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# PKK-Based Family Empowerment Strategies for Stunting Prevention in Kuala Tanjung Village, Indonesia

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**ABSTRACT**

Stunting remains a significant nutritional challenge in many coastal areas of Indonesia, including Kuala Tanjung Village, Batu Bara Regency. This study aims to analyse PKK-based family empowerment strategies for stunting prevention within a coastal community context. Using a qualitative case study design, data were collected through in-depth interviews, focus group discussions (FGDs), participatory observations, and documentary analysis. The findings indicate that PKK plays an important role in strengthening cadre capacity, providing family nutrition education, encouraging mothers' participation in health activities, and facilitating collaboration among community stakeholders. Activities such as counselling on the first 1,000 days of life, demonstrations of nutritious local food preparation, child growth monitoring, and family nutrition initiatives were associated with increased community participation and observed changes in household dietary practices. Collaboration among PKK cadres, health workers, *posyandu*, and village authorities further supported programme implementation. However, challenges remained, particularly variations in cadres' technical capacity and socio-cultural perceptions of stunting. The findings suggest that participatory empowerment, the use of locally available food resources, and cross-sectoral collaboration may contribute to creating a supportive family and community environment for stunting prevention. The proposed empowerment model should therefore be understood as a context-specific conceptual synthesis, with potential transferability to coastal or rural communities with comparable socio-economic, cultural, and institutional conditions.



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## INTRODUCTION

Human development is the cornerstone of creating a highly competitive and sustainable nation. One key indicator of the quality of human resources is children's nutritional status, which determines future levels of health, intelligence and productivity (UNICEF, 2021). In the Indonesian context, the problem of chronic malnutrition in the form of stunting remains a serious public health issue. Stunting is defined as a condition of growth failure resulting from chronic malnutrition, recurrent infections, and inadequate psychosocial stimulation, as measured by a child's height-for-age (WHO, 2022). Children affected by stunting are at risk of having low cognitive abilities, weak immune systems, and reduced productivity in adulthood. This phenomenon is not merely a health issue but also has social, economic and cultural dimensions, thus requiring cross-sectoral interventions involving various elements of society. Nationally, the prevalence of stunting in Indonesia has indeed shown a downward trend, falling from 37.2 per cent in 2013 to 21.5 per cent in 2023 (Indonesian Ministry of Health, 2024). However, this figure remains above the WHO's recommended tolerance threshold of <20 per cent. At the provincial level, North Sumatra is among the regions facing particularly complex challenges. According to data *from the Indonesian Nutrition Status Survey* (SSGI 2023), the prevalence of stunting in this province still stands at 23.1 per cent, with significant variation across districts and municipalities. Batu Bara District, one of the coastal areas in North Sumatra, recorded a stunting rate of 24.3 per cent—higher than the national average

(BKKBN, 2024). This situation highlights the continued need for adaptive, community-based intervention approaches to ensure that stunting prevention is effectively implemented right down to the household level.

Stunting is caused by a variety of interrelated factors, both direct and indirect. Direct factors include inadequate nutritional intake and infectious diseases, whilst indirect factors encompass child-rearing practices, mothers' nutritional knowledge, food availability, access to clean water and sanitation, and the family's socio-economic conditions (Yuniastuti et al., 2022). Furthermore, cultural norms and traditional child-rearing practices also influence family nutritional behaviour (Lopuhaa & Ginting, 2024). Therefore, efforts to tackle stunting cannot rely solely on medical and technical nutritional approaches; they must also involve socio-cultural transformation and participatory community empowerment.

In this context, the Family Empowerment and Welfare Movement Team (TP PKK) plays a strategic role as the spearhead of family empowerment at the grassroots level. The PKK is a community organisation established during the New Order era, aimed at improving family welfare through family-based community movements (Beal et al., 2018). The PKK's multi-tiered institutional structure—from the central level down to the neighbourhood level—makes it a potential instrument for delivering education, awareness-raising and advocacy on health and nutrition directly to the community (Ministry of Women's Empowerment and Child Protection, 2023). The PKK's Ten Core Programmes, particularly those in the fields of health, nutrition and the environment, are directly linked to the factors causing stunting. Therefore, strengthening the PKK's role in stunting prevention is a strategic step towards realising *family-based development*. In line with national policy, the government, through *the National Action Plan for the Accelerated Reduction of Stunting* (RAN PASTI 2021–2024), emphasises the importance of the PKK's role as a government partner in both specific and sensitive nutrition interventions. The PKK can play a role in raising awareness of the importance of a balanced diet, promoting *the 1,000 HPK*, fostering clean and healthy living behaviours (PHBS), utilising local food, and strengthening family economies (BKKBN, 2023). The PKK also plays a role in coordinating with posyandu, community health centres (puskesmas), and village cadres to monitor the growth and development of children and pregnant women. However, the effectiveness of the PKK's role in the field is heavily influenced by the capacity of its cadres, support from the village government, and community participation (Ginting & Hadi, 2023).

Previous studies have shown that PKK involvement in stunting prevention is strongly influenced by cadre capacity, community participation, and institutional collaboration (Lopuhaa & Ginting, 2024; Lawolo, 2024). However, existing studies have largely focused on programme implementation in individual villages or urban settings, with limited attention to how PKK empowerment strategies operate within the distinctive socio-economic, livelihood, and cultural conditions of coastal communities.

This limitation is important because stunting in Indonesia is shaped not only by nutritional factors but also by maternal education, household socioeconomic conditions, healthcare access, parenting practices, and socio-cultural norms (Ginting & Hadi, 2023; Alfaqeeh & Alfian, 2026). This study therefore contributes new empirical insight by examining the PKK's role in stunting prevention as a context-sensitive community empowerment process, particularly through community participation, health communication, local resource mobilisation, and cross-sectoral collaboration within a changing coastal community.

It is hoped that the PKK's presence in Kuala Tanjung Village will serve as a driving force in raising community awareness of the importance of a balanced diet, responsive parenting, and a healthy family environment. Through activities such as nutrition education, training in the preparation of nutritious local foods, and support for families at risk of stunting, the PKK can act as *a facilitator of behavioural change*. However, the effectiveness of this strategy depends heavily on the extent to which PKK cadres are able to implement a participatory empowerment approach based on local potential. In this regard, strategic innovation is required that is not merely top-down from the government, but also bottom-up, emerging from the community's own awareness and needs (Ginting, J. A., & Hadi, E. N. 2023).

From a conceptual perspective, the empowerment approach within the context of the PKK can be understood as a process of enhancing the capacity of individuals and groups so that they are able

to control resources, make decisions, and take action to improve their quality of life (Zimmerman, 2000). Within the framework of stunting prevention, empowerment means enhancing the ability of families, particularly mothers, to understand, manage and apply healthy nutrition and childcare practices. This approach aligns with the paradigms of *community-based development* and *gender-responsive governance*, in which women—as key actors within the family—are positioned as subjects, rather than merely objects, of development (Lassalle & Urban, 2024). The PKK, as a women's organisation, serves as a vital medium for the realisation of such empowerment.

In addition to internal organisational factors, the success of the PKK's empowerment strategy is also determined by structural support from the village government. The implementation of *the Village Fund* (DD) and the stunting convergence programme, as regulated by *Ministry of Villages, Development of Disadvantaged Regions and Transmigration Regulation No. 13 of 2020,* opens up opportunities for the PKK to collaborate in the planning and budgeting of nutrition programmes. Through *the Special Village Consultation on Stunting*, the PKK can identify families at risk of stunting, advocate for improved sanitation, and ensure the integration of cross-sectoral programmes (Pusdatin Kemendesa, 2023).

However, this coordination is often hampered by weak data integration, poor inter-institutional communication, and the dominance of administrative approaches over social ones (Lawolo, 2024). Based on this analysis, it is evident that strategies for empowering the PKK in stunting prevention need to be designed with due consideration for the local context, the socio-cultural characteristics of the community, and synergies amongst actors at the village level. This study seeks to answer the following main questions: how are the PKK's empowerment strategies for stunting prevention implemented in Kuala Tanjung Village; what factors support and hinder them; and how can the most effective empowerment model be developed?

This study has three main objectives: first, to analyse the PKK's empowerment strategies for stunting prevention in Kuala Tanjung Village, including coordination, programme implementation, and community participation; second, to identify the internal and external factors supporting or hindering these strategies; and third, to formulate a locally grounded PKK empowerment model for sustainable stunting prevention in coastal communities. Academically, this study contributes to the literature on gender-based community empowerment in public health, while practically, its findings may inform local governments, PKK organisations, and relevant stakeholders in designing more contextual, participatory, and sustainable interventions. These efforts are aligned with Indonesia's National Medium-Term Development Plan (RPJMN) 2025–2029, which emphasises improving nutritional status and strengthening integrated interventions for the prevention and reduction of stunting, while also supporting the Sustainable Development Goals, particularly SDG 2 (*Zero Hunger*) and SDG 3 (*Good Health and Well-being*).

## METHOD

This study employs a qualitative approach using a case study design to gain an in-depth understanding of the empowerment strategies implemented by the Family Welfare Empowerment Movement Team (PKK) in efforts to prevent stunting in Kuala Tanjung Village, Batu Bara Regency, North Sumatra Province. This approach was chosen because the issue of family empowerment in the context of stunting prevention cannot be understood solely through figures or statistics, but rather through the experiences, perceptions and social practices of the communities living within that context (Creswell & Poth, 2018). Case study research provides researchers with the scope to examine phenomena in depth within a real-life context, where the boundaries between the phenomenon and its environment are not clearly defined (Yin, 2018).

Kuala Tanjung Village was selected purposively as it possesses the socio-economic characteristics of a coastal area with a stunting prevalence rate that is relatively high compared to other areas in Batu Bara Regency. The majority of the community work as fishermen and port industry labourers, with a lower secondary education level or below. In these circumstances, the PKK serves as a strategic community organisation in bridging government programmes on maternal and child health. Activities such as nutrition education, posyandu (community health post) development, the management of nutritional gardens, and training in the processing of local foods form part of the

PKK's strategy, which is integrated with efforts to prevent stunting. For this reason, this study seeks to understand how the PKK functions not only as a programme implementer but also as an agent of social empowerment that drives behavioural change within the community (Lubis et al., 2023).

Data were collected from primary and secondary sources. Primary data were obtained through semi-structured in-depth interviews, participatory observation, and focus group discussions (FGDs), while secondary data were drawn from PKK documents, annual activity reports, *posyandu* records, BKKBN reports, and government policies related to stunting prevention. Informants were selected purposively based on their direct involvement in PKK activities and stunting prevention programmes. A total of 10 informants participated in the interviews, comprising two PKK chairpersons/cadres, three village officials, two village midwives/health workers, and three beneficiary mothers. Recruitment continued until data saturation was reached, when additional interviews no longer generated substantively new information (Guest et al., 2020).

The interviews explored PKK empowerment strategies, stakeholder coordination, community participation, and factors supporting or hindering programme implementation. Participatory observations were conducted during PKK meetings, cadre training, and *posyandu* activities. In addition, three FGDs were conducted, each involving 10–12 participants and lasting approximately 40–60 minutes. Participants represented community members and stakeholders involved in stunting prevention. A semi-structured discussion guide covered PKK empowerment practices, stakeholder coordination, community participation, local challenges, and stunting prevention strategies. The discussions were documented through detailed field notes, which were subsequently organised and coded together with interview, observation, and documentary data to identify recurring themes, compare perspectives, and triangulate the findings.

Data were analysed iteratively following Miles, Huberman, and Saldaña (2019) through data condensation, data display, and conclusion drawing and verification. Interview transcripts, FGD field notes, observation notes, and documents were first reviewed and coded according to recurring concepts relevant to the research questions. Initial codes, such as cadre capacity, coordination, community participation, local resources, and implementation barriers, were compared and grouped into broader categories, which were subsequently developed into themes representing PKK empowerment strategies and their supporting and inhibiting factors. The research team conducted the coding independently and then compared the results; differences in coding and interpretation were discussed until consensus was reached. The resulting themes were organised into narrative descriptions, matrices, and tables and interpreted using community empowerment (Zimmerman, 2000) and social participation (Pretty, 1995) perspectives.

Methodological trustworthiness was established based on Lincoln and Guba's (1985) criteria of credibility, transferability, dependability, and confirmability. Credibility was strengthened through member checking and triangulation. Specifically, evidence from interviews, observations, FGDs, and documents was systematically compared across participant groups and data sources to identify convergence, complementarity, and discrepancies. Conflicting evidence was re-examined against the original field notes and discussed by the research team before the final interpretation was established. Transferability was supported through detailed contextual descriptions, while dependability and confirmability were maintained through systematic documentation of coding decisions, analytical notes, and an audit trail throughout the research process.

All research activities adhered to principles of social ethics, including obtaining official permission from the village government and the TP PKK, securing written *informed consent* from informants, and ensuring the confidentiality of participants' identities. In this report, each informant is assigned a code such as I1, I2, and so on, to preserve anonymity. Conceptually, this study employs a framework that positions the PKK's organisational structure as the primary actor in family empowerment. The empowerment process is carried out through capacity building for cadres, nutrition education, and community participation, which are expected to bring about behavioural changes, consumption and child-rearing practices—thereby reducing the risk of stunting. This conceptual relationship is illustrated in Table 1 below.

**Table 1.** Conceptual Framework of the Study: Relationship between Empowerment Components and the Prevention of Stunting

| PKK Empowerment Components | Implementation Strategies | Forms of Community Participation | Impact on Stunting Prevention |
|---|---|---|---|
| Capacity Building for Cadres | Nutrition training, health education, management of posyandu | Community health workers actively support mothers of young children and expectant mothers | Increased knowledge of nutrition and healthy parenting practices |
| Nutrition and Child-rearing Education | Promotion of nutritious food and family vegetable gardens | Housewives take part in joint learning activities | Increased dietary variety and a reduction in the number of malnourished toddlers |
| Inter-institutional collaboration | Coordination between the PKK and village midwives, Posyandu centres, and village officials | Cross-sectoral involvement in nutrition programmes | More targeted and sustainable programmes |
| Family economic empowerment | Training in the preparation of nutritious local foods | PKK members develop small family businesses | Family economic resilience increases and supports children's nutrition |

*(Source: Researcher, 2025, adapted from Zimmerman (2000) and Pretty (1995))*

The research process was conducted over four months, from field data collection to thematic analysis. The findings of this study are not intended to be widely generalised, but rather to provide an in-depth contextual understanding of PKK empowerment practices in coastal areas characterised by social and economic complexity. Through the qualitative case study approach, it is hoped that this research will yield a rich picture of the PKK's strategies for preventing stunting, whilst also providing a conceptual foundation for community-based family empowerment models in Indonesia.

As supplementary documentary evidence, the researchers reviewed food-consumption records for 30 families participating in the PKK programme at two measurement points, before and after programme implementation. The records covered four indicators: consumption of animal protein sources, vegetables and fruits, diverse carbohydrate sources, and instant processed foods. For each indicator, the proportion was calculated by dividing the number of families recorded as consuming the respective food category by the total number of participating families (N = 30) and multiplying by 100. These data were analysed descriptively and triangulated with interviews, FGDs, participatory observations, and other programme documents. They were used to complement the qualitative findings and did not constitute a researcher-administered survey.

## RESULTS AND DISCUSSION

The Results section of the study indicates that the Family Welfare Empowerment (PKK) programme in Kuala Tanjung Village plays a significant role in stunting prevention efforts through social, educational and collaborative approaches. These empowerment strategies involve three main dimensions, namely (1) strengthening the capacity of PKK cadres, (2) increasing the participation of housewives in nutritional practices and child-rearing, and (3) cross-sectoral collaboration between the PKK, the village government and health workers. These three dimensions are interrelated and form a working model oriented towards behavioural change within families to support optimal child growth. Generally, PKK activities in Kuala Tanjung Village focus on nutrition education, strengthening posyandu (community health posts), utilising local food, and developing family economies. Based on an interview with the Chair of the PKK (Informant 1), nutrition education activities are carried out routinely during neighbourhood group meetings and at posyandu sessions. PKK cadres receive training from health centre staff on how to identify children at risk of stunting, prepare nutritious supplementary foods, and educate pregnant women on the importance of iron intake and regular antenatal check-ups. One cadre (Informant 3) stated:

*"We now have a better understanding of the importance of the first 1,000 days of life. So, at every posyandu session, we teach mothers how to prepare meals using local ingredients such as sea fish, moringa leaves and bananas, to ensure children do not suffer from malnutrition."*

These findings demonstrate that the PKK's empowerment process functions not only as a means of disseminating information but also as a community-based social learning space. This finding aligns with Zimmerman's (2000) concept of *community empowerment*, which emphasises strengthening collective capacity and local capabilities to address community problems. The PKK's nutrition awareness activities were also accompanied by increased participation of mothers of children under five in *posyandu* activities. Based on *posyandu* attendance records and field observations over four consecutive months, attendance increased from 29 of 50 registered mothers (58%) in the first month, to 33 of 50 (66%) in the second month, 38 of 50 (76%) in the third month, and 42 of 50 (84%) in the fourth month. The participation rate was calculated by dividing the number of mothers attending each monthly session by the total number of 50 registered eligible mothers and multiplying by 100. The data represent aggregate monthly attendance and did not track the same individual participants longitudinally. Therefore, the increase from 58% to 84% is interpreted descriptively as an indication of greater community participation during the implementation of PKK empowerment activities, rather than as evidence of a statistically significant or causal effect.

**Table 2.** Changes in Mothers' Participation in PKK and Posyandu Activities

| Month | Participants, n/N | Participation Rate (%) | Main Activity |
|---|---|---|---|
| January 2025 | 29/50 | 58 | Basic nutrition awareness |
| February 2025 | 33/50 | 66 | Nutritious food preparation training |
| March 2025 | 38/50 | 76 | Parenting and maternal health education |
| April 2025 | 42/50 | 84 | Family nutrition garden activities |

*Source: PKK and Posyandu attendance records and field observations, 2025.*

Table 2 shows an observed increase in mothers' participation in PKK and *posyandu* activities during the four-month observation period. Of the 50 registered eligible mothers, attendance increased from 29 (58%) in January to 33 (66%) in February, 38 (76%) in March, and 42 (84%) in April 2025. Participation rates were calculated by dividing the number of mothers attending each monthly activity by the total number of registered eligible mothers (N = 50) and multiplying by 100.

The upward pattern coincided with a series of community-based activities, including nutrition education, nutritious food preparation training, parenting and maternal health education, and family nutrition garden activities. Field observations also showed that PKK cadres used interpersonal communication, illustrated educational materials, cooking demonstrations, and home visits to engage mothers. These findings indicate an observed association between the implementation of participatory PKK activities and increased community engagement; however, given the descriptive case study design, they should not be interpreted as evidence of a direct causal effect. This interpretation is consistent with Lopuhaa and Ginting (2024), who emphasise the importance of cadre empowerment and context-sensitive approaches in community-based stunting prevention.

Another key focus of the empowerment strategy is strengthening the capacity of community health workers. According to an interview with the village head (Informant 5), the PKK in Kuala Tanjung Village has allocated village funds to support training for community health workers every two months. This training covers nutritional counselling skills, the management of posyandu activities, and digital reporting using the *e-PPGBM* (electronic Community-Based Nutrition Recording and Reporting) application. Capacity building for cadres not only strengthens their technical skills but also fosters self-confidence in leading social activities. From the perspective of Pretty's (1995) theory of participation, the active involvement of cadres and the community at every stage of the activities—from planning, through implementation, to evaluation—demonstrates a form of interactive participation, rather than merely symbolic participation. Community health workers

become change agents who fulfil a dual role as facilitators, educators and motivators. Another factor contributing to the programme's success is the synergy between the PKK and other sectors such as community health centres, the National Family Planning Co-ordination Board (BKKBN) and village administrations. This collaboration takes the form of integrated programmes such as *the 'Preventing Stunting from Home' Movement*, which involves various activities such as health checks for toddlers, monitoring of weight , body mass and height, as well as training for families on sanitation and environmental hygiene. The integration of these programmes demonstrates a pattern of horizontal coordination between institutions at the local level.

However, this study also identified a number of obstacles. Firstly, not all PKK cadres have a thorough understanding of stunting indicators and how to address them. Secondly, some members of the community still regard stunting as 'hereditary' or genetically determined, rather than the result of dietary patterns and nutrition. These barriers indicate that behavioural change requires time and consistent intervention. Therefore, the PKK's strategy needs to be accompanied by cultural and religious approaches, for example through collaboration with community leaders and faith-based outreach, as suggested by the research by (Beal et al., 2018).

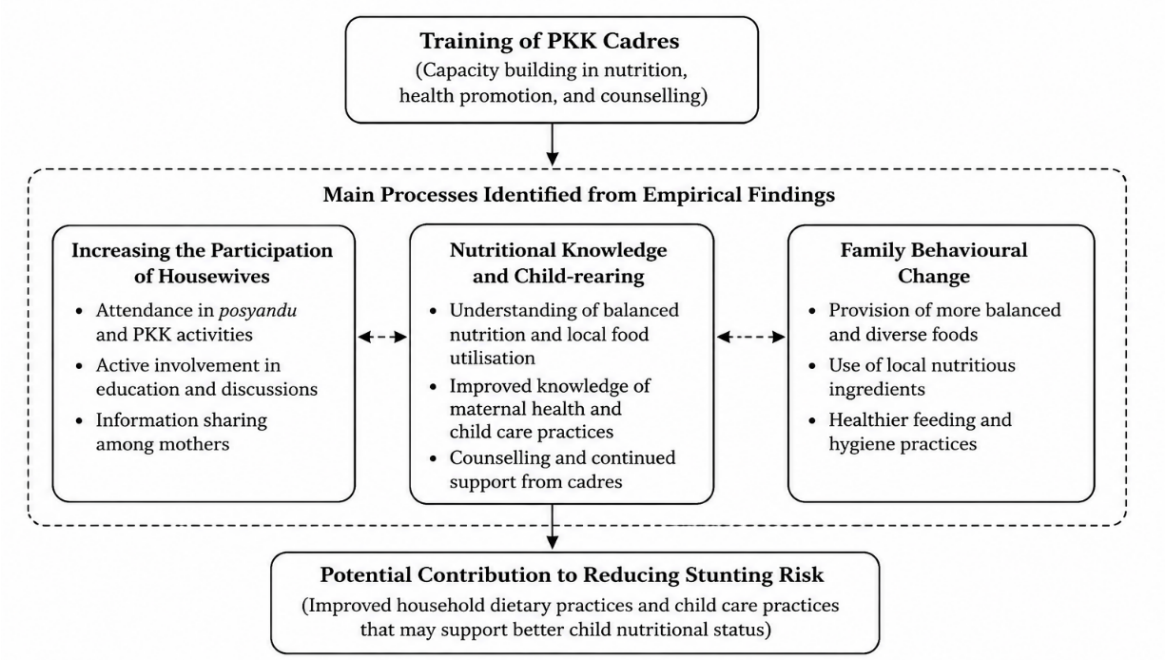


**Figure 1.** Empowerment Process Flowchart

Figure 1 represents a conceptual synthesis derived inductively from the empirical findings rather than an empirically validated causal model. The components of the model emerged from recurring themes identified across in-depth interviews with 10 informants, three FGDs involving 10–12 participants each, participatory observations, and documentary analysis. The relationships among the components were established by comparing patterns repeatedly reported by participants and observed across these data sources. The findings suggest that cadre training strengthened the delivery of nutrition and child-rearing education, while community-based activities provided opportunities for mothers to participate, exchange knowledge, and translate nutritional information into household practices. These interconnected processes formed the empirical basis for the proposed pathway from PKK cadre capacity building, community participation, and nutritional knowledge to changes in family practices and, ultimately, the potential reduction of stunting risk.

The model is further supported by descriptive evidence from programme records. Mothers' participation in PKK and *posyandu* activities increased from 29 of 50 (58%) in January to 42 of 50 (84%) in April 2025. Documentary records from 30 participating families also showed changes in dietary practices: consumption of animal protein increased from 12 families (40.0%) to 22 (73.3%), vegetables and fruits from 17 (56.7%) to 24 (80.0%), and diverse carbohydrate sources from 23

(76.7%) to 27 (90.0%), while consumption of instant processed foods decreased from 12 (40.0%) to 6 families (20.0%). These descriptive patterns were consistent with interview, FGD, and observational findings regarding increased nutrition awareness and changes in family food practices. However, the model has not been quantitatively or externally validated and should therefore be interpreted as a context-specific conceptual model derived from the qualitative case study, rather than as evidence of causal relationships among its components.

**Table 3.** Descriptive Changes in Household Food Consumption Patterns among Participating Families

| Food Consumption Indicator | Before, n (%) | After, n (%) | Observed Change |
|---|---|---|---|
| Animal protein sources (fish, eggs, and chicken) | 12 (40.0%) | 22 (73.3%) | +33.3 pp |
| Vegetables and fruits | 17 (56.7%) | 24 (80.0%) | +23.3 pp |
| Diverse carbohydrate sources | 23 (76.7%) | 27 (90.0%) | +13.3 pp |
| Instant processed foods | 12 (40.0%) | 6 (20.0%) | −20.0 pp |

*Source: PKK and Posyandu programme records, 2025. The figures represent descriptive documentary data from 30 participating families and were not generated through a researcher-administered survey.*

The documentary data indicate an observed shift in household food-consumption patterns during the PKK empowerment programme. Among the 30 participating families, recorded consumption of animal protein increased from 12 (40.0%) to 22 families (73.3%), vegetables and fruits from 17 (56.7%) to 24 (80.0%), and diverse carbohydrate sources from 23 (76.7%) to 27 (90.0%). In contrast, instant processed food consumption decreased from 12 (40.0%) to 6 families (20.0%). These patterns are consistent with previous studies suggesting that community-based nutrition education and cadre empowerment may support healthier household practices (Lopuhaa & Ginting, 2024). However, the findings extend this discussion by highlighting the importance of locally available food resources in a coastal setting. In Kuala Tanjung, access to fish as a locally available source of animal protein, combined with family nutrition gardens and PKK-based nutrition education, may facilitate the translation of nutritional knowledge into everyday dietary practices.

From the perspective of the Health Belief Model (Rosenstock et al., 1988), these changes may reflect greater awareness of the benefits of healthier food choices alongside interpersonal encouragement from PKK cadres and other community members. Nevertheless, the observed changes cannot be attributed solely to the PKK programme. Seasonal food availability, household income, food prices, family preferences, and other health or village programmes may also have influenced dietary practices. Moreover, the before-and-after figures were derived from programme records for 30 participating families rather than from a controlled longitudinal survey, and no comparison group or inferential statistical testing was employed. The findings should therefore be interpreted as descriptive evidence that complements the qualitative interview, FGD, observation, and documentary findings, rather than as proof of programme effectiveness or a causal relationship.

Theoretically, the results of this study reinforce the view that social empowerment is not merely an extension activity, but a process of social transformation that builds critical awareness, individual capacity and social cohesion. This is consistent with the findings of Lawolo, V. K. L. (2024), who emphasised that the effectiveness of the PKK programme in reducing stunting is highly dependent on the quality of local leadership, the involvement of women cadres and village policy support. Consequently, the findings of this study demonstrate that the success of the PKK's strategy in Kuala Tanjung Village is determined not only by technical interventions but also by social processes that transform the community's perspective on child health. These efforts are highly relevant to the Sustainable *Development* Goals (*SDGs*), particularly Goal 2 (Zero Hunger) and Goal 3 (Good Health and Well-being).

## CONCLUSIONS

The findings of this study suggest that community-based family empowerment through the Family Welfare Empowerment Movement (PKK) in Kuala Tanjung Village involves a gradual process of strengthening nutritional awareness, community participation, and healthier family practices. The empowerment strategies included cadre capacity building, nutrition counselling, participatory activities, and cross-sectoral collaboration involving PKK cadres, health workers, village government, and families. These processes were reflected in increased participation in PKK and *posyandu* activities and descriptive changes in household food-consumption patterns.

The findings further suggest that the use of locally available food resources and participatory approaches may contribute to creating a supportive family and community environment for stunting prevention in the coastal context of Kuala Tanjung. However, the observed changes cannot be attributed solely to the PKK programme, as other factors, including household socio-economic conditions, food availability and prices, family preferences, and other health and village programmes, may also influence family practices. Therefore, the findings should be interpreted as contextual and descriptive rather than as evidence of a direct causal effect or proven reduction in stunting.

Given the single-village qualitative case study design, the proposed PKK empowerment model should be understood as a context-specific conceptual synthesis rather than a universally generalisable or empirically validated model. Its potential transferability may be considered in coastal or rural communities with comparable socio-economic and cultural conditions, access to local nutritious food resources, active community-based organisations, primary health services, and collaboration between community cadres and local government. Further research in different settings is needed to examine and validate the applicability of this model before broader implementation

## AUTHOR CONTRIBUTION STATEMENT

Sri Wahyu Indriani Sinaga devised the research design, conducted the fieldwork and led the data analysis process. Yudan Hermawan contributed to the theoretical framework, oversaw the methodology and reviewed the manuscript as a whole for academic rigour. Kiki Irafa Candra supported data collection, conducted the literature review and was responsible for the translation and formatting of the manuscript for publication. All authors discussed the findings, contributed to the final manuscript, and approved the submitted version.

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