



RESEARCH ARTICLE

How Family Assistance Teams Support Maternal-Child Nutrition Behavior Change for Stunting Prevention: A Qualitative Comparative Case Study in Kampar Regency, Indonesia

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Abstract

Stunting is a chronic nutritional problem with long-term impacts on child development and future productivity. The Family Assistance Team (FAT) plays a crucial role in community-based interventions by providing education and mentoring to at-risk families. This study aims to explore the role of FAT in supporting behavioral changes to prevent stunting in maternal and child nutrition. A qualitative case study approach was used. The primary informants, including FAT members and supporting informants, were the Head of the Community Health Center, nutritionists, the Head of Population Control, field coordinators for the Family Planning Program, and mothers of children under five years old. Purposive sampling was employed to select informants. Data were gathered through in-depth interviews, Focus Group discussions, and document review. Data validity was ensured through source and method triangulation. Thematic analysis was used to identify key findings. Five major themes emerged: (1) FAT's role in health education and growth monitoring; (2) collaboration across programs; (3) risk factors for stunting; (4) challenges in mentoring; and (5) behavioral changes in mothers and children. FAT reported changes in mothers' behavior, particularly in toddler feeding patterns, which were supported through regular monitoring using WhatsApp messaging. However, program implementation still faces various obstacles, requiring capacity building for cadres, policy support, and cross-sector collaboration to ensure the sustainability of the stunting reduction program.

Keywords: Behavior change, community intervention, child nutrition, Family Assistance Team, stunting prevention.

Abstrak. Stunting adalah masalah gizi kronis yang berdampak jangka panjang terhadap perkembangan anak dan produktivitas di masa depan. Tim Pendampingan Keluarga (TPK) memainkan peran penting dalam intervensi berbasis masyarakat melalui pendidikan dan pendampingan keluarga berisiko. Penelitian ini bertujuan untuk mengeksplorasi peran TPK dalam mendukung perubahan perilaku terkait gizi ibu dan anak untuk mencegah stunting. Pendekatan studi kasus kualitatif digunakan dalam penelitian ini. Informan utama yaitu TPK dan informan pendukung terdiri dari Kepala Puskesmas, ahli gizi, Kepala Pengendalian Penduduk, koordinator lapangan Program Keluarga Berencana, dan ibu balita. Teknik pengambilan sampel menggunakan *purposive sampling*. Data dikumpulkan melalui wawancara mendalam, Fokus Grup Diskusi, dan tinjauan dokumen. Validitas data melalui triangulasi sumber dan metode. Analisis tematik digunakan untuk mengidentifikasi temuan kunci. Lima tema utama yaitu: (1) peran TPK dalam pendidikan kesehatan dan pemantauan pertumbuhan; (2) kolaborasi lintas program; (3) faktor risiko stunting; (4) tantangan dalam pendampingan; dan (5) perubahan perilaku ibu dan anak. TPK melaporkan adanya perubahan perilaku ibu, khususnya dalam pola makan balita, yang didukung melalui pemantauan rutin menggunakan media perpesanan WhatsApp. Namun demikian, implementasi program masih menghadapi berbagai hambatan, sehingga penguatan kapasitas kader, dukungan kebijakan, serta kolaborasi lintas sektor guna menjamin keberlanjutan program penurunan stunting..

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Kata kunci: Perubahan perilaku, intervensi komunitas, gizi anak, Tim Penamping Keluarga, pencegahan stunting.

INTRODUCTION

Stunting, defined as impaired growth and development in children due to chronic malnutrition, recurrent infections, and suboptimal caregiving practices, remains a critical global health issue (Leroy & Frongillo, 2019; Singh et al., 2025). This condition affects physical growth, hampers cognitive development and future productivity, and increases the risk of chronic diseases (Kementerian PPN/Bappenas, 2019; Soliman et al., 2021). In Indonesia, stunting prevalence continues to pose a significant public health challenge, with national efforts targeting a reduction to 14% by 2024 (Peraturan Presiden Republik Indonesia Nomor 72 Tahun 2021 Tentang Percepatan Penurunan Stunting, 2021). Based on the Indonesian Nutritional Status Survey (SSGI) conducted in 2021 and 2023, Kampar Regency is one of the stunting-priority areas in Indonesia, with a decline in stunting prevalence from 25.70% in 2021 to 7.60% in 2023 (Kemenkes RI, 2022, 2024; Kementerian Kesehatan RI, 2021). However, sustained efforts are essential to consolidate these achievements and address existing disparities.

The Family Assistance Team (FAT) plays a crucial role in stunting interventions by providing education and support to at-risk families, mainly targeting pregnant women, postpartum mothers, young children, and prospective brides (Widnyani et al., 2023). A study in India found that community-based mentoring programs significantly increased maternal awareness of child nutrition and reduced child malnutrition rates (Pavithra et al., 2019). Similarly, research in Indonesia has shown that community mentoring interventions improve maternal knowledge, attitudes, and practices in stunting prevention (Sutinbuk et al., 2024). In low and middle income countries such as Bangladesh (Nisbett et al., 2017) and Ethiopia (Tessema et al., 2023), as well as in the Eastern Mediterranean region (Ghods et al., 2021). Community-based approaches have proven effective in improving children's nutritional status. Family mentoring helps shape healthy eating habits and enhances the utilization of nutrition programs, thereby addressing nutritional disparities and improving community well-being (Agurs-Collins et al., 2024).

However, much of the existing evidence focuses on whether mentoring interventions work, rather than on how they are implemented and adapted in complex real-world contexts. In particular, there is limited qualitative evidence on the mechanisms by which Family Assistance Teams support behavior change in settings characterized by high population mobility, stigma related to stunting and malnutrition, and resistance to standard service delivery approaches, such as home visits. Moreover, little is known about how FAT members adjust mentoring strategies when families disengage from services or refuse direct contact, and how these adaptations shape the continuity and perceived effectiveness of support.

To address this gap, the present study adopts a qualitative multi-case approach to explore the implementation processes, contextual constraints, and perceived mechanisms of behavior change in FAT mentoring across two village contexts with differing stunting risk profiles in Kampar Regency, Indonesia. This study was conducted at the Tambang Community Health Center in Kampar Regency, Riau Province, Indonesia, and involved two villages as a multi-case comparative qualitative design: Tarai and Kurapan. Tarai Village was selected because it has a high concentration of families at risk of stunting, while Kurapan Village represents a lower-risk context with fewer at-risk families.

The inclusion of these two contrasting village contexts was intended not to compare outcomes quantitatively, but to explore contextual and implementation-related differences in how the Family Assistance Team (FAT) supports maternal and child nutrition behavior change. Specifically, the comparison focused on variations in the intensity and continuity of mentoring activities, implementation barriers (such as population mobility and stigma), and local dynamics influencing family engagement with FAT services. Through this multi-case qualitative approach, the study aims to examine the role of the Family Assistance Team in mentoring families and to understand how differing risk contexts shape the processes through which maternal and child nutrition behaviors are supported in stunting prevention efforts in Kampar Regency.

METHODS

Study Design

This study employed a qualitative case study design to examine the implementation of the Family Assistance Team (FAT) program in supporting maternal-child nutrition behavior change among families at risk of stunting within the Tambang Community Health Center catchment area in Kampar Regency, Indonesia. In this study, the case is defined as the processes and practices through which the Family Assistance Team delivers education, mentoring, and follow-up support to stunting-risk families, rather than the measurement of behavioral outcomes themselves. The case study design was chosen to enable an in-depth exploration of how FAT activities are organized, adapted, and experienced by stakeholders and families within this specific service delivery context.

Participants

The primary informants comprised members of the Family Assistance Team (FAT), consisting of one midwife, two Family Welfare Movement cadres, and two Family Planning cadres. Supporting informants included key stakeholders: the Head of Population Control at the Office of Population Control, Family Planning, and Women's Empowerment; the community health center director; a nutritionist; the Head of the Village Stunting Reduction Acceleration Team; and the Family Planning Field Coordinator. In addition, one Elsimil data operator was included as a supporting informant. This operator is responsible for managing family screening data, documenting mentoring activities, and issuing readiness certificates for prospective brides, thereby providing insight into how FAT activities are recorded, monitored, and translated into administrative decision-making. Additionally, three mothers of stunted children aged 12–59 months who had participated in the FAT mentoring program for at least six months were included to capture caregivers' experiences of the intervention. Mothers of children aged 12–59 months identified as stunted based on Community Health Center and Integrated Health Post growth monitoring records were recruited from both Tarai and Kurapan villages, provided they had participated in FAT mentoring for at least six months. In total, 14 informants participated in this study.

Data Collection Techniques

Data were collected using various methods to ensure comprehensiveness. One Focus Group Discussion (FGD) session was conducted with members of the Family Assistance Team, the Village Stunting Prevention and Acceleration Team, the Elsimil data operator, and the Family Planning Field Coordinator. The FGD involved eight participants, lasted approximately 90 minutes, and was held at the Family Planning (KB) Hall of Tambang Subdistrict. The discussion was guided by a semi-structured discussion guide focusing on the roles of the Family Assistance Team, mentoring processes, implementation challenges, and contextual factors influencing family engagement in stunting prevention programs.

In-depth interviews were conducted with key stakeholders, including the head of the Community Health Center, a nutritionist, the head of population control at the Office of Population Control, Family Planning and Women's Empowerment, and mothers of stunted children. Interviews lasted 45–60 minutes, were conducted face-to-face in Bahasa Indonesia, and followed semi-structured interview guides tailored to each informant group. All FGDs and interviews were audio-recorded with participants' consent and later transcribed verbatim for analysis.

In addition, a document review was undertaken to supplement primary data. Reviewed materials included the Maternal and Child Health (MCH) Book, child growth monitoring cards, records from the Elsimil electronic health information system, and mentoring forms completed by FAT cadres. These documents were used to contextualize and verify information obtained from interviews and FGDs.

Data Validation

Data triangulation was performed using three approaches to ensure the validity and reliability of the findings. To validate information from different perspectives, source triangulation was conducted by cross-checking data from multiple informants, including FAT members, stakeholders, and mothers. Method triangulation involved combining data from FGDs, interviews, and document reviews to enhance the depth and accuracy of the findings. Additionally, data triangulation was applied by comparing data from different sources and using different methods to identify consistent patterns.

Data Analysis

Data were analyzed using thematic analysis with an inductive approach. All in-depth interviews and the FGD were audio-recorded and transcribed verbatim to ensure accuracy. Two researchers independently read the transcripts multiple times to achieve data familiarization and conducted initial open coding without predefined categories. The coding results were compared, and differences were discussed until consensus was reached, yielding a shared coding framework.

Codes with conceptual similarity were subsequently grouped into categories and refined into overarching themes through an iterative analytic process. Theme development was informed by constant comparison across data sources, including FGDs, interviews, and document reviews, to enhance analytical rigor. An audit trail was maintained throughout the analysis, including code

definitions, analytic memos, and records of theme refinement, providing transparency into how interpretations were developed. The final themes were reviewed in relation to the study objectives to assess how Family Assistance Team mentoring processes support maternal and child nutrition behavior change within the study context.

Ethical Considerations

This study received ethical approval from the Ethics Commission of Hang Tuah University Pekanbaru, with approval number 249.A/KEPK/UHTP/VI/2024. Informed consent was obtained from all participants prior to their involvement in the study. Confidentiality and anonymity were maintained throughout the research process.

RESULTS OF STUDY

The composition and Experience of the Family Assistance Team (FAT) comprises midwives, Family Welfare Movement cadres, and family planning cadres. On average, FAT members have 2 years of experience providing family mentoring. In carrying out their duties, the FAT operates under the coordination of the Family Planning Counselors and the Village Stunting Reduction Acceleration Team. Additionally, the FAT supports the Community Health Center (CHC) nutritionists.

Table 1. Characteristic of Informant

No	Code	Age (Year)	Gender	Occupation / Role
1	INF1	34	Female	Cadre 1
2	INF2	47	Female	Cadre 2
3	INF3	56	Female	Cadre 3
4	INF4	37	Female	Cadre 4
5	INF5	36	Female	Midwife
6	INF6	52	Female	Family Planning Coordinator
7	INF7	38	Female	Head of Village Stunting Reduction Acceleration Team
8	INF8	37	Female	Operator
Characteristics of in-depth interview Informants				
9	INF9	42	Female	Head of Population Control DPPKBP3A
10	INF10	44	Male	Head of Community Health Center
11	INF11	46	Female	Nutritionist of Community Health Center
12	INF12	30	Female	mothers of toddlers
13	INF13	25	Female	mothers of toddlers
14	INF14	29	Female	mothers of toddlers

Through in-depth interviews, focus group discussions (FGDs), observations, and document reviews, five main themes emerged regarding the role of the FAT in reducing stunting prevalence:

Theme 1: The Role of FAT in Health and Nutrition Education and Child Growth Monitoring

The FAT is crucial in providing health and nutrition education and monitoring child growth and development.

Education is delivered to prospective brides, pregnant women, breastfeeding mothers, and families with toddlers, emphasizing the importance of exclusive breastfeeding, adequate complementary feeding, and stunting prevention through regular weight and mid-upper arm circumference (MUAC) monitoring. One informant stated:

"We mentor prospective brides starting three months before marriage. We measure their MUAC and weight and provide education to ensure they are prepared for pregnancy. If their hemoglobin levels are low, we immediately refer them to the Community Health Centre." (INF1).

Prospective brides identified as at-risk receive targeted education and monitoring before marriage and are issued certificates through the Elsimil application. Mentoring is conducted in stages, aligned with risk cycles. Prospective brides receive three mentoring sessions before marriage to prepare them for healthy family planning. Pregnant women attend six sessions to ensure maternal and fetal well-being. Postpartum mothers and toddlers are regularly monitored, with a focus on dietary habits, immunization status, and infection prevention to mitigate health risks during critical growth phases. One informant explained:

"After marriage, postpartum mothers receive six mentoring sessions, starting from the prenatal period" (INF6).

For families who do not attend the Integrated Health Post (IHP), home visits are conducted using simple tools such as fabric measuring tapes to assess child height. One FAT member noted:

"If children do not come to IHP, we use fabric measuring tapes to measure their height at home"(INF3).

In addition to nutrition education, the FAT also plays a role in countering health-related misinformation circulating in the community, particularly regarding immunization. One informant shared:

"At IHP, we often face challenges, such as when parents refuse polio vaccinations due to hoaxes. We must address these misconceptions directly"(INF4).

Theme 2: Program Collaboration in Stunting Reduction Efforts

In carrying out their duties, the FAT collaborates with various programs at the CHC. One notable collaboration is the Breastfeeding Village and Local Supplementary Feeding Program. Through these initiatives, the FAT provides mentoring alongside the village head, who leads the Stunting Reduction Acceleration Team, and local community members in preparing locally sourced food, such as catfish-based meals. These meals are distributed to undernourished children and pregnant women to help meet their nutritional needs. One informant explained:

"Through the Local PMT Program, all undernourished children in the village receive locally prepared supplementary food..."(INF7).

The FAT also collaborates with the Office of Religious Affairs (KUA) to provide premarital mentoring for prospective brides and grooms. Couples must first complete mentoring sessions with the FAT to make sure

they are prepared to start a healthy family before they may receive a marriage certificate. One informant stated:

"For every couple planning to marry, the KUA always recommends they first consult with the FAT..."(INF9).

After completing the mentoring process, prospective couples receive a certificate from the Elsimil application, which serves as one of the requirements for marriage registration at the KUA. This certificate indicates that the couple has undergone health screening and is ready for pregnancy. The Family Planning Coordinator emphasized:

"The certificate signifies that they have been screened. The prospective bride is in good health and ready for pregnancy. Through the application, they are deemed ready for marriage and pregnancy."(INF6)

Theme 3: Risk Factors for Stunting

Several mothers of stunted toddlers reported that their children did not receive exclusive breastfeeding. Additionally, the complementary foods (MP-ASI) provided did not meet the children's balanced nutritional needs. Toddlers tended to consume fast food with low protein content. Many mothers believed that providing vegetables, such as potatoes and carrots, was sufficient to meet their children's nutritional needs. One mother of a stunted child stated:

"For porridge, we usually just use potatoes and carrots." (INF13)

Another informant added:

"Parents often give instant snacks because they are cheap, such as sausages and nuggets. That is what the toddlers consume every day."(INF5)

A FAT member highlighted a common misconception in the community:

"In the village, many think that feeding children vegetables is enough for their health, but they lack protein."(INF2)

In addition to dietary factors, traditional practices and parents' psychological conditions also influenced child-rearing practices. Some mothers experienced stress due to divorce or family conflicts, which negatively impacted their ability to care for their children. This finding was supported by health workers at the Community Health Centre:

"Some stunted children come from broken homes." (INF10)

Another contributing factor to stunting was the habit of smoking indoors, which exposed children to secondhand smoke. One informant explained:

"Many still smoke inside the house... that is why there are so many families at risk of stunting here."(INF7)

Theme 4: Challenges Faced by the Family Assistance Team in Conducting Mentoring

The Family Assistance Team encountered various challenges in implementing mentoring activities, including limited resources, geographical barriers, and socio-cultural

factors. Although routine growth monitoring was conducted, standardized supporting resources were inconsistent across Integrated Health Posts (IHPs). In addition to constraints related to anthropometric measurement tools, cadres reported a shortage of Information, Education, and Communication (IEC) materials, particularly the Maternal and Child Health (MCH) Book for pregnant women and growth monitoring books for toddlers. One informant explained:

"Right now, all the books are out of stock. The pink book for pregnant women is unavailable, and there are no books for toddlers either." (INF3)

The absence of these standardized materials limited cadres' ability to deliver consistent health education and to document and monitor maternal and child health information, thereby posing challenges to the continuity and quality of mentoring activities. In addition, some cadres revealed that low incentives hindered their ability to conduct home visits due to limited operational funds. One cadre stated:

"The incentive is 110,000 rupiahs, plus phone credit and photocopying costs... so the total is around 210,000 rupiahs." (INF6)

Geographical challenges also posed significant difficulties. The high population mobility in certain areas made it challenging to collect accurate data and monitor child growth and development. One FAT member from Tarai Village shared:

"Especially in Tarai Village, the residents often move around. By the time of the third Integrated Health Post session, the child is no longer there. The data is lost, and we cannot track their progress." (INF3)

Beyond technical and geographical barriers, socio-cultural factors also presented challenges. The stigma associated with stunting and malnutrition caused some families to avoid attending Integrated Health Post sessions, resulting in incomplete data and difficulties in monitoring child development. One informant noted:

"When they come to the Integrated Health Post, they are often told that their child is malnourished or has poor nutritional status. As a result, they do not want to come back. This leads to missing data and complicates our monitoring efforts." (INF7)

Theme 5: Behavioral Changes in Mothers and Children

A notable behavioral change reported after the family counseling program was an increase in exclusive breastfeeding practices, as perceived by participants. Informants described that villages which previously had low levels of exclusive breastfeeding were now

experiencing greater adoption of exclusive breastfeeding among mothers, based on their observations and experiences during mentoring activities. One informant stated:

"In villages that previously had very low rates of exclusive breastfeeding, participants reported that exclusive breastfeeding practices have increased substantially." (INF11)

The mentoring program also changed children's dietary patterns. Through WhatsApp groups and regular home visits, mothers were encouraged to periodically report their children's food consumption using the messaging app. One FAT member explained:

"Every time they receive assistance, whenever the child eats, the mother sends a photo to me... through WhatsApp, I monitor their progress." (INF1)

In addition to the FAT, monthly monitoring was also conducted in collaboration with the Community Health Center's nutritionist. One informant shared:

"We visit once a month... the FAT cadres also have a team that visits weekly. We monitor their progress every week... Alhamdulillah, their weight has increased." (INF4)

Furthermore, the program improved compliance with the Local Supplementary Feeding Program and monitored children's nutritional status. One FAT member stated:

"Every time they receive assistance, I weigh and measure the child's height. Whether there is an increase or not, I continue to provide education." (INF11)

Comparative Implementation Context: Tarai and Kurapan Villages

As a multi-site qualitative case study, the findings reveal contextual and implementation differences in Family Assistance Team (FAT) mentoring between Tarai and Kurapan villages, which have contrasting stunting risk profiles. Tarai Village, characterized by a higher concentration of families at risk of stunting, faced more complex implementation challenges. Informants reported high population mobility, leading to frequent family relocations and difficulties maintaining continuous engagement. This condition disrupted mentoring continuity, contributed to irregular attendance at Integrated Health Posts (IHPs), and led to the loss of growth monitoring data. In addition, stigma related to stunting and reluctance to engage with formal health services further constrained mentoring efforts. To address these challenges, FAT members in Tarai adopted adaptive strategies, including repeated home visits and more flexible follow-up mechanisms.

Table 2. Comparison of Family Assistance Team Mentoring Implementation in Tarai and Kurapan Villages

Aspect	Tarai Village (High-Risk Context)	Kurapan Village (Lower-Risk Context)
Stunting risk profile	High concentration of families at risk of stunting	Fewer families are at risk of stunting
Population mobility	High; families frequently relocate	Relatively stable
Continuity of mentoring	Frequently disrupted	More consistent
Attendance at Integrated Health Posts (IHPs)	Irregular	More regular
Main implementation barriers	High mobility, stunting-related stigma, and data loss	Relatively minor logistical constraints
FAT adaptive strategies	Repeated home visits, flexible follow-up	Routine monitoring and reinforcement of nutrition messages

Table 3. Main Theme and Key Findings

Main Theme	Key Findings	Informants statement
Role of FAT in Nutrition Education & Child Growth Monitoring	FAT provides education to prospective brides, pregnant women, breastfeeding mothers, and families with toddlers; conducts height and Mid-Upper Arm Circumference (MUAC) monitoring	"We mentor brides-to-be three months before marriage... if hemoglobin is low, we immediately refer to the health center." (INF1)
Program Collaboration in Stunting Reduction	FAT collaborates with Community Health Centers (CHC), Office of Religious Affairs (KUA), village governments, and local supplementary feeding programs.	Couples planning to marry are advised to consult FAT first to obtain a certificate from the Elsimil application." (INF9)
Risk Factors for Stunting	Lack of exclusive breastfeeding, unbalanced complementary feeding (low protein), indoor smoking habits, and maternal stress due to family conflicts	"We usually make porridge from just potatoes and carrots." (INF13) "Many still smoke inside the house." (INF7)
Challenges in Implementing Mentoring	Logistical constraints (lack of measuring tools, health books out of stock), low incentives for cadres, high population mobility, and stigma related to stunting.	"The KIA books are out of stock, and there are no books for toddlers either." (INF3) "Incentives are only IDR 110,000..." (INF6)
Behavioral Changes in Mothers and Children	Increased exclusive breastfeeding coverage, improved child dietary patterns, participation in local supplementary feeding programs, and routine monitoring via WhatsApp	"Exclusive breastfeeding increased from many mothers not breastfeeding exclusively to more than half of breastfeeding mothers breastfeeding solely." (INF11) "Mothers send photos of their child's meals via WhatsApp." (INF1)

In contrast, Kurapan Village, which has fewer families at risk of stunting, exhibited a more stable social context. Lower population mobility enabled more consistent mentoring, with higher regular attendance at IHPs. Implementation barriers were reported to be relatively minimal, allowing FAT members to focus on reinforcing nutrition messages and routine monitoring, rather than intensive outreach activities.

Although FAT members in both villages implemented similar core strategies such as nutrition education, growth monitoring, and cross-sector collaboration the intensity, continuity, and adaptive approaches of mentoring differed according to local context, underscoring how varying risk environments shape the implementation of FAT support for maternal and child nutrition behavior change.

DISCUSSION

This study extends existing evidence on family-based mentoring by elucidating the mechanisms through which the Family Assistance Team (FAT) supports maternal and child nutrition behavior change in differing risk contexts. While previous studies have demonstrated that mentoring interventions can improve maternal knowledge, attitudes, and child nutritional outcomes (Elizar et al., 2024; Hastuti et al., 2017), the present findings contribute by explaining how these changes are generated and under what contextual conditions they are sustained or constrained.

The findings indicate that FAT mentoring operates through a multi-component behavior-change mechanism, in which nutrition education, monitoring and follow-up, and program collaboration interact to influence breastfeeding practices, complementary feeding behaviors, and service utilization. First, repeated and personalized nutrition education delivered through home visits, group sessions, and interpersonal counseling enhanced mothers' nutritional knowledge and practical capability. Unlike one-off educational interventions, FAT mentoring involved sustained engagement, allowing mothers to clarify misconceptions and progressively translate knowledge into daily feeding practices. This mechanism helps explain why

family-based mentoring has been associated with improved feeding behaviors in previous studies. (Elizar et al., 2024; Hastuti et al., 2017), moving beyond descriptive claims of effectiveness toward an understanding of the process of change.

Second, regular monitoring and follow-up, conducted both in person and through digital platforms such as WhatsApp, served as self-regulation and social support mechanisms. Mothers' routine reporting of children's food consumption and growth-related information created accountability and reinforcement, encouraging continued adherence to recommended practices. This finding is consistent with evidence that nutrition mentoring among pregnant women improves dietary intake (Simbolon et al., 2022) and that WhatsApp-based interventions can support healthier dietary behaviors through frequent feedback and engagement (Hovadick & Cardoso, 2024). Similarly, social media-based nutrition education has been shown to improve maternal knowledge, attitudes, and practices (Mitra et al., 2023). In the present study, digital communication complemented in-person mentoring, particularly in contexts where direct contact was disrupted by population mobility.

Third, cross-sector program collaboration expanded opportunities for behavior change by facilitating access to services and resources, including premarital screening, supplementary feeding programs, and routine growth monitoring. Collaboration among FAT members, health centers, village authorities, and religious affairs offices reduced administrative and social barriers to service utilization. This finding supports prior research demonstrating that multi-stakeholder involvement enhances the reach and sustainability of stunting prevention programs. (Astuti et al., 2025) and underscores the importance of community participation in strengthening health interventions (Haldane et al., 2019).

However, these mechanisms operated under constraints that shaped their effectiveness. High population mobility, particularly in high-risk settings, disrupted the continuity of mentoring and complicated data tracking, corroborating findings that mobility undermines timely identification and follow-up of families at risk of stunting (Laili et al., 2022). Low financial and non-

financial incentives for cadres reduced motivation and limited the intensity of mentoring activities, consistent with studies highlighting the relationship between incentives, cadre participation, and program quality (Alexandra & Yusran, 2024; Kurniasari et al., 2022).

Notably, stigma related to stunting and misinformation regarding immunization, such as polio vaccine refusal, emerged as key behavioral determinants rather than peripheral challenges. Stigma discouraged families from attending Integrated Health Posts and engaging openly with FAT members, while immunization misinformation eroded trust in formal health services. These findings align with broader evidence that social norms and misinformation can undermine health-seeking behavior and program uptake. Addressing these barriers requires institutionalized risk-communication strategies that are non-stigmatizing, dialogic, and culturally sensitive, rather than corrective or punitive. Strategies such as reframing stunting as a shared community challenge, engaging trusted local figures, and integrating nutrition messages within broader narratives of family well-being may help reduce resistance and enhance engagement.

The comparative analysis between villages further demonstrates that behavior-change mechanisms are context-dependent. While FAT members implemented similar core activities across settings, differences in population mobility, stigma, and social stability shaped the intensity, continuity, and adaptive strategies of mentoring. This finding reinforces the value of qualitative comparative case studies for understanding not only whether mentoring programs are effective, but also how and under what conditions they influence maternal and child nutrition behaviors.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, reliance on self-reported perceptions, including those of program implementers, introduces the potential for social desirability bias, leading to positive changes being overstated. Second, although a comparative multi-case design was employed, cross-village comparability was limited by contextual variability and differences in data depth, constraining systematic comparison across all themes. Third, reported behavior changes were primarily derived from narratives and observations, with limited objective verification using longitudinal growth or service coverage records, restricting assessment of the magnitude of change. Finally, the study was conducted within a single community health center catchment area, which may limit transferability to settings with different institutional or socio-cultural contexts.

Future research should adopt mixed-methods approaches that integrate qualitative analysis of implementation mechanisms with quantitative monitoring data and should further examine the effectiveness of stigma-sensitive and misinformation-responsive communication strategies within family mentoring programs.

CONCLUSION

This qualitative study indicates that the Family Assistance Team (FAT) plays an important role in supporting maternal and child nutrition behavior change

through community-based education, mentoring, and follow-up activities. Participants reported improvements in exclusive breastfeeding practices, child feeding behaviors, and engagement with health services, facilitated by repeated nutrition education, regular monitoring, and collaboration with local stakeholders. These findings highlight FAT mentoring as a supportive process shaping nutrition-related behaviors rather than as evidence of direct program effectiveness. However, the continuity and quality of mentoring are influenced by contextual constraints, including high population mobility, limited availability of supporting resources, and low financial and non-financial incentives for cadres. In response to these challenges, program sustainability may be strengthened by enhancing cadre motivation and logistical support, ensuring the consistent availability of Information, Education, and Communication materials at Community Health Centers, and reinforcing coordination mechanisms at the village and regency levels to manage population mobility, maintain data continuity, and support cross-sector collaboration in stunting prevention efforts.

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DECLARATION

Ethics approval and consent to participate

This study adhered to ethical standards for research involving human participants. All participants provided written informed consent after receiving clear information about the study. Participation was voluntary, with the option to withdraw at any time. Personal data were kept confidential and used solely for research purposes.

Artificial Intelligence-Assisted Technology

Artificial intelligence tools were used solely to improve the language and grammar of this manuscript. No content generation, data analysis, or interpretation was conducted using AI. The authors take full responsibility for the content of this article.

Consent for publication

I consent to the publication of this article and am prepared to offer any necessary support or additional information to facilitate the publication process.

Availability of data and materials

All data and materials generated in this study were collected appropriately and can be made available to anyone who requires them for academic use or future research.

Conflicts of interest Statement

The author(s) declare that there are no potential conflicts of interest related to the research, authorship, or publication of this article.

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ADDITIONAL INFORMATION

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