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THE ASSOCIATION OF MATERNAL KNOWLEDGE, ATTITUDES, AND PRACTICES RELATED TO THE FIRST 1,000 DAYS OF LIFE WITH STUNTING AMONG TODDLERS IN MATANG SEULIMENG VILLAGE, WEST LANGSA, INDONESIA

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Abstrak

Stunting merupakan gangguan pertumbuhan kronis akibat kekurangan gizi yang berlangsung lama, terutama pada periode 1.000 Hari Pertama Kehidupan (HPK), yaitu sejak masa kehamilan hingga anak berusia dua tahun. Pemenuhan gizi yang optimal pada periode ini sangat menentukan kualitas pertumbuhan dan perkembangan anak. Ibu memiliki peranan yang sangat penting karena pengetahuan, sikap, dan perilaku dalam pemenuhan gizi serta pola asuh anak berpengaruh langsung terhadap status gizi balita. Penelitian ini bertujuan untuk menganalisis hubungan pengetahuan, sikap, dan perilaku ibu tentang 1.000 HPK dengan kejadian stunting pada balita. Penelitian ini menggunakan desain analitik dengan pendekatan cross-sectional terhadap 57 ibu yang memiliki balita. Analisis bivariat dilakukan menggunakan uji Chi-Square dengan tingkat signifikansi 5% (α = 0,05). Hasil penelitian menunjukkan terdapat hubungan bermakna antara pengetahuan ibu (p = 0,015), sikap ibu (p = 0,003), dan perilaku ibu (p = 0,002) dengan kejadian stunting pada balita. Peningkatan pengetahuan, pembentukan sikap positif, dan penerapan perilaku yang tepat selama periode 1.000 HPK sangat penting dalam upaya pencegahan stunting.

Kata Kunci: Stunting; 1.000 Hari Pertama Kehidupan; pengetahuan ibu; sikap ibu; perilaku ibu; gizi balita

Abstract

Stunting is a chronic growth disorder resulting from prolonged nutritional deficiencies, particularly during the first 1,000 days of life, a critical period that begins in utero and continues until a child reaches two years of age. Adequate nutritional fulfillment during this window is essential to ensure optimal growth and development. Mothers play a pivotal role in this process, as their knowledge, attitudes, and practices regarding nutrition and childcare substantially influence child nutritional status. This study aimed to examine the association between maternal knowledge, attitudes, and practices related to the first 1,000 days of life and stunting incidence among toddlers. An analytic cross-sectional design was employed involving 57 mothers with toddlers. Bivariate analysis was conducted using the Chi-square test with a significance level of 5% (α = 0.05). The findings revealed significant associations between maternal knowledge (p = 0.015), maternal attitudes (p = 0.003), and maternal practices (p = 0.002) and stunting incidence. These results indicate that improved maternal understanding, positive perceptions, and appropriate nutritional and caregiving behaviors during the first 1,000 days of life are critical in reducing the risk of stunting. Strengthening community-based nutrition education and continuous health promotion strategies is therefore essential to support effective stunting prevention efforts.

Keywords*: *stunting; *first 1,000 days of life; maternal knowledge; maternal attitudes; maternal practices; child nutrition; growth failure*

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INTRODUCTION

Children constitute a strategic asset for national development and a fundamental determinant of future human capital quality(Anderson et al., 2003; Drukker et al., 2003). In Indonesia, strengthening human resources has become a national priority in response to increasingly complex global challenges, including economic competition, digital transformation, and demographic shifts(Chen et al., 2025; Zhang & Chen, 2023). Nevertheless, stunting remains a critical barrier to sustainable human development. Stunting not only reflects impaired linear growth resulting from chronic undernutrition but is also strongly associated with reduced cognitive capacity, lower productivity in adulthood, and an increased risk of non-communicable diseases(Azriani et al., 2024; Siramaneerat et al., 2024).

Therefore, stunting represents a multidimensional public health issue with long-term implications for national competitiveness and socioeconomic progress. According to the 2024 Survei Status Gizi Indonesia (SSGI), the national prevalence of stunting declined to 19.8%, down from 21.5% in 2023 and substantially lower than 30.8% in 2018. This downward trend reflects significant progress in the acceleration of stunting reduction efforts. However, the current prevalence remains above the national target established in the Rencana Pembangunan Jangka Menengah Nasional (RPJMN), which aims to reduce stunting to below 14%. This gap underscores that stunting prevention and control must remain a central priority within national health development policies(RPJM 2023).

Regionally, disparities in stunting prevalence across provinces continue to pose substantial challenges. The Province of Aceh has, in recent years, reported stunting rates relatively higher than the national average. This situation has prompted local governments to strengthen regulatory frameworks, enhance cross-sectoral coordination, and intensify family-based interventions(Huicho et al., 2020). At the municipal level, Kota Langsa has demonstrated a notable decline in stunting prevalence over the past two years. Despite this improvement, the distribution of cases remains uneven, with several primary healthcare service areas consistently reporting stunting cases annually.

One area requiring particular attention is Desa Matang Seulimeng in Kecamatan Langsa Barat. Although aggregate improvements are evident at the city level, the persistence of high-risk pockets at the village level indicates that certain underlying determinants have not been fully addressed, particularly those operating at the household level(De Onis et al., 2013; Sufri et al., 2024). Conceptually, the acceleration of stunting reduction in Indonesia is implemented through two complementary approaches: specific nutrition interventions and nutrition-sensitive interventions. Specific nutrition interventions primarily target the first 1,000 days of life—from conception until a child reaches two years of age—recognized as a critical window that determines physical growth, brain development, and long-term intellectual capacity. In contrast, nutrition-sensitive interventions encompass improvements in sanitation, food security, education, and social protection. The literature consistently highlights that the effectiveness of interventions during the first 1,000 days of life is strongly influenced by maternal factors, particularly mothers' knowledge, attitudes, and practices related to nutritional intake, exclusive breastfeeding, complementary feeding, and child growth monitoring(Alam et al., 2020; Sufri et al., 2023; Sultana et al., 2013).

A growing body of empirical evidence demonstrates that inadequate maternal knowledge and suboptimal feeding practices are significantly associated with an increased risk of stunting among children under five. Consequently, health-related behavioral dimensions at the household level function as a critical bridge between macro-level policy initiatives and child nutrition outcomes. In the context of Desa Matang Seulimeng, preliminary indications of limited maternal knowledge, attitudes, and practices concerning the first 1,000 days of life suggest a gap between policy implementation and community-level adoption. Based on this conceptual framework and empirical evidence, examining the relationship between maternal knowledge, attitudes, and practices regarding the first 1,000 days of life and the incidence of stunting among under-five children is both relevant and strategically important.

METHOD

This study employed an analytical survey with a cross-sectional design to examine the relationship between maternal knowledge, attitudes, and practices during the first 1,000 days of life and the incidence of stunting. The study was conducted in Desa Matang Seulimeng, Kecamatan Langsa Barat, Kota Langsa, Indonesia. The study population consisted of all mothers with children aged 2–5 years in the village, totaling 171 individuals. A sample of 57 respondents was selected based on predetermined inclusion criteria. Data analysis was conducted in three stages. Univariate analysis was used to describe the distribution of independent and dependent variables. Bivariate analysis was performed using the Chi-Square test to determine the association between variables, with statistical significance set at $\alpha = 0.05$ ($p < 0.05$). Variables with a p-value < 0.25 in the bivariate analysis were subsequently included in

multivariate analysis using logistic regression to identify the most dominant independent variable associated with stunting. Adjusted associations were interpreted using odds ratios and 95% confidence intervals.

RESULTS AND DISCUSSION

Univariate Analysis

Table 1. Frequency Distribution of Toddler Sex, Maternal Occupation, Maternal Education, Stunting Status, Maternal Knowledge, Maternal Attitude, and Maternal Practice

ariable	equency (n)	ercentage (%)
oddler Sex		
ale	7	7.4
emale	)	2.6
aternal Occupation		
ot working	4	4.7
orking		3
aternal Education		
imary		2.3
econdary	5	).7
igher		0
unting Status		
unted	L	).3
ot stunted	5	).7
aternal Knowledge		
oor	5	3.9
oderate	)	7.5
ood	2	3.6
aternal Attitude		
egative	4	4.6
ositive	3	5.4
aternal Practice		
uboptimal		2.3
ood	)	7.7

The univariate analysis shows that slightly more than half of the toddlers were female (52.6%), while 47.4% were male. The majority of mothers were not employed (94.7%), indicating that most respondents were housewives. In terms of education level, most mothers had completed secondary education (80.7%), while only a small proportion had higher education (7.0%). The prevalence of stunting among toddlers in Desa Matang Seulimeng was 19.3%, meaning that nearly one in five children experienced chronic growth impairment. Although the majority of children (80.7%) were not stunted, this percentage still reflects a considerable public health concern. Regarding maternal knowledge about the first 1,000 days of life (1000 HPK), 43.9% of mothers had poor knowledge, while 38.6% demonstrated good knowledge. Most mothers showed a positive attitude (75.4%) toward child nutrition and care during the first 1,000 days. Similarly, 87.7% of mothers demonstrated good practices, whereas 12.3% still exhibited suboptimal practice

Bivariate Analysis

Table 2. The Association Between Maternal Knowledge Regarding the First 1,000 Days of Life (1000 HPK) and Stunting Incidence Among Toddlers

Maternal Knowledge	Stunted n (%)	Not Stunted n (%)	Total n (%)	p-value
Poor	9 (36.0)	16 (64.0)	25 (100)	
Moderate	0 (0.0)	10 (100)	10 (100)	0.015
Good	2 (9.1)	20 (90.9)	22 (100)	
Total	11	46	57	

Based on Table 2, among the 57 respondents, the majority of mothers had poor knowledge (25 respondents). Within this group, 9 children (36.0%) were stunted, while 16 children (64.0%) were not stunted. Among mothers with moderate knowledge, none of the children were stunted (0.0%), and all 10 children (100%) were not stunted. Meanwhile, among mothers with good knowledge, only 2 children (9.1%) were stunted, whereas 20 children (90.9%) were not stunted.

The results of the Chi-Square test (Continuity Correction) at a 95% confidence level ($\alpha = 0.05$) showed a p-value of 0.015 ($p < 0.05$). Therefore, it can be concluded that there is a statistically significant association between maternal knowledge regarding the first 1,000 days of life and the incidence of stunting among toddlers in Desa Matang Seulimeng, Langsa City. These findings suggest that higher levels of maternal knowledge are associated with a lower prevalence of stunting, highlighting the importance of strengthening maternal education and nutrition-related information during the critical window of the first 1,000 days of life.

Table 3. The Association Between Maternal Attitude Regarding the First 1,000 Days of Life (1000 HPK) and Stunting Incidence Among Toddlers.

Maternal Attitude	Stunted n (%)	Not Stunted n (%)	Total n (%)	p-value
Negative	7(50.0)	7 (50.0)	14 (100)	0.003
Positive	4 (9.3)	39 (90.7)	43 (100)	
Total	11	46	57	

Based on Table 3, out of 57 respondents, the majority of mothers had a positive attitude toward the first 1,000 days of life (43 respondents). Among them, 39 children (90.7%) were not stunted, while only 4 children (9.3%) were stunted. In contrast, among mothers with a negative attitude (14 respondents), the proportion of stunted and non-stunted children was equal, with 7 children (50.0%) in each category. The results of the Pearson Chi-Square test at a 95% confidence level ($\alpha = 0.05$) showed a p-value of 0.003 ($p < 0.05$).

Therefore, it can be concluded that there is a statistically significant association between maternal attitude and stunting incidence among toddlers in Desa Matang Seulimeng, Langsa City. This finding indicates that a positive maternal attitude toward nutrition and childcare during the first 1,000 days of life plays a crucial role in reducing the risk of stunting.

Table 4.. The Association Between Maternal Practice Regarding the First 1,000 Days of Life (1000 HPK) and Stunting

Maternal Practice	Stunted n (%)	Not Stunted n (%)	Total n (%)	p-value
Suboptimal	5 (71.4)	2 (28.6)	7 (100)	0.002
Good	6 (12.0)	44(88.0)	50(100)	
Total	11	46	57	

Table 4 shows that among mothers with suboptimal practices (7 respondents), 5 children (71.4%) were stunted and only 2 children (28.6%) were not stunted. Conversely, among mothers with good practices (50 respondents), the majority of children were not stunted (44 children or 88.0%), while only 6 children (12.0%) were stunted.

The Pearson Chi-Square test at a 95% confidence level ($\alpha = 0.05$) yielded a p-value of 0.002 ($p < 0.05$). Thus, there is a statistically significant association between maternal practice and stunting incidence. This result suggests that maternal behavior in implementing appropriate feeding patterns, nutritional care, and health practices during the first 1,000 days of life is a key determinant in preventing stunting. Compared to knowledge and attitude, practice appears to demonstrate a stronger direct relationship with child growth outcomes.

These findings underscore that maternal behavior in implementing appropriate infant and young child feeding (IYCF) practices, ensuring adequate dietary diversity, maintaining household hygiene, adhering to immunization schedules, and utilizing maternal–child health services during the first 1,000 days of life constitutes a critical determinant of linear growth. The first 1,000 days represent a biologically sensitive period characterized by rapid cell proliferation, organ development, and neurocognitive maturation. Nutritional deprivation or repeated infections during this window can lead to irreversible growth faltering(De Onis et al., 2013). Therefore, consistent and appropriate caregiving practices directly influence whether a child achieves optimal growth potential.

Compared with knowledge and attitudes, maternal practices demonstrate a more immediate and measurable relationship with child growth outcomes because they represent the operationalization of cognitive understanding and affective disposition into concrete behaviors. While knowledge provides informational capacity and attitudes shape motivation, only sustained behavioral implementation—such as exclusive breastfeeding for the first six months, timely introduction of adequate complementary feeding, responsive feeding, routine growth monitoring, and infection prevention—can effectively modify nutritional status. This interpretation aligns with the conceptual framework proposed by UNICEF, which identifies inadequate dietary intake and disease as the immediate causes of malnutrition, both of which are strongly mediated by caregiving practices at the household level.

The present findings are consistent with global evidence. A joint report by World Health Organization and UNICEF on child malnutrition highlights that suboptimal breastfeeding and complementary feeding practices remain major contributors to stunting worldwide(Danaei et al., 2016; Vaivada et al., 2020a). Similarly, the World Bank has emphasized that behavioral determinants—particularly feeding practices and sanitation behaviors—play a more proximal role in growth faltering than distal socioeconomic factors(Black et al., 2013; Vaivada et al., 2020b). Empirical studies in low- and middle-income countries have further demonstrated that children who do not receive minimum dietary diversity or adequate meal frequency face significantly higher risks of stunting, even when maternal education levels are relatively adequate(Sudfeld et al., 2015). In addition, poor water, sanitation, and hygiene (WASH) practices have been shown to exacerbate environmental enteric dysfunction, thereby impairing nutrient absorption and contributing to chronic undernutrition.

From a theoretical perspective, the Knowledge–Attitude–Practice (KAP) model posits that behavior represents the culminating and most influential stage in the continuum from cognition to action(Huicho et al., 2020; Perumal et al., 2018). Knowledge alone does not guarantee behavioral change, and positive attitudes may not translate into improved child outcomes without enabling environments and practical reinforcement. Thus, the stronger association observed between maternal practices and stunting supports the premise that behavior is the most proximal determinant of child nutritional status.

CONCLUSION

This study demonstrates that maternal factors related to the first 1,000 days of life (1000 HPK) are significantly associated with the incidence of stunting among toddlers in Desa Matang Seulimeng, Langsa City. The findings confirm that the first 1,000 days of life represent a critical window for child growth and

development, during which maternal roles and responsibilities are highly determinant of nutritional outcomes. Maternal knowledge was found to have a significant relationship with stunting incidence, indicating that inadequate understanding of maternal nutrition, breastfeeding practices, complementary feeding, infection prevention, and child growth monitoring may increase the risk of chronic growth failure. Knowledge serves as the foundational component that shapes maternal decision-making in fulfilling children's nutritional and health needs. In addition to knowledge, maternal attitude toward the importance of the 1000 HPK period was also significantly associated with stunting. A positive attitude reflects awareness, concern, and a sense of responsibility toward optimal child development, which in turn influences consistency in caregiving and feeding practices. Conversely, negative perceptions may reduce the prioritization of proper nutritional care during this critical developmental phase. Maternal practices demonstrated a strong and statistically significant association with stunting incidence. This finding underscores that the practical implementation of appropriate behaviors—such as exclusive breastfeeding, timely and adequate complementary feeding, routine health service utilization, and hygiene practices—plays a decisive role in preventing stunting. Among the examined variables, behavioral implementation appears to be the most directly linked to child growth outcomes, as it represents the translation of knowledge and attitude into concrete action.

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