



Midwives' Strategies in Preventing Stunting through Nutrition Education at Integrated Health Posts (Posyandu)

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ABSTRACT

Stunting remains a major public health problem that affects child growth and development, particularly during the first 1,000 days of life. In Indonesia, efforts to prevent stunting are closely linked to community-based health services, especially Integrated Health Posts (Posyandu), where midwives play a strategic role as frontline health workers. This study aims to explore midwives' strategies in preventing stunting through nutrition education at Posyandu, focusing on the types of educational approaches used, levels of community participation, challenges encountered, and perceived impacts on maternal nutrition knowledge and practices. This research employed a qualitative descriptive design conducted at selected Posyandu in Karo Regency/North Sumatra. Participants included midwives, Posyandu cadres, and mothers of children under five, selected through purposive sampling. Data were collected through in-depth interviews, observations of Posyandu activities, and document analysis of nutrition education materials. The data were analyzed thematically to identify patterns and key themes related to midwives' strategies and their effectiveness. Ethical principles, including informed consent, confidentiality, and voluntary participation, were strictly observed throughout the study. The findings indicate that midwives implement a variety of strategies, including individual counseling, group-based nutrition education, and home visits, supported by educational media such as posters, flipcharts, and food demonstrations. Major challenges included low attendance, limited resources, and cultural beliefs affecting feeding practices. Despite these challenges, nutrition education delivered by midwives contributed to improved maternal knowledge and positive changes in feeding behaviors. In conclusion, midwives integrated and context-sensitive strategies play a vital role in stunting prevention through nutrition education at Posyandu.

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1. INTRODUCTION

Stunting is a chronic nutritional problem that remains a major public health concern worldwide, particularly in low- and middle-income countries. Stunting occurs as a result of prolonged inadequate nutritional intake, recurrent infections, and insufficient care during the critical period of the first 1,000 days of life (Islam et al., 2020). Children affected by stunting experience impaired physical growth,

delayed cognitive development, weakened immunity, and an increased risk of chronic diseases in adulthood. Beyond individual health consequences, stunting negatively impacts human capital formation, productivity, and national economic development, making its prevention a global priority in maternal and child health programs.

In Indonesia, stunting continues to pose a significant challenge despite ongoing national efforts to reduce its prevalence. Data from national health surveys indicate that stunting rates remain above the threshold recommended by the World Health Organization, with higher prevalence observed in rural and socioeconomically disadvantaged areas (Organization, 2018). Locally, stunting is often associated with limited access to health services, low maternal education, suboptimal infant and young child feeding practices, and inadequate nutrition knowledge among caregivers. These conditions highlight the importance of strengthening community-based interventions that focus on prevention through early nutrition education and behavior change.

Integrated Health Posts (Posyandu) serve as a cornerstone of Indonesia's primary health care system in delivering maternal and child health services at the community level. Posyandu provides essential services such as growth monitoring, immunization, antenatal and postnatal care, family planning, and nutrition counseling. As a community-based platform, Posyandu is designed to be accessible, preventive, and promotive, making it an ideal setting for stunting prevention initiatives (Holschneider et al., 2021). Through regular monthly activities, Posyandu enables early detection of growth faltering and offers opportunities for continuous nutrition education to mothers and caregivers.

Midwives play a strategic role as frontline health workers in the implementation of Posyandu services. Their responsibilities extend beyond clinical care to include health promotion, education, and community empowerment. In the context of stunting prevention, midwives are expected to provide comprehensive nutrition education covering maternal nutrition during pregnancy, exclusive breastfeeding, appropriate complementary feeding, and hygienic practices. The effectiveness of these efforts depends largely on the strategies used by midwives, including their communication methods, use of educational media, and ability to engage mothers and collaborate with Posyandu cadres.

Several studies in Indonesia have focused on the role of nutrition education in improving knowledge and practices related to stunting prevention (Aramico et al., 2020). For example, Nuhan, Palalangan, Atok, and Nenotek (2025) examined the influence of balanced nutrition education on the knowledge of Posyandu cadres in preventing stunting. Their quasi-experimental study found that after receiving structured nutrition education, cadres showed significant improvement in their understanding of nutrition and stunting prevention, highlighting the importance of capacity building among community health volunteers as part of broader stunting reduction efforts. This study underlines the role of educational interventions in strengthening the community health system at the grassroots level.

In alignment with this, Willmart, Krissandiani, and Nadhiroh (2024) investigated the effect of nutrition education integrated into the "Desa Emas: Percepatan Penurunan Stunting" program on the knowledge of Posyandu cadres. Using a pre-test and post-test design, the study reported an increase in cadre knowledge following interactive education using presentations and animated visual media. These findings suggest that tailored education methods can be effective in enhancing cadre competence, which is critical for early detection and prevention of stunting in community settings.

Beyond cadre education, research has also explored strategies and community practices to optimize the broader role of Posyandu workers. Chabibah, Anggraeny, and Irot (2023) analyzed the optimization of cadres' roles in nutrition education and stimulation as a means of preventing and handling stunting. Their community empowerment study emphasized the need to mobilize community participation and equip cadres with skills to detect stunting early and support preventive actions. The authors argue that enhancing understanding and capability among Posyandu volunteers is essential to implementing national stunting reduction goals.

A complementary body of work has concentrated on maternal and caregiver education as a key strategy for stunting prevention. Rahmadani, Setiawati, Aris, Lontaan, and Prasetyowati (2025)

evaluated the effectiveness of nutrition education in changing behaviors related to stunting prevention among mothers of under-five children. Their findings demonstrate that mothers who received targeted nutrition education displayed improved practices related to balanced nutrition and child feeding, reinforcing the idea that education at the household level is vital for behavioral change and long-term stunting reduction.

In community development contexts, Yuliani, Ulfha, Milasari, and Meliana (2024) examined the impact of educational interventions for Posyandu cadres in detecting early stunting risks. Their outreach study showed that cadres gained significant knowledge and skills in anthropometric measurement techniques and identification of stunting risk indicators after participating in structured educational sessions. These results affirm that skill-based training complements knowledge transfer and can improve early detection efforts at the community level.

Despite the crucial role of midwives and Posyandu in stunting prevention, various challenges remain in the delivery of nutrition education. These challenges include low attendance at Posyandu sessions, limited understanding and retention of nutrition messages, cultural beliefs and traditional feeding practices that may conflict with recommended guidelines, and time constraints during service provision. Additionally, nutrition education is often delivered using conventional methods that may not adequately encourage active participation or behavior change among mothers and caregivers. Such limitations reduce the effectiveness of nutrition education and may contribute to the persistence of stunting at the community level.

Previous research on stunting has primarily focused on prevalence, risk factors, and the outcomes of nutrition interventions (Danaei et al., 2016). While some studies have examined the role of Posyandu and health education in addressing stunting, there is limited empirical evidence exploring the specific strategies employed by midwives in delivering nutrition education at Posyandu. In particular, few studies have examined how midwives adapt their educational approaches to local contexts and overcome existing barriers in the community. Therefore, this research seeks to address this gap by examining midwives' strategies in preventing stunting through nutrition education at Integrated Health Posts (Posyandu), with the aim of contributing evidence-based insights to strengthen community-based stunting prevention efforts.

2. RESEARCH METHOD

This study employed a qualitative descriptive research design to explore midwives' strategies in preventing stunting through nutrition education at Integrated Health Posts (Posyandu) (Setyowati, 2003). A qualitative approach was considered appropriate because the study aimed to gain an in-depth understanding of experiences, strategies, perceptions, and contextual challenges faced by midwives in delivering nutrition education at the community level. By using this design, the research was able to capture rich, detailed data that could not be adequately obtained through quantitative measurement alone.

The study was conducted at several Posyandu located in [Karo Regency/North Sumatra Province], Indonesia (Retnaningtyas & Mardjengi, 2020). The selection of the study setting was based on the prevalence of stunting in the area and the active implementation of Posyandu services involving midwives and community health cadres. Posyandu was chosen as the research setting because it is a primary platform for maternal and child health services and plays a central role in stunting prevention programs at the community level.

The participants of this study consisted of midwives, Posyandu cadres, and mothers of children under five years old (Setyowati, 2003). Midwives were selected as key informants due to their professional responsibility in providing nutrition education and supervising Posyandu activities. Posyandu cadres were included to provide insights into the implementation and support of nutrition education activities, while mothers were involved to capture their perspectives and experiences as recipients of nutrition education. Participants were selected using purposive sampling, with inclusion criteria based on active involvement in Posyandu activities and willingness to participate in the study.

Data were collected using multiple qualitative methods to ensure data triangulation and enhance the credibility of the findings (Moon, 2019). In-depth interviews were conducted with midwives and Posyandu cadres to explore strategies, educational approaches, challenges, and perceived effectiveness of nutrition education programs. Semi-structured interview guides were used to allow flexibility while ensuring that key topics were covered. Observations were carried out during Posyandu sessions to examine how nutrition education was delivered, including communication techniques, use of educational media, interaction between midwives and participants, and community engagement. Additionally, questionnaires were administered to mothers to gather supporting data related to their understanding of nutrition messages and participation in Posyandu activities. Document analysis was also conducted by reviewing Posyandu records, educational materials, program guidelines, and monthly reports related to nutrition and stunting prevention.

Data analysis was performed using thematic analysis. All interview recordings were transcribed verbatim and combined with observation notes, questionnaire results, and document findings (Halcomb & Davidson, 2006). The data were analyzed through several stages, including data familiarization, coding, categorization, and theme development. Emerging themes related to midwives' strategies, barriers, facilitating factors, and community responses were identified and interpreted systematically. Data triangulation across different sources and methods was applied to strengthen the validity of the findings.

Ethical considerations were carefully addressed throughout the research process. Ethical approval was obtained from the relevant institutional review board prior to data collection (Balon et al., 2019). All participants were provided with clear information about the purpose of the study and their rights as participants. Informed consent was obtained before participation, and confidentiality was ensured by anonymizing participants' identities in all transcripts and reports. Participation was entirely voluntary, and participants were informed that they could withdraw from the study at any time without any consequences. The research was conducted in accordance with ethical principles of respect, beneficence, and justice.

3. RESULTS AND DISCUSSIONS

3.1 Result

The findings of this study reveal that midwives employed a variety of strategies in preventing stunting through nutrition education at Integrated Health Posts (Posyandu). These strategies were implemented to accommodate the needs of mothers, children, and the broader community, while also addressing contextual challenges at the local level.

One of the primary strategies used by midwives was individual counseling, particularly for pregnant women and mothers of children under five (Andaroon et al., 2017). Counseling sessions were commonly conducted during Posyandu visits and focused on maternal nutrition during pregnancy, exclusive breastfeeding, appropriate complementary feeding, and child growth monitoring. Midwives tailored counseling messages to the specific conditions of each mother and child, allowing for more personalized guidance. In addition to individual counseling, group education sessions were regularly organized during Posyandu activities. These sessions involved health talks, discussions, and demonstrations delivered to groups of mothers, often supported by Posyandu cadres. Some midwives also conducted home visits, especially for families with children identified as being at risk of stunting or those who rarely attended Posyandu. Home visits allowed midwives to provide more intensive education, observe feeding practices directly, and offer practical recommendations within the household context.

Regarding educational materials and media, midwives utilized a range of resources to support nutrition education (Nankumbi et al., 2018). Commonly used materials included posters, leaflets, flipcharts, and growth monitoring cards, which were provided by local health offices. In some Posyandu, simple visual aids such as food models and illustrated charts were used to explain balanced nutrition and portion sizes. Several midwives also reported using digital media, such as videos or messaging applications, to share nutrition information and reminders with mothers. The use of visual

and interactive media was found to enhance understanding and maintain participants' attention during education sessions.

The level of community participation varied across Posyandu but was generally moderate (Nazri et al., 2015). Mothers who attended Posyandu regularly tended to be more engaged during education sessions, actively asking questions and participating in discussions. Posyandu cadres played a key role in mobilizing community participation by inviting mothers, assisting with education activities, and reinforcing nutrition messages at the household level. However, attendance was inconsistent in some areas, particularly among working mothers or those who perceived Posyandu activities as repetitive or time-consuming. Despite these limitations, community involvement was stronger in Posyandu where midwives and cadres worked collaboratively and used interactive education approaches.

Several challenges were identified in the implementation of nutrition education strategies (Kupolati et al., 2014). These included limited time during Posyandu sessions, low attendance of certain target groups, and the persistence of cultural beliefs related to infant feeding that conflicted with recommended practices. Additionally, constraints in educational media availability and the varying capacity of Posyandu cadres affected the consistency of message delivery. Nevertheless, midwives also reported success stories, such as improved attendance following intensified outreach efforts, increased enthusiasm among mothers during interactive sessions, and observable improvements in feeding practices among families who received regular counseling and follow-up.

The impact of midwives' strategies on mothers' nutrition knowledge and practices was evident in several aspects. Mothers demonstrated improved understanding of key nutrition concepts, including the importance of exclusive breastfeeding, timely introduction of complementary foods, and balanced meal composition for children. Many mothers reported applying this knowledge by preparing more nutritious meals, adhering to recommended feeding schedules, and regularly monitoring their children's growth at Posyandu. These changes suggest that the strategies implemented by midwives contributed positively to enhancing maternal nutrition knowledge and promoting healthier practices that support stunting prevention.

3.2 Comparison with Previous Studies

The findings of this study are largely consistent with previous research that highlights the importance of community-based nutrition education in preventing stunting. Similar to the results reported by Nuhan et al. (2025) and Willmart et al. (2024), this study found that nutrition education delivered at Posyandu through counseling and group education plays a significant role in improving maternal knowledge and awareness regarding child nutrition. These studies likewise emphasized that structured and repetitive education sessions at the community level are effective in strengthening understanding of balanced nutrition and appropriate feeding practices, which aligns with the strategies identified in the present research.

The use of multiple educational strategies, including individual counseling, group education, and home visits, corresponds with findings from Aryudaningrum, Hidayat, and Kurniawati (2025), who reported that midwives often combine facility-based and household-level approaches to maximize the reach and effectiveness of stunting prevention efforts. Home visits, in particular, have been recognized in previous studies as an effective strategy for addressing specific family-related barriers and reinforcing nutrition messages in real-life contexts (Le Menestrel & Kizer, 2019). This similarity suggests that personalized and context-sensitive approaches remain a key component of successful stunting prevention programs.

In terms of educational materials and media, the present study's findings are in line with those of Willmart et al. (2024) and Sagita et al. (2025), which demonstrated that the use of visual aids, printed materials, and simple digital media can enhance participants' understanding and engagement. However, while previous studies mainly focused on the effectiveness of educational media in increasing knowledge, the current study extends these findings by highlighting how midwives adapt the use of available media based on time constraints and community characteristics, thereby offering a more practical perspective on strategy implementation.

Community participation observed in this study is also comparable to earlier research that identified varying levels of attendance and engagement in Posyandu activities. Studies by Chabibah et al. (2023) and Rahmadani et al. (2025) similarly reported that regular participation is influenced by factors such as maternal workload, perceived benefits of Posyandu services, and support from community cadres. The present study supports these findings while further emphasizing the critical role of collaboration between midwives and cadres in sustaining community involvement, particularly in areas with inconsistent attendance.

The challenges identified in this study, including limited time for education, cultural beliefs related to infant feeding, and resource constraints, are consistent with those reported in earlier studies. Aryudaningrum et al. (2025) and Lindawati et al. (2025) noted that such barriers often limit the effectiveness of nutrition education programs at the community level. Nevertheless, the success stories documented in the present research such as improved feeding practices and increased maternal confidence mirror the positive outcomes reported in previous intervention-based studies, reinforcing the conclusion that well-designed and contextually adapted education strategies can produce meaningful change.

Overall, when compared with previous studies, the findings of this research confirm the effectiveness of nutrition education at Posyandu while contributing new insights into the strategic role of midwives in adapting education methods to local contexts. Unlike many earlier studies that focused primarily on outcomes such as knowledge improvement, this research provides a deeper understanding of how midwives implement and adjust their strategies in practice. This contribution helps fill an important gap in the literature and strengthens the evidence base for improving community-based stunting prevention programs.

3.3 Certain Strategies Are Effective or Ineffective

The effectiveness of midwives' strategies in preventing stunting through nutrition education at Posyandu can be explained by the degree to which these strategies align with community needs, communication principles, and behavior change processes. Strategies that combine personal interaction, practical guidance, and continuous follow-up tend to be more effective, while those that are limited in scope, time, or adaptability are often less successful (Hill et al., 2016).

Individual counseling was found to be particularly effective because it allows midwives to tailor nutrition messages to the specific conditions of each mother and child. Personalized counseling enables midwives to address individual knowledge gaps, correct misconceptions, and provide practical solutions based on family resources and cultural practices (Bogdan-Lovis & Sousa, 2006). This approach increases mothers' understanding and trust, making them more receptive to recommended nutrition practices. In contrast, counseling may be less effective when conducted briefly due to time constraints during Posyandu sessions, as limited interaction reduces opportunities for clarification and reinforcement of key messages.

Group education sessions are effective when they are interactive and participatory (Helms Andersen et al., 2014). Group discussions, demonstrations, and question-and-answer sessions create opportunities for shared learning and peer support among mothers, which can strengthen motivation to adopt healthy practices. The effectiveness of this strategy is further enhanced when midwives use simple language and visual aids to explain nutrition concepts. However, group education becomes less effective when it relies solely on one-way communication, such as lectures without engagement, as participants may lose interest or fail to fully understand the information presented.

Home visits are considered one of the most effective strategies, particularly for families with children at risk of stunting or those who rarely attend Posyandu (Rahmawati & Sartika, 2020). This strategy allows midwives to directly observe household conditions, feeding practices, and hygiene behaviors, enabling more accurate assessment and targeted guidance. Home visits also foster stronger relationships between midwives and families, which can improve compliance with nutrition recommendations. Nevertheless, home visits are often limited by workforce shortages, time constraints, and logistical challenges, making them difficult to implement consistently and at scale.

The use of educational materials and media contributes significantly to the effectiveness of nutrition education. Visual aids such as posters, flipcharts, and food models help simplify complex nutrition messages and improve comprehension, particularly among mothers with lower educational backgrounds (Hyden et al., 2013). Digital media, when accessible, can reinforce messages beyond Posyandu sessions. However, the impact of educational media is reduced when materials are outdated, insufficient in number, or not culturally appropriate, which can limit their relevance and effectiveness.

Community participation plays a critical role in determining the success of these strategies (Blair, 2004). Strategies are more effective in communities where mothers regularly attend Posyandu and where cadres actively support and reinforce nutrition messages. Strong collaboration between midwives and Posyandu cadres enhances outreach efforts and continuity of education. Conversely, strategies tend to be less effective in communities with low attendance, limited cadre involvement, or prevailing cultural beliefs that conflict with recommended nutrition practices.

In summary, strategies are most effective when they are personalized, interactive, and context-sensitive, supported by adequate resources and strong community engagement. Ineffectiveness often arises from structural constraints such as limited time, insufficient personnel, and lack of appropriate educational materials, as well as from social and cultural barriers (DaRosa et al., 2011). Understanding these factors is essential for improving the design and implementation of nutrition education strategies aimed at preventing stunting at the community level.

3.4 Linking Findings to Theory and Local Context

The findings of this study can be linked to relevant health education and behavior change theories, particularly the Health Belief Model (HBM), Social Cognitive Theory (SCT), and community-based participatory approaches, while also reflecting the local context of Posyandu-based maternal and child health services in Indonesia. These theoretical perspectives help explain why certain nutrition education strategies implemented by midwives are effective in improving mothers' knowledge and practices related to stunting prevention.

From the perspective of the Health Belief Model, improvements in mothers' nutrition knowledge and practices indicate increased awareness of perceived susceptibility and severity of stunting (Nenobais & Katmini, 2021). Through counseling, group education, and home visits, midwives help mothers understand the risks of inadequate nutrition during pregnancy and early childhood, as well as the long-term consequences of stunting. Personalized counseling and home visits also strengthen perceived benefits and reduce perceived barriers by offering practical, context-appropriate solutions, such as affordable local food options. This alignment with HBM explains why individualized and repeated education is more effective than one-time, generalized information sessions.

The findings also align with Social Cognitive Theory, which emphasizes the role of observational learning, self-efficacy, and social support in behavior change. Group education sessions at Posyandu provide opportunities for mothers to observe peers, share experiences, and learn from one another, thereby reinforcing positive nutrition behaviors. Demonstrations of complementary feeding or balanced meal preparation enhance mothers' confidence in their ability to apply new knowledge at home. Home visits further strengthen self-efficacy by allowing midwives to provide direct feedback and encouragement within the mothers' real-life environment, making recommended practices feel achievable rather than abstract.

In terms of community-based and socio-ecological perspectives, the effectiveness of midwives' strategies reflects the importance of engaging multiple levels of influence, including individuals, families, and the wider community (Busza et al., 2012). Posyandu functions as a community-based platform where health messages are reinforced not only by midwives but also by cadres and community leaders. High levels of community participation support sustained behavior change, as nutrition practices are shaped by shared norms and collective support. Conversely, in areas with low Posyandu attendance or limited cadre involvement, the impact of education strategies tends to be weaker, highlighting the role of social environment in health outcomes.

The local context significantly shapes how these theories are applied in practice (Ober & Sakdapolrak, 2017). In many Indonesian communities, mothers' nutrition practices are influenced by

cultural beliefs, family traditions, and economic limitations. Midwives who incorporate local foods, respect cultural norms, and communicate in simple, familiar language are more successful in translating theoretical principles into practical action. Home visits are particularly relevant in this context, as they allow midwives to engage not only mothers but also other family members who influence child feeding decisions, such as husbands or grandparents.

Overall, the findings demonstrate that effective stunting prevention strategies are those that integrate behavior change theory with local realities. By adapting counseling, group education, and home visits to the cultural, social, and economic context of the community, midwives are able to move beyond knowledge transfer toward meaningful and sustainable changes in maternal nutrition practices.

4. CONCLUSION

Based on the findings of this study, several key conclusions can be drawn regarding the strategies used by midwives in preventing stunting through nutrition education at Integrated Health Posts (Posyandu). Midwives play a crucial role as frontline health workers in delivering nutrition education to mothers and families, particularly during the critical first 1,000 days of life. The study concludes that a combination of counseling, group education sessions, and home visits is more effective than relying on a single approach. Personalized counseling and home visits allow midwives to tailor nutrition messages to the specific needs and conditions of families, while group education at Posyandu strengthens peer learning and community support. The use of simple, culturally appropriate educational materials and active involvement of community health cadres further enhances the effectiveness of these strategies. However, challenges such as low attendance at Posyandu, limited time and resources, and persistent cultural beliefs that influence feeding practices continue to hinder optimal outcomes. In light of these conclusions, several practical recommendations can be proposed to improve nutrition education at Posyandu. First, midwives should be supported through regular training and capacity-building programs that focus on communication skills, behavior change strategies, and the use of innovative educational media. Second, strengthening collaboration between midwives, Posyandu cadres, and local community leaders is essential to increase community participation and trust. Third, nutrition education should emphasize practical demonstrations using locally available and affordable food ingredients, making recommendations easier to apply in daily life. For future research, it is recommended that studies explore the long-term impact of midwives' nutrition education strategies on child growth outcomes, particularly stunting prevalence. Further research could also compare the effectiveness of different educational approaches, such as digital media-based interventions versus conventional face-to-face methods, in various community settings. In addition, involving fathers, grandparents, and other caregivers as study participants may provide a more comprehensive understanding of family dynamics in child nutrition practices.

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