

Balanced nutrition education as an effort to prevent stunting in toddlers

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ABSTRACT

Nutritional problems in toddlers, including stunting, wasting, and overweight, remain a primary global health concern. Stunting is closely linked to specific deficiencies in vitamins and minerals, influenced by factors such as maternal education, family income, maternal knowledge of nutrition, breastfeeding practices, complementary feeding age, micronutrient adequacy, infection history, and genetics. This community service program aimed to increase maternal knowledge of balanced nutrition to prevent toddler stunting. The activity was conducted on January 20, 2025, at the Posyandu in the Pattingalloang Community Health Center working area, involving 20 participants, supported by lecturers, students, midwives, and local health cadres. Educational interventions were delivered through lectures, discussions, and Q&A sessions. Pre-test results showed that 65% of participants had good knowledge and 35% had poor knowledge regarding balanced nutrition and stunting prevention. Post-test results showed improvement, with 80% demonstrating good knowledge and only 20% remaining in the poor category. The findings highlight that targeted nutrition education can significantly improve maternal understanding and awareness, possibly reducing stunting prevalence. Follow-up programs and home-based health services were also recommended to sustain knowledge and improve child health outcomes.

Keywords: Balanced Nutrition; Stunting; Toddlers.



INTRODUCTION

Nutritional problems among toddlers remain a significant global health issue, with stunting, wasting, and overweight identified as the most prevalent conditions [1]. Malnutrition during the toddler years is often associated with specific deficiencies in vitamins and minerals, particularly micronutrients, which can profoundly impact growth and development [2]. Numerous studies have demonstrated that inadequate nutritional intake increases the risk of infectious diseases, mortality, and long-term growth delays [3]. Stunting has received particular attention among these conditions due to its high prevalence and profound implications beyond short stature alone [4].

Stunting refers to a condition in which a child's height-for-age is more than two standard deviations below the median growth standards established by WHO. This condition is prevalent in Indonesia and a global concern, affecting approximately 150.8 million (22.2%) children worldwide [5]. Stunting weakens the immune system, hinders physical growth, impairs brain development, and increases the risk of chronic non-communicable diseases in later life [6]. Short-term impacts include delayed cognitive, motor, and metabolic development. At the same time, long-term consequences involve reduced learning capacity, diminished work productivity, and heightened susceptibility to diseases such as diabetes, cardiovascular disorders, cancer, and stroke [7].

The causes of stunting are multifactorial. Maternal factors such as short stature, closely spaced pregnancies, multiple births, advanced maternal age, teenage pregnancy, and poor nutritional intake during pregnancy play a significant role [8]. Additional risk factors include the absence of early breastfeeding initiation (IMD), failure to provide exclusive breastfeeding, premature weaning, poor sanitation, and low socio-economic conditions. Low birth weight (BBLR) is another important determinant, as it often indicates intrauterine growth restriction, which continues to impact a child's growth and cognitive development postnatally [9].

Recognizing the severe consequences of stunting, the Indonesian government launched the National Strategy for Stunting Reduction (Stranas Stunting) for the 2018–2024 period, supported by Presidential Regulation No. 72 of 2021 and the National Action Plan (RAN PASTI) 2021–2024 [10]. These initiatives emphasize multi-sectoral collaboration and community-based interventions. One of the communities affected by this problem is Kelurahan Pattingalloang, located in Ujung Tanah District, Makassar City. This urban slum area faces multiple socio-economic challenges, including inadequate housing, high population density, limited sanitation, and food insecurity. Food insecurity stems from insufficient access to safe and nutritious food due to limited distribution systems, low purchasing power, and inadequate household-level food utilization [11]. Addressing stunting in such high-risk communities requires targeted educational interventions to improve maternal knowledge of balanced nutrition. Education can empower parents, particularly mothers, to provide diverse, nutrient-rich meals that meet their children's developmental needs. Therefore, this community service program was implemented to provide balanced nutrition education for stunting prevention among toddlers, aiming to enhance maternal knowledge, support healthy feeding practices, and ultimately contribute to reducing stunting prevalence in the area.

METHOD

The preparation began with a location survey, discussions, and coordination with the coordinating midwife at the Pattingalloang Community Health Center. Administrative arrangements included obtaining official permission to conduct the activity and preparing educational media such as leaflets and brochures. The implementation occurred on January 20, 2025, from 09.00 WITA until completion, at the Posyandu within the Pattingalloang Community Health Center working area. The event was attended by 20 participants, midwives and community health cadres on duty, a team of D3 Midwifery Study Program lecturers, and midwifery students from STIKES Nani Hasanuddin. The health education session focused on balanced nutrition to prevent stunting in toddlers. The teaching methods included lectures, question-and-answer sessions, discussions, and sharing experiences. The activity was designed to encourage active participation, ensure the information was well understood, and enable participants to apply the knowledge daily.

RESULT

Table 1 shows the frequency distribution of balanced nutrition education in preventing stunting before the intervention. Before receiving the education, 65% of participants had good knowledge, while 35% had poor knowledge.

Table 1. Frequency distribution of balanced nutrition education in preventing stunting before the intervention

Knowledge Level	Frequency (n)	Percentage (%)
Good	13	65
Poor	7	35
Total	20	100

Table 2 shows the frequency distribution of balanced nutrition education in preventing stunting after the intervention. Following the educational session, 80% of participants demonstrated good knowledge, while only 20% had poor knowledge.

Table 2. Frequency distribution of balanced nutrition education in preventing stunting after the intervention

Knowledge Level	Frequency (n)	Percentage (%)
Good	16	80
Poor	4	20
Total	20	100

The results indicate a clear improvement in participants' knowledge after receiving balanced nutrition education. The proportion of participants with sound knowledge increased from 65% to 80%, while those with poor knowledge decreased from 35% to 20%. This suggests that the educational intervention positively impacted participants' understanding of balanced nutrition as a measure to prevent stunting in toddlers.



Figure 1. Presentation of Balanced Nutrition Materials in Preventing Stunting in Toddlers

The mother's education level usually affects the mother's knowledge of nutrition in the toddler. The higher the level of education, the more likely one is to absorb health information, such as knowledge about nutrition. Mother's sound understanding of nutrition will affect mother's parenting, for example, in terms of feeding, mothers with nutritional knowledge efficiently process food in the form of *fariasi* so that toddlers do not get bored easily.

DISCUSSION

The findings of this community service activity demonstrate a positive impact of balanced nutrition education on mothers' knowledge regarding stunting prevention in toddlers. The pre-test results indicated that only 65% of participants had good knowledge before the intervention, whereas the post-test results showed an increase to 80%. This 15% improvement underscores the effectiveness of structured health education in enhancing mothers' understanding of appropriate dietary practices for toddlers. Similar findings have been reported in previous studies, which revealed that nutrition education significantly improves maternal knowledge and feeding practices, ultimately contributing to stunting reduction [12].

The increased knowledge observed can be attributed to the interactive and participatory methods applied during the sessions, such as lectures, discussions, and Q&A, combined with visual aids like leaflets and brochures. These methods align with adult learning principles, where engagement and contextual examples improve information retention. Additionally, the localized approach of conducting the sessions within the Posyandu environment provided a familiar and accessible setting for mothers, thereby reducing barriers to participation [13].

The improvement in knowledge is significant given the strong correlation between maternal understanding of nutrition and child health outcomes. Mothers with adequate nutrition knowledge are better equipped to provide balanced diets, diversify food sources, and ensure proper feeding frequency for their children. This is essential because inadequate dietary intake and poor feeding practices are key determinants of stunting, alongside other factors such as repeated infections, low birth weight, and socio-economic constraints [14].

The participants' interest in receiving continued home-based services, such as immunization visits, reflects a broader need for flexible and accessible healthcare delivery models in urban low-income communities. This aligns with global trends promoting community-based and home-based health services to address logistical barriers and

improve continuity of care. Such approaches can complement stunting prevention programs by ensuring consistent growth monitoring and timely interventions when growth faltering is detected [15].

One of the critical points highlighted during the sessions was the comprehensive understanding of “balanced nutrition,” which extends beyond the traditional “four healthy five perfect” concept to include food processing methods that preserve nutrient content. Participants learned that overcooking vegetables, for instance, may reduce vitamin retention, and that introducing variety in meals helps maintain toddlers’ appetite. This practical aspect is crucial because even when mothers are aware of food groups, a lack of food preparation skills may limit the nutritional value of the meals provided [16].

However, several challenges emerged during the activity. Time constraints and environmental distractions, such as toddlers becoming restless or mothers needing to attend to household chores, limited the depth of discussions. These challenges are consistent with previous observations in community-based programs, where competing responsibilities of caregivers often interfere with educational sessions. This underscores the importance of integrating flexible, repeated, and bite-sized educational opportunities into routine community health activities to reinforce key messages over time.

The high prevalence of stunting in Indonesia, especially in socioeconomically disadvantaged communities such as Kelurahan Pattingalloang, highlights the urgent need for sustained interventions [17]. This indicates that stunting prevalence exceeds other forms of malnutrition, such as underweight and wasting. Contributing factors in such communities include inadequate sanitation, food insecurity, and low maternal education levels [18]. Addressing these determinants requires a multi-sectoral approach, combining health education with poverty alleviation, water and sanitation improvements, and maternal empowerment initiatives [19].

This activity also reinforces the importance of early and continuous intervention. Since stunting is a cumulative process that often begins in utero, maternal nutrition during pregnancy plays a pivotal role. Therefore, the educational component should ideally target mothers of toddlers, adolescent girls, and pregnant women to ensure adequate nutrient stores before conception and during gestation [20]. As suggested in the conclusions, encouraging routine antenatal care visits and supplement use is aligned with global best practices for stunting prevention. From a programmatic perspective, the observed improvement in knowledge following the educational intervention supports the integration of regular nutrition counselling into Posyandu services. Monthly sessions could be paired with growth monitoring activities, enabling health workers to identify children at risk of growth faltering and counsel caregivers accordingly. Furthermore, leveraging mass and social media, both popular among the locals, could help reinforce messages between in-person sessions.

CONCLUSIONS

Implementing balanced nutrition education significantly improved mothers’ knowledge and awareness regarding stunting prevention in toddlers. The post-test results showed a notable increase in the proportion of participants with good knowledge, indicating that health education through lectures, discussions, and interactive sessions can positively influence maternal understanding and attitudes toward child nutrition. Sustained efforts, including regular monitoring during pregnancy, adequate maternal supplementation, and consistent attention to children’s dietary intake from conception to the age of six, are essential to reducing stunting prevalence. Continuous community-

based education programs, supported by health workers and local cadres, are recommended to ensure that the knowledge gained is translated into long-term healthy feeding practices and optimal child growth.

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