

## Optimizing Local Resources for Stunting Prevention and Community Health Promotion in Indonesia: A Mixed-Methods Study on Collaborative Communication and Extension

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ARTICLE INFO	ABSTRACT
<p><b>Manuscript Received:</b> 15 Mar, 2025  <b>Revised:</b> 17 Jun, 2025  <b>Accepted:</b> 24 Jun, 2025  <b>Date of Publication:</b> 12 Aug, 2025  <b>Volume:</b> 8  <b>Issue:</b> 8  <b>DOI:</b> <a href="https://doi.org/10.56338/mppki.v8i8.7520">10.56338/mppki.v8i8.7520</a></p>	<p><b>Introduction:</b> Stunting remains a major public health concern, particularly in rural areas with limited institutional capacities. This study introduces a novel application of the Resource-Based View (RBV) framework in the context of community health in rural Indonesia, integrating local resource optimization, collaborative communication, and institutional extension to enhance the role of Posyandu cadres in preventing stunting.</p> <p><b>Methods:</b> This mixed-methods study, using a pre-post-test design combined with qualitative triangulation, was conducted between February and August of 2024. The study involved structured learning needs assessments followed by mentoring interventions. Data were collected from a purposive sample of 30 cadres, 9 female leaders, and 57 toddler mothers in selected rural communities through focus group discussions, participatory assessments, interactive feedback sessions, and quantitative pre-post evaluations.</p> <p><b>Results:</b> The intervention improved the Posyandu cadres' competencies in nutrition counseling, healthy food preparation, public speaking, and counseling. Structured collaborative communication between cadres, community leaders, and healthcare professionals enhances coordination and aligns training with community needs. Notably, the integration of digital platforms, such as WhatsApp, facilitated ongoing mentoring, wider outreach, and program continuity. Participatory mechanisms further increased program responsiveness and sustainability, whereas local leadership engagement strengthened institutional legitimacy and community ownership.</p> <p><b>Conclusion:</b> This study demonstrates that collaborative communication, capacity building, and institutional support effectively strengthen the role of Posyandu cadres in preventing stunting by improving both technical and communication skills. By integrating the Resource-Based View (RBV), collaborative communication, and institutional extension frameworks, this study offers a novel and scalable model for optimizing local resources and designing context-specific empowerment programs in resource-limited rural settings. However, the limitations include the small sample size, rural focus, and absence of a control group, indicating the need for larger randomized controlled trials and further research on long-term sustainability.</p>
KEYWORDS	
<p>Collaborative Communication;  Institutional Extension;  Posyandu Cadres;  Resource-Based View</p>	

**Publisher:** Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Palu

## INTRODUCTION

The World Health Organization (WHO) has identified malnutrition as a global health challenge, emphasizing the need for comprehensive interventions that address maternal, child, and adolescent malnutrition. WHO collaborates with governments and institutions to implement effective nutrition programs, ensuring that local resources and community-based approaches are integrated into national health strategies (1).

The Resource-Based View (RBV) approach underscores the importance of leveraging internal resources to achieve institutional goals (2). In the context of stunting prevention, RBV highlights the optimization of community-based resources, particularly Posyandu cadres, as key actors in institutional extension efforts. Strengthening cadre capacity through targeted training and participatory learning processes enhances their role as facilitators of nutrition education and health promotion. Institutional extension serves as a strategic mechanism for developing human resources, ensuring that interventions are both effective and sustainable (3).

The strategic role of community health workers (CHWs), known in Indonesia as Posyandu cadres, is well-documented in both national and international contexts. Global evidence has highlighted their effectiveness in reaching vulnerable populations, and their contribution to stunting reduction efforts. Ahmed et al. in a systematic review of 167 studies across 33 low- and middle-income countries (LMICs), highlighted that CHWs play a vital role in promoting health equity by effectively reaching vulnerable populations, despite persistent structural barriers such as limited access and inequality (4). Moreover, evidence from 25 studies in fragile or conflict-affected settings confirmed that CHW models incorporating training, supervision, and behavior-focused communication are both effective and scalable in addressing undernutrition among children under five years of age (5). Additionally, the substantial reduction in stunting in Nepal from 1996 to 2016 has been linked to the systemic integration of CHW strategies and multisectoral policies (6).

Among these international experiences, institutional extension models have demonstrated promising approaches for strengthening CHWs' impact of CHWs through structured leadership and community engagement. For instance, Vietnam's National Target Program for Nutrition integrates village leaders into nutrition campaigns, utilizing their influence to promote dietary diversity and home gardening for improved child nutrition (7). This model aligns with RBV principles by maximizing local leadership as a strategic resource for community health initiatives. While these international experiences demonstrate the relevance of institutional extension and collaborative communication, the present study uniquely applies the RBV framework by systematically integrating local resource optimization, structured dialogue, and targeted capacity building within Indonesia's Posyandu system, addressing the specific needs of rural stunting prevention programs.

Collaborative communication is a key component of institutional extension that facilitates open dialogue, participatory planning, and collective decision-making. Empirical evidence confirms that well-structured collaborative communication mechanisms enhance creative problem solving and improve program effectiveness. In Indonesia, Setyoadi et al. demonstrated that structured community empowerment programs significantly strengthen individual empowerment among cadres involved in stunting prevention, showing how participatory approaches aligned with local needs can build cadre capacity and commitment (8). Jaka et al., based on stakeholder engagement experiences in Minnesota, USA, developed and validated a stakeholder-engaged evaluation tool, enabling communities to assess the quality of their own convening processes. Their findings indicated that structured stakeholder involvement enhances coordination, accountability, and program responsiveness (9). Similarly, Chan and Cho, through an empirical study conducted in Hong Kong, found that collaborative communication fosters mutual trust and shared understanding, which boosts creativity and performance, a principle applicable beyond business settings, including community-based health initiatives (10). Harris et al., analyzing Vietnam's national nutrition transition, further illustrated how inclusive participatory policy processes contributed to improving food supply, household diet, and nutrition outcomes, suggesting that meaningful stakeholder engagement can drive both behavioral and systemic change (7).

This study introduces an innovative institutional extension model to strengthen the Posyandu cadres, focusing on institutional capacity development through extension programs and staff or personnel development. The intervention included structured workshops on nutrition education, public speaking, and participatory communication techniques. Additionally, mentoring programs provide continuous support, enabling cadres to refine their skills in

nutrition counselling and community engagement. Beyond technical training, institutional extension fosters stronger linkages between cadres and local leaders, enhancing program legitimacy and community acceptance (11)

Numerous community-based nutrition programs, such as the *Barangay Nutrition Scholar (BNS)* in the Philippines, have engaged local volunteers in delivering nutrition services at the community level (12). In Indonesia, persistent challenges such as limited public awareness and economic barriers continue to hinder optimal child nutrition (13). However, the integration of the Resource-Based View (RBV) framework with institutional extension approaches remains underexplored. This study introduces a novel model that combines RBV with collaborative communication as the operational mechanism within institutional extensions to empower Posyandu cadres for stunting prevention in Indonesia. Aligned with UNICEF's recommendations to improve maternal and child health, promote multisectoral collaboration, and strengthen local institutional capacities (14,15), this approach employs structured dialogue, reciprocal feedback, and participatory learning needs assessments to optimize local resources, enhance cadre competencies, and increase program responsiveness. Through this integration, Posyandu cadres are positioned as strategic assets within Indonesia's decentralized health system, particularly in addressing stunting in rural areas.

This approach can be analyzed through the Resource-Based View (RBV) framework, which emphasizes optimizing local resources to achieve sustainable advantages (2). In the Posyandu context, strategic resources include health cadres, community support, and local wisdom (16). Capacity building for cadres through early stunting detection training and health education enhances intervention effectiveness (3). A similar program in Vietnam demonstrated that empowering local leaders to promote healthy eating habits contributed to behavioral changes in the community (7).

Collaborative communication is a key element of institutional extension, enabling active community participation and resource integration. The participatory communication model and multi-sector collaboration strategies in Presidential Regulation No. 72/2021 emphasize cross-stakeholder coordination for accelerating stunting reduction (17). Community discussion forums and the involvement of Posyandu cadres in village budget advocacy exemplify the application of collaborative communication in public health programs (18).

Additionally, feedback mechanisms in collaborative communication ensure more adaptive intervention. Methods such as surveys, FGDs, and community meetings enhance program responsiveness to local needs (19,20). Local-based education in food security programs contributes to improved nutritional practices (16), while the involvement of local leaders strengthens program acceptance (12). Therefore, institutional extension based on collaborative communication can accelerate the adoption of better nutritional practices and support the sustainability of the stunting prevention programs.

This research was conducted through in Ngambarsari Village, Wonogiri Regency, Central Java, Indonesia. This study aims to (a) analyze the effectiveness of institutional extension in identifying cadre learning needs assessment through participatory assessments and focus group discussions (FGDs); (b) evaluate the impact of capacity-building interventions on cadre knowledge, attitudes, and skills in nutrition education; and (c) assess the role of collaborative communication in strengthening institutional extension for stunting prevention programs.

## METHOD

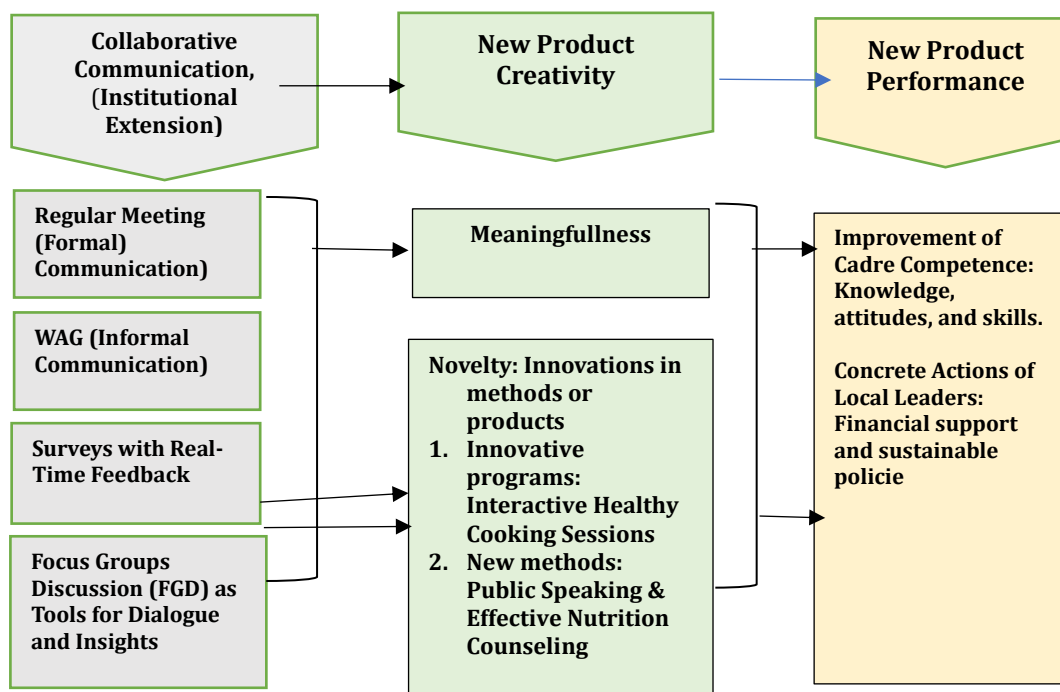
This study was conducted in Ngambarsari Village, Wonogiri Regency, Central Java, Indonesia, from February to August 2024, utilizing a mixed-method approach to evaluate the effectiveness of institutional extension strategies in enhancing the capacity of Posyandu cadres for stunting prevention. To scale this model beyond the pilot area, the methodology was designed to be adaptable and replicable in other posyandu contexts across Indonesia. The research consisted of three interconnected phases.

**Learning needs assessment of Cadre:** This study used a mixed-methods learning needs assessment combining quantitative surveys with in-depth FGDs involving multiple stakeholders (cadres, mothers, local leaders, and health professionals). The FGDs were used not only to validate the survey findings, but also to present and collectively interpret the results with stakeholders. This joint interpretation allowed stakeholders to collaboratively identify cadre training needs and mobilize local leadership support, ensuring programme responsiveness and sustainability in stunting prevention efforts. Surveys and FGDs were conducted with 30 cadres, 9 female leaders, and 57 toddler mothers.

Evaluation of capacity-building interventions: A pre- and post-test design was used to measure changes in cadre knowledge, attitudes, and skills after training in MPASI preparation, public speaking, and nutritional counseling. Public speaking and nutrition counseling were prioritized based on initial survey findings, which revealed that cadres rarely engaged in group education or provided counseling to mothers, despite these being core responsibilities in health promotion and education. The pre- and post-test instruments were validated using expert judgment to ensure that each item accurately reflected the competencies targeted in practical training such as public speaking and nutrition counselling. This form of content validity focuses on the alignment between the test items and training objectives, without requiring large statistical samples. The validation process involved practitioners and academics with expertise in health, communications, and nutrition. Therefore, these instruments are considered to be appropriate for evaluating changes in cadre knowledge, attitudes, and skills

Assessment collaborative communication was assessed as follows: 1) Formal meetings: routine Posyandu sessions at RT and monthly village-level cadre meetings. 2) Informal digital communication: WhatsApp Groups for activity coordination and personal WhatsApp chats for case discussions (e.g., CED pregnancies, undernutrition, stunting, child illnesses). 3) Collaborative problem solving: multi-stakeholder discussions with village leaders, health workers, and mothers to address nutrition and health problems.

The RBV approach was used in this study to examine how collaborative communication (a key element in institutional extension), including formal and informal communication, reciprocal feedback (surveys), and rationality (FDG), can enhance program creativity (Figure 1). Creativity is measured in two main dimensions: meaning and novelty. A meaningful program is relevant and aligns with community needs, while novelty reflects innovation and new methods orative communication; institutional extension; Posyandu cadres; Resource-Based View; stunting prevention.



**Figure 1.** Optimizing Local Resources (RBV approach) for Health Promotion and Stunting Prevention through Cadre Empowerment

The RBV approach focuses on optimizing internal, often underutilized, resources—such as Posyandu cadres and local leadership structures - to generate long-term value in community health promotion. In this context, cadres are treated as strategic assets, and institutional extension becomes the mechanism for capacity enhancement.

## Ethical Approval

This study was approved by the Ethics Committee for Research Involving Human Subjects (*Komisi Etik Penelitian yang Melibatkan Subjek Manusia*), Bogor Agricultural University (approval number 1170/IT3). KEPMSM-IPB/SK/2024. All participants provided informed consent and the study adhered to the ethical principles outlined by the committee

## RESULTS

This study applied the integrated Resource-Based View (RBV) model combined with *collaborative communication* and *institutional extension* to optimize local resources for Posyandu cadre empowerment in stunting prevention. The framework consists of several interconnected components: 1) Collaborative communication process a key element in institutional extension. 2) The development of creative training content (new product creativity); and. 3) Performance improvements in cadre competency and institutional support (new performance).

### Collaborative Communication Process, Institutional Extension Approach for Posyandu Cadres Capacity-Building

The collaborative communication process involved both formal and informal platforms such as structured Focus Group Discussions (FGDs), regular Posyandu village-level meetings, and WhatsApp groups for daily coordination. These channels facilitate the participatory identification of cadre training needs and continuous stakeholder engagement. Cadres reported that before the intervention, they rarely conducted public speaking or counseling during Posyandu sessions. Through participatory assessment, specific gaps in public speaking, nutrition counseling, and MPASI preparation were identified.

**Table 1.** Knowledge, Attitudes, and Practices of Childcare Among Mothers of Stunted and Non-Stunted Children

Category	Mothers of Stunted Children (%)	Mothers of Non-Stunted Children (%)	Average (%)
Knowledge	83.4 (Correct)	89.8 (Correct)	86.6 (Correct)
Attitude	83.2 (Positive)	84.6 (Positive)	83.9 (Positive)
Practice	87.0 (Correct)	87.3 (Correct)	87.1 (Correct)

The institutional extension approach effectively identified the training needs of Posyandu cadres through participatory surveys and FGDs. Survey of 57 mothers with toddlers to evaluate their knowledge, attitudes, and practices regarding nutrition. The data indicate that mothers of both stunted and non-stunted children have high knowledge, attitudes, and childcare practices. However, knowledge was slightly lower among mothers of stunted children (83.4%) than among those of non-stunted children (89.8%), suggesting a potential link between knowledge and child growth. Attitudes and practices showed minimal differences, indicating that most mothers apply good childcare practices, although external factors may still influence stunting outcomes.

Nutrition-sensitive agriculture programs can influence how household members allocate their time, with implications for nutritional outcomes, especially among women and children. These shifts in time use, such as dedicating more time to food preparation or childcare, can enhance the effectiveness of nutritional interventions when aligned with local capacities and needs. This finding supports the need for community-based programs that are sensitive not only to nutritional goals but also to the everyday realities and resource constraints faced by local actors such as Posyandu cadres (21).

**Table 2.** Comparison of Dietary Diversity Between Non-Stunted and Stunted Children

Food Type	Non-Stunted Children	Stunted Children
Staple Food	Rice + Clear Vegetable Soup	Rice + Vegetable Soup Broth
Morning Meal	Egg	Egg
Afternoon Meal	Tempeh	Tempeh
Evening Meal	Fish	Egg

The dietary diversity of non-stunted children appears slightly better, as they consume both plant-based (tempeh) and animal-based (fish and eggs) protein sources throughout the day. In contrast, stunted children had a more repetitive protein intake, with eggs consumed twice a day and no fish. This suggests that dietary variety, particularly the inclusion of different protein sources, may play a role in supporting optimal growth in children. There are differences in the feeding patterns of stunted and non-stunted toddlers. The quality of feeding practices significantly impacts toddlers' growth and development (22, 23)

The survey revealed that 71.8% of the cadres were aged 30–49 years, indicating an active and engaged group. However, with 53.8% having only junior high school education, there is a gap in their health and nutrition knowledge. Regarding media usage, all cadres (100%) used WhatsApp, while many were active on YouTube (74.4%), Instagram/TikTok (59%), and the Internet (84.6%), highlighting digital platforms as potential training tools. Posters and booklets remain effective media for stunting education (24). However, social media and WhatsApp are now widely used to disseminate information related to stunting (25).

Only 41% of the respondents frequently spoke in public, and 48.7% rarely provided counseling, emphasizing the need for public speaking and counseling training to improve MPASI and child health education. Posyandu cadres need to participate in basic counseling training to feel more confident in providing counseling services to the community, aiming to enhance their ability to offer initial psychological support (26), and early detection and stimulation of infant growth and development can be carried out through Asah, Asih, and Asuh (3A)—stimulation, affection, and nurturing (27).

### **The Development of Creative Training Content (New Product Creativity)**

The FGDs helped identify stunting challenges and solutions, such as dietary patterns, household nutrition budgets, and village-funded MPASI programs. Key barriers include poor parenting practices, limited healthcare access, and social norms (e.g., such as early marriage). Proposed solutions include village leadership commitment to nutrition funding, intensive parenting education, monitoring pregnant women and vulnerable children, and community empowerment through collaboration with the government. This approach aims to enhance cadres' counseling skills, ensuring a more effective and sustainable stunting prevention program

In line with this research (28), the role of cadres is crucial and strategic in reducing stunting. Regular training and periodic refreshers are essential for enhancing the knowledge and capacity of cadres. Effective communication skills among cadres, along with support from community health centers and village governments, are necessary for the success of the stunting reduction programs. The provision of adequate training and supervision for health cadres is important to improve their role in the community (29, 30)

To address this, a training curriculum was developed, focusing on the following: 1) Public speaking and nutrition counseling to boost the confidence of the cadres in education delivery. 2) Local MPASI preparation (using wader fish) as a nutritional solution for preventing stunting.

Interactive methods, such as discussions, simulations, and demonstrations, ensure practical application.

### **Performance Improvements in Cadre Competency and Institutional Support (New Performance)**

The intervention reframed cadre competencies as an internal strategic resource.

Through regular health coordination meetings, cadres have developed health communication capital to engage mothers in child growth monitoring.

Through hands-on cooking sessions, cadres acquired nutrition resource capabilities by utilizing local Wader fish to create culturally acceptable MPASI.

Training in public speaking and counseling enhances cadres' communication competency, equipping them as frontline communicators in stunting prevention efforts.

### **Knowledge Improvement Analysis**

Pre- and post-test assessments showed a 29.4% average increase in cadre knowledge of nutrition, particularly in selecting and understanding the benefits of wader fish for MPASI.

**Table 3.** Knowledge Improvement Analysis (Pre-Test vs. Post-Test Results)

No.	Knowledge Topic	Pre-Test (%)	Post-Test (%)	Improvement (%)
1	Key nutritional content of MPASI	76.2	100.0	23.8
2	Reasons for choosing wader fish	66.8	100.0	33.2
3	Protein content in 100g of MPASI	42.8	73.9	31.1
Average Knowledge Score		61.9	91.3	29.4

### Skills Improvement Analysis

The training also significantly improved practical skills, with an average 26.1% increase in cadre competency, particularly in steaming wader fish.

**Table 4.** Skill Improvement Analysis (Pre-Test vs. Post-Test Results)

No.	Skill Area	Pre-Test (%)	Post-Test (%)	Improvement (%)
1	Cleaning wader fish	57.4	87.0	29.6
2	Steaming wader fish (15 min)	47.2	91.3	44.1
3	Cooling fish after steaming	59.2	91.3	32.1
4	Cooling before storage	75.5	96.2	20.7
5	Processing into floss (abon ikan)	96.2	100.0	3.8
Average Skill Score		67.1	93.2	26.1

### Public Speaking & Effective Nutrition Counseling

Public speaking and nutrition counselling training yielded three main outcomes: (a) increased confidence among Posyandu cadres in delivering health messages, (b) improved communication skills for clearer explanations and more interactive discussions, and (c) enhanced understanding of nutrition counselling through simulations. The interactive approach during training effectively prepared cadres to face real-world challenges, supported by comprehensive evaluations, including observations, self-assessments, peer feedback, and testimonials, which confirmed the positive impact of the training.

In the public speaking training, the assessed aspects included: (a) the purpose of public speaking in Posyandu activities; (b) the meaning and importance of "eye contact" in public speaking; (c) two techniques to overcome nervousness when speaking in public; (d) how to create an engaging opening when talking about animal protein; and (e) the key message that should be conveyed about animal protein in preventing stunting.

**Table 5.** Analysis of Skill Improvement in Public Speaking (Pre-Test vs. Post-Test Results)

No.	Topic	Pre-Test (%)	Post-Test (%)	Improvement
1	Purpose of public speaking in Posyandu	42.0	100.0	58.0
2	Importance of eye contact	33.0	92.0	50.0
3	Techniques to overcome nervousness	0.0	92.0	92.0
4	Creating engaging openings	0.0	33.0	33.0
5	Key message about animal protein	92.0	92.0	0.0
Average		33.4	81.8	48.4

This program significantly improved the practical skills of Posyandu cadres by emphasizing on hands-on learning. Strengthened public speaking and counselling abilities have enabled cadres to become more effective health educators in stunting prevention efforts.

**Table 6.** Analysis of Skill Improvement in Nutrition Counseling (Pre-Test vs. Post-Test Results)

No.	Aspect	Pre-Test (%)	Post-Test (%)	Improvement
1	Understanding of counseling content	42.0	100.0	58.0
2	Ability to identify issues from mothers and toddlers (clients)	50.0	100.0	50.0
3	Providing relevant and practical advice	58.0	86.0	28.0
	Average	50.0	95.0	45.3

Based on evaluation data from 12 training participants, the average increase in public speaking skills was 48,4% and nutrition counseling skills was 45,3%, respectively (Table 5). Among the nutritional counselling aspects, the highest improvement was in understanding counselling material (58%), followed by the ability to explore issues with mothers/children (50%), while providing relevant and practical advice showed a relatively lower (28%) improvement (Table 5). This indicates the need for targeted follow-up to strengthen cadres' abilities to provide appropriate and actionable recommendations.

As follow-up actions, it is recommended that advanced training sessions, continuous practice, mentoring by nutrition experts from local health centers (Puskesmas), and regular evaluations should be conducted to maintain and enhance the quality of community health education delivered by Posyandu cadres.

### **Strengthening Institutional Extension for Stunting Prevention through Collaborative Communication**

This study proposed an institutional extension model that integrates collaborative communication as a strategic mechanism to strengthen stunting prevention efforts, particularly in low-resource community health settings. Collaborative communication fosters data-driven dialogue among Posyandu cadres, village leaders, and stakeholders, enabling the alignment of training content and resource allocation with local needs. FGDs identified key enablers, such as village funding commitments, Posyandu's preventive role, and WhatsApp's effectiveness for cadre coordination, while challenges included limited funding, inconsistent participation, and coordination gaps.

To address these challenges, solutions have focused on improving communication infrastructure, strengthening village health partnerships, and increasing PMT budget allocations. Recommended strategies include intensive parenting education, monitoring at-risk infants, strengthening Youth Posyandu, and enhancing intersectoral collaboration between the government and health institutions. This integrated model demonstrates practical applicability and transferability to other resource-constrained settings where optimizing existing local resources and improving communication channels can enhance program responsiveness and sustainability.

## **DISCUSSION**

The Resource-Based View (RBV) framework highlights the importance of leveraging internal and external resources in institutional extension to enhance Posyandu cadre capacity, particularly in remote areas. By optimizing available resources, RBV strengthens communication strategies in public health programs, improving their effectiveness in preventing child stunting.

**Internal Resources:** The competencies of health workers, particularly Posyandu cadres, in public speaking and nutrition counseling play a crucial role in effective community education.

**External Resources:** The use of local knowledge, such as culturally relevant MPASI preparation, enhances the acceptance and impact of nutrition education.

**Collaborative Feedback Mechanisms:** FGDs and surveys serve as tools for assessing and refining resources, ensuring continuous improvement in communication strategies.

Findings indicate that despite limited access to healthcare facilities, strengthening the role of Posyandu cadres through a resource-based approach can be an effective strategy for stunting prevention. This aligns with national policies promoting the optimization of Posyandu as a community-based health education and intervention center in Indonesia.

Posyandu functions as an effective sociocultural approach (30) in Indonesia's primary health care system. Its success depends on active community participation and the effectiveness of the cadres as health facilitators and social



change agents. Cadres not only provide healthcare services but also play a crucial role in raising community awareness of the importance of early stunting prevention.

Financial incentives have been found to positively impact the performance of Posyandu cadres, as evidenced by the Penajam Paser Utara Regency (31). Monetary support increases motivation and enhances service effectiveness, contributing to the optimization of stunting prevention. Additionally, strong village leadership support, including funding for MPASI programs and cadre incentives, is critical to program sustainability. The commitment of village leaders in this study underscores the necessity of sustained financial and institutional support.

Beyond cadre motivation and village support, institutional coordination plays a pivotal role in the success of the stunting reduction program. In Malaka Regency (32), the Stunting Reduction Acceleration Team (TPPS) has been instrumental in implementing both specific and sensitive interventions. However, internal coordination challenges within the TPPS have hindered program harmonization. These findings reinforce the importance of stakeholder synergy, in which effective collaborative communication ensures program continuity and success.

From a theoretical perspective, these results underscore the critical role of institutional coordination as a mediating mechanism in community health interventions, aligning with Resource-Based View (RBV) theory that emphasizes optimal resource integration through collaboration. The integration of collaborative communication mechanisms, including structured dialogue, participatory assessments, and digital platforms such as WhatsApp, further enhances cadres' ability to coordinate, share information, and mobilize community support, thereby increasing organizational responsiveness. In line with Butler, these communication platforms can be conceptualized as valuable internal communication capital that strengthens the organization's strategic capabilities in delivering effective public health services (33). Moreover, consistent with the proposition of Kosiol et al., the RBV framework provides a strategic lens through which public health managers can integrate human capital, knowledge assets, and coordination mechanisms to optimize program implementation. In this study, the enhanced competencies of Posyandu cadres, combined with strengthened institutional partnerships at the village level, illustrated a localized form of resource orchestration that is essential for sustaining stunting prevention efforts (34).

Despite the critical role of appropriate educational media in public health promotion, this study suggests that media alone is not sufficient. Practical training and hands-on experience remain essential in empowering Posyandu cadres, particularly in mastering skills, such as nutrition counseling and food preparation. Furthermore, documenting these practices and disseminating them through suitable channels—both conventional (print or broadcast) and digital formats (e.g., videos/MP4)—can serve as valuable learning resources, promote wider outreach, and enhance the sustainability of stunting prevention programs (35).

Empowering Posyandu cadres through counseling, hands-on training in anthropometric measurements, and local food-based complementary feeding improves their capacity for early stunting detection and intervention. Building on this, the Resource-Based View (RBV) offers a strategic foundation for cadre empowerment by emphasizing the optimization of local institutional resources. In contexts with limited external support, collaborative communication with local governments is essential to mobilizing support and ensuring the sustainability of stunting prevention programs (36).

Strong institutions foster better communication and coordination, thereby enabling sustainable health interventions. Institutional extension should not only enhance knowledge but also facilitate long-term behavioral changes in nutritional practices.

Preliminary data show that non-stunted toddlers have more diverse diets than their stunted peers, highlighting gaps in nutritional knowledge and feeding practices in the latter group. While parents generally support nutritious MPASI, only 87% consistently apply balanced diets, emphasizing the need for stronger community-based nutritional education.

Although long-term behavioral changes were not measured, these findings provide a basis for refining institutional extension strategies. Health promotion models, such as the health belief model and Theory, which link knowledge and perceptions to behavior, should be integrated into future intervention programs. Moreover, this study offers a theoretical contribution by demonstrating how the Resource-Based View (RBV) framework can be operationalized at the community level, where internal resource optimization, communication capital, and institutional extension are combined to strengthen cadre competencies and sustain stunting prevention efforts in low-resource settings.

## **Recommendations for Further Research**

Development of a standardized RBV-Based training model for national replication. A structured yet adaptable training model based on the Resource-Based View (RBV) should be developed to strengthen cadres' skills in nutrition counseling, public communication, and utilization of local resources, enabling replication in other Posyandu settings nationwide.

Integration of digital technology for nutrition education and cadre performance monitoring. Digital platforms such as WhatsApp and YouTube are recommended to enhance nutrition education and support the ongoing monitoring of cadre performance, with attention to local disparities in digital access and literacy.

## **CONCLUSION**

This study underscores the importance of collaborative communication, capacity building, and institutional support for strengthening the role of posyandu cadres in preventing stunting. Through structured dialogue among cadres, village leaders, and stakeholders, the program enhanced coordination and aligned training with community needs. Capacity-building interventions effectively improved cadres' practical competencies in nutrition education, particularly in public speaking and counseling. In addition, the involvement of village governments and the integration of digital platforms such as WhatsApp has expanded outreach and supported program sustainability.

Beyond its empirical findings, this study provides a novel methodological contribution by integrating the Resource-Based View (RBV), collaborative communication, and institutional extension frameworks. This integrated approach illustrates how optimizing local resources and leveraging strategic communication can foster creative, context-specific empowerment interventions for Posyandu cadres, especially in resource-limited rural contexts.

Nevertheless, this study has certain methodological limitations. The limited sample size and specific rural settings may restrict the generalizability of our findings. Furthermore, the absence of a control group in the pre- and post-intervention designs limits the ability to draw definitive causal inferences. Future research employing larger randomized controlled trials is recommended to validate these findings, along with further exploration of long-term sustainability and the role of digital communication tools in enhancing cadre engagement and program outcomes.

## **AUTHOR'S CONTRIBUTION STATEMENT**

Ninuk Purnaningsih: Developed the cadre training model, focusing on communication and extension. Led the conceptualization of the research, methodology design, and writing of the original draft. Contributed to the analysis and interpretation of the findings related to community-based health promotion.

Eny Palupi: Developed the complementary feeding (MPASI) product and conducted data analysis on the knowledge and consumption patterns of toddlers. Contributed to refining the methodology and interpretation of the study's findings related to nutrition education.

Sulassih: Assisted with data collection, including conducting focus group discussions and engaging community members. Contributed to the analysis of community involvement and program effectiveness, particularly in relation to cadre training.

Anita Primaswari Widhiani: Assisted in developing intervention strategies, particularly the community-based approach to health promotion. Contributed to the data analysis and review of the final manuscript.

## **DECLARATION OF CONFLICT OF INTEREST**

The authors declare that there are no conflicts of interest to disclose.

## **DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS**

The authors used AI-assisted tools, including the ChatGPT, to improve language clarity and writing effectiveness. All content, analysis, and conclusions are the authors' original work, in accordance with ethical publishing standards

## SOURCE OF FUNDING STATEMENTS

The author(s) reported that the research funding provided by the Indonesian Endowment Fund for Education (LPDP) through the Equity Program (DAPT), specifically under the national research collaboration scheme//Riset Kolaborasi Nasional (Ri-Na) (Grant No. 522/IT3.D10/PT.01.03/P/B/2023), for which we acknowledge funding assistance provided the complementary feeding (MPASI) product development, while the cadre training activities were supported by the Directorate of Agromaritime Community Development, IPB University (Grant No. 12862/IT3.L1/PM.01.01/P/T/2024)

## ACKNOWLEDGMENTS

We would like to express our gratitude to the community of Ngambarsari Village and all the respondents who willingly provided their data for the purpose of this research. We also thank the Directorate of Agromaritime Community Development, IPB University, for support as well as the students who assisted in the Posyandu cadre training activities and data collection.

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