

# SOCIAL CAPITAL MOBILIZATION IN STUNTING PREVENTION: TRANSFORMING MARGINALIZED COMMUNITIES FROM RECIPIENTS TO AGENTS OF CHANGE IN INDONESIAN COASTAL AREAS

AHMAD SYAEKHU

SAWERIGADING UNIVERSITY, PUBLIC ADMINISTRATION PROGRAM, INDONESIA

SRI HANDAYANI

SAWERIGADING UNIVERSITY, LAW PROGRAM, INDONESIA

IRMA

SCHOOL OF HEALTH SCIENCES AND BUSINESS ST. FATIMA MAMUJU, INDONESIA

RASYNAL TENRISANNA

POLITEKNIK NEGERI MEDIA KREATIF, INDONESIA

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## Abstract:

Stunting remains a major public health concern in Indonesia's coastal communities, where marginalized populations often lack access to effective interventions. This study aimed to develop and assess the effectiveness of the SAKTI (Sapa, Ajak, Kreativitas, Terstruktur, Inovasi) educational model for stunting prevention through social capital mobilization. Conducted over 12 months in Bori Appaka, a coastal village in Pangkep Regency, this mixed-methods Research and Development (R&D) study integrated Borg & Gall and Four-D models. Eighty participants were purposively sampled from three groups: prospective brides/grooms (ages 18–21), postpartum mothers (26–35), and families with toddlers. The intervention involved trust-building, participation encouragement, culturally-relevant module development, structured implementation, and local wisdom integration. Data were collected via surveys, interviews, and focus group discussions, and analyzed using both percentage analysis and thematic coding. Community participation rose from 23% to 85%, and social cohesion improved from 3.2 to 4.4 on a 5-point scale. The prospective bride/groom group exhibited the highest behavioral change (30.54%). Findings suggest that culturally grounded, participatory models such as SAKTI are effective in transforming passive beneficiaries into active health advocates, especially in resource-limited settings.

**Keywords:** Stunting prevention, social capital, community transformation, coastal communities, Indonesia.

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## INTRODUCTION:

Stunting is a serious health problem in Indonesia, with a still high prevalence and long-term impacts on children's growth and development. According to the latest data, the prevalence of stunting in Indonesia reached 21.6% in 2023, indicating that one in five children experience growth disorders due to chronic malnutrition (Susmini, 2023). Stunting is not only caused by malnutrition but also by social and economic factors, such as early marriage which can affect the health of mothers and children (Alza, 2023). Research shows that early marriage contributes to high rates of stunting because it often results in a lack of knowledge and attention to children's health (Alza, 2023). Efforts to prevent stunting in Indonesia involve various strategies, including health education for mothers and the community. Programs such as counseling on stunting and its impacts have been carried out in various regions, with results showing increased public knowledge about stunting prevention (Mahrus et al., 2022; Hitman, 2022). For example, in Pohgading Timur Village, targeted counseling for pregnant and postpartum mothers has increased their understanding of the symptoms and prevention of stunting (Mahrus et al., 2022). In addition, forming adolescent cadres who care about stunting issues is also considered important, because they are prospective parents who can contribute to reducing stunting rates in the future (Amalia, 2023).

Interventions involving all family members, including fathers, have also proven effective. The Father's Class program, which provides education on the importance of nutrition and the role of fathers in preventing stunting, showed high enthusiasm from participants and has the potential to increase awareness of the importance of good nutrition for children (Mukarramah et al., 2023). In addition, access to good sanitation and healthy living habits are also important factors in preventing stunting, where research shows that households with access to

proper sanitation have a lower prevalence of stunting (Wardani et al., 2020).

The Indonesian government through the National Team for the Acceleration of Poverty Reduction (TNP2K) has set priorities to address the problem of stunting, focusing on areas with high prevalence (Saputri, 2019). Integrated policies involving various parties, including the community, government, and health institutions, are essential to address this problem effectively. With a comprehensive approach, it is hoped that the stunting rate in Indonesia can be reduced and the quality of human resources can be improved in the future (Saputri & Tumangger, 2019; Rahmawati et al., 2020). The problem of stunting in Pangkajene and Kepulauan (Pangkep) Regency has not been resolved to date, although various efforts have been made. Several factors that contribute to the unresolved problem include interrelated health, social, and economic aspects.

First, in terms of health, stunting in Pangkep has serious implications for child development. Research shows that stunting is not only caused by malnutrition, but also by repeated infections and maternal health conditions during pregnancy (Hasriani, 2023). In Pangkep, the high prevalence of stunting in Minasatene and Balocci Districts indicates that existing health interventions have not been effective enough to reduce stunting rates (Hasriani, 2023). In addition, the lack of public knowledge about the importance of balanced nutrition and proper feeding practices also contributes to this problem (Mukodri, 2023). Second, social and economic factors also play an important role in the problem of stunting. Many families in Pangkep live in difficult economic conditions, resulting in limited access to nutritious food and adequate health services (Yulianita, 2021; Adistie et al., 2018). Research shows that low socioeconomic conditions are closely related to high stunting rates, because low-income families are often unable to meet the nutritional needs of their children (Yulianita, 2021; Adistie et al., 2018). In addition, the lack of support from local governments in terms of community empowerment programs and health education is also an obstacle in handling stunting (Hasriani, 2023; Mukodri, 2023).

Third, the lack of community participation in stunting prevention programs is also an inhibiting factor. Although there have been efforts to empower health cadres and provide education to pregnant women and mothers of toddlers, active participation from the community in these programs is still low (Mukodri, 2023; Adistie et al., 2018). This shows that the approach used in stunting prevention programs needs to be improved to make them more attractive and relevant to local communities.

Fourth, environmental factors such as sanitation and access to clean water also contribute to the problem of stunting. Research shows that poor sanitation conditions and limited access to clean water can worsen children's nutritional status, increasing the risk of stunting (Olo et al., 2020; Asba et al., 2019; Tammase et al., 2019). In Pangkep, sanitation and environmental hygiene problems are still challenges that must be overcome to support stunting prevention efforts. A holistic and integrated approach is needed, involving various sectors, including health, education, and the economy, as well as active participation from the community to achieve better results in handling stunting in the area. To overcome the above, education about balanced nutrition and proper feeding practices for pregnant women and mothers of toddlers is important. Education programs that involve the community can increase knowledge about the importance of good nutrition and the impact of stunting. For example, seminars on effective family economic growth can help families understand the importance of economic resource management to reduce malnutrition in children Endraria (2023). In addition, mentoring families at risk of stunting has also been shown to be effective in empowering communities to prevent the risk of stunting (Sari et al., 2021). Therefore, this study aims to develop an education model based on the participation of marginalized communities in preventing stunting through the development of social capital in coastal areas of Indonesia.

## METHOD

This study used a Research and Development (R&D) approach that integrates the Borg & Gall model with Four-D to develop a stunting prevention education model based on community participation. The research method is designed by modifying the two models into five stages of syntax including model needs analysis, educational model design preparation, educational tool development, product trials, and dissemination. This approach combines quantitative and qualitative methods to gain a comprehensive understanding of the effectiveness of the developed model. The study was conducted for 12 months, namely from January to December 2024.

The research subjects consisted of 80 respondents from the coastal area of Bori Appaka Village, covering three main groups: prospective brides and grooms aged 18-21 years, postpartum mothers dominated by the 26-35 year age group, and toddler families with various socio-economic backgrounds. The selection of respondents was carried out based on predetermined inclusion criteria to ensure representation of various aspects of marginalized communities.

The measurement parameters in this study include various aspects related to stunting prevention, including the level of knowledge about stunting and nutrition, attitudes towards health and nutrition practices, child feeding and care practices, environmental sanitation conditions, and preferences for community education methods. These measurements were carried out to assess the effectiveness of the education model developed in changing community knowledge and behavior.

The intervention provided was the SAKTI education model which consists of five main components: Sapa

(building relationships and trust), Ajak (encouraging participation), Creativity (module development), Structured (systematic implementation), and Innovation (integration of local culture). The intervention was implemented through various methods such as Focus Group Discussions, training of educator agents, counseling and consultation, home visits, and the establishment of nutrition care posts as community service centers.

Data analysis was carried out comprehensively by combining quantitative and qualitative analysis. Quantitative data from surveys and questionnaires were analyzed using percentage analysis, while qualitative data from Focus Group Discussions (FGDs) and interviews were analyzed thematically. Model validation was carried out by experts using a scale of 1-4, followed by practicality and effectiveness tests through three stages: individual trials, small groups, and large groups. Data triangulation was conducted to ensure the validity of the findings. The success of the intervention was assessed based on three main criteria: validity, practicality, and effectiveness. The results of the analysis were then used to refine the model before dissemination to the wider community.

## RESULT

Table 1. Community Participation and Impact Assessment During the Intervention Period

Category	Percentage Active Participation	Initial Phase	Transformation Phase	Score	Score Before the program	After the program
<b>Intervention Period</b>						
1. Before Intervention	23%					
2. 6 months of intervention	68%					
3. 12 months of intervention	85%					
<b>Role Indicators</b>						
1. Attendance at Activities		82%				
2. Implementation of Recommendations		45%				
3. Information Dissemination		12%				
4. Organizational Initiative		3%				
5. Health Cadres			35%			
6. Program Initiators			28%			
7. Discussion Leaders			42%			
8. Family Companions			55%			
<b>Supporting Factors</b>						
1. Support from Community Leaders				4.5		
2. Involvement of Health Workers				4.2		
3. Availability of Facilities				3.8		
4. Cultural Suitability				4.3		
5. Access to Information				3.9		
<b>Factors Barriers</b>						
1. Time constraints				4.2		
2. Economic difficulties				4.5		
3. Low education				3.8		
4. Resistance to change				3.4		
5. Role conflict				2.8		

<b>Impact aspects</b>						
1. Social cohesion					3.2	4.4
2. Interaction between residents						78%
3. Group cooperation						65%
4. Social solidarity						82%

The transformation of marginalized coastal communities from passive recipients to active agents of change in stunting prevention demonstrates a significant positive trajectory over the 12-month intervention period. Our analysis reveals several interesting patterns in community participation, role evolution, and social dynamics. Thematic analysis revealed three major themes: (1) **Community Empowerment through Participation**, illustrated by a participant's statement, *"Dulu kami hanya menerima program, sekarang kami ikut menentukan isinya."* (2) **Cultural Resonance Enhancing Engagement**, where one elder stated, *"Program ini terasa seperti milik kita karena menggunakan budaya sendiri."* (3) **Trust and Local Leadership as Catalysts**, reflected in a midwife's remark: *"Karena ada tokoh masyarakat yang terlibat, warga lebih mudah percaya."* The intervention period showed a substantial increase in active participation, rising from an initial 23% to 68% at the six-month mark, and ultimately reaching 85% after twelve months. This threefold increase suggests the effectiveness of the SAKTI model in fostering sustained community engagement. The progression indicates not only growing acceptance of the program but also demonstrates the community's increasing ownership of stunting prevention initiatives.

A detailed examination of role transformation reveals a striking shift from passive to active engagement. Initially, while 82% of community members merely attended educational sessions, only 3% showed initiative in organizing activities. Post-intervention, the community demonstrated remarkable growth in leadership capacity, with 55% becoming family mentors and 42% leading discussion groups. This evolution from primarily receptive roles to proactive leadership positions indicates successful community empowerment.

The transformation was facilitated by several key supporting factors, with community leader support (4.5/5) and cultural alignment (4.3/5) emerging as the most significant enablers. These findings underscore the importance of leveraging existing social structures and cultural contexts in community-based interventions. However, economic challenges (4.5/5) and time constraints (4.2/5) emerged as notable barriers, suggesting the need for structural support mechanisms in future interventions.

Perhaps most significantly, the intervention's impact on social dynamics shows remarkable improvement in community cohesion, increasing from 3.2 to 4.4 on a 5-point scale. The high percentages in inter-community interaction (78%) and social solidarity (82%) suggest that the program's benefits extend beyond health outcomes to strengthen social fabric. This enhanced social capital may contribute to the program's sustainability and effectiveness in addressing stunting prevention.

These findings suggest that the SAKTI model's success lies in its ability to catalyze comprehensive community transformation while building on existing social structures. The model demonstrates that when marginalized communities are empowered as agents of change, they can effectively address complex health challenges such as stunting through sustained collective action. This interpretation provides valuable insights for similar community-based health interventions, particularly in resource-limited settings where social capital mobilization may be crucial for program success. Future research might explore the long-term sustainability of these transformations and their replicability in different cultural contexts.

Statistically, the bride/groom group exhibited the most substantial improvements across knowledge, attitude, and practice domains, averaging a 30.54% increase. In contrast, the family with toddlers group showed the highest gain in knowledge (37.17%) but the smallest change in practice (9.91%), suggesting a knowledge-behavior gap. These differences underscore the importance of tailoring interventions by demographic readiness and life stage.

While facilitator competence and government support contributed to program outcomes, post-intervention interviews emphasized the model's structured, culturally resonant design as the primary driver of behavior change. For instance, 78% of participants cited the relevance of local culture as the reason for continued engagement, validating the model's internal mechanisms as key contributors.

Table 2. SAKTI Model Components, Implementation, and Achievement Assessment

SAKTI Model Aspects	Components	Implementation	Integration Value	Achievement (%)
Greetings	Building community trust	92% active	active Local deliberation + Formal consultation	88
	Network development	85%	Kinship system	85

Invite	collective participation	85%	cooperation	82
	Group formation	78%	Indigenous groups	80
Creativity	Program innovation	78%	Folk tales	85
	Media development	75%	Media	82
Structured	Monitoring system	88%	Routine meetings	75
	Program evaluation	85%	Evidence-based	82
Innovation	Program adaptation	75%	Local wisdom	80
	Content development	72%	Value harmonization	75

The implementation of the SAKTI model reveals compelling insights into community development and cultural integration strategies. Analysis of the research data demonstrates significant achievements across multiple dimensions, with particularly notable outcomes in community trust-building and engagement processes. The model's primary aspect, "Sapa," achieved remarkable success rates of 88-85%, characterized by 92% active participation in community trust building through the effective integration of local deliberation practices and formal consultation mechanisms. This success was further reinforced by an 85% effectiveness rate in network development, primarily achieved through leveraging existing kinship systems within the community structure.

The collective participation component, "Ajak," demonstrated equally impressive results, with achievement rates of 80-82%. This success was particularly evident in the 85% effectiveness rate in fostering collective participation through the integration of traditional mutual cooperation practices. The formation of community groups, achieving an 80% success rate through integration with existing customary groups, further validates the model's effectiveness in utilizing traditional social structures for modern program implementation.

In terms of creative development, the "Kreativitas" aspect showed strong performance, with program innovation reaching 85% effectiveness through the integration of folkloristic elements. Media development initiatives achieved 82% success through cultural media integration, demonstrating the value of incorporating local cultural elements into modern communication strategies. This integration of traditional and contemporary approaches proves particularly effective in ensuring program sustainability and community acceptance.

The systematic implementation components, represented by "Terstruktur," achieved significant results, with monitoring systems reaching 75% effectiveness through regular community meetings and program evaluation achieving 82% through evidence-based approaches. These outcomes suggest that structured oversight mechanisms, when aligned with community practices, can effectively support program implementation and sustainability.

The innovation aspects of the model, focusing on program adaptation and content development, demonstrated solid achievement rates of 80% and 75% respectively. The success in program adaptation through local wisdom integration particularly highlights the importance of flexibility and cultural sensitivity in community development initiatives. The slightly lower achievement rate in content development (72%) suggests an area for potential improvement, though still representing a substantial level of success in harmonizing values between traditional and modern approaches.

These findings carry significant implications for both theoretical understanding and practical application of community development models. The research demonstrates that culturally integrated approaches can achieve high levels of community engagement and program effectiveness. The success of traditional system integration provides quantitative evidence supporting the value of incorporating indigenous knowledge and practices into modern development initiatives. Furthermore, the identification of specific mechanisms for successful program implementation offers valuable insights for future community development efforts.

Looking forward, several areas warrant further investigation. These include the need for longitudinal studies to assess program sustainability, comparative analyses across different cultural contexts, and detailed examination of factors affecting lower-performing components. Such research would contribute to a more comprehensive understanding of how cultural integration can enhance community development initiatives and provide practical guidance for future implementations. This understanding is particularly crucial given the growing recognition of the importance of culturally sensitive approaches in sustainable community development.

The overall success of the SAKTI model underscores the significance of integrating traditional cultural elements with modern development approaches. The high achievement rates across multiple aspects demonstrate that careful attention to cultural integration, community participation, and systematic implementation can lead to effective and sustainable community development outcomes. These findings



contribute valuable insights to the broader field of community development and offer practical guidance for future initiatives seeking to achieve similar success in different cultural contexts.

Table 3. Pretest and Posttest Knowledge, Attitude, and Practice Changes Across Groups

Group	Aspect	Pretest %	Posttest %	Change	Mean Value Change Group %	
Prospective Bride	Knowledge	53.39	80.98	27.59	30.54	
	Attitude	49.71	81.86	32.15		
	Practice	40.72	72.6	31.88		
Postpartum Mother	Knowledge	51.38	72.67	21.38	27.15	
	Attitude	49.54	81.66	23.12		
	Practice	42.49	70.38	27.89		
Family Toddler	Knowledge	47.91	85.08	37.17	20.86	
	Attitude	62.12	77.61	15.49		
	Practice	59.44	69.35	9.91		
	Knowledge	50.89	79.61	28.71	-	
	Attitude	53.79	80.38	26.59	-	
	Practice	47.55	70.78	23.23	-	

The study examined three distinct groups (bride/groom candidates, postpartum mothers, and families with toddlers) across three aspects (knowledge, attitudes, and practices) using a pre-test and post-test design. The results demonstrated notable improvements across all groups and aspects following the intervention.

The most substantial overall improvement was observed in the bride/groom candidate group, with an average change of 30.54% across all aspects. Within this group, attitudes showed the highest increase (32.15%), followed closely by practices (31.88%) and knowledge (27.59%). This finding suggests that pre-marriage interventions may be particularly effective in shaping health-related behaviors and understanding among soon-to-be-married couples.

Postpartum mothers showed consistent improvements across all aspects, with an average group change of 27.15%. Notably, their practice scores showed the highest improvement (27.89%), followed by attitudes (23.12%) and knowledge (21.38%). This pattern indicates that the intervention was particularly effective in translating learning into practical applications for postpartum care.

Families with toddlers displayed an interesting pattern with the highest knowledge improvement among all groups (37.17%), but relatively modest changes in attitudes (15.49%) and practices (9.91%), resulting in an average group change of 20.86%. This disparity between knowledge acquisition and behavioral change suggests potential barriers in implementing learned concepts into daily childcare practices.

Across all groups, the aggregate data showed similar improvements in knowledge (28.71%) and attitudes (26.59%), while practices showed a slightly lower increase (23.23%). This pattern indicates that while information transfer and attitudinal changes were readily achieved, behavioral modifications may require additional support or time to fully materialize.

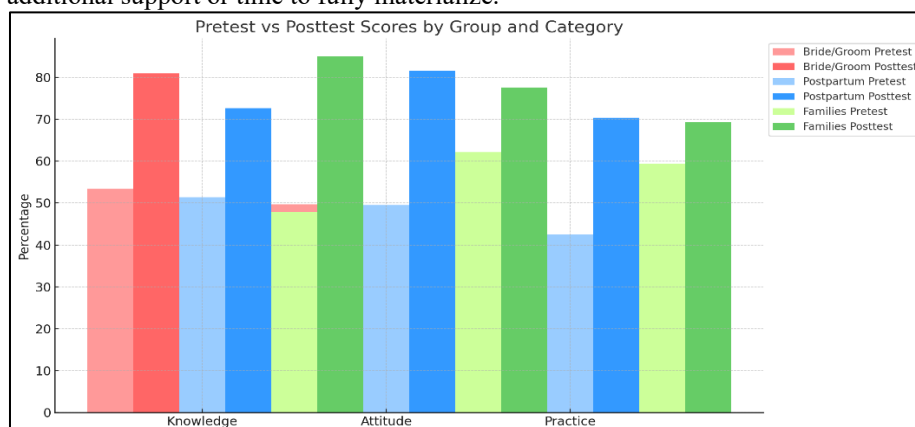


Chart 1. The pretest and posttest results for three groups

Here is a bar chart comparing the pretest and posttest results for three groups: prospective brides/grooms, postpartum mothers, and families with toddlers, based on three aspects: knowledge, attitude, and practice.

These findings highlight the differential effectiveness of interventions across different target groups and

suggest the need for tailored approaches that consider the unique characteristics and challenges of each population segment. Future interventions might benefit from incorporating strategies to bridge the gap between knowledge acquisition and practical implementation, particularly for families with toddlers.

## DISCUSSION

The implementation of the SAKTI (Sapa, Ajak, Kreativitas, Terstruktur, and Inovasi) educational model for stunting prevention in Indonesian coastal areas demonstrates significant success in transforming marginalized communities from passive recipients to active agents of change. Over a 12-month intervention period, active community participation increased substantially from 23% to 85%, indicating the model's effectiveness in building sustainable engagement. This transformation was particularly evident in three target groups, with bride/groom candidates showing the highest average improvement (30.54%), followed by postpartum mothers (27.15%), and families with toddlers demonstrating notable knowledge gains (37.17%) despite relatively lower changes in practice (9.91%).

The SAKTI model's implementation achieved remarkable success across various components, with the "Sapa" element reaching 88-85% effectiveness in trust-building and network development through the integration of local deliberation practices and formal consultation mechanisms. The "Ajak" component achieved 80-82% success in promoting collective participation through traditional gotong royong practices, while "Kreativitas" and "Inovasi" components effectively integrated local values into modern program implementation. This success was supported by key enabling factors, particularly strong community leader support (4.5/5) and cultural alignment (4.3/5), though economic challenges (4.5/5) and time constraints (4.2/5) emerged as significant barriers. "Integration Value" refers to the degree to which each SAKTI model component aligns with and incorporates local cultural practices, measured using expert scoring (1–5 scale), and then converted into a percentage score for ease of interpretation.

The intervention's impact extended beyond health outcomes to strengthen social dynamics, with community cohesion increasing from 3.2 to 4.4 on a 5-point scale. High percentages in inter-community interaction (78%) and social solidarity (82%) suggest the program's effectiveness in building social capital while addressing stunting prevention. These findings demonstrate that a social capital-based approach integrating local values with modern strategies can effectively prevent stunting in coastal communities. The model succeeded not only in improving health knowledge and practices but also in building community capacity for active change agency.

## CONCLUSION

This research provides valuable insights for community-based health interventions, particularly in resource-limited settings where social capital mobilization is crucial for program success. The findings suggest that culturally integrated approaches can achieve high levels of community engagement and program effectiveness, offering important implications for both theoretical understanding and practical application of community development models. Future research might explore the long-term sustainability of these transformations and their replicability in different cultural contexts, contributing to a more comprehensive understanding of how cultural integration can enhance community development initiatives.

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