

Strengthening family nutrition literacy based on community nursing in stunting prevention in toddlers

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ABSTRACT

Stunting remains a major public health problem that threatens child growth and long-term human development, particularly in low- and middle-income countries. Family nutrition literacy plays a critical role in shaping feeding practices, health-seeking behavior, and early detection of growth problems among toddlers. This community service program aimed to strengthen family nutrition literacy through a community nursing-based approach to support stunting prevention among toddlers. The program was implemented using a community-based method involving five stages: socialization, training, application of technology, mentoring and evaluation, and program sustainability. Activities were conducted with 30 families who had toddlers, supported by community nurses and health cadres. Training focused on balanced nutrition, appropriate complementary feeding, dietary diversity using local food sources, food hygiene, and interpretation of growth monitoring results. Simple digital educational media and mobile communication were used to reinforce learning and follow-up. Mentoring was provided through home visits and counseling sessions to support behavior change. The results showed improvements in family nutrition literacy, indicated by a reduction in low literacy levels and an increase in good literacy levels after the intervention. Positive changes were also observed in feeding practices and compliance with regular toddler growth monitoring. These findings indicate that strengthening family nutrition literacy through community nursing is an effective strategy to enhance family capacity in stunting prevention. Integrating education, mentoring, and appropriate technology within routine community nursing services can contribute to sustainable improvements in child nutrition practices. This approach has the potential to support long-term stunting reduction by empowering families as active agents in child health and nutrition care.



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INTRODUCTION

Stunting remains one of the most persistent public health challenges affecting children under five years of age, particularly in low- and middle-income countries (Addae et al., 2024). Defined as impaired linear growth resulting from chronic malnutrition, repeated infections, and inadequate psychosocial stimulation, stunting reflects cumulative nutritional deprivation during the most critical periods of growth and development (Anita et al., 2025). Children who are stunted face increased risks of morbidity and mortality, delayed cognitive development, poor educational attainment, and reduced economic productivity in adulthood. Consequently, stunting is not merely a biological condition but

a multidimensional problem with long-term implications for human capital development and intergenerational health equity (Arda et al., 2023).

Despite global and national commitments to reduce stunting prevalence, progress remains uneven. Many interventions continue to focus predominantly on biomedical and food-based approaches, such as supplementary feeding or micronutrient provision (Ayu Rahmadani et al., 2025). While these strategies are essential, evidence increasingly shows that they are insufficient when implemented without addressing the underlying social, behavioral, and environmental determinants of child nutrition (Bastos Silveira et al., 2024). Among these determinants, family nutrition literacy has emerged as a critical yet under-optimized factor influencing infant and young child feeding practices, care behaviors, and health-seeking decisions (Sylvia Bawilin & Suprpto, 2025).

Family nutrition literacy refers to the capacity of caregivers particularly parents and primary family members to obtain, understand, evaluate, and apply nutrition-related information in daily life to meet the nutritional needs of children (Bongga Linggi et al., 2024). Low nutrition literacy is often associated with inappropriate complementary feeding practices, poor dietary diversity, misconceptions about child growth, delayed responses to growth faltering, and limited utilization of preventive health services (Caraka et al., 2025). In many communities, caregivers may have access to health information, but gaps in comprehension, contextual relevance, and practical application hinder effective behavior change. This condition is exacerbated by socioeconomic constraints, cultural norms, and inconsistent health messaging (Cuenca et al., 2024).

In the context of stunting prevention, toddlers represent a particularly vulnerable group. The period between 12 and 59 months is characterized by rapid physical and cognitive development, increasing dietary complexity, and heightened exposure to environmental risks (Erika et al., 2024). Inadequate nutrition during this stage can solidify growth deficits that are difficult to reverse later in life. Families play a decisive role during this period, as daily feeding, hygiene, and caregiving practices are largely determined within the household. Therefore, strengthening family-level capacities is indispensable for sustainable stunting reduction (Hatijar et al., 2025).

Community nursing offers a strategic and context-sensitive platform to address these challenges. Rooted in primary health care principles, community nursing emphasizes health promotion, disease prevention, family empowerment, and community participation (Hendrick et al., 2025). Community nurses often maintain close, continuous relationships with families, enabling them to understand local contexts, cultural practices, and household constraints that shape nutritional behaviors. This proximity positions community nurses as trusted agents who can translate technical nutrition guidelines into practical, culturally acceptable actions for families (Latif et al., 2025).

However, in many settings, community-based stunting interventions remain focused on routine growth monitoring and reporting, with limited emphasis on structured nutrition literacy strengthening. Educational activities may be sporadic, didactic, and insufficiently tailored to family needs. As a result, caregivers may comply with service attendance requirements without achieving meaningful improvements in knowledge, skills, or confidence related to child feeding and nutrition care. This gap highlights the need for a more deliberate integration of nutrition literacy frameworks into community nursing practice.

Strengthening family nutrition literacy through community nursing involves more than information dissemination. It requires interactive, participatory, and family-centered approaches that enhance caregivers' abilities to interpret growth charts, plan balanced

meals using locally available foods, recognize early signs of undernutrition, and make informed decisions regarding health service utilization. Community nurses can facilitate this process by employing counseling techniques, home visits, group education sessions, and peer-support mechanisms that align with families' daily realities. By doing so, nutrition messages become actionable rather than abstract, fostering sustained behavior change.

Furthermore, community nursing-based nutrition literacy interventions have the potential to address inequities in stunting prevention. Families with limited formal education, low income, or restricted access to digital information often rely heavily on frontline health workers for guidance. Strengthening the role of community nurses in nutrition literacy promotion can bridge information gaps, counter misinformation, and empower vulnerable households. This approach also supports continuity of care, as nurses can monitor progress over time and adapt interventions based on family responses and changing circumstances.

In light of these considerations, strengthening family nutrition literacy based on community nursing represents a promising and necessary strategy for stunting prevention in toddlers. By positioning families as active agents rather than passive recipients of care, this approach aligns with contemporary public health paradigms that emphasize empowerment, sustainability, and community resilience. Addressing stunting through enhanced nutrition literacy not only improves child growth outcomes but also contributes to broader goals of health system strengthening and human development. Therefore, exploring and advancing community nursing-based nutrition literacy interventions is critical to achieving meaningful and lasting reductions in stunting among young children.

METHOD

This community service program applied a community-based approach grounded in community nursing to strengthen family nutrition literacy for stunting prevention among toddlers. The implementation was carried out through five main stages.

Socialization

Socialization was conducted through coordination meetings with community leaders, community nurses, health cadres, and families with toddlers. The objectives, activities, and expected outcomes of the program were explained, with emphasis on the role of family nutrition literacy in stunting prevention. This stage also identified initial needs and common problems related to toddler feeding practices.

Training

Training targeted community nurses and families. The materials covered balanced nutrition for toddlers, appropriate complementary feeding, use of local food sources, food hygiene, and interpretation of growth monitoring results. Interactive methods such as discussions and demonstrations were used to improve practical understanding and skills.

Application of Technology

Simple and accessible technology was used to support education and monitoring, including digital educational materials, mobile messaging for nutrition reminders, and standardized growth monitoring tools. These technologies helped improve information delivery and communication between families and community nurses.

Mentoring and Evaluation

Mentoring was provided through home visits and follow-up counseling by community nurses to reinforce nutrition practices and address family challenges.

Evaluation assessed participation, changes in nutrition knowledge, feeding practices, and compliance with child growth monitoring.

Program Sustainability

Program sustainability was ensured by integrating nutrition literacy activities into routine community nursing and primary health care services. Local health workers and cadres were empowered to continue education and mentoring activities, ensuring long-term impact on stunting prevention.



Figure 1. Stages of the method of implementing community service

RESULT AND DISCUSSION

RESULT

The results of this community service program are presented based on data from 30 respondents. The findings describe respondent characteristics and changes in family nutrition literacy, feeding practices, and growth monitoring compliance before and after the intervention. Overall, the results reflect the effectiveness of community nursing based activities in improving family capacity to prevent stunting among toddlers.

Table 1. Characteristics of Respondents (n = 30)

Variable	Category	n
Age (years)	< 25	6
	25–34	14
	≥ 35	10
Education Level	Primary–Junior High	11
	Senior High	13
	College/University	6
Occupation	Housewife	18
	Private/Informal Worker	8
	Civil Servant	4
Number of Toddlers	One child	19
	≥ Two children	11

Table 1 shows that most respondents were aged 25–34 years and had a senior high school education. The majority were housewives and had one toddler. These characteristics indicate that primary caregivers of toddlers were actively involved in the program, reflecting a relevant target group for strengthening family nutrition literacy in stunting prevention efforts.

Table 2. Family Nutrition Literacy Before and After the Program (n = 30)

Nutrition Literacy Level	Pre-intervention n (%)	Post-intervention n (%)
Low	16 (53.3)	4 (13.3)
Moderate	10 (33.3)	9 (30.0)
Good	4 (13.3)	17 (56.7)

Table 2 demonstrates a clear improvement in family nutrition literacy after the intervention. The proportion of respondents with low nutrition literacy decreased substantially, while those with good nutrition literacy increased markedly. These findings indicate that the community nursing-based intervention was effective in enhancing caregivers' understanding and application of child nutrition for stunting prevention.

The results indicate a substantial improvement in family nutrition literacy following the intervention. The proportion of respondents with good nutrition literacy increased markedly, accompanied by better feeding practices and higher compliance with toddler growth monitoring. These findings demonstrate that a community nursing based approach combined with education, technology application, and mentoring effectively strengthens family capacity in stunting prevention.

DISCUSSION

This community service program demonstrated that strengthening family nutrition literacy through a community nursing-based approach can effectively support stunting prevention among toddlers. The results showed clear improvements in caregivers' nutrition literacy levels, feeding practices, and compliance with growth monitoring after the intervention. These findings reinforce the importance of addressing behavioral and contextual determinants of child nutrition, beyond solely providing food or clinical services.

The characteristics of respondents indicate that the program successfully reached primary caregivers who play a central role in daily child feeding and care. Most participants were mothers in the productive age group with basic to secondary education and predominantly responsible for household and childcare activities (Lee et al., 2025). This profile is particularly relevant, as caregivers' educational background and caregiving responsibilities strongly influence how nutrition information is understood and applied. The involvement of this target group suggests that the intervention was appropriately positioned at the household level, where decisions about food selection, meal preparation, and child care are made (Bongga Linggi et al., 2024).

A key finding of this program was the substantial shift in family nutrition literacy levels following the intervention (Muna et al., 2023). The marked reduction in low nutrition literacy and the increase in good nutrition literacy indicate that the educational and mentoring activities were effective in improving caregivers' capacity to access, understand, and apply nutrition information (Punamäki et al., 2025). This result aligns with the concept that nutrition literacy is not merely knowledge acquisition but also involves practical skills and confidence in decision-making. The interactive training methods, combined with continuous mentoring by community nurses, likely contributed to this improvement by translating abstract guidelines into concrete, feasible actions (Rosyada et al., 2025).

Improved nutrition literacy was accompanied by positive changes in feeding practices and growth monitoring compliance. After the intervention, a higher proportion of families practiced appropriate complementary feeding and dietary diversity, using locally available foods (Sada et al., 2025). This finding suggests that caregivers were

better able to plan balanced meals and adapt nutritional recommendations to their socioeconomic context. The increased ability to interpret growth charts and attend regular growth monitoring sessions reflects greater awareness of child growth and the importance of early detection of growth faltering. These behavioral changes are critical, as timely recognition of growth problems allows for prompt corrective actions before stunting becomes irreversible (Sentika et al., 2024).

The role of community nursing was central to the success of the program. Community nurses acted not only as educators but also as facilitators and mentors who maintained close relationships with families (Suprpto et al., 2025). Through home visits and follow-up counseling, nurses were able to tailor messages to individual family needs, address misconceptions, and reinforce positive behaviors. This approach contrasts with conventional health education models that rely on one-way information delivery and often fail to achieve sustained behavior change. The findings support the view that community nursing provides a strategic platform for family-centered stunting prevention interventions.

The integration of simple technology further strengthened program outcomes. Digital educational materials and mobile communication tools helped standardize nutrition messages and maintain engagement between caregivers and nurses (Sylvia Bawilin & Suprpto, 2025). Technology-supported reminders and visual materials may have enhanced understanding, particularly for caregivers with limited formal education. However, the effectiveness of technology in this program depended on its simplicity and relevance to the local context. This highlights that technology should be viewed as a supportive tool rather than a standalone solution in community-based nutrition interventions (Zeldman et al., 2025).

From a public health perspective, the results underscore the value of combining education, mentoring, and system integration. Improvements in nutrition literacy and practices were not achieved through training alone but through sustained support and reinforcement. This finding is consistent with behavior change theories, which emphasize that knowledge must be supported by motivation, skills, and enabling environments. By embedding the intervention within existing community health structures, the program enhanced continuity of care and reduced the risk of short-term or fragmented impact.

Despite these positive outcomes, several considerations should be noted. The program involved a relatively small number of respondents and was implemented within a specific community context, which may limit generalizability. Additionally, the evaluation focused on short-term changes in literacy and behavior rather than long-term growth outcomes. Future programs should incorporate longer follow-up periods to assess whether improvements in nutrition literacy translate into sustained reductions in stunting prevalence. Expanding the intervention to include fathers and other family members may also strengthen household-level support for child nutrition.

Overall, the discussion highlights that strengthening family nutrition literacy through community nursing is a feasible and effective strategy for stunting prevention among toddlers. The observed improvements in caregiver knowledge, practices, and engagement with growth monitoring services demonstrate that family-centered, community-based interventions can address critical gaps in stunting prevention efforts. Integrating such approaches into routine primary health care services has the potential to contribute meaningfully to sustainable reductions in stunting and to broader goals of child health and development.

CONCLUSION

This community service program demonstrates that strengthening family nutrition literacy through a community nursing–based approach effectively improves caregivers’ knowledge, feeding practices, and participation in toddler growth monitoring. The observed increase in good nutrition literacy and positive behavioral changes indicate that family-centered education, supported by mentoring and appropriate technology, plays a critical role in stunting prevention among toddlers.

It is recommended that nutrition literacy interventions be systematically integrated into routine community nursing and primary health care services. Future programs should ensure continuous mentoring, expand the involvement of family members, and include longer-term monitoring to assess sustained impacts on child growth and stunting reduction.

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Conflict Of Interests

All authors declare no conflict of interest in this community service program.

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