation strategy of PMT were identified as key factors contributing to the program's success*

***Keywords:*** *wasting, supplementary feeding, PDK, local-based supplementary feeding*

## INTRODUCTION

Nutritional issues in toddlers remain a top priority in various countries, including Indonesia. Based on national research results over the past three years, it has continued to increase from 7.1% in 2021, rising to 7.7% in 2022, and reaching 8.5% in 2023. The prevalence of wasting in East Java in the past three years has also not shown significant changes, in 2021 the wasting prevalence was 7.1%, 7.2% in 2022, and 6.8% in 2023. A similar thing happened in Bojonegoro Regency, East Java, which was 9.5% in 2021, decreased to 7.4% in 2022, and remained at 7.4% in 2023. This condition is in contrast to the achievement of stunting reduction, in 2024 Bojonegoro Regency received an award as one of the fifteen regencies in Indonesia with the highest reduction in stunting prevalence nationally[1], [2], [3].

Handling *wasting* to toddlers by the Government through Presidential Regulation Number 72 of 2021 stipulates the provision of supplementary food as a concrete action to prevent nutritional problems in Indonesia[4]. Aimed at meeting the macro and micro nutritional needs of toddlers. Results from the 2014 Total Diet Survey (TDS) showed that toddlers experienced nutritional problems, particularly very low energy and protein intake[5].UNICEF said the supplementary food program has a positive effect not only on the nutritional status of toddlers but also on cognitive development[6]. Wasting toddlers were given one portion of local PMT every day for 30 days, their z-score (BB/TB) increased by 0.02[7]. The results of the evaluation of the local PMT program encountered many obstacles such as the implementation process was not appropriate, there was a lack of nutrition education, PMT was consumed by other family members, and toddlers sometimes did not like the menu.[8]. Nutrition officers lack experience and skills in running the program, the storage location for PMT-P is not suitable[9].

Based on the results of a preliminary study in September 2024 at the Family Health and Community Nutrition (KGM) Section of the Bojonegoro Regency Health Office, it was shown that the priority program for handling wasted toddlers in Bojonegoro Regency was the supplementary feeding program (PMT). The PMT program in Bojonegoro Regency has been running since 2010 in the form of special diet processed foods (PDK) in the form of growth milk powder. Furthermore, in 2022 and 2024, supplementary feeding for wasted toddlers in addition to PDK was also provided with locally sourced PMT. The supplementary feeding program is a local policy established by the Bojonegoro Regency Government for the direct handling of wasted toddlers and consistently receives priority budget allocation, namely more than 90% of the total nutrition program budget. Although it has been a flagship program and received significant budget support and has been running since 2010, to date a comprehensive evaluation of the implementation of the PMT program for handling wasted toddlers has not been conducted by the local government.



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Research on supplementary feeding programs (PMT) for wasted toddlers in Indonesia is generally limited to quantitative studies evaluating their impact on nutritional status. Few studies have explored the program's implementation at the local level, particularly using qualitative and quantitative approaches. This research will also examine the implementation of two types of PMT programs at once, namely PMT with special processed diet foods (PDK) and PMT with local ingredients, which have not been widely explored in previous studies. By highlighting the local context in Bojonegoro Regency, which consistently allocates the largest budget for the PMT program, this study is expected to provide scientific contributions in formulating evaluations of nutrition policies at the regional level and provide input in the preparation of national nutrition policies based on field evidence.

The general objective of this study was to determine the description of the implementationThe PMT program in Bojonegoro Regency. The specific objectives were to determine the types of PMT, implementing personnel, toddler acceptance, weight gain and nutritional status of toddlers, distribution mechanisms, monitoring processes, and obstacles to implementing the PMT program in Bojonegoro Regency.

## METHODS

This is a mixed methods study. It was conducted in Bojonegoro Regency, East Java, because it is one of fifteen regencies in Indonesia with the highest national reduction in stunting prevalence, but wasting prevalence has tended to stagnate compared to previous years. The PMT program, a priority program for wasting management, consistently receives a budget allocation of over 90% of the total nutrition program budget. The health service area is extensive, consisting of 28 sub-districts, 430 villages, and 35 community health centers (Puskesmas) spread across various regions.

The research was conducted for six weeks in February-March 2025.Research variablesThe data included the type of PMT, implementing staff, acceptability and compliance with PMT consumption, distribution and monitoring mechanisms, implementation constraints, weight gain and nutritional status of toddlers. The sampling technique used was purposive sampling, which is the selection of informants based on the criteria of direct involvement in the implementation of the PMT program.The informants consisted of 1 (one) nutrition officer from the health service, 4 (four) nutrition officers from the community health center, and twelve (12) integrated health post (posyandu) cadres.

Data collection techniques through in-depth interviews, filling out questionnaires, and documentation studies. Primary data were obtained through interviews with informants of nutrition officers at the health service using an interview guide with open and structured questions, and through filling out questionnaires using Google Forms to informants of nutrition officers at the health center and Posyandu cadres. Interview questions to nutrition officers at the health service took approximately 30 minutes consisting of 5 (five) questions, namely the type and brand of PMT used, technical implementers of PMT distribution, technical monitoring and implementation obstacles. Questionnaires on Google Forms for nutrition officers at the health center and Posyandu cadres consisted of 5 (five) questions requiring approximately 10 minutes, namely acceptability, description of toddler compliance in consumption, distribution techniques, technical monitoring, and obstacles found. Secondary data is quantitative data in the form of data on acceptability reports, weight gain, nutritional status through documentation studies of reports on the implementation of PMT provision at the Bojonegoro Regency Health Office.

Qualitative data analysis in this study was conducted using a thematic analysis approach to identify, group, and interpret themes that emerged from the interview data. Quantitative data analysis of body weight used a paired t-test statistical test while


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nutritional status data used the McNemar test to determine differences before and after the implementation of the PMT program. The body weight indicator was chosen because it is an anthropometric parameter that is sensitive to short-term changes. The nutritional status indicator of body weight according to height or length (BB/TB or BB/PB) was chosen because it is the main indicator for assessing wasting. The study has obtained ethical approval from the Research Ethics Committee of the Faculty of Medicine, Sebelas Maret University, with number: 21/UN27.06.11/KEP/EC/2025.

## RESULTS

### Characteristics of Implementing Officers' Informants

The number of implementing officers in this study was 17 (seventeen) people, consisting of 1 (one) nutrition officer from the health service, 4 (four) nutrition officers from the community health center, and 12 (twelve) integrated health post (posyandu) cadres. The characteristics of the informants in this study are presented in Table 1.

**Table 1. Informant Characteristics**

| Category | Type of Informant | | | | | |
|---|---|---|---|---|---|---|
| | Nutrition Manager of the Health Service | | Community Health Center Nutrition Officer | | Integrated Health Post Cadres | |
| | n | % | n | % | n | % |
| Age | | | | | | |
| 20-29 | | | 2 | 50 | 1 | 8 |
| 30-39 | | | 1 | 25 | 4 | 33 |
| 40-49 | 1 | 100 | | | 7 | 59 |
| 50-59 | | | 1 | 25 | | |
| Total | 1 | 100 | 4 | 100 | 12 | 100 |
| Education | | | | | | |
| Junior high school/equivalent | | | | | 4 | 33 |
| High school/equivalent | | | | | 5 | 42 |
| D3 non-health | | | | | 1 | 8 |
| Non-Health Bachelor's Degree | | | | | 2 | 17 |
| D3 Midwife | | | 1 | 25 | | |
| D3 Nutrition | 1 | 100 | 3 | 75 | | |
| Total | 1 | 100 | 4 | 100 | 12 | 100 |
| Work experience | | | | | | |
| 1-5 years | | | 3 | 75 | 3 | 25 |
| 6-10 years | | | 1 | 25 | 3 | 25 |
| 11-15 years | | | | | 4 | 33 |
| 16-20 years | 1 | 100 | | | 2 | 17 |
| Total | 1 | 100 | 4 | 100 | 12 | 100 |

Source: Primary Data, 2025

Table 1 shows that the most common nutrition officer informants at the community health center were twenty to twenty-nine years old. Most of the cadre informants were aged forty to forty-nine years. The most common education level for nutrition officer informants was a diploma in nutrition, although one nutrition officer had a midwifery background. Most nutrition officer informants had worked as nutrition officers for one to five years. Conversely, most of the cadres had more than ten years of work experience as cadres.

### Type of Supplemental Feeding Used

The interview results revealed two types of PMT, namely Special Diet Processed Food (PDK) and local ingredient PMT. PDK PMT is in the form of growth powder milk, namely Curcuma Plus milk and Lactogrow 3 milk. PDK PMT is given for 90 (ninety) days.Curcuma Plus brand powdered milk containsenergy of 85 kcal per 100 ml, protein



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of 3.5 g per 100 kcal,and contains 15 grams of carbohydrates per 100 kcal. Meanwhile, Lactogrow 3 brand powdered milk contains 86 kcal of energy per 100 ml. protein of 3.1 grams per 100 kcal,and 13 grams of carbohydrates per 100 kcal. The local PMT type used is a snack made by the cadres themselves using local ingredients and served once a week as a main meal for 56 (fifty-six) days. The local PMT menu served contains a Protein-Energy Ratio (PER) of 10-16%. The energy content is 175 to 450 kcal, protein 3.5 to 18 grams, and fat 4.4 to 29.3 grams adjusted to the toddler's age group.

**PMT Program Implementing Personnel**

The results of interviews with informants involved in the PMT program implementation are the head of the health center, the health center nutrition officer, the village midwife, and the integrated health post (Posyandu) cadre. According to the informant, the head of the health center is responsible for the program's implementation and conducts periodic evaluations. The health center nutrition officer plays a role in preparing the program implementation plan, determining target recipients, preparing local PMT menus, providing nutrition education to parents of toddlers, and monitoring and reporting. The village midwife is responsible for managing the program's implementation at the village level, validating target accuracy, providing assistance and education to parents of toddlers, distributing PMT to targets, monitoring, recording, and compiling reports. The integrated health post (Posyandu) cadre is responsible for distributing local PMT, providing local PMT assistance, conducting periodic anthropometric measurements for target recipients of local PMT, and recording and reporting.

**Characteristics of Toddlers Receiving The Program**

Based on the results of a documentation study of the PMT program implementation report for the PDK type at the health office, data on the characteristics of toddlers receiving the program were obtained, as presented in Table 2. The available PMT program implementation report is a summary of data. Meanwhile, a report on the implementation of PMT using local materials is not yet available.

**Table 2. Characteristics of Toddlers Receiving the PDK Type PMT Program**

| Category | n | % |
|---|---|---|
| Gender | | |
| Man | 777 | 60 |
| Woman | 518 | 40 |
| Total | 1,295 | 100 |
| Age | | |
| 12-23 | 279 | 21 |
| 24-35 | 475 | 37 |
| 36-47 | 377 | 29 |
| 48-59 | 164 | 13 |
| Total | 1,295 | 100 |
| Initial nutritional status (W/H) | | |
| Severely underweight | 0 | 0 |
| Underweight | 1,229 | 95 |
| Normal weight | 66 | 5 |
| Total | 1,295 | 100 |
| Final nutritional status (W/H) | | |
| Severely underweight | 0 | 0 |
| Underweight | 705 | 46 |
| Normal weight | 590 | 54 |
| Total | 1,295 | 100 |

Source: Secondary Data from the Bojonegoro Regency Health Office, 2025

Table 2 shows that among 1,295 respondents, the majority were male (60%). By age group, most were 24–35 months (37%), while the smallest proportion was 48–59 months (13%). Initial nutritional status (W/H) was dominated by undernutrition (95%), with only


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5% in good nutrition and no cases of severe malnutrition. After the intervention, nutritional status improved, with 54% of children classified as having good nutrition and 46% still undernourished, while no severe malnutrition was found.

**Evaluation of Acceptability and Compliance of PMT Consumption**

Toddlers' acceptance of PMT also needs to be known to assess whether the form or type of PMT provided is appropriate to the toddler's expectations, so that it can be considered for further planning. The results of the documentation study in the PMT program implementation report at the health office showed that most toddlers liked the PDK type of PMT provided and are presented in Table 3. At the time of the study, no data was collected regarding the acceptance of local PMT.

**Table 3. Distribution of Acceptance of Wasting Toddlers for Consumption of PDK Type PMT**

| Category | n | % |
|---|---|---|
| Like | 1,202 | 95 |
| Do not like | 93 | 5 |
| Total | 1,295 | 100 |

Source: Secondary Data from the Bojonegoro Regency Health Office, 2025

Informants stated that most toddlers liked the type of PMT given, but some stated that some toddlers felt bored with consuming it every day. Toddlers wanted a variety of flavors in the PDK type as well as a variety of local PMT menus provided. Data on compliance with PMT consumption was obtained from the results of filling out questionnaires because data on compliance with PMT consumption were not yet available. According to informants, most toddlers were compliant in consuming PMT according to the given dose, but some stated that their toddlers were less compliant in consuming PMT. According to informants, the provision of PDK-type PMT to some toddlers was adjusted to the toddler's request only, ignoring the informed dose. Sometimes the toddler's mother often forgot the schedule of administration. According to informants, some local PMT could be consumed by toddlers at communal eating places, while others were consumed at home, sometimes consumed by other family members. This condition made it difficult for cadres to monitor local PMT consumption carried out at home.

**Distribution Process and PMT Monitoring**

Informants reported that the distribution of PDK-type PMT was carried out directly by nutrition officers and village midwives to the target groups. Distribution activities were also accompanied by biweekly mentoring to ensure the program's effectiveness. Mentoring usually took place at the target group's home, village health posts (Polindes), or community health centers (Puskesmas). During the mentoring process, education was provided regarding the benefits of supplementary food, dosage, schedule, serving, and storage procedures. Educational materials also covered providing appropriate, balanced nutrition for toddlers. Simple leaflets were used as educational media.

Distribution of locally sourced PMT (Food and Nutritional Supplements) is carried out by integrated health post (Posyandu) cadres. Families of toddlers collect the locally sourced PMT from agreed-upon locations, such as the cadre's home, the village hall, the Posyandu, or the village official's home. This activity is carried out daily for fifty-six consecutive days. Cadres also distribute supplementary food to targeted homes if the toddler's family does not receive the supplementary food.

Monitoring of PDK-type PMT is carried out directly by nutrition officers or village midwives. The weight and height of target toddlers are measured every two weeks by nutrition officers or village midwives using standardized anthropometric tools, including digital scales, a ladder, and a stadiometer. Monitoring of the weight and height of wasted toddlers receiving locally sourced PMT is carried out weekly by cadres accompanied by village midwives, also using standardized anthropometric tools.


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**Implementation Constraints**

Informants stated that the obstacles in implementing the PDK type PMT program were fewer than those using local ingredients. The obstacles in providing PDK types included mothers of toddlers not understanding the benefits of PDK, PDK was not given according to the dosage, mothers/caregivers only gave PDK according to the toddler's wishes, toddlers were not used to consuming PDK, toddlers wanted chocolate and strawberry flavors because the PDK was only available in vanilla, other family members of the same age also consumed PDK, and the toddler's family did not want to take PDK to the village health clinic.

Obstacles encountered in implementing PMT using local materials include, among others, the main obstacles come from mothers of toddlers, such asToddler mothers are less concerned with the local PMT program, toddler mothers are less willing to take toddlers to the village hall to eat together or pick up PMT, toddlers do not like and feel bored with the menu provided, toddlers prefer savory PMT rather than sweet, toddlers are sometimes fussy so it is difficult to consume PMT, cadres feel that it takes up a lot of their time when cooking to prepare local PMT every day for 56 days, also the geographical conditions are far from the target recipient location which sometimes cadres have to deliver PMT to the toddler's house. Cadre informants also said that they still need a lot of training because in practice some cadres have difficulty giving the right answers when asked questions by toddler mothers.

**Evaluation of Toddler Weight and Nutritional Status**

One way to assess the program's success is to observe weight gain and improvements in nutritional status among target toddlers. Reports of weight gain and nutritional status, as documented by the health office, are presented in Table 4.

**Table 4. Distribution of Weight Gain and Nutritional Status of Wasting Toddlers Receiving the PDK Type Supplementary Food Program**

| Category | n | % |
|---|---|---|
| Weight Gain | | |
| Gain | 892 | 69 |
| No Gain | 403 | 31 |
| Total | 1,295 | 100 |
| Nutritional Status | | |
| Improved | 524 | 40 |
| Not Improved | 771 | 60 |
| Total | 1,295 | 100 |

Source: Secondary Data, 2024

Table 4 shows the target number of PDK-type PMT for 2023 is 1,295 toddlers. The evaluation of PDK-type PMT provision over 90 days shows that 69% of toddlers gained weight. This weight gain is in line with the minimum weight gain (MBM) target for each toddler based on their age. The nutritional status of 40% of toddlers improved to good nutrition.

A documentation study of the by-name monitoring reports found that only 287 toddlers had complete data. Providing PMT for 90 days resulted in an average weight gain of 700 grams, from 9.4 kg to 10.1 kg.The increase in body weight in the target toddlers shows that the implementation of the PDK type PMT program in Bojonegoro Regency has made a positive contribution to improving the nutritional status of toddlers.The statistical test results presented in Table 5 indicate a significant difference ($p<0.05$) in body weight before and after the 90-day PDK-type PMT program. This finding indicates that the PDK-type PMT program is capable of providing effective weight gain in the target toddlers.


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**Table 5. Differences in Body Weight of Wasting Toddlers Before and After the PDK Type PMT Program Based on the Results of the Paired T Test**

| Information | Mark |
|---|---|
| Mean | |
| Before | 9.4 |
| After | 10.1 |
| N | 287 |
| Df | 286 |
| T | -27.5 |
| p-value | 0,000* |

Source: Secondary Data, 2024

In addition to body weight, an analysis was also carried out on the difference in nutritional status before and after receiving PDK type PMT intervention for 90 days, which is presented in Table 6.

**Table 6. Analysis of the Effect of PDK-Type PMT on the Nutritional Status of Wasting Toddlers Based on the Results of the McNemar Test**

| Information | Mark |
|---|---|
| N | 287 |
| Asymp. Sig. | 0,000 |

Source: Secondary Data, 2024

In Table 6, the results of the McNemar statistical test show a p-value = 0.000, so it is concluded that there is a significant difference in the nutritional status of toddlers before and after the intervention of providing PDK-type PMT for 90 days.

## DISCUSSION

The supplementary feeding program (PMT) is a strategic intervention in addressing wasting in toddlers, particularly in areas with a high wasting prevalence. This study focuses on the implementation of two types of PMT used in Bojonegoro Regency, namely PMT based on special diet processed foods (PDK) and PMT made from local ingredients. The use of the right type of PMT greatly influences the success of the program in addressing nutritional problems. The PDK-type PMT used is growth powder milk, namely Curcuma Plus milk and Lactogrow 3 milk. Based on the results of the nutritional content analysis, both products have a composition that meets the standards stipulated in the Regulation of the Food and Drug Supervisory Agency (BPOM) Number 24 of 2020 concerning Supervision of Processed Foods for Special Nutritional Needs as PDK used for interventions for wasting toddlers[10]. According to WHO recommendations, providing growth milk powder as specially formulated foods (SFFs) for 90 days to wasting toddlers in high-risk areas is a crucial intervention in preventing malnutrition and nutritional edema in toddlers[11].

The local food approach rich in animal protein is the main choice to meet the high micro and macro nutrient needs of toddlers, but because animal protein sources are difficult to reach by the community due to limited purchasing power, providing local PMT rich in animal protein is the right step[12]. Local PMT is high in animal protein containing essential amino acids (EAAs), which play a crucial role in linear growth and neurocognitive development in children through the mTORC1 pathway, a key growth regulator. Therefore, consuming high-quality animal protein is crucial for preventing growth disorders in children[13].

Collaboration between community health center heads, nutrition officers, village midwives, and integrated health post (Posyandu) cadres is key to ensuring effective distribution, education, and ongoing monitoring of toddlers' nutritional status. Human resources play a crucial role in determining the efficiency and effectiveness of the PMT



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program. The PMT program in Gowa Regency also involves various elements, including nutrition officers, midwives, and health cadres[14]. The success of the PMT program depends heavily on the synergy between academically skilled nutrition officers at community health centers and Posyandu (Integrated Service Post) cadres with field experience and close ties to the community. Improving the capacity of Posyandu cadres through various methods can increase the effectiveness of the PMT program in addressing nutritional issues in toddlers, such as combining lectures with focus group discussions (FGDs) and video screenings[15].

The supplementary feeding intervention in the wasting management program has been aligned with toddler preferences and can have a positive impact on improving nutritional status. Toddlers who have a good acceptance of supplementary food consumption experience weight gain. There is a positive relationship between PMT acceptance and toddler weight gain[16]. The level of compliance in consuming PMT greatly influences the improvement of the nutritional status of toddlers[17]. Compliance with PMT consumption can help meet energy and protein needs, as well as improve nutritional status, as long as it is given appropriately to toddlers and combined with a good diet[18].

Regular monitoring is very important in supporting the effectiveness of the PMT program.Monitoring should be carried out for three months to ensure optimal results in increasing toddler weight.to assist in early screening for a decline in the nutritional status of toddlers so that appropriate interventions can be carried out immediately[19].The implementation of a policy of mentoring by health workers or Posyandu cadres in the PMT program provides significant added value, in line with the findings of Khanna et al., which showed that providing oral nutritional supplements accompanied by dietary counseling to toddler families proved to be more effective in improving child growth compared to providing dietary counseling alone or providing oral nutritional supplements alone[20].

The implementation of PDK-based PMT (Food and Nutritional Supplements) is less challenging than that of locally sourced PMT. The main obstacle is the lack of understanding and awareness of the program's benefits among mothers of toddlers. The main challenge in implementing PMT is the low level of awareness among mothers of toddlers about its benefits as a way to prevent further nutritional problems[21]. Other challengeslow level of acceptance of parents of toddlers for the PMT program, other family members who also consume it, fluctuations in operational funds from the village in implementing PMT[22]. Some toddlers prefer different flavors, such as chocolate or strawberry, in PDK-type PMT products, as well as savory and varied local menus. Low menu diversity or monotonous flavors can lead to boredom, ultimately decreasing adherence. The success of an intervention is determined not only by nutritional value but also by its acceptance and consistent consumption by the target population, which influences adherence. High adherence to oral nutritional supplement product intake was strongly associated with a significant increase in average energy intake[20]. Cadres still have limited knowledge about toddler nutrition and balanced nutrition, and they lack the skills to prepare healthy and nutritious meals from local ingredients. Providing cadres with nutrition and health education is crucial for the success of the PMT program[23].

There was an average increase in body weight of 700 grams and showed a significant difference in body weight before and after receiving PDK type PMT for 90 days.This finding indicates that PDK-type PMT is quite effective in increasing the weight of wasting toddlers, although not all toddlers experience weight gain[24]. Other research shows thatProviding PMT in the form of milk for 90 days has also been proven to increase the average weight of toddlers by 1 kg, from 8.3 kg to 9.3 kg [25]. Not all toddlers who gain weight experience an increase in nutritional status. As many as 54% of toddlers experienced an increase in nutritional status to good nutrition and there was a significant


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difference in the nutritional status of toddlers before and after the intervention of providing PDK-type PMT for 90 days.Weight gain alone is not sufficient to change a toddler's nutritional status category because other factors influence a toddler's nutritional status. These factors include maternal knowledge, birth spacing, and family socioeconomic status.

A mother's good knowledge of nutrition and diet can help meet her child's nutritional needs, while closely spaced births can increase the risk of growth disorders due to competition for resources within the family. Socioeconomic status also plays a role in a family's ability to provide nutritious food and access to adequate health services[26]. Other research shows that there is a significant relationship between dietary and health parenting patterns with the nutritional status of toddlers.[27]Parental education significantly influences the nutritional status of toddlers. Those with higher levels of education tend to have protective parenting behaviors, such as completing childhood vaccinations and improving feeding and sanitation practices.[28]Children who suffer from respiratory tract infections have a 2.21 times higher risk of wasting, and those with a history of feeding less than twice a day have a 6.68 times greater risk of wasting[29]. Toddlers with poor personal hygiene are at 4 times greater risk of experiencing nutritional problems, while toddlers who live in residences with poor sanitation are at 3 times greater risk of experiencing nutritional problems[30].

The implementation of these two types of PMT demonstrates a combined strategy in addressing wasting. High district budget support and the role of cadres in mobilizing the community are strategic steps that contribute to the success of the PMT program. Prendergast and Humphrey's (2014) theory emphasizes that efforts to prevent and address nutritional issues through nutrition-specific interventions and a multi-sectoral approach, as well as a supportive environment, particularly for socially and economically vulnerable groups, can accelerate the reduction of nutritional problems across the board[31].

This study used a mixed-methods approach to gather in-depth information on the implementation of the supplementary feeding program (PMT) in Bojonegoro Regency. A limitation of this study is that it was conducted in only one regency, so the results may not be generalizable to other regions with different socio-cultural conditions. Obstacles to this study included difficulty in accessing all Posyandu (Integrated Service Post) cadres in the field, limited time for data collection, and incomplete data on the acceptability and compliance levels of locally sourced PMT consumption during data collection, thus preventing comparisons of the effectiveness of PMT types.

## CONCLUSION

The PMT program in Bojonegoro Regency consists of two typesnamely PDK type PMT and local PMT. Health center nutrition officers, village midwives, and integrated health post cadres act as implementing staff for the PMT program. Ninety-five percent of toddlers had good acceptance of PDK-type PMT consumption, while some toddlers had low compliance with PMT consumption. Sixty-nine percent of toddlers experienced weight gain, and statistically significant differences were observed after PDK-type PMT intervention. Forty-five percent of toddlers experienced improvements in nutritional status, although not all toddlers gained weight and experienced improvements in nutritional status, there were significant differences after 90 days of PDK-type PMT intervention.

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