

NUTRITION LITERACY EDUCATION FOR MOTHERS OF TODDLERS TO PREVENT STUNTING IN SORONG REGENCY, SOUTHWEST PAPUA

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Abstract

Stunting is a long-term nutritional problem that affects children's physical and cognitive development and poses a health challenge in the community, especially within the working area of the Malawili Health Center in Sorong Regency, Southwest Papua. One of the main causes is the sub-optimal nutrition literacy among mothers of toddlers. This community service activity aimed to increase mothers' knowledge of balanced nutrition for stunting prevention through health education using leaflets. The activity was carried out at Posyandu Mentari, within the working area of the Malawili Health center, on July 9, 2026, involving 30 mothers of toddlers. The method used was health education accompanied by a knowledge assessment through pretest and posttest. The results showed an increase in the average knowledge score from 77.67 to 84.33 (a difference of 6.66 points or a relative increase of 8.6%), with the proportion of mothers in the good knowledge category rising from 60.0% to 86.7%. The Wilcoxon Signed-Rank Test results showed a significant difference between the pretest and posttest ($Z=-2.950$; $p=0.010$; $p<0.05$). It can be concluded that nutrition education using leaflets is effective in increasing the knowledge of mothers with toddlers and has the potential to support efforts to accelerate stunting reduction in Sorong Regency.

Keywords: Leaflet; Nutrition literacy; Sorong Regency; Stunting; Toddler mothers

INTRODUCTION

Toddler nutrition, growth, and development are primary focuses of national health development. Stunting is a chronic nutrition problem in children under five years old, caused by long-term nutritional deficiencies that lead to a deficit in height-for-age (Ministry of Health of Indonesia, 2022). This condition stems from prolonged nutritional deficits, extending from pregnancy until the child reaches two years of age—a critical window known as the first 1000 days of life. The long-term effects of stunting manifest in impaired physical growth, hindered brain development, and reduced productivity levels in adulthood. Consequently, the government has designated stunting reduction as a national priority through Presidential Regulation Number 72 of 2021 on Accelerating Stunting Reduction. This initiative aims to reduce the prevalence to 14% by 2024 and achieve a long-term target of 5% by 2045 (Presidential Regulation of the Republic of Indonesia, 2021; Secretariat of the Vice President of the Republic of Indonesia, 2022).

Southwest Papua Province exhibits one of the highest stunting rates in Indonesia, with a prevalence of 30.5% (Indonesian Ministry of Health, 2024), significantly exceeding the WHO threshold of 20% (WHO, 2021). In Sorong Regency, the stunting rate was recorded at 23.8 % in 2022 (Indonesian Ministry of Health, 2023) and decreased to 17.1% in 2025, while the Malawili Health Center recorded a prevalence of 15.1 %. Despite this downward trend, these figures still necessitate intensive intervention to meet national targets, and success heavily depends on behavioral changes within families, particularly among mothers of toddlers.

A primary factor contributing to stunting is suboptimal maternal nutrition literacy, defined as the ability to understand, obtain, and apply nutrition information in daily childcare. Adequate nutrition literacy among mothers has been demonstrated to serve as a protective factor against stunting (Ilma et al., 2025; Sirajuddin et al., 2021) and is closely linked to appropriate infant and child feeding practices (Wahyuni et al., 2023). Conversely, low nutrition literacy leads to inappropriate feeding practices that deviate from established recommendations. These include delayed initiation of breastfeeding, suboptimal exclusive breastfeeding, and the provision of complementary foods that fail to meet the principles of diversity, balanced nutrition, and food safety.

This community service activity was conducted at the posyandu within the working area of the Malawili Health Center, Sorong Regency. Initial observations and interviews with nutrition staff and posyandu volunteers

revealed that nutrition counseling is still performed irregularly. Furthermore, there is a notable lack of engaging educational media (Heryani *et al.*, 2023), and child growth monitoring at the posyandu hasn't been done routinely attended by mothers of toddlers. Based on these issues, this activity was designed to empower mothers of toddlers through nutrition education using leaflets as a promotive and preventive measure to prevent stunting in Sorong Regency, Southwest Papua.

LITERATURE REVIEW

Stunting is defined as a linear growth disorder caused by the accumulation of chronic malnutrition, repeated infections, and inadequate caregiving from pregnancy to the age of two (Ministry of Health of the Republic of Indonesia, 2022). The determinants of stunting are multifactorial, including nutritional, health, socioeconomic, and caregiving factors. Maternal nutrition knowledge serves as one of the most influential proximal determinants of the quality of toddler nutrition intake (Kumalasari & Sari, 2025).

Nutrition literacy refers to an individual's ability to access, understand, evaluate, and apply nutrition information to support proper health decisions. Studies demonstrate that maternal nutrition literacy interventions can potentially prevent stunting in toddlers, as shown in a randomized controlled trial conducted by Sirajuddin *et al.* (2021). The relationship between nutrition literacy and maternal nutrition knowledge concerning stunting is also confirmed through a literature review by Wahyuni *et al.* (2023).

Leaflets are frequently utilized in community-based health education due to their ease of distribution, conciseness, and accessibility to the target audience at any time. The principles of health communication emphasize that comprehension of health information improves when it is delivered simply, aligned with the audience's needs, and accompanied by effective interpersonal communication (Solihin & Abdullah, 2023). Previous research also demonstrates that nutrition leaflets designed according to the community context are effective in increasing maternal nutrition knowledge (Wahyuningsih, 2024), in line with findings that nutrition education can support behavioral changes to prevent stunting in mothers with young children (Rahmadani *et al.*, 2025).

METHOD

This community service activity employed a community-based participatory approach. The primary method consisted of health counseling through lectures using leaflet media, followed by discussions and Q&A sessions. participants' knowledge was evaluated using a pretest questionnaire before the education session and a posttest after the session. The activity was carried out in three stages; preparation, implementation, and evaluation.

The preparation stage involved coordinating with health officers at the Malawili Public Health Center and the Posyandu Mentari cadres regarding the schedule, venue, number of participants, and education materials, followed by drafting the educational content, knowledge questionnaires, leaflets, and other activity equipment.

The implementation stage took place on July 9, 2026, at 8:00 AM WIT at the Posyandu Mentari, located within the working area of the Malawili Health Center, Sorong Regency. This activity involved 30 mothers of toddlers aged 1-57 months. The program itinerary comprised an opening session, attendance registration, a pretest, and the delivery of educational material using leaflets. The educational topics covered stunting awareness, the effects of stunting, exclusive breastfeeding, complementary feeding (MP-ASI), balanced nutrition based on the "My Plate" guidelines, and toddler growth monitoring. The session concluded with a Q&A discussion, a posttest, and a closing ceremony.

The evaluation stage was conducted by analyzing the field data using the SPSS software.



Image: Implementation of nutrition counseling for mothers with toddlers at Mentari Posyandu, under the Malawili Health center's service area

RESULT AND DISCUSSION

Result

Participant Characteristics

Table 1. Characteristics of Activity Participants (n=30)

Characteristics	Category	n	%
Age	< 20 years	1	3.3
	20-35 years	24	80.0
	> 35 years	5	16.7
Education	Basic (Elemntary & Middle School)	5	16.7
	Secondary (High School)	15	50.0
	Higher (University)	10	33.3
Occupation	Homemaker	22	73.3
	Teacher	3	10.0
	Private Sector	2	6.7
	Lecturer	1	3.3
	Civil Servant	2	6.7
Gender	Female	30	100.0

Based on table 1, all participants were female, with the largest proportion falling into the 20-35 age group (24 respondents, 80.0%). The majority of participants had a high school education (15 respondents, 50.0%), and were housewives (22 respondents, 73.3%).

Knowledge Category Distribution

Tabel 2. Distribution of Knowledge Categories Before and After Intervention

Knowledge Category	Pre (n)	Pre (%)	Post (n)	Post (%)
Good ($\geq 76\%$)	18	60.0	26	86.7
Sufficient (56-75%)	12	40.0	4	13.3
Poor ($< 56\%$)	0	0.0	0	0.0
Total	30	100	30	100

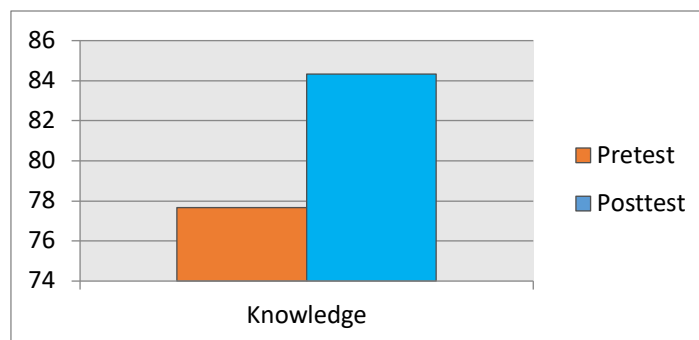
In the pretest, 18 participants (60.0%) were categorized into the good knowledge level, while 12 participants (40.0%) were in the sufficient category. Following the intervention, the number of participants with good knowledge increased to 26 (86.7%), whereas those in the sufficient category decreased to 4 participants (13.3%). No participants fell into in the poor knowledge category either before or after the intervention.

Pretest, Posttest, and Statistical Test Results

Table 3. Results of Pretest and Posttest on Mothers' Knowledge About Toddlers

Statistics	Pretest	Posttest
Minimum	60	70
Maximum	100	90
Mean	77.67	84.33
Mean Difference	-	6.66
Relative Increase	-	8.6 %

Statistical analysis revealed a significant increase in knowledge following the provision of nutrition literacy interventions to mother of toddlers. The mean pretest score was 77.67, which increased to 84.33 in the posttest, resulting in mean difference of 6.66 points or a relative increase of 8.6%. interestingly, the minimum score rose from 60 to 70, while the maximum score decreased from 100 to 90, indicating a more homogenous score distribution among participants after the educational session.



The Wilcoxon Signed-Rank Test result showed a Z-value of -2.950 with $p=0.010$ ($p<0.05$), which means there was a statistically significant difference between the pretest and posttest scores. These results suggest that nutrition literacy education using leaflets is effective in increasing mothers' knowledge about preventing stunting.

Discussion

The results of this community service activity show that mothers of toddlers experienced a significant increase in knowledge after receiving nutrition literacy education for stunting prevention, as evidenced by the rise in average knowledge scores and the Wilcoxon Signed Rank Test results ($Z=-2.950$; $p=0.010$; $p<0.05$). The proportion of mothers with good knowledge increased from 60.0% to 86.7%, while the fair knowledge category decreased from 40.0% to 13.3%. These findings align with research showing that nutrition education can improve mothers' understanding of children's nutritional needs and support the implementation of more accurate stunting prevention behaviors (Rahmadani et al., 2025), as well as with randomized controlled trial results proving that maternal nutrition literacy interventions have the potential to prevent stunting in toddlers (Sirajuddin et al., 2021).

This increase in knowledge is also influenced by participant characteristics. Most of the participants are in the productive age range of 20-35 years (80.0%), have a secondary education level (50.0%), and work as housewives (73.3%). Being of productive age and having a secondary education level are thought to help participants absorb and understand new information, as both are factors that affect a person's ability to receive and process health information (Nursa'iidah & Rokhaidah, 2022). Being a housewife also gives participants more free time to actively take part in all the counseling activities.

The effectiveness of knowledge enhancement in this activity is also closely linked to the educational leaflet used. Leaflets written in simple language with clear images and concise information-converging the impacts of stunting, the balanced nutrition concept "My Plate", and stunting prevention steps, helped mothers of young children quickly understand the health messages. This aligns with health communication principles emphasizing that understanding health information improves when it is delivered simply, relevantly, and supported by good

interpersonal communication (Solihin & Abdullah, 2023). It also confirms previous findings that leaflets tailored to the community context effectively increase nutrition knowledge (Wahyuningsih, 2024).

Although the results of this activity show a significant increase in knowledge, sustaining changes in nutrition attitudes and behaviors requires broader support, not just from mothers with young children but also from other family members like husbands. Support from husbands and family, whether through information, emotional support, or practical help in providing nutritious food, has been shown to play an important role in encouraging mothers' behavior to prevent stunting (Juwita & Ediyono, 2023). Therefore, involving husbands or family members of young children and strengthening the capacity of posyandu cadres to independently use leaflet media is an important step to maintain the sustainability of the stunting prevention program in the Malawili Health Center's working area.

CONCLUSION

This community service activity aimed to educate mothers of toddlers about the importance of nutrition literacy to prevent stunting at Posyandu Mentari, in the working area of Malawili Health center, Sorong Regency, Southwest Papua. The activity was carried out on July 9, 2026, involving 30 mothers of toddlers, most of whom were aged 20-35 years (80.0%), had a secondary educational level (50.0%), and were housewives (73.3%).

The results showed an improvement in mothers' knowledge about stunting prevention, with the average score increasing from 77.67 in the pretest to 84.33 in the posttest (an increase of 6.66 points or 8.6%), which was statistically significant based on the Wilcoxon Signed-Rank Test ($p=0.010$; $p<0.05$). the counseling method using leaflets designed to be attractive, concise, and easy to understand proved effective in increasing mothers' knowledge.

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