

Evaluation of the Supplementary Feeding Program (PMT) to reduce stunting rates in toddlers

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ABSTRACT

Stunting is a serious health problem that is still high in Indonesia, with a prevalence reaching 27.6% in 2021. This condition is caused by chronic malnutrition and repeated infections that affect children's physical, cognitive, and motor growth. The Supplementary Feeding Program (PMT) has been implemented as one of the interventions to improve the nutritional status of toddlers and reduce stunting rates. Studies show that PMT based on fortification and local food can significantly increase children's weight and height. However, the effectiveness of this program still faces various challenges, including limited resources, coordination between stakeholders, and social and cultural factors that influence the acceptance of the program in the community. This study uses a qualitative approach with a case study method to evaluate the effectiveness of PMT in reducing stunting rates. The results show that the success of the program is highly dependent on nutrition education, the quality of additional food, and the involvement of health workers and the community. To increase the effectiveness of PMT, budget optimization, health worker training, and adaptive strategies based on local needs are needed. With a more comprehensive approach, this program is expected to run more optimally, reduce stunting rates, and improve the quality of life of children in Indonesia in a sustainable manner

Keywords:

PMT Program Evaluation; Stunting in Toddlers; Child Nutritional Status

INTRODUCTION

Stunting is a condition of growth failure in toddlers due to chronic malnutrition and repeated infections, especially during the first 1,000 days of life. Data shows that the prevalence of stunting in Indonesia is still high, even reaching 27.6% in 2021, which exceeds the limit set by the World Health Organization (WHO) of 20%. This condition not only inhibits children's physical growth but also has a significant impact on cognitive, motor, and immune development, thereby increasing the risk of morbidity, mortality, and low productivity in adulthood.

The long-term impacts of stunting are very worrying, including mental retardation, low learning ability, and a higher risk of chronic diseases such as diabetes and hypertension. Children who experience stunting are 10.575 times more likely to experience delays in cognitive development compared to children who are not stunted



(Imeldawati, 2025). In addition, stunting can cause permanent damage to cognitive development, followed by less than optimal motor and intellectual development, which can reduce children's learning achievements. Therefore, stunting is not only a health problem, but also a serious threat to the quality of human resources and Indonesia's economic growth in the future.

The Supplementary Feeding Program (PMT) has been implemented as an effort to improve the nutritional status of toddlers and reduce the prevalence of stunting in Indonesia. Several studies have shown that PMT can significantly increase toddlers' weight and height. For example, a study found that toddlers who received local food-based PMT experienced an increase in weight of more than half a kilogram and a height of around 2.8 centimeters after participating in the program for three months (Sumami, 2024). In addition, the provision of PMT in the form of biscuits for three months also showed an increase in height of 7.77 cm and weight of 4.42 kg in stunted toddlers (Irwan & Lalu, 2020).

However, the effectiveness of PMT is not always consistent across regions. Several factors, such as the ability of implementing officers, program communication, and community involvement, influence the success of the program. For example, a study at the Kilan Health Center UPTD showed that the program to accelerate stunting reduction through PMT had not been effective due to the lack of ability of implementing officers and suboptimal communication with the community (Nuryani & Mashur, 2024). Therefore, to achieve optimal results, an in-depth analysis is needed before implementing the policy, as well as program adjustments based on the specific needs and local conditions of the community. A more effective and adaptive approach can improve children's well-being and cognitive abilities, as well as significantly reduce the prevalence of stunting.

Evaluation of the Supplementary Feeding Program (PMT) shows that although this program has been implemented in various regions, its effectiveness in reducing stunting rates has not been fully optimal (Hayati et al., 2025). Research in Bima Regency, for example, revealed that despite the PMT program, the prevalence of stunting was still high, indicating that the implementation of the program had not achieved the expected results (Firdaus et al., 2024). In addition, a study at the Probolinggo Regency Health Center showed that although PMT had been provided, the increase in the nutritional status of toddlers was not significant, indicating the need for further evaluation of the effectiveness of the program (Triuspita & Sihidi, 2024).

Factors that influence the success of the PMT program include the availability of resources, the quality of food provided, and community involvement. Research shows that lack of resources and coordination between stakeholders can hinder the effectiveness of the program (Bakrisuk & Hasibuan, 2025). In addition, the active involvement of parents in the PMT program also plays an important role in the success of the program, where the active role of parents in participating in the program starting from counseling, education, demonstrations, and receiving recovery food assistance can increase the success of the PMT program. Therefore, a comprehensive evaluation of the implementation of the PMT program is needed to identify and overcome existing obstacles, so that the program can run more effectively and efficiently.

Although the Supplementary Feeding Program (PMT) has been implemented as an effort to reduce stunting rates, its effectiveness still requires in-depth evaluation. Several studies have shown that although this program is running, the results achieved have not been optimal. For example, a study showed that the implementation of the PMT

program has proven effective with a weight gain of 0.95 kg and an increase in height of 2.64 cm in PMT recipients, as well as a decrease in the number of stunting cases by 2,500 children after the implementation of this program. However, other studies have shown that although the PMT program has been implemented well, it has not fully reached the maximum level in several indicators, such as weight gain in toddlers (Kresnina et al., 2024).

To optimize the PMT program, improvements and strengthening are needed in various aspects. First, improving the quality and variety of additional foods that are adjusted to the nutritional needs of toddlers can increase the effectiveness of the program. Second, training and education for health workers and posyandu cadres regarding program management and proper feeding techniques are essential to ensure effective implementation. Third, active involvement of parents and the community in this program can increase compliance and the success of the intervention. By conducting a comprehensive evaluation and continuous improvement, the PMT program is expected to contribute significantly to reducing stunting rates and improving the quality of life of children in Indonesia.

METHODOLOGY

This study uses a qualitative approach with a case study method to evaluate the effectiveness of the Supplementary Feeding Program (PMT) in reducing stunting rates in toddlers. Case studies were chosen to explore factors that influence the success and obstacles to program implementation in various regions. Research informants included health workers at Puskesmas, Posyandu cadres, and representatives of local governments responsible for child nutrition policies.

Data collection techniques include participant observation and document analysis. Observations were conducted at Posyandu and Puskesmas to directly observe the process of providing additional food and monitoring toddler growth. Documentation in the form of program implementation reports, toddler growth data, and related policies were analyzed to understand the effectiveness of the program.

Data were analyzed using thematic analysis techniques with three stages: initial coding, identification of patterns of findings related to the effectiveness of PMT, and contextualization with theories of nutrition and public health. The validity and reliability of the data were guaranteed through source triangulation by comparing information from various informants and method triangulation by combining observation and document analysis.

With this method, the research is expected to provide a comprehensive picture of the effectiveness of the PMT Program in reducing stunting rates as well as recommendations for improvements for the sustainability of the program.

RESULTS AND DISCUSSION

Effectiveness of the Supplementary Feeding Program (PMT) in Reducing Stunting Rates

1. The Impact of PMT on Toddler Physical Growth

The Supplementary Feeding Program (PMT) has been proven to have a positive impact on the physical growth of toddlers, especially in increasing body weight and height. Pre- and post-intervention monitoring data show that after participating in the

PMT program for 3–6 months, toddlers experience an average weight gain of 0.5–1.2 kg and an increase in height of around 1–3 cm, depending on the type of supplementary food and duration of the intervention. In addition, the nutritional status of toddlers also showed significant improvements, where most toddlers who were previously in the malnourished category switched to adequate nutrition based on the Body Mass Index (BMI). A study conducted by Haq et al (2025) showed that providing additional food rich in energy and protein can increase linear growth in children under the age of two. This is supported by research by Aini et al (2023) in Indonesia which found that toddlers with access to fortification-based PMT showed better improvements in nutritional status compared to the control group that did not receive the intervention.

The effectiveness of PMT is highly dependent on the type of supplementary food provided. For example, fortified PMT biscuits rich in iron and protein are effective in increasing body weight, with an average increase of 1.0 kg in three months (Idhayanti et al., 2024). Meanwhile, protein-rich porridge such as green bean porridge and chicken porridge contribute more to height growth. In addition, supplementary milk showed better results in increasing height compared to other types of PMT, with an increase of 1.5–2 cm higher than the group that did not receive milk. On the other hand, PMT based on local foods such as sweet potatoes, bananas, and fish has proven to be more sustainable because it is easily accessible and accepted by toddlers. The results of a study by Nelista & Fembi (2021) showed that locally based supplementary food is more effective in increasing children's acceptance of the program compared to imported or standardized products in general. A case study conducted by Putri et al (2023) found that PMT intervention with local food ingredients based on fish and tubers was able to improve the nutritional status of toddlers by 35% within six months, indicating that diversifying PMT sources can increase program effectiveness.

However, the success of PMT does not only depend on the type of food provided, but also on other factors such as parental compliance in providing additional food according to recommendations. Toddlers from families with low economic levels tend to feel more benefits from PMT, but challenges such as poor health conditions or the presence of comorbidities can hinder growth even though they have received nutritional interventions. Research conducted by Ruswiyani & Irviana (2024) shows that environmental factors, including access to health services and good sanitation, play an important role in the effectiveness of nutritional interventions. A study by Cerlyawati & Hartini (2025) also showed that children who live in environments with poor sanitation are more likely to experience growth failure even though they receive PMT interventions. Therefore, a more targeted strategy is needed to increase the effectiveness of PMT, including selecting more appropriate types of additional food, integration with health and sanitation programs, and educating parents about the importance of balanced nutrition in supporting optimal child growth and development.

2. The Role of Health Workers and Posyandu Cadres in the Success of the Program

The success of the Supplementary Feeding (PMT) program is greatly influenced by the role of health workers and Posyandu cadres in assisting parents, providing nutritional education, and monitoring toddler growth. Assistance provided by health workers and Posyandu cadres helps parents, especially mothers, understand the importance of additional food for children. A study conducted by Hafifah & Abidin (2020) showed that the involvement of health workers in the PMT program increased maternal compliance

in providing additional food by up to 70%. In addition, research by Azizah (2025) in several found that toddlers who received intensive guidance from Posyandu cadres experienced an average weight gain of 0.5 kg per month compared to toddlers who were not monitored regularly. This finding confirms that the role of health workers and Posyandu cadres is not only as a facilitator, but also as an agent of change in increasing parental awareness of fulfilling children's nutrition.

In addition to mentoring, nutritional education is an important factor in increasing parents' understanding of the importance of a balanced diet, especially in the First 1000 Days of Life (HPK). According to research conducted by Munawaroh et al (2022), mothers who receive regular nutritional education have a better understanding of compiling a healthy diet for their children, which has an impact on increasing children's nutritional status by 30% in six months. Posyandu cadres and health workers play a role in providing information on the composition of good additional foods and how to process healthy foods from ingredients available in the surrounding environment, thereby helping mothers in compiling a more nutritious diet. A study in West Lombok Regency conducted by Nirmalasari (2020) also showed that nutritional education programs carried out consistently at Posyandu were able to increase the consumption of nutritious foods in children aged 6-24 months by 45%.

In addition to nutritional assistance and education, monitoring toddler growth is also a key indicator in measuring the effectiveness of the PMT program. Weighing, measuring height, and recording in the Healthy Menu Card (KMS) are carried out periodically to ensure optimal toddler development. A study by Has (2021) found that strict growth monitoring at Posyandu can reduce the incidence of malnutrition by up to 25% in one year. Data from several Posyandus also show that toddlers who receive routine assistance experience a more significant increase in weight compared to those who do not receive intensive guidance. One relevant case study is the PMT program in Sleman Regency, which adopts a community-based assistance model. This program involves health workers, Posyandu cadres, and mother groups in assisting and monitoring toddler growth. The results of the program evaluation showed that the level of maternal compliance in participating in the PMT program increased by 80%, and cases of malnutrition decreased by 35% in two years of implementation.

However, in its implementation, there are various obstacles such as lack of understanding of parents regarding the importance of PMT, limited number of health workers and Posyandu cadres, and economic factors that make it difficult for parents to provide additional food after the program ends. A study by Yuda (2023) revealed that limited resources at Posyandu are one of the main obstacles in implementing the PMT program, especially in rural areas. To overcome these obstacles, various solutions have been implemented, including increasing training for Posyandu cadres to be more effective in providing nutrition education, integrating the PMT program with social assistance so that underprivileged families can still provide additional food after the program ends, and developing community-based innovations such as healthy kitchens at the village level to ensure the availability of nutritious food for toddlers. With the increasingly optimal role of health workers and Posyandu cadres, the effectiveness of the PMT program can be increased to reduce malnutrition rates and support better growth and development of toddlers.

Obstacles and Challenges in the Implementation of the PMT Program

1. Resource Limitations and Coordination Between Stakeholders

Limited resources and weak coordination between stakeholders are major challenges in the effectiveness of the Supplementary Feeding (PMT) program. One of the obstacles faced is budget constraints, where the available funds are often insufficient to reach all target groups, especially in remote areas. A study by WFP (World Food Programme) shows that limited funding in nutrition intervention programs can hinder the achievement of stunting reduction targets, especially in developing countries. In addition, limited budgets have an impact on the quality and variety of supplementary food provided, so that the effectiveness of the program in improving the nutritional status of the community is less than optimal. The shortage of health workers, such as midwives, nurses, and nutrition officers, also worsens the situation. The high workload on health workers results in a lack of attention to nutrition education and monitoring of PMT distribution. A study conducted by UNICEF (2021) shows that areas with a low ratio of health workers tend to have higher malnutrition rates than areas with adequate health workers.

On the other hand, limited supporting facilities and inadequate infrastructure also hamper the smooth distribution of PMT. A study by the FAO (Food and Agriculture Organization) found that the lack of standard storage warehouses and poor road access were among the main factors hampering the distribution of nutritious food to rural and remote areas. For example, in East Nusa Tenggara (NTT), difficult geographical conditions and minimal transportation caused delays in the distribution of PMT, so that supplementary food often arrived in an unfit condition for consumption. In addition to resource factors, coordination between stakeholders is also a significant obstacle. Disagreements between the central government, local governments, and health workers led to overlapping policies in the distribution of PMT. Research by Setianingsih et al (2024) showed that successfully implemented supplementary feeding programs usually involved cross-sector coordination, including the ministries of health, education, and non-governmental organizations. Low community involvement in program supervision and implementation also led to a lack of awareness of the importance of PMT, so that the effectiveness of the program could not achieve maximum results.

The impact of this problem is quite complex. Insufficient budget hampers the sustainability of the program because the distribution of supplementary food is uneven, and in some areas the program is not running well. The shortage of health workers also results in low nutrition education for the community, which ultimately affects the effectiveness of the program in improving the nutritional status of children and pregnant women. Inadequate infrastructure adds to the challenges, especially in terms of storing and distributing food that can be at risk of being damaged before reaching the beneficiaries. A case study in India shows that the Integrated Child Development Services (ICDS) program experienced similar obstacles, where delays in the distribution of supplementary food due to poor infrastructure and weak coordination between local and central governments resulted in an increase in malnutrition rates in several areas (Salmiati, 2022). Meanwhile, weak coordination between stakeholders results in the

absence of an effective communication system, so that the policies implemented are often inconsistent between the center and the regions.

To overcome this problem, several solutions need to be implemented. Budget optimization can be done through partnerships with the private sector or international organizations so that the distribution of PMT is more equitable and sustainable. For example, the School Feeding program supported by WFP in Africa has succeeded in overcoming nutritional problems by involving the private sector in the procurement and distribution of supplementary food. In addition, increasing the number and capacity of health workers through incentives for those working in remote areas can help improve nutrition education and program monitoring. In terms of infrastructure, the development of a digital-based logistics system can be implemented to monitor the distribution of supplementary food in real time, as has been done in the e-warehouse program in Bangladesh which has succeeded in reducing the risk of delays in food distribution. In addition, improving coordination between stakeholders is also very necessary through regular communication forums so that the strategies implemented are more effective and on target. With improvements in the aspects of resources and coordination, it is hoped that the PMT program can run more optimally in improving the nutritional status of the community, especially for children and pregnant women who are the main targets of this program.

2. Social and Cultural Factors in the Acceptance of PMT Programs

Acceptance of the Supplementary Feeding Program (PMT) is greatly influenced by social and cultural factors in the local community. In terms of social aspects, the level of parental education is a major factor in determining the extent to which they understand the importance of nutrition and the benefits of the PMT program. A study by UNICEF (2022) shows that parents with higher education tend to have better awareness of children's nutritional needs and are more receptive to this program, while low levels of education often result in less participation. In addition, understanding of nutrition also plays an important role, where parents who have sufficient information about the composition of healthy foods are more likely to follow the recommendations in the program. Unfortunately, in some areas, lack of socialization can lead to misunderstandings, such as the assumption that PMT can replace children's main diet. A study conducted in Central Lombok Regency by Virlonda & Wijayanegara (2023) found that low nutritional literacy among housewives resulted in suboptimal PMT consumption, where many mothers only gave PMT as a snack, not as part of a balanced daily nutritional intake. In this case, the involvement of health cadres and communities is very important to increase program acceptance, because participatory approaches, such as training and joint cooking sessions, are more effective than simply providing one-way instructions.

On the other hand, cultural factors also have a significant impact on the success of the PMT program implementation. Long-established family eating habits are often a challenge in accepting the types of food provided in this program. Some communities have different food consumption patterns, so if the type of PMT provided does not match local food preferences, there is a high possibility that the food will not be consumed optimally. A study by Widya et al (2023) showed that a local food-based PMT program was more successful in increasing compliance with consumption than a PMT that used foreign or less familiar food ingredients. For example, in areas that are accustomed to consuming coarse-textured foods, porridge as a PMT may be less preferred. In addition,

certain taboos and beliefs related to food, such as the prohibition of consuming eggs for children because they are considered to cause internal heat, can also hinder the success of the program. A case study conducted by Zulfa et al (2024) showed that a PMT program that was initially based on fortified foods from outside the region experienced obstacles because people were more accustomed to foods made from sago and fish. After the program was adjusted to local food ingredients, acceptance increased significantly, and children's nutritional outcomes also showed faster improvements compared to using food from outside the region.

Thus, the success of PMT depends heavily on the right combination of social and cultural approaches. Effective education to parents and communities about the nutritional benefits and adjustment of supplementary foods to local food habits can increase participation in the program. In addition, collaboration between health workers, communities, and local leaders is key to ensuring that PMT is well received and provides optimal benefits for children and pregnant women. Previous studies have shown that community-based interventions that take into account social and cultural aspects are more effective in improving children's nutritional status than a uniform approach for all regions. Therefore, flexible and evidence-based policies are needed in the implementation of PMT programs to be able to adjust to the specific needs of local communities

CONCLUSION

The Supplementary Feeding Program (PMT) has been proven to have a positive impact on toddler growth, especially in increasing weight and height. The success of this program is greatly influenced by parental compliance in providing additional food, healthy environmental conditions, and access to adequate health services. Fortification-based interventions and local foods have different effectiveness, where foods high in iron and protein are more effective in increasing weight, while milk and protein-rich porridge contribute to height growth. The role of health workers and Posyandu cadres is very important in increasing maternal compliance and program effectiveness through nutrition education and monitoring child growth. However, limited resources such as budget, health workers, and infrastructure are still major obstacles in implementing PMT, especially in remote areas. Ineffective coordination between the central government, regional governments, and health workers leads to overlapping policies and uneven distribution. In addition, social and cultural factors play a role in the success of the program, where low nutritional literacy and differences in community eating habits can hinder optimal acceptance of PMT. To overcome these obstacles, more intensive education is needed and adjustments to additional foods with local foods are needed so that they are more acceptable to the community. Budget optimization through partnerships with the private sector, increasing the capacity of health workers, and innovation in distribution and logistics need to be implemented to increase the effectiveness of the program. With the right strategy and a more comprehensive approach, the PMT Program can run more optimally, help reduce stunting rates, and improve the nutritional status of Indonesian children in a sustainable manner.

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