

RESEARCH STUDY

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Determinants Affecting Family Commitment and Capability in Preventing Stunting in Children Under Two Years

Determinan Faktor-Faktor yang Mempengaruhi Komitmen dan Kemampuan Keluarga dalam Mencegah Stunting pada Baduta

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ABSTRACT

Background: Stunting remains a public health issue in Indonesia. Despite a decline in national prevalence, East Java recorded a stunting prevalence of 32.7%, exceeding national standards and those set by the World Health Organization (WHO).

Objectives: This study aimed to identify the factors influencing family commitment and capability in preventing stunting in children under two years old.

Methods: The study employed an observational survey design involving 150 mothers of children aged 0–2 years in the *Puskesmas* (Community Health Center) areas of Surabaya. Data were collected using questionnaires to assess personal, interpersonal, cognitive-behavioral, resource, and fundamental family value variables. Analysis was conducted using Structural Equation Modeling (SEM) with Partial Least Square (PLS) methodology.

Results: Personal, interpersonal, and cognitive-behavioral factors significantly influenced family commitment to stunting prevention. Approximately 89.89% of a family's ability to monitor child growth and development could be predicted by the study model. However, resource factors and fundamental family values were not significant.

Conclusions: Interpersonal, cognitive-behavioral factors, and family assessment can increase family commitment in preventing stunting in children under two years. Assistance from health workers is essential to further strengthen family commitment to stunting prevention.

INTRODUCTION

Stunting is a condition characterized by growth failure in children due to insufficient nutrient absorption. It is reflected in the Height-for-Age indicator, where a z-score of less than -2 standard deviations (SD) from the median child growth standard indicates stunting¹⁻⁵. According to the 2018 Basic Health Research report, the prevalence of stunting decreased from 37.2% in 2013 to 30.8% in 2018. In East Java, although the stunting prevalence was lower at 35.8% in 2013, it only declined to 32.7% in 2018. Despite this improvement, the proportion of stunting remains higher than national and WHO averages, exceeding the 20% threshold. As a result, East Java is one of 18 provinces with stunting rates above the national average, and Surabaya has been identified as a locus for stunting⁶. There are three main factors contributing to the incidence of stunting during the first 1,000 days of life: the high incidence of anemia in pregnant women, low rates of exclusive breastfeeding, and insufficient complementary feeding⁷⁻¹⁰.

According to the 2018 Basic Health Research report, the prevalence of anemia in pregnant women in Indonesia reached 48.9%, a significant increase compared to the 2013 data¹¹. Although the government implemented a program to provide 90 iron tablets during pregnancy and coverage reached 100%, adherence remains low, contributing to the high anemia rates⁷. Furthermore, exclusive breastfeeding coverage for infants aged 0-5 months, at 37.3%, is below the 2025 Global Nutrition Target, which aims for at least 50%, and even further from the 70% target for 2030¹².

Family support and commitment are essential for ensuring that pregnant women adhere to iron tablet consumption and exclusive breastfeeding¹³. However, the implementation of home visit assistance during the COVID-19 pandemic faced challenges due to movement restrictions, and some families were unwilling to meet health workers¹⁴.

If these challenges persist, they may negatively impact the knowledge and behavior of pregnant and

breastfeeding women, thus hindering stunting prevention efforts for children under two years old. To address this, an online approach has been proposed to reduce direct contact while continuing stunting prevention efforts¹⁵. In light of these challenges, especially during the COVID-19 pandemic, the authors are interested in studying the factors influencing family commitment and capability in stunting prevention for toddlers.

METHODS

This study was conducted in the working area of public health centers in Surabaya, Indonesia. The study employed a cross-sectional observational survey design to systematically collect factual information about the subject matter. It aimed to evaluate the influence of family commitment and cognitive behaviors in preventing stunting through exclusive breastfeeding and complementary breastfeeding. The sample consisted of 150 mothers with children under two years living in the Public Health Centers area in Surabaya. A multistage random sampling method was used to ensure a representative sample. The inclusion criteria included pregnant women who were willing to participate and breastfeeding mothers with children under two years. The study examined various factors such as personal factors (e.g., mother's education level and age), resource factors (e.g., access to healthcare services), interpersonal factors (e.g., support from health workers), cognitive behavioral factors (e.g., perception of the benefits of exclusive breastfeeding), family commitment, and family capability in preventing stunting.

The operational definitions and categories: Knowledge categories based on respondents' answer scores; good: grades 80-100, respondents showed a strong understanding and were able to apply knowledge well. Moderate: grades 60-79 if respondents have an adequate understanding, but there are some shortcomings that need to be corrected. Poor: grades 0-59 if respondents showed a lack of understanding and difficulty in explaining or applying knowledge. For the motivation variable, good (80-100): the respondents showed strong and proactive enthusiasm, moderate (60-79): adequate, but inconsistent, and poor (0-59): the respondents lacked motivation and tended to be apathetic. The cognitive-behavioral factors were categorized as follows: perceived benefit was classified into three levels: very helpful (advanced, 80-100) for strong and proactive enthusiasm, beneficial (enough, 60-79) for adequate but inconsistent engagement, and less useful (not enough, 0-59) for a lack of motivation. Barriers to action were categorized as well (advanced, 80-100) for minimal obstacles, enough (60-79) for moderate barriers, and not enough (0-59) for significant difficulties in taking action. Self-efficacy was divided into very sure (advanced, 80-100) for high confidence, pretty sure (enough, 60-79) for moderate confidence, and not sure (not enough, 0-59) for a lack of confidence. Finally, the activity-related effect was categorized as positive (advanced, 80-100) for strong positive outcomes and negative (not enough, 0-59) for adverse effects or no improvement.

Cognitive and behavioral factors were assessed using specific categories and scoring ranges. Family

connectedness was classified as good (80-100) for strong support, moderate (60-79) for adequate but inconsistent support, and poor (0-59) for minimal or absent support. Community resources were categorized as good (80-100) for sufficient resources, moderate (60-79) for some resources with limitations, and poor (0-59) for insufficient or lacking community support. Competing role demand was rated as good (80-100) for well-balanced roles, moderate (60-79) for moderate balance with occasional stress, and poor (0-59) for overwhelming demands that hinder performance.

Data were collected through structured interviews using a questionnaire that assessed the characteristics of respondents and the variables under study. Each variable was analyzed in terms of its impact on stunting prevention efforts. For data analysis, descriptive analysis was performed to calculate the frequency distribution, mean, and standard deviation of each variable. Additionally, Structural Equation Modeling (SEM) with the Partial Least Square (PLS) method was used to test the relationships between variables and assess their influence on family commitment and capability in stunting prevention.

Model Validity and Reliability, Convergent validity testing shows that most indicators have a loading factor value above 0.7, indicating that the indicator is valid for measuring latent variables. The discriminatory validity test using the AVE (Average Variance Extracted) value confirmed that all variables had an AVE value of >0.5, indicating good validity. Reliability was tested using Composite Reliability (CR) and Cronbach's Alpha, with all variables having a CR value >0.7, indicating high reliability. Testing the inner model, relationship between variables: Personal Factors, family commitment: There was a significant influence with a path coefficient value of 0.45 (p-value<0.05). Interpersonal Factors, family commitment: Significant influence with a path coefficient value of 0.38 (p-value<0.05). Cognitive Behavioral Factors, family commitment: The most significant influence with a path coefficient value of 0.52 (p-value<0.01). Resource Factors, family commitment: Not significant (p-value>0.05). Fundamental values family commitment: not significant (p-value>0.05). The R² value for the family commitment variable is 0.89, indicating that 89% of the variability of family commitment can be explained by the model.

The measurement model and convergent validity test, it can be concluded that the above indicators are stated to be valid for measuring the latent variables, except for age and education. The conclusion from the convergent validity test results that the indicators used are valid in measuring the latent variables, is also strengthened by the results of the discriminant validity test and construct validity, where the results show that all valid indicators are proven to be able to explain latent variables in the model, except for the indicators of age and education are invalid in explaining the latent variable, namely the personal factor. Furthermore, indicators of age and education were issued. After the measurement model (outer model) testing is completed and valid indicators explaining latent variables are obtained and proven reliable, the next step is to test the structural model (inner model).

In the structural model analysis, we tested the effect of exogenous variables on endogenous variables. The results showed that most of the exogenous variables with respect to other exogenous and endogenous variables showed a t-count value above 1.96 with a positive value, which indicated that these variables had an effect and increased except for resources that had no effect on basic values and basic values had no effect on the respondent commitment to exclusive breastfeeding and complementary breastfeeding in preventing stunting in toddlers. This research obtained ethical feasibility from the Ethics Commission of the Surabaya Ministry of Health Polytechnic No.EA/2209.1/KEPK-Poltekkes_Sby/IV/2021 dated April 2, 2021.

RESULTS AND DISCUSSIONS

Respondent Characteristics

Most of the mothers are still breastfeeding (76.7%), with the majority being housewives (63.3%). Among them, 24.6% have three children, while more than half (55.4%) have two children who are under two years old. Prior to the pandemic, most of them 110 (73.3%), regularly visited the integrated health service post, a community-based health service program in Indonesia that focuses on maternal and child health. These posts provide various health services, including immunization, nutrition counseling, and health education. In this study, integrated health service post will be used to refer to these essential health service points. As shown in Table 1.

Table 1. Distribution of respondent characteristics at Public Health Centers in Surabaya for mothers with children under two years 2021

Parameter	Category	Frequency	
		n	%
Age In Years	<20	3	2.0
	20-35	114	76.0
	>35	33	22.0
Mother Status	Pregnant	35	23.3
	Breastfeeding	115	76.7
	Housewife	95	63.3
Occupation	Self-employed	21	14.0
	Factory employees	31	20.7
	civil servants	3	2.0
Number of Children	1	48	36.9
	2	50	38.5
	≥3	52	34.6
Number of Children < 2 years	0	52	34.7
	1	26	17.3
	2	72	48.0
Integrated Health Service Post	Never	2	1.3
	Rarely	10	6.7
	Occasionally	28	18.7
Total	Always frequently	110	73.3
		150	100

Table 2. Distribution of personal factors, cognitive behavior, resources. interpersonal/health workers, fundamental values and family assessment

Factor	Category	Frequency		Mean	SD	
		n	%			
Personal	Education					
		Higher Education	13	8.7	3.34	1.02
		Senior High School	63	42.0		
		Junior High School	46	30.7		
		Elementary School	18	12.0		
		No Schooling	10	6.6		
		Knowledge				
		Good	103	68.7	60.31	4.10
		Moderate	41	27.3		
		Poor	6	4.0		
	Motivation					
	High	38	25.3	14.02	2.44	
	Moderate	85	56.7			
	Low	27	18.0			

Factor	Category	Frequency		Mean	SD
		n	%		
Cognitive Behavior	Perceived				
	Very Helpful	106	70.7		
	Beneficial	25	16.7	34.17	7.30
	Less Beneficial	19	12.6		
	Barriers to Action				
	Well	67	44.7	17.47	6.69
	Moderate	83	55.3		
	Self-Efficacy				
	Very Confident	94	62.7	33.65	6.0
	Confident	50	33.3		
Not Confident	6	4.0			
Activity-Related Effect					
Positive	101	67.3	8.93	1.01	
Negative	49	32.7			
Resource Factors	Family Connectedness				
	Good	115	76.7	35.18	5.12
	Moderate	34	22.7		
	Poor	1	0.6		
	Community Resources				
	Good	119	79.3	29.09	3.53
	Moderate	31	20.7		
	Poor	0	0		
	Competing Role Demands				
Good	115	76.7	18.29	2.40	
Moderate	35	23.3			
Poor	-	-			
Interpersonal/Health Workers	Enabling				
	Good	70	46.7	8.82	3.24
	Moderate	19	12.6		
	Poor	61	40.7		
	Empowering				
	Good	111	74.0	10.97	1.77
	Moderate	31	20.7		
	Poor	8	5.3		
	Supporting				
Good	70	46.7	9.06	2.82	
Moderate	32	21.3			
Poor	48	32.0			
Fundamental Values	Responsibility				
	Positive	126	84.0	7.68	0.74
	Negative	24	16.0		
	Respect				
	Positive	125	83.3	7.56	1.06
	Negative	25	16.7		
Caring					
Positive	124	82.7	7.56	0.84	
Negative	26	17.3			
Family Appraisal	Challenge				
	Positive	108	62.3	10.63	1.70
	Negative	42	37.7		
	Stressor				
	Positive	135	90.0	4.87	2.20
Negative	15	10.0			

Table 3. Distribution of family commitment in stunting prevention in children under two years

Factor	Category	Frequency		Mean	SD
		n	%		
Family Commitment	Responsibility				
	High	94	62.7	17.32	2.99
	Sufficient	51	34.0		
	Insufficient	5	3.3		
	Independence				
	High	91	60.7	14.01	2.17
	Sufficient	58	38.7		
	Insufficient	1	0.6		
	Goals				
	High	108	72.0	17.72	2.75
	Sufficient	37	24.7		
	Insufficient	5	3.3		
	Self-improvement				
	High	121	80.7	18.25	2.15
	Sufficient	29	19.3		
Insufficient	0	0			
Desire to Succeed					
High	117	78.0	18.06	2.46	
Sufficient	31	20.7			
Insufficient	2	1.3			

Table 4. Distribution of frequency of family ability in stunting prevention in children under two

Factor	Category	Frequency		Mean	SD
		n	%		
Family Capability	Growth Disorders				
	Good	102	68.0	17.12	3.13
	Sufficient	39	26.0		
	Insufficient	9	6.0		
	Child Development Deviation				
	Good	33	22.0	11.27	4.51
	Sufficient	37	24.7		
	Insufficient	80	53.3		

Focus Group Discussion (FGD) was conducted after the researchers had collected and analyzed data. The targets of the FGD were seven health workers, including nutritionists, midwives, nutrition managers, the Surabaya City Health Office, and researchers who were involved in research activities to assist pregnant women and breastfeeding mothers in exclusive breastfeeding and complementary feeding for the prevention of stunting in toddlers.

Based on the results of the Focus Group Discussion (FGD) and from the strategic issues found, it is necessary to strengthen family capacity in the practice of exclusive breastfeeding and complementary breastfeeding to prevent stunting in toddlers. This effort needs to be made so that families have good abilities and overall continuity of activities in accordance with the duties and functions of families who have toddlers.

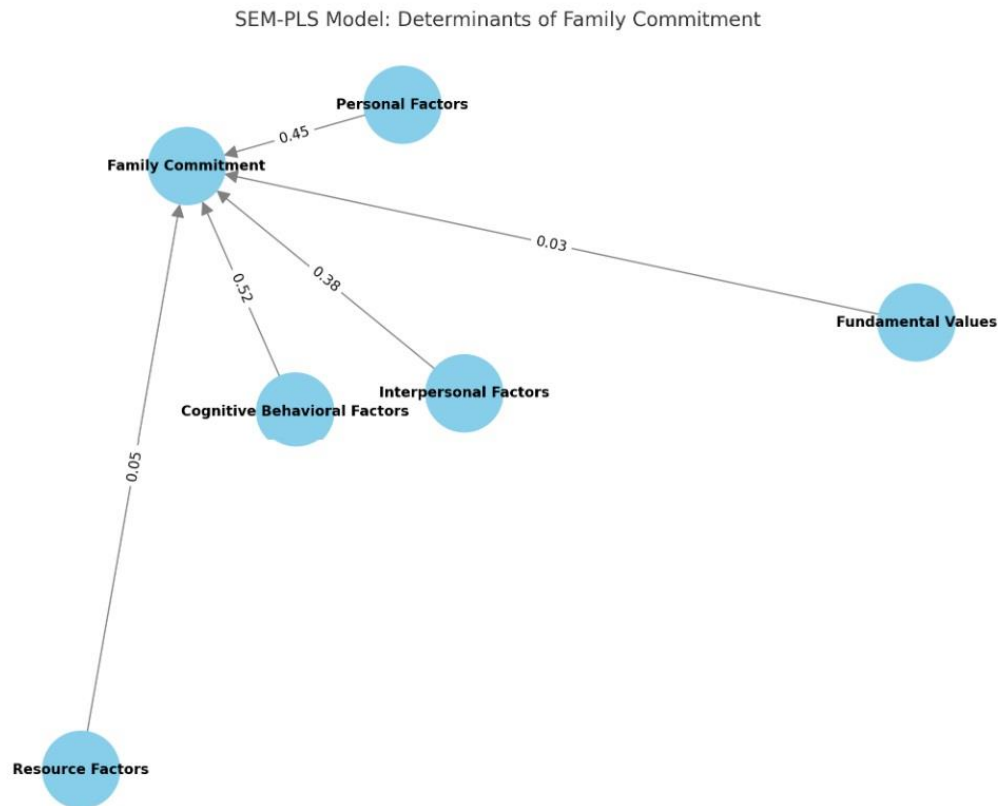
Personal factors, family commitment (0.45): Personal factors, including education, knowledge, and motivation, significantly influence family commitment. Higher education and a good level of knowledge enable mothers to better understand the importance of stunting prevention. Interpersonal Factors, Family Commitment (0.38): Interpersonal support from health workers plays

an important role in enhancing family commitment. Health workers who are effective in providing assistance and education strengthen the family's ability to act. Cognitive behavioral factors, Family commitment (0.52): This factor is the main predictor in the model, suggesting that perception of benefits, self-efficacy, and barriers play a major role in driving family commitment. Interventions that increase maternal self-efficacy can be more effective in encouraging exclusive breastfeeding and complementary breastfeeding. Resource Factors, family commitment (0.05, insignificant): Community resources and family connectedness have a limited contribution to family commitment. This may be due to limited resources or a lack of utilization of existing facilities. Fundamental values, family commitment (0.03, insignificant): Fundamental values, such as responsibility and care, showed an insignificant influence in the context of this study. However, these values remain relevant for strengthening community-based programs.

This study aimed to understand the factors that affect family commitment and their ability to prevent stunting in bald children. Through the analysis of the characteristics of the respondents presented in Table 1, it could be seen that the majority of respondents were in

the age range of 20 to 35 years or about 76% of the total 150 people. This age was the ideal reproductive age for caring for children therefore respondents were expected to have adequate knowledge and readiness in parenting. The status of mothers was dominated by breastfeeding mothers (76.7%), indicating that the focus of this study were mothers who already had children and were

breastfeeding. This was important considering that exclusive breastfeeding played a crucial role in preventing stunting. In addition, the majority of respondents were housewives (63.3%), suggesting that many of them focused on childcare allowing them to be more involved in promoting good health practices.



Images 1. SEM-PLS model: determinants of family commitment

In terms of the number of children, almost one-third of respondents had two children while 34.6% of the respondents had three or more children. This highlights family dynamics that can affect commitment and ability to care for children, especially in the context of stunting prevention. Respondents who had two children under two years old also demonstrated the importance of paying more attention to stunting prevention considering that they had to manage two children in a crucial growth stage. The high rate of visits to integrated health service post (73.3%) showed the active participation of mothers in accessing health services. These regular visits can have a positive impact on mothers' understanding and practices in stunting prevention, which is expected to increase knowledge and awareness about the importance of exclusive breastfeeding and complementary breastfeeding. In terms of education, the majority of respondents were at the high school education level (42.0%) showed that although many mothers had sufficient educational backgrounds, their knowledge about children's health still needs improvement. Respondents who had good knowledge (68.7%) showed awareness about health issues but the motivation to implement this knowledge was low, with

only 25.3% having high motivation. This indicates the need for interventions to increase maternal motivation in carrying out health practices considering that motivation is the main determinant in health decision-making.

The cognitive behavior of the respondents also showed interesting results. Although 70.7% of the respondents felt that the support they received was very helpful. As many as 55.3% of them also experienced obstacles in acting. This suggests that despite the existence of social support, there are still obstacles that can hinder the implementation of optimal health practices. High independence (62.7%) indicates that mothers feel confident in making decisions but further efforts are needed to improve better decision-making skills. The results of the study also show that resource factors, including family connectivity and community resources play an important role in supporting mothers in parenting with 76.7% of respondents considering family connectivity to be good and 79.3% stating that community resources are in the good category, this shows significant social support. However, challenges remain in the face of competing role demands where although 76.7% of respondents feel capable of managing roles in the family, the dual responsibilities faced by

mothers remain a challenge that needs to be overcome. Interaction with health workers is also crucial in supporting mothers. Although 74.0% of respondents felt that health workers had successfully activated their participation, only 46.7% of the respondents felt that health workers were adequately empowering them. This shows that the quality of support from health workers needs to be improved to be more effective in empowering mothers in the health practices needed to prevent stunting.

The aspect of fundamental values is also an important part of this research. The majority of respondents showed a positive attitude towards responsibility, respect, and care. With 84.0% of respondents stating responsibility in exclusive breastfeeding and complementary breastfeeding, mothers showed a high awareness of the importance of their role in children's health. Respect (83.3%) and care (82.7%) also show that these values are crucial in shaping mothers' behaviors and attitudes.

The family's assessment of challenges and stressors showed that 62.3% of respondents perceived challenges as positive, while 90.0% rated stressors as positive. This indicates that families are able to adapt and take advantage of challenges to support exclusive breastfeeding and complementary breastfeeding, although 37.7% of the respondents perceived the challenges as negative. This reflects the complex dynamics within the family that need to be understood more deeply to develop more effective interventions. 94% of women who received extensive support, namely from various supporters including partners, maternal grandmothers, friends and health workers but only mothers who were expected to breastfeed at 2 months. Conversely, mothers with poor knowledge were less likely to start breastfeeding within an hour after birth¹⁶. In this study, the development of a model for assisting pregnant and breastfeeding mothers was employed in exclusive breastfeeding and complementary breastfeeding to prevent stunting in toddlers. Through this model, it is hoped that the growth and development of children will proceed normally, with an emphasis on enhancing the fundamental values (basic values) of the family, including increasing the family's ability to take responsibility, show respect, and care. This also includes promoting the use of the MCH handbook for early detection of irregularities in child growth and development¹⁷.

The role of the family in the early detection of child growth and development still relies on the services provided through integrated health service post activities carried out by cadres and health workers, ensuring that parents' involvement in mentoring activities is optimal¹⁸. In principle, the assistance model for pregnant women and breastfeeding mothers in exclusive breastfeeding and complementary breastfeeding for stunting prevention in toddlers aims to increase the ability of families to participate in preventive activities, ensuring that children's growth and development improve¹⁹. This is supported by research conducted by Januarti et al. who state that the role of parenting culture significantly influences the prevention of stunting in toddler with the result of $p\text{-value } 0.019 < \alpha 0.05^{20}$. This shows that the role

of parenting culture can enhance the prevention of stunting in toddlers²¹. Development in the family sector, especially for mothers who are always close to their children, is important for improving their ability to produce family values such as responsibility, attention, and care²². Increasing family filial bonds can increase positive family appraisals and, eventually, boost family commitment and the ability to detect early deviations in child growth and development²³. These efforts can be expanded through secondary targets, such as parents-in-law or husbands, who can provide a positive and valued role²⁴.

This study demonstrates that although family commitment to stunting prevention is relatively high, there are challenges that need to be overcome, particularly in terms of motivation and reducing barriers to action. Maternal education, knowledge, support from health workers, and fundamental values play a significant role in contributing to family commitment to stunting prevention. Further efforts are required to improve family understanding and skills in addressing growth disorders and developmental deviations. A key recommendation for relevant parties, such as the health office and educational institutions, is to design intervention programs that can boost maternal motivation and knowledge, as well as reinforce existing social support in the community.

The article provides a comprehensive overview of the factors influencing family commitment in preventing stunting in children under two years old. It emphasizes the importance of maternal education, knowledge, and motivation in shaping family behavior, with many respondents having completed high school and possessing good knowledge, though motivation remained notably low. The study also underscores the role of cognitive behavior, including self-efficacy and perceived benefits, in driving commitment, with findings indicating that self-efficacy is a significant predictor. Interpersonal support from health workers is crucial, though some barriers hinder the effective implementation of optimal health practices. Family and community resources, such as family connectivity and access to healthcare, are generally positive, yet the challenge of managing dual responsibilities, particularly for mothers, persists. Furthermore, the quality of support from health workers, while generally good, requires improvement to better empower mothers. Overall, the study underscores the need for targeted interventions to enhance motivation and self-efficacy among mothers, as well as to improve health worker empowerment, in order to strengthen family commitment in stunting prevention efforts. The research highlights the importance of an integrated approach involving education, support, and resources in promoting optimal health practices for child development.

CONCLUSIONS

Personal, interpersonal, and cognitive-behavioral factors significantly influenced family commitment to stunting prevention. Approximately 89.89% of the family's ability to monitor child growth and development could be predicted by the study model. However, resource factors and fundamental family

values were not significant. Interpersonal factors, cognitive-behavioral factors, and family appraisals can enhance family commitment to exclusive breastfeeding and complementary feeding practices. Assistance from health workers is essential to reinforce family commitment to stunting prevention.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

TR: conceptualization. investigation. methodology. supervision. writing–review and editing. NH: data curation. formal analysis. writing–original draft. writing–review and editing. AI: resources. project administration. validation. visualization.

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