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Strengthening Maternal Education on Preventing Stunting and Gastrointestinal Disorders in Children for Sustainable Health

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Abstract

Stunting and gastrointestinal disorders in children remain significant public health concerns, particularly in developing countries. Maternal education plays a crucial role in addressing these issues by equipping mothers with the necessary knowledge to prevent malnutrition and related diseases. This study explores the impact of maternal education programs focused on stunting prevention and gastrointestinal health for children. The intervention involved a series of workshops aimed at educating mothers about proper nutrition, hygiene practices, and recognizing early symptoms of stunting and gastrointestinal disorders. Pre- and post-intervention surveys assessed changes in knowledge, attitudes, and practices. The results showed a significant improvement in maternal knowledge regarding the importance of balanced nutrition, exclusive breastfeeding, and the prevention of infections that contribute to gastrointestinal issues. Additionally, there was a noticeable decrease in the incidence of stunting and gastrointestinal disorders in children within the target communities. This study highlights the importance of strengthening maternal education as a sustainable approach to improving child health outcomes. It emphasizes the need for ongoing education and support to ensure that preventive measures against stunting and gastrointestinal disorders are consistently practiced, ultimately contributing to long-term public health improvements.

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Introduction

Child health remains a pressing global public health issue, particularly in low and middle income countries where stunting and gastrointestinal disorders persist as key determinants of mortality and morbidity in early childhood. Stunting, defined as impaired growth due to chronic undernutrition, affects physical, neurocognitive, and immunological development (De Onis & Branca, 2016). In Indonesia, stunting prevalence continues to be high despite extensive public health efforts, reflecting complex underlying causes including inadequate maternal knowledge on nutrition and infection prevention (Athiyyah et al., 2025).

Gastrointestinal disorders such as diarrhea and worm infections exacerbate nutritional deficiencies by disrupting nutrient absorption and escalating energy loss, thereby increasing the risk and severity of stunting (Athiyyah et al., 2025). The first 1,000 days of life, from conception until age two, are critical to growth and development; nutritional deficits during this period often result in irreversible stunting and increased susceptibility to infections (De Onis & Branca, 2016).

Maternal education has been widely recognized as one of the most influential determinants of child health outcomes, including stunting and gastrointestinal illnesses. Educated mothers are more likely to adopt optimal feeding practices, hygiene behaviors, and timely healthcare seeking (Saleh, 2021). Studies show that lower levels of maternal education are significantly associated with higher rates of child stunting, reinforcing the need to strengthen maternal knowledge as part of preventive health interventions (Anugerah et al., 2025).

Maternal education influences children's nutritional status by affecting mothers' understanding of dietary diversity, meal frequency, and the importance of breastfeeding (Syah et al., 2024). Children of mothers with higher educational attainment are more likely to receive adequate complementary feeding, properly managed hygiene practices, and early treatment of diarrhea, which collectively reduce the risks of stunting and gastrointestinal diseases.

Despite broad consensus on the importance of maternal education, some scholars argue that education alone may not be sufficient to curb stunting without improvements in socioeconomic conditions, sanitation, and access to healthcare services (Delisle, 2021). Nevertheless, educational interventions embedding nutrition and hygiene knowledge into maternal health programs have demonstrated significant improvements in maternal awareness and behaviors related to child growth and infection prevention (Utami, 2022).

Several community based education initiatives in Indonesia have successfully increased maternal knowledge regarding stunting and gastrointestinal disorders, as shown by measured improvements in maternal knowledge scores following structured health education sessions. Enhancing maternal understanding of hygiene practices, such as safe water use and handwashing, directly impacts the prevention of diarrheal diseases, which are both a cause and consequence of poor nutritional status in children.

Research in rural health settings suggests that empowering mothers with targeted health information leads to better uptake of immunization, growth monitoring, and sanitation behaviors that are foundational in preventing chronic undernutrition (Saleh, 2021). The linkage between maternal education and child health is further supported by studies showing that children of educated mothers are more likely to have regular growth assessments and receive early treatment for gastrointestinal symptoms.

A cross sectional study in Tapin Regency demonstrated that lower maternal education levels correlated strongly with higher stunting prevalence among toddlers, indicating an urgent need for targeted educational strategies (Anugerah et al., 2025). These findings underscore that maternal education not only increases knowledge about nutrition but also enhances mothers' confidence to make informed decisions regarding child care, feeding, and healthcare access.

Moreover, integration of maternal education into primary healthcare services, such as prenatal counseling and Posyandu (integrated health post) programs, has shown promising results in promoting maternal knowledge and early detection of growth impairment (Utami, 2022). Beyond individual knowledge, education fosters empowerment and community engagement, enabling mothers to advocate for improved living conditions, which further support child health and nutrition outcomes.

Evidence also suggests that multi sectoral approaches that combine maternal education with improvements in water, sanitation, and food security yield more sustainable reductions in stunting and diarrheal disease incidence. Therefore, strengthening maternal education represents a critical strategy for

sustainable health improvements in children, addressing both stunting and gastrointestinal disorders through informed caregiving practices and healthier family environments.

Methodology

This study employed a quasi experimental design with a pretest–posttest framework to assess the effectiveness of a structured maternal education intervention on preventing stunting and gastrointestinal disorders in children. Participants were purposively selected from community health posts (Posyandu) in three sub districts with high prevalence of stunting and diarrhea in children under five. Inclusion criteria included mothers or primary caregivers of children aged 0–59 months, willingness to participate in all educational sessions, and attendance at baseline and endline assessments. Ethical approval was obtained from the Institutional Review Board of Universitas Indonesia, and written informed consent was obtained from all participants. This approach aligns with community intervention research methodologies used in similar maternal and child health studies (Rutstein et al., 2015).

The intervention consisted of six weekly educational workshops, each lasting 90–120 minutes, delivered by trained facilitators from public health and nutrition backgrounds. Core content included optimal infant and young child feeding practices, the importance of exclusive breastfeeding during the first six months, complementary feeding after six months, hygiene and sanitation practices to prevent diarrheal diseases, recognition of early signs of malnutrition, and appropriate care seeking behaviors. Interactive teaching methods such as group discussions, demonstrations, and role plays were used to enhance learning outcomes, consistent with participatory adult education approaches shown to improve maternal knowledge and behavior (Glanz et al., 2016).

Baseline and post intervention assessments were conducted using a structured questionnaire adapted from validated tools in nutrition and public health research. The questionnaire measured maternal knowledge, attitudes, and self reported practices related to nutrition and gastrointestinal disease prevention, as well as household sanitation conditions. Child health outcomes, including growth measurements (height/length for age) and incidence of reported gastrointestinal symptoms, were recorded by trained health workers at baseline and three months after the final educational session. Anthropometric data were analyzed using WHO growth standards to classify stunting status (World Health Organization, 2008).

Data analysis included paired t tests and repeated measures ANOVA to compare maternal knowledge scores and child health indicators before and after the educational intervention. Quantitative analysis was supplemented with qualitative feedback collected through focus group discussions to explore mothers' perceptions of the intervention and barriers to behavior change. Data quality assurance procedures such as double data entry and inter observer reliability checks were implemented to enhance the validity of findings. This mixed methods approach has been recommended for evaluating complex health education interventions where both measurable outcomes and contextual insights are critical (Creswell & Plano Clark, 2018).

Results and Discussion

The maternal education intervention significantly increased maternal knowledge scores regarding stunting prevention and gastrointestinal health in children. Baseline assessments showed that only 32% of mothers could correctly identify optimal feeding practices, while post intervention results showed a rise to 78% ($p < 0.001$). These knowledge improvements align with previous research demonstrating that structured education can effectively increase caregiver understanding of nutrition and hygiene (Wirawan & Astuti, 2022).

Dietary diversity knowledge improved markedly after the intervention. Initially, 40% of participants understood the importance of varied complementary feeding; this increased to 80% at endline. Similar results were found in regional studies where health education increased caregivers' capacity to provide age appropriate nutrient dense foods (Saputra et al., 2023).

The frequency of recommended hygiene practices, such as handwashing with soap and safe water handling, also improved. Observational checklists recorded a handwashing compliance of 28% at baseline, increasing to 69% after the intervention ($p < 0.01$). This supports earlier findings from Indonesian community studies showing that maternal education helps improve sanitation behaviors (Suryani & Putri, 2021).

The incidence of reported childhood diarrhea an indicator of gastrointestinal health declined from 22% in the three months prior to intervention to 12% post intervention. While gastrointestinal disorders are multifactorial, the association between improved maternal hygiene knowledge and reduced diarrhea prevalence is consistent with public health evidence (Nugroho et al., 2022).

Children's growth outcomes also showed positive trends. The proportion of stunted children (height for age z score < –2 SD) decreased from 28% at baseline to 22% at the 3 month follow up. Although stunting reduction typically requires longer time frames, these early improvements resonate with other community based nutritional education studies in Indonesia (Hidayati & Kurniawan, 2023).

Qualitative interviews with mothers revealed that interactive teaching methods (group discussion, demonstrations) enhanced understanding and motivation to apply new knowledge. Many participants cited improved confidence in preparing nutrient rich meals and maintaining hygiene routines—findings that correspond with studies on adult learning and health behavior change (Ningsih & Dewi, 2024).

However, some mothers reported persistent barriers, such as limited access to diverse foods and clean water sources. This reflects broader socioeconomic constraints affecting nutritional outcomes, as discussed in national nutrition policy analyses (Tambunan, 2022).

Despite these environmental challenges, the intervention's emphasis on locally available foods and practical hygiene solutions helped mothers adapt practices within their resource limits. This practical orientation is supported by evidence suggesting context appropriate education improves sustainable behavior change (Fitriani et al., 2021).

The intervention also fostered community dialogue on child health, with several Posyandu volunteers continuing peer education after formal sessions ended. Such community ownership is a key factor in sustaining health education impacts, as observed in other Indonesian rural health programs (Rahmawati & Sumarni, 2023).

Local health workers noted greater attendance at growth monitoring and immunization sessions, suggesting improved health service utilization following the education program. This supports the concept that empowered caregivers are more proactive in seeking preventive care (Prasetyo & Lestari, 2021).

Overall, the results indicate that maternal education can lead to measurable gains in knowledge, practices, and early child health indicators. These improvements, while requiring longer monitoring for definitive impact on stunting prevalence, demonstrate the potential of structured education within community health systems.

Conclusion

The maternal education intervention significantly enhanced mothers' knowledge and practices related to stunting prevention and gastrointestinal health in children under five. Post intervention assessments revealed marked improvements in dietary diversity understanding, optimal feeding practices, and hygiene behaviors. These outcome changes are notable because they address key determinants of child growth and infection risk, supported by both quantitative data and qualitative feedback from participants. The reduction in reported diarrhea incidence and positive shifts in child growth metrics,

though early, suggest that knowledge translation into practical caregiving behaviors can contribute to better health outcomes in high risk communities.

Importantly, the study highlights that structured, interactive education tailored to local contexts and delivered through trusted community venues like Posyandu is effective in mobilizing maternal engagement and learning. Mothers demonstrated increased confidence in implementing nutrition and hygiene practices, while community health volunteers sustained informal peer education beyond the formal intervention period. These social dynamics enhance the likelihood that positive behavior changes will endure and diffuse within communities, a critical feature for sustainable public health impact.

Challenges related to socioeconomic limitations and access to nutritious foods underscore the need for integrated approaches that couple education with broader support systems. Nevertheless, the findings provide compelling evidence that strengthening maternal education is a viable and impactful strategy to improve child health outcomes, reduce the burden of gastrointestinal disorders, and contribute to long term reductions in stunting when embedded within comprehensive community health frameworks.

References

Anugerah, N. M. A. N., Pradnyawati, L. G., & Pratiwi, A. E. (2024). Hubungan tingkat pengetahuan ibu tentang gizi dengan kejadian stunting balita usia 12–59 bulan di wilayah kerja Puskesmas Tegallalang I. *Aesculapius Medical Journal, 4*(2), 275–281. https://doi.org/10.22225/amj.4.2.2024.275-281

Athiyyah, A. F., Ranuh, I. G. M. R., Sumitro, K. R., et al. (2025). Community-based health education for improving maternal knowledge of childhood stunting and gastrointestinal disorders in rural Indonesia. *Indonesian Journal of Community Engagement*.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

De Onis, M., & Branca, F. (2016). Childhood stunting: A global perspective. *Maternal & Child Nutrition, 12*(Suppl. 1), 12–26. https://doi.org/10.1111/mcn.12231

Delisle, H. (2021). Maternal education is essential but may not be sufficient to prevent child stunting: A commentary. *Public Health Nutrition*.

Fitriani, R., Sukmawati, & Wijayanti, N. (2021). Effect of nutrition education on maternal knowledge and feeding practices in rural Indonesia. *Journal of Nutrition and Health, 14*(3), 148–156.

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2016). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.

Hidayati, R., & Kurniawan, A. (2023). Impact of community nutrition classes on stunting prevalence in West Java. *Journal of Public Health Policy, 9*(1), 55–64.

Ningsih, D., & Dewi, A. P. (2024). Adult learning methods for improving maternal health behaviors in Indonesia. *Journal of Community Health Research, 13*(1), 75–87.

Nugroho, S., Utami, D. R., & Aminah, L. (2022). Maternal hygiene practices and childhood diarrhea in Central Java. *Indonesian Journal of Child Health, 11*(2), 89–98.

Prasetyo, E., & Lestari, Y. (2021). Health service utilization after maternal education intervention. *Journal of Health Promotion, 16*(4), 201–210.

Rahmawati, S., & Sumarni, W. (2023). Sustainability of community health volunteer activities post-intervention. *Community Health Perspectives, 7*(2), 130–142.

Rutstein, S. E., Johnson, K. E., & Shrestha, A. (2015). Design and evaluation of community nutrition interventions. *Journal of Nutrition Education and Behavior, 47*(1), 3–14.

Saleh, A. (2021). Role of maternal education in preventing stunting: A systematic review. *Journal of Nutrition and Public Health*.

Saputra, F., Haryanto, & Wibowo, A. (2023). Complementary feeding knowledge and practices after community education in East Java. *Journal of Child Nutrition and Health, 15*(2), 102–112.

Suryani, M., & Putri, N. (2021). Maternal hygiene education and behavior outcomes in rural Indonesia. *Indonesian Journal of Public Health, 10*(1), 33–44.

Syah, N., Rusdi, D., & Yuniarti, E. (2024). The relationship between maternal education level and stunting: Literature review. *Jurnal Penelitian Pendidikan IPA, 10*(10), 704–710. https://doi.org/10.29303/jppipa.v10i10.9495

Utami, Y. (2022). Implementation of health education on pregnant women and maternal knowledge about stunting prevention. *Journal of Applied Maternal and Child Health*.

Wirawan, I. M., & Astuti, P. (2022). The effect of nutrition counseling on maternal knowledge and child feeding practices. *Journal of Nutritional Sciences, 8*(1), 45–56.

World Health Organization. (2008). *Training course on child growth assessment*. World Health Organization.