



# The Effect of Dietary Education on Improving Maternal Nutritional Behavior Among Mothers of Stunted Toddlers at the Pratama Kesira Mutiara Clinic

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## Abstract

*Proper feeding practices are essential for preventing stunting in toddlers, yet many mothers lack adequate knowledge about nutrition. Education on feeding patterns can help mothers to make wiser decisions about their children's diets. This study employed a single-group quasi-experimental design with a pre-test–post-test, conducted at the Pratama Kesira Mutiara Clinic between November 2024 and April 2025. The sample consisted of 43 mothers of toddlers, selected through purposive sampling technique from a population of 76 clinic visitors, who met the inclusion criteria: having healthy toddlers, being able to communicate effectively, and agreeing to participate. Dietary education served as the independent variable, while improvements in mothers' nutritional behaviour served as the dependent variable. Data were collected using structured instruments and analysed descriptively (univariate) and inferentially (bivariate) with paired t-tests for normally distributed data or Wilcoxon tests for non-normal data. Results showed that dietary education significantly improved mothers' feeding behaviour, shifting the majority from inappropriate practices before the intervention to appropriate practices afterward ( $p < 0, 05$ ). These findings are consistent with previous evidence that dietary education enhances feeding practices and support better child nutrition. Overall, structured educational interventions delivered by health workers play a crucial role in empowering mothers and advancing sustainable stunting prevention efforts.*

**Keywords:** Education, Stunting, Toddlers, Nutrition.

## INTRODUCTION

Stunting defines as a cumulative result of chronic malnutrition and repeated infections from the pregnancy through early childhood. It leads to impaired linear growth and is often accompanied by lasting physical and cognitive deficits. These effects are typically irreversible and can reduce learning capacity, productivity, and even influence outcomes across generations (UNICEF et al., 2019; WHO, 2019, 2020). Globally, stunting remains a major public health challenge. In 2024, an estimated 150.2 million children under five (23.2%) were affected, with the highest burden in Asia (51%) and Africa (43%). This reflects a slowdown in progress since 2012 and highlights the urgent need for sustained, multisectoral interventions (WHO, 2020). In Indonesia, the 2023 Health Survey reported a stunting prevalence of 21.5% among children under five (0-59 months), including 5.7% severely stunted (95% CI 5.6–5.9) and 15.8% stunted (95% CI 15.6–16.0), based on the height-for-age (TB/U) indicator. In North Sumatra, prevalence among toddlers (0–59 months) was 18.9% ( 5.7% severely stunted; 13.2% stunted),

while among infants (0–23 months), the prevalence based on length-for-age (PB/U) was 14.8% (4.8% severely stunted; 10.0% stunted) (Badan Kebijakan Pembangunan Kesehatan, 2023).

Multiple factors contribute to stunting in toddlers, one of the most significant being the low educational level of parents, particularly mothers. Limited knowledge often results in poor parenting practices and inappropriate feeding patterns (Ashar et al., 2025; Danso & Appiah, 2023). Evidence shows that substantial improvements in toddler growth can be achieved through wider access to high-quality nutritional interventions (Orimadegun et al., 2025). To be effective, these interventions must be supported by education from health workers, especially in promoting nutrition diversity (Asefa et al., 2024). Educating mothers of stunted toddlers about proper feeding nutrition patterns is therefore essential for improving nutritional behavior and reducing stunting prevalence. In addition, informal community-based interventions can serve as protective factors against stunting (Abdullah et al., 2025; Supadmi et al., 2024).

Soofi and colleagues found that Science-Based Behavioral Communication during the first 1,000 days of life is associated with a reduction in stunting and low birth weight, as well as improvements in feeding practices among children under two years old (Soofi et al., 2024). Rahut's research highlights broader environmental and social determinants, showing a positive correlation between child malnutrition and maternal illiteracy, unsafe drinking water, and the use of unclean cooking fuels in South and Southeast Asia (Rahut et al., 2024). In Indonesia, Supranoto's study emphasizes that stunting remains a persistent public health challenge, further complicated by fragmented governance and socio-cultural barriers that limit the effectiveness of interventions (Supranoto et al., 2025).

Research indicates that effective interventions against stunting require multidisciplinary approaches that actively involve communities and are recognized as a global public health priority (Akombi et al., 2017; Has et al., 2024, de Onis & Branca, 2016; Galasso & Wagstaff, 2019). Central to these strategies are efforts that promote adherence to optimal feeding habits and improve child nutrition, which serve as proactive measures to prevent stunting (Fajar et al., 2023; Galasso & Wagstaff, 2019). Preventive approaches, such as targeted support for neglected children, ensuring parental compliance with appropriate nutrition practices, and strengthening community-based initiatives are critical to achieving the global target of reducing stunting prevalence by 40% by 2025 (de Onis & Branca, 2016).

Based on the results of a preliminary survey conducted by researchers at the Pratama Kesira Mutiara Clinic, there were 76 cases of stunted toddlers between January and November 2024. To explore contributing factors, researchers carried out face-to-face interviews with 10

mothers of toddlers. Eight of these mothers demonstrated limited knowledge about nutrition, largely due to low educational attainment and insufficient attention to their children's diets. . In response to these findings, this study aims to examine the effect of nutrition education on improving the nutritional behavior of mothers of stunted toddlers at the Pratama Kesira Mutiara Clinic.

## **METHODS**

This study employed a quasi-experimental design, using a single group pretest – posttest approach, in which one group of participants was measured before and after the intervention. The research was conducted at the Pratama Kesira Mutiara Clinic from November 2024 to April 2025. The study population consisted of 76 mothers with toddlers who visited Pratama Kesira Mutiara Clinic this clinic during this period. From this population, about 43 mothers were selected through purposive sampling technique based on the following inclusion criteria: having healthy toddlers, being able to communicate effectively, and willingness to participate. Pratama Kesira Mutiara Clinic. Exclusion criteria included toddlers with complications, toddlers born with low birth weight, and mothers unwilling to participate.

The independent variable in this study was nutrition education, while the dependent variable was maternal nutritional behavior, measured on an ordinal scale (<55% and 55% - 100%). Data were collected using a nutrition questionnaire and researcher-designed leaflets, administered through direct interviews with mothers at the Pratama Kesira Mutiara Clinic. Univariate analysis was conducted descriptively for all variables. For bivariate analysis, a paired t-test was applied to normally distributed data, while the Pratama Kesira Mutiara Clinic Wilcoxon test was used for non-normal distributions.

## **RESULTS**

Based on Table 1, it is known that about 17 respondents (39,5%) were 20-25 years old, about 17 respondents (39,55) were 26-30 years old about 9 respondents were 31-35% years old. Most respondents, about 23 people (53.5%) were graduated from high school, and mostly about 26 respondents were employed (60.5%). Table 2 indicates that before the intervention, most respondents (about 30 people or 69.8%) demonstrated inappropriate feeding behavior. After receiving nutrition education, however, mostly about 33 respondents or 76.7% adopted appropriate feeding behavior at Pratama Kesira Mutiara Clinic.

**Table 1 Frequency Distribution Based on Respondent Characteristics at the Pratama Kesira Mutiara Clinic**

<b>Respondent Characteristics</b>	<b>f</b>	<b>%</b>
<b>Age</b>		
20 – 25 years old	17	39,5
26 – 30 years old	17	39,5
31 – 35 years old	9	20,9
<b>Education</b>		
Elementary School	2	4,7
Junior High School	6	14,0
Senior High School	23	53,5
Higher Education Institution	12	27,9
<b>Job</b>		
Working	26	60,5
Not Working	17	39,5
<b>Total</b>	<b>43</b>	<b>100</b>

**Table 2 Frequency Distribution Before and After Intervention at Pratama Kesira Mutiara Clinic**

<b>Intervention</b>	<b>f</b>	<b>%</b>
<b>Before Intervention</b>		
Exactly	13	30,2
Inappropriate	30	69,8
<b>After Intervention</b>		
Exactly	33	76,7
Inappropriate	10	23,3
<b>Total</b>	<b>43</b>	<b>100</b>

Based on Table 3, which shows that the statistical test results before and after the intervention obtained a p-value of  $0.000 < 0.05$ , it can be concluded that there is an effect of dietary education on improving the nutritional behavior of mothers of stunted toddlers at the Pratama Kesira Mutiara Clinic.

**Table 3 Effect of Nutrition Education on Improving the Nutritional Behavior of Mothers of Stunted Toddlers at the Pratama Kesira Mutiara Clinic**

<b>Intervention</b>	
<i>Sig Pre-Post Behavior</i>	0,000
<i>Z</i>	-3,922 <sup>b</sup>

## DISCUSSION

The results of this study show that before the intervention, mostly about 30 respondents (69.8%) demonstrated inappropriate feeding dietary practices at Pratama Kesira Mutiara Clinic. After receiving dietary education, however, mostly about 33 respondents (76.7%) adopted appropriate feeding behaviors. Statistical analysis confirmed a significant difference between pre- and post- intervention scores, with a p-value of  $0.000 (< 0.05)$ , indicating that nutrition education effectively improved maternal nutritional behavior among mothers of stunted toddlers at the Pratama Kesira Mutiara Clinic. Pratama Kesira Mutiara Clinic These findings underscore the importance of a multisectoral approach to reducing stunting, which

requires investment and improvements both within and beyond the health sector, including poverty reduction and improved education for both mothers and fathers (Otoo et al., 2025). Stunting should therefore be understood not only as an individual health issue resulting from chronic malnutrition, but also as a social problem shaped by the complex interactions among families, communities, institutions, and the broader societal structures (Astuti et al., 2025).

Weka (2023) found that dietary education using leaflets effectively improved mothers' attitudes toward preventing stunting in toddlers, with a significant p-value of 0.000. Inadequate energy and protein intake can lead to growth failure and increase the risk of stunting (Anasiru and Domili, 2018). According to Suherman et al., (2022), good parenting involves mothers paying attention to both the frequency and type of food consumed by their children to ensure nutritional needs are met. This aligns with the findings of Fitri et al., (2025), who reported that mothers with poor feeding practices were four times more likely to have toddlers with poor nutritional status compared to those with good practices. Similarly, Prasetyo et al., (2023) demonstrated that nutrition education significantly improved mothers' knowledge, attitudes, and skills ( $p < 0.001$ ) when delivered through diverse approaches, including health education sessions, brochures, guides, leaflets, and digital applications. Supporting this evidence, Elfeshawy et al., (2022) showed that nutrition education based on Health Belief Model at the Benha Specialist Children's Hospital Polyclinic contributed to reducing stunting in children.

The findings of this study highlight the crucial role of health workers in improving the nutritional behaviour of mothers of stunted toddlers by promoting healthy eating habits. At a minimum, such interventions ensure that stunted toddlers receive adequate nutrition, which strengthens their immunity improves and prevents further deterioration. Moreover, mothers who receive education on proper feeding practices gain valuable knowledge and understanding that can benefit them when caring for future children. This knowledge also extends beyond the individual household, serving as a foundation for community awareness. As mothers share and apply what they have learned, their improved practices can influence other families, contributing to broader efforts to prevent stunting at the community level.

This study has several limitations that should be considered when interpreting the findings. Firstly, the use of a single-group quasi-experimental pretest-posttest design without a control group limits the ability to account for external confounding variables that may have influenced changes in respondents' behaviour. Secondly, the study was conducted in one clinic (Pratama Kesira Mutiara Clinic) with a relatively small sample, so caution is needed when generalizing the results to broader populations or regions with different sociocultural contexts. Finally, the study focused on changes in maternal nutritional behaviour rather than direct

measurements of child nutritional status or anthropometric parameters. Because the dependent variables were limited to behavioural aspects, conclusions regarding the impact of education on stunting recovery must be made carefully, as improvements in maternal behaviour are an intermediary step and do not automatically translate into improved child nutrition without further clinical evidence.

## CONCLUSIONS

Based on the intervention results and supporting field evidence, this study concludes that dietary education plays a significant role in improving the nutritional behavior of mothers with stunted toddlers at the Pratama Kesira Mutiara Clinic. The intervention effectively shifted feeding practices from predominantly “inappropriate” before dietary education to “appropriate” afterward, with a statistically significant difference ( $p < 0.05$ ). These findings are consistent with previous studies showing that nutrition education enhances maternal attitudes and behaviors related to feeding, thereby reducing the risk of energy-protein deficiency and stunting. Improvements in maternal nutritional behavior also have important implications for sustainable stunting prevention, as greater awareness of food frequency, variety, and quality can strengthen children's nutritional status, boost immunity, and prevent worsening conditions. Thus, structured and repeated nutrition education, supported by health workers, makes a strategic contribution to multisectoral efforts to reduce stunting while empowering mothers as primary caregivers in meeting the nutritional needs of young children.

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