



Give us raw food materials: Qualitative analysis of stunting prevention challenges at Mandala Health Center

Kami diberi mentahannya saja: Analisis kualitatif terhadap tantangan pencegahan stunting di Puskesmas Mandala

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Abstract

Stunting remains a critical public health concern in Indonesia, with long-term implications for children's physical and cognitive development, despite governmental efforts that have failed to meet national targets. This study evaluated the effectiveness of the stunting prevention program at the Mandala Community Health Center in Medan and identified the supporting and inhibiting factors in its implementation. A qualitative case study was conducted from February to April 2025, gathering data through in-depth interviews, observations, and document analysis with five key informants, including health officials, community health cadres, and mothers. Edward III's implementation theory (encompassing communication, resources, disposition, and bureaucratic structure) guided the analysis, with thematic patterns identified and validity ensured via triangulation and member checking. The results revealed effective program socialization across levels, adequate budget allocation offset by challenges from processed food assistance over raw materials, strong implementer commitment, and consistent adherence to standard operating procedures. The study concluded that the program was administratively robust, but reliance on processed food posed a key barrier, recommending policy shifts to prioritize raw food provision for greater effectiveness.

Keywords: stunting prevention; policy implementation; health program evaluation

Abstrak

Stunting tetap menjadi masalah kesehatan masyarakat yang kritis di Indonesia, dengan implikasi jangka panjang terhadap perkembangan fisik dan kognitif anak meskipun upaya pemerintah gagal mencapai target nasional. Penelitian ini mengevaluasi efektivitas program pencegahan stunting di Puskesmas Mandala Medan serta mengidentifikasi faktor pendukung dan penghambat implementasinya. Studi kasus kualitatif dilakukan dari Februari hingga April 2025 melalui wawancara mendalam, observasi, dan analisis dokumen dengan lima informan kunci, termasuk pejabat kesehatan, kader kesehatan masyarakat, dan ibu-ibu. Teori implementasi Edward III (meliputi komunikasi, sumber daya, disposisi, dan struktur birokrasi) digunakan sebagai kerangka analisis, dengan pola tematik diidentifikasi dan validitas data dipastikan melalui triangulasi serta *member checking*. Hasil menunjukkan sosialisasi program efektif di semua tingkatan, alokasi anggaran memadai tetapi bantuan makanan olahan menimbulkan tantangan lebih besar daripada bahan makanan mentah, komitmen pelaksana kuat, serta prosedur operasional standar diikuti secara konsisten. Penelitian menyimpulkan bahwa program secara administratif kuat, tetapi ketergantungan pada makanan olahan menjadi hambatan utama, sehingga merekomendasikan penyesuaian kebijakan

yang mengutamakan penyediaan makanan mentah untuk meningkatkan efektivitas.

Kata Kunci: pencegahan stunting; implementasi kebijakan; evaluasi program kesehatan

Introduction

Stunting remains a major public health concern in Indonesia, given its pervasive and long-lasting effects (Jaya et al., 2025). Within the broader Southeast Asian context, Indonesia's stunting prevalence remains significantly higher than that of neighboring countries, such as Thailand and Singapore, which have successfully reduced their rates to below 15 percent. This regional disparity highlights the urgent need to assess the effectiveness of local implementation strategies (Chotivichien et al., 2025; WHO Health Organization, 2022). Beyond impeding children's physical growth, stunting adversely affects cognitive development, learning capacity, and future economic productivity (De Sanctis et al., 2021; Ekholuenetale et al., 2020). Affected children are at an increased risk of chronic health conditions, demonstrate lower academic achievement, and exhibit diminished competitiveness in the labor market (Hume-Nixon & Kuper, 2018). Therefore, effective stunting prevention is essential for securing a healthier and more productive future workforce (Renyonet et al., 2023).

Aligning with the global urgency highlighted by the latest Joint Child Malnutrition Estimates (UNICEF, WHO, & World Bank, 2023), which reported 148.1 million stunted children worldwide, the Indonesian government has identified stunting reduction as a national priority within the National Medium-Term Development Plan (RPJMN) 2020–2024. The plan aims to decrease the prevalence of stunting from 24.4% in 2021 to 14% by 2024 (Kharisma et al., 2024). Although the prevalence declined from 27.7% in 2019 to 21.6% in 2022, the current rate of progress is insufficient to achieve the targeted reduction. Therefore, accelerating interventions, particularly during the first 1,000 days of life, is crucial for success (Kementerian Kesehatan Republik Indonesia, 2021). The causative factors contributing to stunting in Indonesia include low nutritional intake among pregnant women and children, recurrent infections, inappropriate feeding practices, and limited access to healthcare and sanitation

services (Wicaksono & Harsanti, 2020). Socioeconomic factors such as poverty, low parental education, and lack of information further exacerbate this condition (Titaley et al., 2019).

As part of a global initiative, Indonesia participates in the Scaling Up Nutrition (SUN) program, which focuses on nutritional interventions during the first 1,000 days of life (Wardani et al., 2023). The implementation strategy involves utilizing Posyandu (community health posts) to deliver promotive and preventive services, provide supplementary feeding to children at risk of malnutrition, and offer nutritional supplementation to ensure adequate nutrient intake (Priyono, 2022; Rahman et al., 2024; Setiyawati et al., 2024). However, despite these structured national interventions, implementation gaps persist at the community level, particularly in terms of service delivery and program consistency. Consequently, implementation is often suboptimal because of discrepancies between policies and on-the-ground realities. (Beal et al., 2018; Hudson et al., 2019). Key challenges include low nutritional literacy, economic constraints, and unequal access to health care services. The success of these programs is highly dependent on community understanding and participation, as well as the vital role played by Posyandu cadres and Puskesmas (community health centers) staff (Ariadi, 2023; Muslimin & Mursyidah, 2024).

Health program evaluation is essential for measuring effectiveness, identifying supporting factors, and pinpointing implementation barriers. Mandala Community Health Center was selected as the research site because it is a region with ongoing surveillance of stunting cases, making it pertinent for evaluating the effectiveness of long-term prevention programs. An initial survey at the Mandala Community Health Center revealed that, despite the implementation of the prevention program since 2020, two active stunting cases remain out of the 11 cases previously recorded. According to the local nutritionist, both toddlers showed near-normal weight development, although

intensive monitoring remained necessary. These findings suggest that the program has not yet achieved full effectiveness.

A relevant approach is Edward III's Theory of Implementation, which analyzes four variables: communication, resources, disposition (implementer commitment), and bureaucratic structure. This theory was selected because it provides a comprehensive framework for assessing policy implementation (Mubarok et al., 2020). This study distinguishes itself from prior qualitative research by emphasizing real-time implementation gaps and system-level barriers to the distribution of supplementary food. Unlike broader evaluations, this study explicitly examines mothers' lived experiences to elucidate the disconnect between bureaucratic processes and beneficiary needs. The specific objectives are as follows: (1) to assess the implementation effectiveness of the Stunting Prevention Program at Mandala Community Health Center and (2) to identify supporting and inhibiting factors using Edward III's framework.

Methods

This study used a qualitative case study design and a descriptive approach. This design enabled an in-depth exploration of real-world program dynamics and complex implementation challenges in their specific context (Creswell & Poth, 2016). A case study approach is particularly suitable for examining the contextual determinants of health intervention success or failure (Yin, 2018). The research was conducted from February to April 2025 at the Mandala Health Center (Puskesmas Mandala) in Medan, North Sumatra. The site was selected for its ongoing stunting surveillance and sustained program implementation.

Five key informants (n=5) participated in this study, selected through purposive sampling. The participants included the puskesmas head, nutrition program coordinator, community health cadre, and two mothers of toddlers with stunting. This diverse representation provides perspectives ranging from bureaucratic oversight to beneficiary experiences. The sample size followed the data saturation principles, with recruitment ending after the fifth interview when no new themes emerged (Saunders et al., 2018). The accounts of the two mothers sufficiently corroborated the structural barriers noted by the

health staff. Data adequacy stemmed from the informants' high information power their unique program knowledge and source triangulation for verification (Malterud et al., 2016).

Data collection employed three triangulation methods to ensure the depth, validity, and reproducibility of the data. The primary method involved semi-structured, in-depth, face-to-face interviews with five key informants, each lasting 30 to 45 minutes and conducted in Indonesian for clear communication. Interviews with health officials were conducted in a private room at the community health center to promote comfort and confidentiality, whereas those with mothers took place in participants' homes. All sessions were audio-recorded with consent and transcribed verbatim within 24 h to preserve accuracy. Non-participant observations complemented the interviews on three occasions during supplementary feeding (PMT) distribution. These sessions enabled the real-time capture of interactions and evaluation of service delivery consistency, with field notes documented immediately afterward. Document review provided further triangulation, examining administrative records such as stunting prevention technical guidelines (Juknis), monthly nutrition status reports (e-PPGBM), and activity logbooks to corroborate the interview and observation findings.

The semi-structured interview guide, informed by Edward III's implementation theory, targeted four domains: communication, resources, disposition, and bureaucratic structure. Communication assessed information dissemination and reception, including objective clarity, delivery methods for beneficiaries, media used, stakeholder understanding, feedback mechanisms, accessibility, training, message consistency, coordination, and barriers. Resources evaluated asset availability and management, covering human resources, facilities, equipment, budgets, logistics, training, oversight, collaborations, allocation equity, efficiency, innovations, and program impact. Disposition examined implementer attitudes, motivation, commitment, program awareness, incentives, resistance, community participation, conflict resolution, leadership, responsibility, external influences, and commitment-building efforts. The bureaucratic structure analyzed organizational influences, including structural support, standard operating procedure (SOP)

clarity, coordination lines, authority overlaps, flexibility, SOP evaluation, interagency coordination, constraints, duty division, and documentation systems.

The collected data were analyzed using thematic analysis, a systematic process comprising several steps: reading and reviewing the data to gain a comprehensive understanding, conducting initial coding, grouping the codes into preliminary themes, and subsequently reviewing and refining these themes. Each theme was clearly defined and appropriately named before being presented in the report. The report describes the key findings, supported by direct quotations from the data, and includes in-depth interpretations of the findings' meanings and implications.

Data were analyzed using a hybrid thematic analysis approach. This process combined deductive coding, guided by Edward III's four variables (communication, resources, disposition, and bureaucratic structure) as a priori categories, with subsequent inductive coding to identify context-specific subthemes beyond the theoretical framework of the study. Coding was performed manually to promote deep engagement with textual data without software assistance.

To enhance reliability, two researchers independently coded the transcripts, and discrepancies were resolved through consensus discussions until full agreement was achieved. Study rigor was further strengthened through methodological triangulation (interviews, observations, and document analysis) and data source triangulation (perspectives of officials, cadres, and mothers). Member checking verified interpretations with participants, while reflexivity (via researcher journals and peer debriefing) minimized bias by grounding findings in participants' narratives.

This study was approved by the Health Research Ethics Committee of Universitas Prima Indonesia (Approval No. 043/KEPK/UNPRI/I/2025). Before data collection, the researchers obtained written informed consent from all participants after explaining the study's purpose and procedures. Participants were informed of their voluntary

involvement, right to withdraw at any time, and assurance of the confidentiality of their responses.

Result and Discussion

Informants Characteristic

Mandala Community Health Center, located in the Medan Denai District, serves as a primary healthcare facility in Medan City. This community health center actively implements a stunting prevention program aimed at reducing stunting rates through nutritional education, the provision of supplementary feeding (PMT), monitoring of child growth and development, and improved access to maternal and child health services.

Table 1. Characteristics of key informants

Informant	Age	Role in Programme
R01	43	Head of Community Health Center
R02	54	Stunting Programme Coordinator
R03	57	Health Cadre
R04	42	Mother of Stunted Toddler
R05	35	Mother of Stunted Toddler

This qualitative research is based on in-depth interviews with five key informants (N = 5). Demographically, the informants ranged in age from 35 to 57 years, with a mean age of 46.2 years and median age of 43 years. These five informants were selected to capture a diverse range of essential stakeholder perspectives. The group comprised three participants representing service providers (head of the community health center, stunting program coordinator, and health cadre) and two participants from among the program beneficiaries (mothers of stunted toddlers). This composition ensured that the data reflected the managerial, technical implementation, field-level, and target group perspectives within the program.

To enhance transparency in qualitative analysis, Table 2 summarizes the key themes, findings, and representative quotes identified through thematic analysis.

Table 2. Summary of themes, key findings, and representative quotes

Theme	Key Findings	Quote
Communication	Information on stunting is clear and delivered through multiple channels (face-to-face, videos, digital/WhatsApp),	"I initially had little understanding... but after explanations from Puskesmas or cadres, I grasped it." (R04)

	making it accessible to the beneficiaries.	"Especially now that everything is digital, it's quick to communicate with them via WhatsApp." (R02)
Resources	Human resources (cadres), budget, and facilities are adequate and well managed. Critical Barrier (Food Provision): Beneficiaries strongly prefer raw food ingredients over cooked meals due to concerns about freshness and quality.	"Human resources are sufficient... for example, each posyandu has five kader." (R02) "It would be better if the Puskesmas did not give cut-up items... Sometimes people complain that they have started to turn sour." (R03). "If possible, give us raw ingredients... Cooked food sometimes isn't eaten." (R05)
Disposition	Cadres demonstrate high commitment, driven by vocational motives (helping others) rather than obligation alone. Service is friendly and responsive, fostering strong community trust.	"The fatigue is nothing compared to the prayers from those children." (R03) "The response from the healthcare workers... was excellent... if we ask, they always answer." (R04)
Bureaucratic Structure	Roles are clearly defined, with effective intersectoral coordination and standard operating procedures (SOPs). Training emphasizes practical, hands-on socialization over theoretical manuals.	"Everything is coordinated, and the SOPs are clear and aligned." (R01) "We are directly taught through socialisation, not just given a manual." (R03)

The findings of this qualitative study are presented based on the four key variables of Edward III's implementation model: communication, resources, disposition, and bureaucratic structure. This integrated section discusses the findings from participant interviews and observations alongside relevant literature to provide a comprehensive analysis of the implementation of the stunting prevention program at the Mandala Community Health Center.

Communication

The study found that the stunting prevention program employed a multi-faceted communication strategy. Information disseminated by health professionals was reported to be clear and easily understood by the community. As summarized in Table 2, the beneficiaries confirmed that complex health information was communicated simply. One mother, R04, articulated, *"I initially had little understanding of stunting, but after explanations from the Puskesmas or cadres, I grasped it. They frequently visit or explain during Posyandu sessions or outreach programs."* This education encompassed comprehensive prevention strategies, as highlighted by R05: *"During every Posyandu or outreach, it is always explained that to get healthy quickly, you need to maintain hygiene and good food"*.

Although face-to-face interaction remained the foundational approach, health professionals also utilized videos and leaflets. Internal coordination was facilitated through regular meetings and digital platforms. A programme officer (R02) stated, *"I also frequently communicate directly with cadres about this programme. Especially now that everything is digital, it is quick to communicate with them via WhatsApp"*. Routine sessions ensured sustained awareness, as explained by R01: *"At the Puskesmas, since services are available daily, pregnant women and prospective brides who visit also receive education."*

The effectiveness of this communication strategy lies in its multifaceted approach, which combines traditional face-to-face counseling with modern digital platforms, such as WhatsApp. This integrated model facilitates broad information dissemination and ensures message consistency, both of which are essential for addressing complex health challenges, such as stunting. Evidence indicates that maintaining consistent communication among all stakeholders substantially increases the reach and effectiveness of stunting prevention initiatives (Ridho et al., 2024). The use of digital tools enhances coordination efficiency and fosters active community engagement by reaching beneficiaries in their preferred

communication environment. This aligns with the findings that digital health communication can strengthen participation in resource-constrained settings (Al Humaerah et al., 2024). To further amplify its impact, future programs should incorporate structured social media campaigns and interactive voice response (IVR) systems to engage populations with limited digital literacy, in line with evidence supporting the effectiveness of multi-channel approaches in public health communication (Niederdeppe et al., 2025).

Resource

The program's implementation was underpinned by generally sufficient resources. As indicated in Table 2, the availability of well-distributed health cadres was a key strength of the program. R02 confirmed, *"Human resources are sufficient for the community; for example, each posyandu has five kader, and we have 38 posyandu here."* Budget management involved stakeholders from central health departments to local "foster parents." R01 affirmed that *"facilities and equipment... are adequate, and the funds are also available"*. Proactive management was demonstrated via direct supervision. R02 described: *"I monitor the field directly every two weeks, and if only the kader goes, I always request documentary evidence to ensure equitable distribution"*.

However, a specific observation emerged regarding the food provision mechanism (Table 2). Beneficiaries and cadres expressed a preference for raw ingredients over pre-prepared meals. A cadre (R03) noted, *"It would be better if the Puskesmas did not give cut-up items, and for foods like soup or meatballs, they are already cooked, so they are no longer fresh. Sometimes people complain that they have started to turn sour."* This was echoed by a mother (R05), who stated, *"If possible, give us raw food materials, such as rice and other things. Cooked food sometimes is not eaten."*

Adequate cadre staffing and equitable resource allocation are essential components of the program, aligning with existing evidence on the importance of human resource engagement and collaborative budgeting in community health initiatives (Damari & Riazi-Isfahani, 2018; Martha et al., 2020). The strong cadre network serves as a vital link between the formal health system and the community, a role recognized as critical to the program's success (Novitasari &

Rohmani, 2024). However, the observed preference for raw food materials rather than cooked meals indicates a potential weakness in food handling or the delivery process. This misalignment between service design and beneficiary preferences could compromise the nutritional outcomes that the program aims to achieve. Concerns regarding freshness and taste may reduce food utilization, thereby affecting the nutritional status (Fertig et al., 2019).

A policy adjustment that emphasizes the distribution of high-quality raw food materials, combined with education on safe storage and nutritious preparation, could substantially enhance the program effectiveness. This strategy aligns with food sovereignty principles and has been demonstrated to improve dietary diversity in similar interventions (Hien et al., 2024; Putrahadi & Nugroho, 2025). Additionally, incorporating basic food safety training for both cadres and beneficiaries could address spoilage concerns and strengthen trust in the program resources (Yuliana et al., 2023).

Disposition

The program featured positive attitudes and strong commitment from the implementers. Healthcare professionals and cadres demonstrated a clear understanding of their roles. As highlighted in the representative quotes (Table 2), motivation often transcended professional obligation. One cadre (R03) expressed this commitment: *"My motivation to be a cadre is that I want to reduce the rate of stunting... Sometimes in the field, it is tiring... but no matter what, I have to go to their homes, and the fatigue is nothing compared to the prayers from those children"*.

Strong leadership was evident, with the Head of the Puskesmas involved in direct field engagement. Furthermore, the responsive demeanor of health personnel was noted by the beneficiaries. R04 shared: *"The response from the healthcare workers and kader was excellent after they learned that my child had stunting. They frequently visit us... and if we ask, they always answer."*

Vocational commitment and an empathetic approach of community health cadres and professionals are vital assets. These qualities foster the trust essential for meaningful community engagement and sustained behavioral change (Sakeah et al., 2021). The intrinsic motivation expressed by cadres, who

perceive their work as a social or spiritual contribution, serves as a powerful catalyst that often exceeds the influence of external rewards on performance. However, maintaining a high level of volunteer morale requires structured non-financial incentives, such as public recognition, skill certification, and opportunities for career advancement, along with adequate logistical support. The absence of such support can result in burnout and attrition (Vareilles et al., 2017). Visible leadership and a responsive attitude among health workers further strengthen community trust (Buthelezi et al., 2025). Regular motivational training and the establishment of peer support networks can help institutionalize this positive orientation, ensuring its persistence despite staff turnover and program expansion (Hosen et al., 2024).

Bureaucratic Structure

The informants reported that intersectoral coordination operated smoothly. R02 stated, *"Our coordination with other parties is interconnected. We coordinate with sub-district and village authorities, ensuring all on-the-ground issues are communicated"*. The Head of the Puskesmas (R01) emphasized that cross-sectoral activities prevented coordination obstacles:

A clear organizational structure with coordinated Standard Operating Procedures (SOPs) ensured that roles were specific. R01 affirmed, *"Based on the situation on the ground... Everything is coordinated, and the SOPs are clear and aligned"*. Capacity building was ensured through comprehensive training. R03 confirmed, *"In implementing this program, we also have guidelines. We are directly taught through socialization, not just given a manual"*. Structured data reporting was also maintained, with R02 explaining, *"Every time we go into the field, we ensure full documentation and reporting."*

Clear standard operating procedures (SOPs) and effective intersectoral coordination form the foundation of the program's reported stability and are essential for sustaining any community health intervention (Danefi et al., 2024; Kim et al., 2017). The hands-on, participatory training approach described (emphasizing socialization rather than reliance on manuals) is particularly effective in resource-limited settings to ensure proper comprehension and application of the guidelines (Desyanti et al., 2024). This structured yet

flexible bureaucratic framework enables continuous monitoring, evaluation, and iterative improvement, which are crucial for responding to community feedback, such as concerns regarding food provision. To further strengthen this process, the program could institutionalize regular "mini-workshops" or after-action reviews that bring together health cadres, health workers, and local government officials to collaboratively address operational challenges, such as food distribution. This approach embeds adaptive management practices within the program's operational structure (Damari & Riazi-Isfahani, 2018). Moreover, integrating digital data collection tools for reporting into a user-friendly dashboard for local managers could improve real-time decision-making and accountability (Braa et al., 2017).

Implications and Limitations

The integrated findings from the Mandala Community Health Center illustrate a model in which effective communication, adequate resources, implementer disposition, and an enabling bureaucratic structure converge to support efforts to prevent stunting. A key actionable insight is the importance of aligning food aid distribution with beneficiary preferences by shifting toward raw food provisions accompanied by education on food preparation.

As a single-site qualitative case study conducted in Medan, these findings offer a rich contextual understanding but have limited statistical generalizability. The determinants of stunting and community responses vary substantially across sociocultural and economic contexts. While thematic saturation was achieved through interviews with five key informants at this site, the sample may not capture the full range of perspectives present in larger or more heterogeneous populations in the country. Although methodological triangulation was used, the potential for social desirability bias in participant responses remains a notable limitation.

Future research should include multisite or mixed-methods studies that integrate in-depth qualitative analysis with quantitative surveys to assess the transferability of these findings and enhance external validity. Comparative analyses across different types of health centers (urban, rural, and remote) would be especially useful for identifying context-

specific facilitators and barriers to effective stunting prevention (Yin 2018).

Conclusion

The implementation of the stunting prevention program at Puskesmas Mandala Medan demonstrates a successful integrative model in which effective communication through multiple channels, adequate cadre human resources, strong vocational commitment among implementers, and a well-coordinated bureaucratic structure mutually reinforce one another. However, beneficiaries' preference for raw rather than pre-cooked or pre-cut food indicates the need to adjust supplementary food distribution mechanisms to improve utilization and nutritional effectiveness of the program.

It is recommended that the stunting prevention program adopt a strategy that emphasizes the distribution of high-quality raw food ingredients combined with education on safe food storage and preparation practices. Further research using a multisite, mixed-methods design is needed to test the transferability of these findings across diverse urban, rural, and remote contexts and to identify location-specific success factors and barriers to stunting prevention.

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