

Analysis of Factors Inhibiting Supplementary Feeding (PMT) in Undernourished Toddlers in the Region Work of the Botupingge Health Center

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ABSTRACT

Malnutrition in toddlers is still one of the health problems that needs attention because it can affect children's growth and development. One of the efforts made to overcome this problem is through the Supplementary Feeding (PMT) program, either PMT Recovery or Counseling. Therefore, the formulation of the problem in this study is whether there is a relationship between maternal compliance, culture, and social environment with barriers to supplemental feeding (PMT) in undernourished toddlers in the working area of the Botupingge Health Center.

This study aims to analyze the factors that hinder the provision of additional food (PMT) in undernourished toddlers in the working area of the Botupingge Health Center.

This study uses quantitative research with an analytical observational method using a cross sectional design. The research sample amounted to 48 respondents who were determined by total sampling technique. Data was collected using a questionnaire and analyzed using the Spearman Rank test.

The results showed that most of the respondents had a fairly compliant level of the mothers category, the culture of the category was quite supportive, the social environment of the category was quite supportive, and the provision of PMT categories was quite good. The results of the Spearman's Rank Test analysis resulted in values of $p=0.005$ and $r=0.399$ for the maternal compliance variable, $p=0.086$ and $r=0.251$ for the cultural variable, and $p=0.027$ and $r=0.318$ for the social environment variable.

The conclusion of this study shows that maternal compliance and the social environment are related to the administration of PMT in undernourished toddlers, while culture is not related to the administration of PMT. Therefore, the role of mothers and social environmental support are needed in supporting the provision of PMT to undernourished toddlers.

INTRODUCTION

Malnutrition is when the body lacks essential nutrients such as protein, carbohydrates, fats, and vitamins. Anthropometric, clinical, biochemical, and biophysical measurements can be used to evaluate a person's nutritional status. Children who are malnourished will experience a decrease in immunity, which makes them more susceptible to infectious diseases. In children under five, a deficiency of the four sources above can inhibit growth, reduce immunity so that they are susceptible to infectious diseases, decrease intelligence, decreased physical ability, impaired physical and mental growth, stunting, blindness, and death. (Khatimah et al., 2021)

According to the *World Health Organization* (WHO), in 2019 there were 99 million children under the age of 5 who were malnourished worldwide, with 67% in Asia and 29% in Africa. The WHO also reports that 6.34 million children under the age of 5, or nearly 17,000 deaths every day, due to infectious diseases and poor nutritional status.

The Indonesian Nutrition Status Survey (SSGI) in 2022 showed that the prevalence of malnutrition dropped to 17.1%, slightly higher than 17.0% in 2021. In 2024, SSGI shows that the prevalence of malnutrition will drop to

23.6% in Gorontalo Province, while Bone Bolango Regency recorded a higher figure, 27.1%. (Health Development Policy Agency, 2024)

One of the government's efforts to overcome the nutritional problem of toddlers is through the Supplementary Feeding Program (PMT). The Supplementary Feeding Program (PMT) aims to meet the nutritional needs of toddlers as well as educate mothers of target toddlers (Rosyida, et al., 2024).

In 2020, the percentage of undernourished toddlers who receive additional food in Indonesia reached 78.5%. This figure shows that the majority of the target group under five receives PMT, although the level of coverage still varies greatly between provinces. Bali Province has the highest coverage rate of 100%, while Papua has the lowest rate of 20.4%. Gorontalo Province is ranked second with a coverage rate of 99.9%. This near-perfect level of coverage shows that the implementation of PMT in Gorontalo is quite successful, as almost all malnourished babies are afforded by the program. However, the high number of beneficiaries also shows that the number of undernourished toddlers in Gorontalo is still relatively high, so it is necessary to further intensify the program to reduce its prevalence (Ministry of Health of the Republic of Indonesia, 2022).

Although the PMT program has been implemented, nutritional problems for toddlers are still found in the working area of the Botupingge Health Center. Based on data from the Botupingge Health Center, there are 49 toddlers with nutritional problems who have received PMT. This condition shows that the implementation of PMT still needs to be studied, especially related to factors that can affect the success of providing PMT at the family level.

Based on the results of initial observations, it shows that the implementation of PMT still faces several obstacles, such as PMT which is not always received directly by mothers under five so that it has the potential to not be consumed by the target child. In addition, mothers' compliance in implementing examples of nutritious menus at home is still low, and some toddlers have a preference for fried foods so that food variety is limited.

Various studies have been conducted to evaluate the effectiveness of the Supplementary Feeding Program (PMT) in improving the nutritional status of toddlers. Research by shows that PMT affects the growth of weight and height in toddlers, but has not examined the factors that affect the use of PMT in the family environment. In addition, it shows that PMT education can increase maternal knowledge, but has not discussed in depth the influence of maternal compliance, family eating culture, and social environment on the acceptance and consumption of PMT in toddlers. Latifahanun et al (2024) Pibriyanti et al., (2024)

Based on these conditions, the implementation of the Supplementary Feeding (PMT) program in the work area of the Botupingge Health Center still faces various obstacles, especially related to maternal compliance, family eating culture, and the social environment. This condition has the potential to hinder efforts to improve the nutritional status of toddlers even though the PMT program has been implemented regularly. Therefore, this study aims to analyze the factors that inhibit the administration of PMT in undernourished toddlers in the working area of the Botupingge Health Center.

RESEARCH METHODS

This study uses quantitative research with an analytical observational method using a *cross sectional design*. This design was used to analyze the factors that inhibit the provision of supplementary food (PMT) in malnutrition in the working area of the Botupingge Health Center. The research was carried out in the Botupingge Health Center area, Bone Bolango Regency in May 2026. The study population consisted of 49 undernourished toddlers receiving PMT who were cared for by 48 mothers. The sampling technique used total sampling, so that all mothers who met the criteria were made respondents, with a sample of 48 mothers. Data was collected using questionnaires that have been tested for validity and reliability. Data analysis was carried out univariate and bivariate using the Spearman Rank test with a significance level of $p < 0.05$.

RESULTS

Characteristics of respondents

Characteristics of respondents based on maternal age

Table 1 Distribution of respondent frequencies based on maternal age at the Botupingge Health Center

Age	Quantity	
	n	%
19-24 Years	8	16,7
25-30 Years	14	29,2
31-36 Years	18	37,5
37-42 Years	8	16,7
Total	48	100,1

Source : Primary Data 2026

Based on Table 1, it is known that most of the maternal respondents are in the age group of 31-36 years as many as 18 respondents (37.5%), while the least age group is in the range of 19-24 years and 37-42 years as many as 8 respondents (16.7%).

Characteristics of respondents based on maternal education

Table 2 Distribution of respondent frequencies based on maternal education at the Botupingge Health Center

Education	Quantity	
	n	%
SD	4	8,3
SMP	12	25,0
High School/Vocational School	28	58,3
Bachelor	4	8,3
Total	48	100,0

Source : Primary Data 2026

Based on Table 2, it is known that most of the maternal respondents are in the high school/vocational education group as many as 28 respondents (58.3%), while the least education group is in elementary and undergraduate education groups as many as 4 respondents (8.3%).

Characteristics of respondents based on maternal work

Table 3 Distribution of respondent frequencies based on maternal work at the Botupingge Health Center

Jobs	Quantity	
	n	%
IRT	43	89,6
Employees	3	6,3
Others	2	4,2
Total	48	100,1

Source : Primary Data 2026

Based on Table 3, it is known that most of the female respondents are in the IRT work group as many as 43 respondents (89.6%), while the least work group in the others is the health cadre as many as 2 respondents (4.2%).

Characteristics of respondents based on maternal income

Table 4. Distribution of frequency of respondents based on maternal income at the Botupingge Health Center

Income	Quantity	
	n	%
No Income	43	89,6
1-2 Million	4	8,3
>2 Million	1	2,1
Total	48	100,0

Source : Primary Data 2026

Based on Table 4, it is known that most of the maternal respondents are in the non-income group as many as 43 respondents (89.6%), while the least income group at >2 million is 1 respondent (2.1%).

Characteristics of respondents based on number of children

Table 5 Distribution of respondent frequencies based on the number of children in the Botupingge Health Center

Number of Children	Quantity	
	n	%
1	8	16,7
2	24	50,0
3	11	22,9
4	5	10,4
Total	48	100,0

Source : Primary Data 2026

Based on Table 5, it is known that most of the maternal respondents have 24 children (50.0%), while the group has at least 5 children (10.4%).

Univariate analysis

Frequency distribution of respondents based on maternal compliance

Table 6 Distribution of respondent frequencies based on maternal compliance at the Botupingge Health Center

Mother's Obedience	Quantity	
	n	%
Simply Obey	32	66,7
Obedient	16	33,3
Total	48	100,0

Source : Primary Data 2026

Based on Table 6, it shows that most of the respondents are in the category of being quite compliant, namely 32 respondents (66.7%), while respondents in the compliance category are 16 respondents (33.3%). These results show that the level of maternal compliance in providing PMT to undernourished toddlers in the work area of the Botupingge Health Center is mostly in the category of moderately compliant.

Distribution of respondent frequencies by culture

Table 7 Distribution of respondent frequencies by culture at the Botupingge Health Center

Culture	Quantity	
	n	%
Enough Support	26	54,2
Support	22	45,8
Total	48	100,0

Source : Primary Data 2026

Based on Table 7, it shows that most of the respondents are in the category of being quite supportive, namely 26 respondents (54.2%), while respondents in the support category are 22 respondents (45.8%). These results show that the cultural level in the provision of PMT to undernourished toddlers in the work area of the Botupingge Health Center is mostly in the category of quite supportive.

Frequency distribution of respondents based on social environment

Table 8 Distribution of respondent frequencies based on social environment in the Botupingge Health Center

Social Environment	Quantity	
	n	%
Enough Support	31	64,6
Support	17	35,4
Total	48	100,0

Source : Primary Data 2026

Based on Table 8, it shows that most of the respondents are in the category of being quite supportive, namely as many as 31 respondents (64.6%), while respondents in the support category are 17 respondents (35.4%). These results show that the level of social environment in the provision of PMT to undernourished toddlers in the working area of the Botupingge Health Center is mostly in the category of quite supportive.

Distribution of respondent frequency based on the administration of PMT to undernourished toddlers

Table 9 Distribution of respondent frequencies based on the administration of PMT to undernourished toddlers at the Botupingge Health Center

Grant (PMT)	Quantity	
	n	%
Pretty Good	27	56,3
Good	21	43,8
Total	48	100,1

Source : Primary Data 2026

Based on Table 9, it shows that most of the respondents are in the fairly good category, namely 27 respondents (56.3%), while the respondents in the good category are 21 respondents (43.8%). These results show that the provision of PMT to undernourished toddlers in the working area of the Botupingge Health Center is mostly in the category of quite good.

Bivariate analysis

The relationship between maternal compliance and the administration of PMT in malnourished toddlers

Table 10 Analysis of the relationship between maternal compliance and the provision of PMT in undernourished toddlers at the Botupingge Health Center

No.	Mother's Obedience	Granting PMT				Total		P value	r
		Pretty Good		Good		n	%		
		n	%	n	%				
1.	Simply Obey	20	62,5	12	37,5	32	100,0	0,005	0,399
2.	Obedient	7	43,8	9	56,3	16	100,0		
Total		27	56,3	21	43,8	48	100,0		

Source : Primary Data 2026

Based on Table 10, the category of mothers with a fairly compliant level of 32 respondents (100%), there were 20 respondents (62.5%) with the provision of PMT in the good category and 12 respondents (37.5%) with the good category. Meanwhile, in the maternal category with a compliance level of 16 respondents (100%), there were 7 respondents (43.8%) with the provision of PMT in the good category, and 6 respondents (56.3%) with the provision of PMT in the good category.

The results of the Spearman Rank Test obtained a value so that H_0 was rejected. It can be concluded that there is a significant relationship between maternal compliance and the provision of PMT to malnourished toddlers in the working area of the Botupingge Health Center. The value of the correlation coefficient (r) of 0.399 which is positive indicates the direction of a positive relationship with weak to low relationship strength. $p\text{ value} = 0,005$ ($\rho < \alpha = 0,05$)

Cultural relationship with the administration of PMT in undernourished toddlers

Table 11 Analysis of cultural relationship with the administration of PMT in undernourished toddlers at the Botupingge Health Center

No.	Culture	Granting PMT				Total		P value	r
		Pretty Good		Good		n	%		
		n	%	n	%				
1.	Enough Support	15	57,7	11	42,3	26	100,0	0,086	0,251
2.	Support	12	54,5	10	45,5	22	100,0		
Total		27	56,3	21	43,8	48	100,0		

Source : Primary Data 2026

Based on Table 11, the category of respondents with a cultural level is quite supportive from 26 respondents (100%), there are 15 respondents (57.7%) with the provision of PMT in the good category and 11 respondents (42.3%) with the good category. Meanwhile, in the category of respondents with a cultural level of 22 respondents (100%), there were 12 respondents (54.5%) with the provision of PMT in the good category, and 10 respondents (45.5%) with the provision of PMT in the good category.

The results of the Spearman Rank Test were obtained so that H_0 was accepted, so it can be concluded that there is no significant relationship between culture and the provision of PMT in undernourished toddlers in the work area of the Botupingge Health Center. The value of a positive correlation coefficient indicates the direction of a positive relationship with the strength of a weak relationship. The value of the correlation coefficient (R) of 0.251 indicates the direction of a positive relationship with low relationship strength. $p\text{ value} = 0,086$ ($\rho > \alpha = 0,05$)

The relationship between the social environment and the administration of PMT in undernourished toddlers

Table 12 Analysis of the relationship between the social environment and the administration of PMT to undernourished toddlers at the Botupingge Health Center

No.	Social Environment	Granting PMT				Total		P value	r
		Pretty Good		Good		n	%		
		n	%	n	%				
1.	Enough Support	20	64,5	11	35,5	31	100,0	0,027	0,318
2.	Support	7	41,2	10	58,8	17	100,0		
Total		27	56,3	21	43,8	48	100,0		

Source : Primary Data 2026

Based on Table 4.12, the category of respondents with the level of social environment is quite supportive from 31 respondents (100%), there are 20 respondents (64.5%) with the provision of PMT in the category of good and 11 respondents (35.5%) with the good category. Meanwhile, in the category of respondents with a level of social environment of 17 respondents (100%), there were 7 respondents (41.2%) with the provision of PMT in the category of good, and 10 respondents (58.8%) with the provision of PMT in the good category.

The results of the Spearman Rank Test obtained a value so that H_0 was rejected. It can be concluded that there is a significant relationship between the social environment and the provision of PMT to undernourished toddlers in the working area of the Botupingge Health Center. A positive correlation coefficient value (r) of 0.318 indicates the direction of a positive relationship with low relationship strength. ρ value = 0,027 ($\rho < \alpha = 0,05$)

DISCUSSION

Supplementary Feeding (PMT) in undernourished toddlers

The results showed that most of the implementation of supplementary feeding (PMT) in undernourished toddlers was in the good category (56.3%). These findings show that the PMT program in the work area of the Botupingge Health Center has been running, although its implementation has not been optimal. Some aspects that still need attention include the durability of food during the distribution process and the variety of menus given to toddlers. These two aspects affect the acceptance of PMT by toddlers so that it can affect the success of the program in improving nutritional status. These results are in line with the research of Nida et al., (2025) that the PMT menu that is incomplete and poorly liked by the target is an obstacle in the implementation of the PMT program. Some toddlers do not like the food given such as peanut porridge and yellow pumpkin mud cake so that the PMT given is not consumed optimally.

In addition to food quality, the accuracy of distribution is also an important factor in the implementation of PMT. Food that is given late or has experienced a decline in quality has the potential to reduce the interest in consumption by toddlers. Therefore, improvements in the aspects of processing, storage, distribution, and menu variety need to continue to be made so that the goals of the PMT program in improving the nutritional status of toddlers can be optimally achieved.

The relationship between maternal compliance and the administration of PMT in malnourished toddlers

The results of the Spearman Rank test showed that there was a significant relationship between maternal compliance and the administration of PMT in undernourished toddlers ($p=0.005$; $r=0.399$). The correlation coefficient value showed a positive relationship with low relationship strength, which means that the better the mother's compliance, the better the implementation of PMT administration tends to be better. Mother's compliance is an important factor because mothers play a direct role in ensuring that PMT is given as recommended, both in terms of time, amount, and recipient targets.

However, this study still found that some mothers give PMT to other family members so that the additional intake that toddlers should receive is reduced. This condition can reduce the effectiveness of the PMT program in improving the nutritional status of toddlers. These findings are supported by Isfaizah et al. (2024) who state that maternal characteristics, including employment status, can influence supplemental feeding practices as they relate to access to health information and time in providing care to children. However, the results of this study are different from Wilujeng (2024) who did not find a relationship between PMT consumption compliance and the nutritional status of underweight toddlers. The difference in results is suspected to be influenced by the characteristics of the respondents, the health conditions of the toddlers, and the different eating preferences of children at each study location.

Cultural relationship with the administration of PMT in undernourished toddlers

This study showed that culture did not have a significant relationship with the administration of PMT in malnourished toddlers ($p=0.086$; $r=0.251$). Although most mothers have implemented habits that are quite supportive, such as limiting the consumption of snacks and fried foods, these habits have not had a direct influence on the implementation of PMT. This shows that culture is not the main factor that determines the success of giving PMT to undernourished toddlers in the study area.

This condition is suspected to be because the implementation of PMT is more influenced by other factors, such as children's eating preferences, mothers' compliance with PMT recommendations, and the quality and variety of menus provided. Wagiran (2026) explained that the habit of toddlers consuming snacks excessively can cause children to feel full before consuming the main meal so that the intake of nutrients becomes less optimal.

These findings are in line with the research of Nida et al. (2025) which states that the PMT menu that is incomplete and less preferred by the target is one of the reasons why PMT is not consumed optimally by toddlers. However, the results of this study are not in line with Nisa's (2026) research which found a relationship between maternal culture and supplementary feeding patterns. The difference in results may be influenced by the characteristics of the respondents, socio-cultural conditions, and differences in the research methods used. In addition, the eating culture in each region can be different so that the effect on PMT administration practices is not always the same.

The relationship between the social environment and the administration of PMT in undernourished toddlers

The results showed a significant relationship between the social environment and the administration of PMT in undernourished toddlers ($p=0.027$; $r=0.318$). This positive relationship shows that the better the support of the social environment, the better the implementation of PMT. This support can be in the form of family assistance, the role of cadres, or assistance from health workers in providing education and distributing PMT to targets.

The role of cadres in distributing PMT in a timely manner is one of the important factors in supporting the success of the program. The support of families, cadres, and health workers also contributes to increasing maternal compliance with the provision of PMT. These findings are in line with the research of Subardiah et al. (2019) and Nisa (2026) which shows that social support plays a role in the successful implementation of supplementary feeding for children under five.

In addition to social support, the success of the implementation of PMT is also influenced by other supporting factors, such as the availability of budgets, facilities, and family economic conditions. Nida (2025) and Halisah (2024) reported that limited funds can hinder the implementation of the PMT program because it has an impact on limited facilities and food distribution processes. Meanwhile, Souliissa et al. (2024) stated that better family economic conditions support parents' ability to meet children's nutritional needs so that the implementation of PMT becomes more optimal.

CONCLUSION

Based on the results of the study, maternal compliance and social environment were significantly related to the provision of supplementary food (PMT) to malnourished toddlers in the work area of the Botupingge Health Center, while culture did not show a significant relationship. These findings show that the success of PMT implementation is more influenced by mothers' compliance in providing PMT according to recommendations and social environmental support, rather than cultural factors. Therefore, increasing education for mothers and strengthening support from families, cadres, and health workers need to be a concern to optimize the implementation of the PMT program.

ADVICE

Puskesmas and posyandu cadres are expected to improve the quality of the implementation of the PMT program through the timeliness of distribution, increasing menu variations, and maintaining the quality of food so that it remains suitable for consumption and preferred by toddlers. In addition, mothers under five are expected to provide PMT according to the target, not share it with other family members, and get used to a healthy diet by limiting the consumption of snacks and over-fried foods so that the benefits of the PMT program can be achieved optimally.

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