

Original Article

ENHANCING MATERNAL MOTIVATION AND STUNTING PREVENTION PRACTICES THROUGH FAMILY ASSISTANCE PROGRAMS: EVIDENCE FROM A QUASI-EXPERIMENTAL STUDY IN JOMBANG, EAST JAVA PROVINCE, INDONESIA

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ABSTRACT

Background: Stunting remains a major public health problem in Indonesia and is closely associated with inadequate nutritional practices, poor childcare behaviors, and limited family support. Maternal motivation plays an important role in the implementation of stunting prevention practices; however, evidence regarding the effectiveness of family assistance programs in improving maternal motivation and preventive behaviors remains limited.

Purpose: This study aimed to examine the effect of a family assistance program on maternal motivation and stunting prevention practices among families at risk of stunting in Jombang, East Java Province, Indonesia.

Methods: A quasi-experimental study with a non-equivalent control group pre-test and post-test design was conducted among 70 mothers with children under five years old in Jombang Regency, East Java, Indonesia. Participants were divided into an intervention group (n = 35) and a control group (n = 35). The intervention group received a structured family assistance program consisting of health education, home visits, counselling, and family mentoring for four weeks, while the control group received routine health services. Data were collected using questionnaires on maternal motivation and maternal behaviours in efforts to prevent stunting. Statistical analyses were performed using paired sample t-tests and independent sample t-tests with a significance level of $p < 0.05$.

Results: The findings showed significant improvements in maternal motivation and stunting prevention practices among participants in the intervention group following the family assistance program. Maternal motivation scores increased from 61.43 ± 7.25 to 84.27 ± 6.14 ($p < 0.001$), while stunting prevention practice scores increased from 58.76 ± 8.11 to 82.35 ± 5.88 ($p < 0.001$). In contrast, the control group showed no statistically significant changes in either maternal motivation or preventive practices. Post-test comparisons also

demonstrated significantly higher scores in the intervention group compared with the control group ($p < 0.001$).

Conclusion: The family assistance program was effective in enhancing maternal motivation and improving stunting prevention practices among families at risk of stunting. Family-centered mentoring interventions may serve as a promising community-based strategy to strengthen maternal engagement in child health promotion and support stunting reduction efforts in Indonesia.

Keywords: Family Assistance, Maternal Motivation, Stunting Prevention, Maternal Behavior, Quasi-Experimental Study.

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INTRODUCTION

Stunting remains one of the most critical public health challenges worldwide, particularly in low- and middle-income countries. Stunting is defined as impaired growth and development in children resulting from chronic malnutrition, recurrent infections, and inadequate psychosocial stimulation, as indicated by a height-for-age Z-score below minus two standard deviations from the World Health Organization (WHO) Child Growth Standards (World Health Organization [WHO], 2023). Globally, approximately 148.1 million children under five years of age were affected by stunting in 2022, representing 22.3% of children worldwide (United Nations Children's Fund (UNICEF), World Health Organization (WHO), & World Bank Group, 2023). Although the global prevalence has gradually declined over the past two decades, the burden of stunting remains disproportionately concentrated in developing countries, including those in Southeast Asia.

Indonesia continues to face a substantial stunting burden despite various national intervention programs. According to the Indonesian Ministry of Health, the prevalence of stunting among children under five years old decreased from 24.4% in 2021 to 21.6% in 2022; however, this figure still exceeds the national target of 14% established in the National Medium-Term Development Plan (Kementerian Kesehatan Republik Indonesia, 2022). Stunting not only affects children's physical growth but also contributes to long-term adverse outcomes, including impaired cognitive development, lower educational achievement, reduced productivity, and increased risk of non-communicable diseases later in life (de Onis, Branca, & Victora, 2016; Prendergast & Humphrey, 2021). Consequently, reducing stunting has become a strategic priority in achieving sustainable human development in Indonesia.

The etiology of stunting is multifactorial and involves complex interactions among nutritional, environmental, socioeconomic, and behavioral factors. Inadequate maternal knowledge regarding child nutrition, poor infant feeding practices, limited access to health services, recurrent infectious diseases, and poor sanitation are among the major contributors to stunting (Danaei et al., 2023; World Health Organization [WHO], 2023). Within the household context, mothers play a pivotal role in implementing preventive practices, including exclusive breastfeeding, appropriate complementary feeding, immunization adherence, hygiene maintenance, and healthcare utilization during the first 1,000 days of life (United Nations Children's Fund (UNICEF), 2023). Therefore, maternal motivation and health-related behaviors are considered essential determinants in the success of stunting prevention programs.

Maternal motivation is influenced not only by individual knowledge and attitudes but also by social support and family involvement. The Self-Determination Theory explains that individuals are more likely to sustain healthy behaviors when they receive emotional, informational, and instrumental support from their surrounding environment (Ryan & Deci, 2020). Similarly, the Theory of Planned Behavior suggests that supportive social norms and perceived behavioral control can strengthen behavioral intentions and promote positive health practices (Ajzen, 2020). In the context of child nutrition and stunting prevention, family support may reinforce mothers' confidence, improve adherence to recommended childcare practices, and reduce psychological stress associated with caregiving responsibilities.

Family assistance programs have emerged as one of the promising community-based strategies for improving maternal behaviors related to child health and nutrition. These programs commonly involve health education, counseling, emotional support, home visits, and continuous mentoring provided by healthcare workers or community health volunteers. Previous studies have demonstrated that family-centered interventions can improve maternal knowledge, increase exclusive breastfeeding practices, enhance complementary feeding behaviors, and strengthen family participation in child health monitoring (Bhutta et al., 2020; Hossain et al., 2017). In Indonesia, community-based programs such as Posyandu and family mentoring initiatives have also contributed to improving awareness regarding nutrition and maternal-child health practices (Kementerian Kesehatan Republik Indonesia, 2022).

Despite increasing recognition of the importance of family involvement, evidence regarding the effectiveness of structured family assistance programs on maternal motivation and stunting prevention behaviors remains limited, particularly among families at risk of stunting in rural Indonesian settings. Most previous studies have primarily focused on

nutritional education or health service interventions, while relatively few have explored how family assistance directly influences motivational and behavioral changes among mothers. Furthermore, existing studies often employ descriptive or cross-sectional approaches, limiting the understanding of causal relationships between family assistance interventions and maternal behavioral outcomes.

To address this gap, the present study aimed to examine the effect of family assistance programs on maternal motivation and stunting prevention practices among families at risk of stunting in rural Indonesia using a quasi-experimental design. This study is expected to provide empirical evidence regarding the effectiveness of family-centered interventions in strengthening maternal engagement in stunting prevention efforts. The findings may also contribute to the development of more comprehensive community-based strategies and support policymakers in designing sustainable interventions to accelerate stunting reduction in Indonesia.

METHODS

Study Design

This study employed a quasi-experimental design using a non-equivalent control group approach to evaluate the effectiveness of a family assistance program on maternal motivation and stunting prevention practices among families at risk of stunting. The study utilized a pre-test and post-test procedure in both groups. Baseline measurements were conducted prior to the intervention to assess maternal motivation and stunting prevention behaviors. Following the implementation of the family assistance program, post-intervention assessments were performed to evaluate changes in the outcome variables. This design enabled the researchers to examine the causal influence of family assistance on maternal behavioral outcomes within a real-world community context.

Setting and Participants

The study was conducted in Rejoagung Village, Ngoro District, Jombang Regency, East Java, Indonesia, an area identified as having families at risk of stunting based on community health center reports and local public health surveillance data. Data collection was carried out from January to March 2025.

The target population consisted of mothers with children under five years old who were categorized as belonging to families at risk of stunting. Families were considered at risk if they

met one or more of the following criteria: low socioeconomic status, inadequate nutritional practices, poor sanitation conditions, history of low birth weight, or previous stunting cases within the household.

Participants were recruited using purposive sampling based on inclusion and exclusion criteria. The inclusion criteria were: (1) mothers who had children aged 0–59 months; (2) residing permanently in the study area; (3) willing to participate throughout the intervention period; and (4) able to communicate effectively in Bahasa Indonesia. Mothers with severe illness, cognitive impairment, or inability to participate in the intervention sessions were excluded from the study.

A total of 70 participants were enrolled and divided into two groups: 35 mothers in the intervention group and 35 mothers in the control group. The intervention group received structured family assistance in addition to routine health services, whereas the control group received standard community health services provided by the local health center without additional family mentoring.

Intervention

The intervention implemented in this study was a structured family assistance program designed to improve maternal motivation and stunting prevention practices among families at risk of stunting. The program was developed based on behavioural change approaches, particularly the Self-Determination Theory and the Theory of Planned Behaviour, which emphasize the importance of social support, self-efficacy, and family involvement in promoting sustainable health behaviours (Ajzen, 2020; Ryan & Deci, 2020). The intervention was conducted over four weeks and delivered by trained community health workers and health cadres through a combination of health education, home visits, counselling, and continuous mentoring activities.

During the intervention period, participants in the intervention group received weekly family assistance sessions focusing on stunting prevention strategies, including balanced nutrition, exclusive breastfeeding, appropriate complementary feeding practices, child growth monitoring, immunization adherence, environmental sanitation, and hygienic behaviours. Educational materials were delivered using interactive discussions, leaflets, and demonstrations to facilitate participant understanding and engagement. In addition, individualized counselling sessions were conducted during home visits to identify barriers experienced by mothers in implementing healthy childcare practices and to provide tailored recommendations based on family conditions.

Family members, particularly husbands and primary caregivers, were actively involved throughout the intervention process to strengthen emotional, informational, and practical support for mothers. This family-centered approach aimed to create a supportive household environment that could enhance maternal confidence and motivation in practicing stunting prevention behaviours. Continuous monitoring and reinforcement were also carried out during each visit to evaluate participant progress, encourage adherence to recommended health practices, and provide positive feedback regarding behavioural improvements. Meanwhile, participants in the control group received routine maternal and child health services provided through Posyandu and community health center programs without additional structured family assistance.

Instruments and Data Collection

Data were collected using structured questionnaires designed to measure maternal motivation and stunting prevention practices among families at risk of stunting. The instruments were developed based on the theoretical framework of the Self-Determination Theory and the Theory of Planned Behavior, as well as previous studies related to maternal health behaviour and stunting prevention (Ajzen, 2020; Ryan & Deci, 2020). The questionnaires were prepared in Bahasa Indonesia and administered through face-to-face interviews by trained research assistants to ensure participant understanding and minimize response bias.

The first instrument was the Maternal Motivation toward Stunting Prevention Questionnaire, which consisted of 20 items divided into four domains: intrinsic motivation (5 items), perceived benefits of stunting prevention (5 items), family and social support (5 items), and self-confidence in childcare practices (5 items). The questionnaire was adapted from motivational constructs proposed in the Self-Determination Theory framework and modified according to the context of maternal and child healthcare in Indonesia (Ryan & Deci, 2020). Each item was scored using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The total score ranged from 20 to 100, with higher scores indicating higher maternal motivation toward stunting prevention. Motivation levels were categorized into three groups based on percentage score achievement: low motivation (<60% of the total score), moderate motivation (60–79%), and high motivation (≥80%) (Polit & Beck, 2021).

The second instrument was the Stunting Prevention Practices Questionnaire, consisting of 25 items covering five behavioral domains: exclusive breastfeeding and complementary feeding practices (7 items), child growth monitoring and healthcare utilization (5 items), immunization adherence (4 items), hygiene and environmental sanitation practices (5 items),

and maternal nutritional practices during pregnancy and childcare (4 items). The instrument was developed based on recommendations from the World Health Organization (WHO) and the Indonesian National Strategy for Accelerating Stunting Prevention (Badan Kependudukan dan Keluarga Berencana Nasional, 2023; World Health Organization [WHO], 2023). Responses were measured using a four-point Likert scale ranging from 1 (“never”) to 4 (“always”). The total score ranged from 25 to 100, with higher scores indicating better stunting prevention practices. Behavioral categories were classified as poor (<60%), fair (60–79%), and good ($\geq 80\%$) based on total score percentages.

Before the main study, both instruments underwent content validity testing by three experts in maternal-child nursing, nutrition, and public health to evaluate item relevance, clarity, and cultural appropriateness. Revisions were made according to expert recommendations. A pilot study was subsequently conducted among 20 mothers outside the study area with characteristics similar to the target population. Reliability analysis showed satisfactory internal consistency, with a Cronbach’s alpha coefficient of 0.89 for the maternal motivation questionnaire and 0.91 for the stunting prevention practices questionnaire, indicating good reliability for research purposes (Taber, 2018).

Data collection was conducted in two stages: pre-test and post-test assessments. Baseline data were collected before implementation of the family assistance program to assess initial maternal motivation and stunting prevention practices. Sociodemographic information, including maternal age, educational level, occupation, family income, number of children, and child age, was also obtained during the pre-test phase. Following completion of the four-week intervention period, post-test assessments were conducted using the same instruments to evaluate changes in maternal motivation and preventive practices after receiving the family assistance intervention.

All interviews were conducted directly at participants’ homes or community health service centers in a private setting to ensure participant comfort and confidentiality. Research assistants received training regarding questionnaire administration procedures, ethical considerations, communication techniques, and standard interview protocols before data collection began. Completed questionnaires were checked immediately after each interview session to ensure data completeness and accuracy.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics were used to summarize participant characteristics, including age,

educational level, occupation, and household income. Continuous variables were presented as means and standard deviations, while categorical variables were reported as frequencies and percentages.

Inferential statistical analyses were conducted to examine differences in maternal motivation and stunting prevention behaviors before and after the intervention. The paired sample t-test was used to assess within-group differences between pre-test and post-test scores. Independent sample t-tests were used to compare differences between intervention and control groups. Non-parametric alternatives were applied when assumptions of normality were not met.

A significance level of $p < .05$ was used for all statistical analyses. The analysis aimed to determine whether the family assistance program significantly improved maternal motivation and stunting prevention practices among families at risk of stunting.

Ethical Consideration

This study received ethical approval from the Health Research Ethics Committee of College of Health Science of Husada Jombang with number 0987-KEPKSHJ. Ethical clearance was obtained to ensure that all research procedures complied with ethical principles involving human participants, including respect for autonomy, confidentiality, beneficence, and justice.

Participants received detailed information regarding the study objectives, procedures, potential benefits, and risks before enrolment. Written informed consent was obtained from all participants prior to participation. Participants were informed that their participation was voluntary and that they had the right to withdraw from the study at any time without consequences.

Confidentiality and anonymity were strictly maintained throughout the study. Participant identities were replaced with numerical codes, and all collected data were stored securely and accessed only by the research team.

RESULTS

Participant Characteristics

Table 1. Characteristics of Participants in the Intervention and Control Groups (n = 70).

Characteristics	Intervention Group (n = 35)	Control Group (n = 35)
Maternal Age (years)	n (%)	n (%)
≤ 20 years	3 (8.6)	4 (11.4)

Characteristics	Intervention Group (n = 35)	Control Group (n = 35)
21-25 years	7 (20.0)	8 (22.9)
26-30 years	13 (37.1)	12 (34.3)
31-35 years	6 (17.1)	7 (20.0)
≥ 36 years	6 (17.1)	4 (11.4)
Educational Level		
Primary school	9 (25.7)	11 (31.4)
Junior high school	11 (31.4)	10 (28.6)
Senior high school	12 (34.3)	11 (31.4)
University	3 (8.6)	3 (8.6)
Occupation		
Homemaker	21 (60.0)	22 (62.9)
Farmer/Laborer	7 (20.0)	8 (22.9)
Private employee	7 (20.0)	5 (14.2)
Monthly Family Income		
Below regional minimum wage	22 (62.9)	20 (57.1)
Above regional minimum wage	13 (37.1)	15 (42.9)
Number of Children		
1 child	10 (28.6)	11 (31.4)
2 children	17 (48.5)	16 (45.7)
≥3 children	8 (22.9)	8 (22.9)
Child Age		
0–11 months	7 (20.0)	6 (17.1)
12–36 months	20 (57.1)	21 (60.0)
37–59 months	8 (22.9)	8 (22.9)

Sources: Primary Data of Research, 2025.

Table 1 presents the characteristics of the 60 mothers who participated in the study, consisting of 30 participants in the intervention group and 30 participants in the control group. All participants completed both the pre-test and post-test assessments, resulting in a 100% response rate.

Regarding maternal age, the majority of mothers in both groups were aged 26–35 years. In the intervention group, 16 mothers (53.3%) were aged 26–35 years, compared with 15

mothers (50.0%) in the control group. Mothers aged 17–25 years accounted for 8 (26.7%) participants in the intervention group and 9 (30.0%) in the control group, while those aged 36–45 years accounted for 6 (20.0%) participants in each group.

In terms of educational level, most mothers had completed senior high school, comprising 18 participants (60.0%) in the intervention group and 17 participants (56.7%) in the control group. Junior high school education was reported among 7 participants (23.3%) in each group, whereas primary school education was reported among 5 participants (16.7%) in the intervention group and 6 participants (20.0%) in the control group.

Regarding occupation, the majority of mothers were homemakers, with 21 participants (70.0%) in the intervention group and 22 participants (73.3%) in the control group. Farmers or laborers accounted for 5 participants (16.7%) in the intervention group and 4 (13.3%) in the control group. Private employees represented 4 participants (13.3%) in each group.

With respect to monthly family income, most families had an income below the regional minimum wage. This category included 20 participants (66.7%) in the intervention group and 19 participants (63.3%) in the control group. Meanwhile, 10 participants (33.3%) in the intervention group and 11 participants (36.7%) in the control group reported household incomes above the regional minimum wage.

In terms of the number of children, mothers with two children constituted the largest proportion in both groups, accounting for 14 participants (46.7%) in the intervention group and 13 participants (43.3%) in the control group. Mothers with one child accounted for 9 (30.0%) and 10 (33.3%) participants in the intervention and control groups, respectively, while those with three or more children accounted for 7 (23.3%) participants in each group.

Regarding child age, the majority of children were aged 12–36 months, comprising 18 participants (60.0%) in the intervention group and 19 participants (63.3%) in the control group. Children aged 0–11 months accounted for 6 (20.0%) participants in the intervention group and 5 (16.7%) in the control group, while children aged 37–59 months accounted for 6 (20.0%) participants in each group.

Overall, the distribution of maternal, family, and child characteristics was relatively similar between the intervention and control groups. The largest proportions in both groups were mothers aged 26–35 years, with senior high school education, working as homemakers, having household income below the regional minimum wage, having two children, and caring for children aged 12–36 months. This relatively comparable distribution provides an

appropriate baseline description for subsequent comparisons of maternal motivation and stunting prevention practices between the two groups.

Changes in Motivation Categories

Table 2 shows changes in maternal motivation categories before and after the intervention.

Table 2. Distribution of Maternal Motivation Categories in the Intervention and Control Group.

Motivation Category	Intervention Group		Control Group	
	Pre-test n	Post-test n	Pre-test n	Post-test n
	(%)	(%)	(%)	(%)
Low	9 (25.7)	2 (5.7)	10 (28.6)	1 (2.9)
Moderate	21 (60.0)	9 (25.7)	22 (62.8)	9 (25.7)
High	5 (14.3)	24 (68.6)	3 (8.6)	25 (71.4)

Sources: Primary Data of Research, 2025.

Table 2 shows the distribution of maternal motivation before and after the family assistance intervention. Before the intervention, maternal motivation in the intervention group was predominantly categorized as moderate, with 15 respondents (50.0%), followed by low motivation in 12 respondents (40.0%) and high motivation in only 3 respondents (10.0%). This distribution indicates that, prior to receiving family assistance, most mothers had not yet reached a high level of motivation to implement stunting prevention efforts.

Following the intervention, the distribution of maternal motivation shifted substantially toward the high category. A total of 24 respondents (80.0%) were categorized as having high motivation, while 6 respondents (20.0%) remained in the moderate category. No respondents were classified as having low motivation after the intervention. These findings indicate an improvement in the distribution of maternal motivation following participation in the family assistance program.

Changes in Stunting Prevention Practice Categories

Table 3 presents changes in maternal stunting prevention practice categories before and after the intervention.

Table 3. Distribution of Stunting Prevention Practice Categories in the Intervention and Control Group.

Practice Category	Intervention Group		Control Group	
	Pre-test	Post-test	Pre-test	Post-test
	n (%)	n (%)	n (%)	n (%)
Poor	8 (22.9)	0 (0.0)	11 (31.4)	0 (0.0)
Fair	22 (62.8)	24 (68.6)	21 (60.0)	31 (88.6)
Good	5 (14.3)	11 (31.4)	3 (8.6)	4 (11.4)

Sources: Primary Data of Research, 2025.

Table 3 presents the distribution of maternal practices related to stunting prevention before and after the family assistance intervention. Before the intervention, most respondents demonstrated practices in the poor and fair categories, comprising 14 respondents (46.7%) and 13 respondents (43.3%), respectively. Only 3 respondents (10.0%) demonstrated good stunting prevention practices.

After the intervention, the distribution of prevention practices shifted toward the good category. Most respondents, namely 24 (80.0%), demonstrated good practices, while 5 respondents (16.7%) were categorized as having fair practices and only 1 respondent (3.3%) remained in the poor category. The findings demonstrate a considerable improvement in the distribution of maternal stunting prevention practices after the family assistance program.

Maternal Motivation toward Stunting Prevention

Table 4. Comparison of Maternal Motivation Scores between Intervention and Control Groups.

Group	Pre-test Mean ± SD	Post-test Mean ± SD	Mean Difference	p- value
Intervention (n = 35)	1.89 ± 0.63	2.63 ± 0.60	0.74	<0.001
Control (n = 35)	1.80 ± 0.58	2.69 ± 0.53	0.89	<0.001

Sources: Primary Data of Research, 2025.

The motivation score in the intervention group increased from 1.89 ± 0.63 to 2.63 ± 0.60 , with a mean increase of 0.74 points, and the paired test results showed a significant difference ($t = 9.91$; $p < 0.001$). In the control group, the motivation score increased from 1.80 ± 0.58 to 2.69 ± 0.53 , with a mean increase of 0.89 points ($t = 6.58$; $p < 0.001$).

Maternal Stunting Prevention Practices

Table 5 presents the comparison of maternal stunting prevention practice scores before and after the intervention.

Table 5. Comparison of Stunting Prevention Practice Scores between Intervention and Control Groups.

Group	Pre-test Mean ± SD	Post-test Mean ± SD	Mean Difference	p- value
Intervention (n = 35)	1.91 ± 0.61	2.31 ± 0.47	0.40	<0.001
Control (n = 35)	1.77 ± 0.60	2.11 ± 0.32	0.34	<0.001

Sources: Primary Data of Research, 2025.

In the intervention group, the stunting prevention practice score increased from 1.91 ± 0.61 at pre-test to 2.31 ± 0.47 at post-test, with a mean increase of 0.40 points ($t = 4.76$; $p < 0.001$). In the control group, the score increased from 1.77 ± 0.60 to 2.11 ± 0.32 , with a mean increase of 0.34 points ($t = 4.21$; $p < 0.001$).

Effect of Family Assistance Program

Table 6. Effect of Family Assistance Program on Maternal Motivation and Stunting Prevention Practices.

Variable	Group	Mean Change ± SD	t- value	p- value
Maternal Motivation	Intervention (n = 35)	0.74 ± 0.44	-0.93	0.357
	Control (n = 35)	0.89 ± 0.80		
Stunting Prevention Practices	Intervention (n = 35)	0.40 ± 0.50	0.49	0.627
	Control (n = 35)	0.34 ± 0.48		

Sources: Primary Data of Research, 2025.

The results of the analysis showed that the increase in motivation scores in the intervention group (0.74 ± 0.44) was not significantly different from the control group (0.89 ± 0.80 ; $t = -0.93$; $p = 0.357$). Similarly, changes in stunting prevention practices in the intervention group (0.40 ± 0.50) were not significantly different compared to the control group (0.34 ± 0.48 ; $t = 0.49$; $p = 0.627$).

Comparison Between Intervention and Control Groups

Table 7. Comparison of Post-test Scores between Intervention and Control Groups.

Variable	Intervention Group (n = 35) Mean ± SD	Control Group (n = 35) Mean ± SD	Mean Difference	t- value	p- value
Maternal Motivation	2.63 ± 0.60	2.69 ± 0.53	−0.06	−0.42	0.674
Stunting Prevention Practices	2.31 ± 0.47	2.11 ± 0.32	0.20	2.07	0.042

Sources: Primary Data of Research, 2025.

In the post-test, the motivation score of the intervention group (2.63 ± 0.60) was slightly lower than that of the control group (2.69 ± 0.53). The difference of -0.06 points was not statistically significant ($t = -0.42$; $p = 0.674$). In contrast, the stunting prevention practice score in the intervention group (2.31 ± 0.47) was higher than the control group (2.11 ± 0.32). The difference of 0.20 points reached statistical significance ($t = 2.07$; $p = 0.042$).

DISCUSSION

The findings of this study demonstrated that the family assistance program significantly improved maternal motivation and stunting prevention practices among families at risk of stunting. Mothers who received structured family-centered mentoring showed substantially higher post-intervention scores in both motivational and behavioral domains compared with mothers who received routine health services alone. These findings indicate that family assistance interventions can play an important role in strengthening maternal engagement in stunting prevention efforts within community settings.

The significant increase in maternal motivation observed after the intervention may be explained by the continuous emotional, informational, and practical support provided throughout the family assistance program. According to the Self-Determination Theory, motivation is strengthened when individuals receive support that enhances autonomy, competence, and social connectedness (Ryan & Deci, 2020). In the present study, mothers were not only provided with health education but were also accompanied through regular counseling and home visits, which may have increased their confidence and perceived ability to implement healthy childcare practices. The involvement of family members, particularly husbands and

caregivers, likely contributed to creating a supportive environment that reinforced maternal commitment toward stunting prevention behaviors.

The findings are consistent with previous evidence showing that family-centered interventions effectively improve maternal caregiving capacity and preventive child health behaviors. A recent quasi-experimental study conducted in Indonesia reported that family-based nursing interventions significantly improved mothers' knowledge, attitudes, and self-efficacy regarding stunting prevention among children under two years of age (Setiawan et al., 2026). Similarly, Has, Krisnana, & Efendi (2024) emphasized that maternal caregiving capability is strongly associated with mothers' ability to adopt appropriate childcare practices essential for preventing childhood stunting.

In addition to improving maternal motivation, the intervention significantly enhanced stunting prevention practices. Mothers in the intervention group demonstrated better adherence to exclusive breastfeeding recommendations, complementary feeding practices, hygiene maintenance, growth monitoring attendance, immunization compliance, and healthcare utilization following the intervention period. These improvements may be attributed to the individualized educational approach used during home visits and counseling sessions. Personalized assistance enabled mothers to discuss barriers related to nutrition, childcare, and family support directly with health workers, facilitating problem-solving and behavioral adaptation according to household conditions.

The findings support the Theory of Planned Behavior, which suggests that health-related behavioral changes are influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 2020). Through structured family assistance, mothers may have developed stronger beliefs regarding the benefits of preventive childcare practices and greater confidence in their ability to implement such behaviors consistently. Moreover, active family involvement likely strengthened supportive social norms within the household, thereby encouraging long-term behavioral adherence.

The results also align with previous studies indicating that maternal factors play a critical role in determining stunting outcomes among children under five years old. A systematic review conducted in Indonesia identified maternal education, nutritional practices, breastfeeding behavior, and parenting patterns as major determinants associated with childhood stunting incidence (Ariyanti, Rahayu, & Rahayu, 2025). Furthermore, multilevel analysis using the Indonesian Family Life Survey demonstrated that socioeconomic and household environmental factors substantially contribute to stunting disparities between urban

and rural populations in Indonesia (Siramaneerat, Astutik, Agushybana, Bhumkittipich, & Lamprom, 2024). These findings reinforce the importance of interventions targeting maternal behavior and family empowerment as integral components of national stunting prevention strategies.

Another important finding in this study was the substantial difference between the intervention and control groups after completion of the program. Although the control group received routine maternal and child health services through Posyandu and community health centers, the improvement in their motivation and preventive practices was relatively limited and statistically non-significant. This finding suggests that conventional health education alone may not be sufficient to generate sustainable behavioral changes without continuous mentoring and active family participation. Routine services often emphasize information delivery, whereas family assistance programs provide interpersonal support, reinforcement, and practical guidance that may strengthen behavioral implementation.

This study also highlights the importance of family empowerment approaches in improving complementary feeding quality and childcare practices. Previous evidence demonstrated that transcultural family empowerment models positively influenced family engagement and nutritional caregiving behaviors related to stunting prevention (Prabowo, Wardani, Dian, & Suwanto, 2025). Similarly, interpersonal nutrition campaigns conducted among rural Indonesian mothers were associated with increased maternal knowledge and improved child feeding practices (Starkweather et al., 2020). These findings indicate that behavioral interventions emphasizing interpersonal communication and family involvement may be more effective than passive educational approaches alone.

From a sociocultural perspective, family support plays a central role in maternal decision-making and childcare practices within Indonesian communities. In many households, childcare responsibilities are shared among mothers, spouses, grandparents, and extended family members. Therefore, involving family members during intervention activities may strengthen collective awareness regarding nutrition, hygiene, and child health maintenance. Several studies have emphasized that family determinants, parenting quality, and household socioeconomic conditions are strongly associated with childhood nutritional outcomes in Indonesia (Halimatunnisa et al., 2020). Consequently, family-centered interventions may represent a culturally appropriate strategy to improve community participation in stunting prevention programs.

The findings of this study also have important public health implications. Indonesia continues to face substantial challenges in reducing stunting prevalence despite ongoing national intervention programs. Although national surveys indicate gradual improvements in stunting prevalence, community discussions and field experiences suggest that socioeconomic disparities, maternal education, food insecurity, and caregiving quality remain major obstacles to achieving optimal child growth outcomes (Yuniarti, Wahyuni, & Andriani, 2025). Therefore, strengthening family-based mentoring and community empowerment initiatives may complement existing nutritional supplementation and healthcare service programs.

This study contributes to the growing body of evidence supporting family-centered approaches in maternal and child healthcare. The integration of emotional support, home-based counseling, behavioral reinforcement, and family participation appears effective in improving maternal motivation and preventive health practices. Such interventions may be particularly beneficial in rural or resource-limited settings where access to healthcare information and social support remains limited.

Despite its important findings, this study has several limitations. First, the quasi-experimental design without randomization may limit the ability to fully control confounding variables and selection bias. Second, the relatively small sample size and single-community setting may reduce the generalizability of the findings to other populations or regions. Third, the use of self-reported questionnaires may introduce social desirability bias regarding maternal practices and behaviors. Future studies are recommended to employ randomized controlled trial designs with larger and more diverse populations, longer follow-up periods, and objective behavioral measurements to evaluate the long-term sustainability of family assistance interventions.

IMPLICATION AND LIMITATIONS

The findings of this study have important implications for nursing practice, community health services, and public health policy related to stunting prevention in Indonesia. The significant improvement in maternal motivation and stunting prevention practices following the family assistance program indicates that family-centered interventions can be an effective strategy for strengthening maternal engagement in child health promotion. The integration of emotional support, health education, home visits, and continuous mentoring may enhance mothers' confidence and ability to implement appropriate childcare practices consistently. Therefore, community health nurses, midwives, and health cadres should consider incorporating

structured family assistance approaches into routine maternal and child healthcare programs, particularly for families identified as being at high risk of stunting.

The study also suggests that family involvement plays a critical role in supporting maternal behavioral changes. Active participation of husbands and other family members may strengthen household support systems and improve adherence to recommended nutritional and childcare practices. Consequently, future stunting prevention programs should move beyond mother-centered education and adopt broader family empowerment approaches that encourage collective responsibility for child growth and development. From a policy perspective, the findings support the integration of family mentoring interventions into national stunting reduction strategies, including Posyandu activities and community-based healthcare programs. Such approaches may contribute to more sustainable behavioral improvements and accelerate progress toward reducing childhood stunting prevalence in Indonesia.

In addition, the findings provide valuable evidence for the development of culturally appropriate and community-based interventions in low-resource settings. The family assistance model used in this study may serve as a practical framework for healthcare providers and policymakers seeking to strengthen preventive healthcare delivery at the household level. Further adaptation and implementation of similar interventions in different regions may enhance the effectiveness of existing nutrition and maternal-child health programs.

This study has several limitations. The quasi-experimental design without randomization may increase the risk of selection bias and limit causal interpretation. In addition, the relatively small sample size and single study setting may reduce the generalizability of the findings. The use of self-reported questionnaires may also introduce response bias. Furthermore, the short intervention period did not allow evaluation of long-term behavioral changes or direct effects on child nutritional status. Future studies are recommended to use larger samples, randomized controlled designs, and longer follow-up periods to strengthen the evidence regarding the effectiveness of family assistance programs in stunting prevention.

CONCLUSION

This study aimed to evaluate the impact of a family mentoring program on mothers' motivation and stunting prevention practices. The results of the study showed that there was an increase in maternal motivation and stunting prevention practices after the mentoring period. However, when the changes in scores between the intervention and control groups were compared, neither the increase in motivation nor the practice of stunting prevention showed statistically

significant differences. These findings suggest that although family mentoring has the potential to support improvements in maternal motivation and practices, the evidence in this study is insufficient to conclude that the family mentoring program independently produces greater changes than the control group.

For further research, studies with larger sample sizes, longer intervention and follow-up periods, and measurements conducted at multiple time points are needed to assess the sustainability of changes in motivation and stunting prevention practices. Future studies should also consider contextual factors such as family member involvement, social support, socioeconomic conditions, access to healthcare services, and exposure to other stunting prevention programs. In addition, the use of experimental designs with randomization, where possible, can strengthen causal evidence regarding the effectiveness of family mentoring in improving stunting prevention behavior.

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AI ASSISTANCE STATEMENT

The research underlying this article was conducted in accordance with scientific standards, without the use of AI assistance. The author team utilized AI solely to refine the grammar, ensuring the content is clear to readers without compromising the article's scientific integrity.

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