



The Influence of Maternal Age on Stunting Prevention Perception in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency, South Kalimantan

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Article Info

Keywords:

Stunting
Maternal Age
Prevention Perception
Semantic Differential Scale
Barito Kuala

ABSTRACT

Stunting remains a significant public health challenge in Indonesia, particularly in Barito Kuala Regency, South Kalimantan, which recorded a prevalence of 33.6% in 2022. This study aims to analyze the relationship between maternal age and stunting-prevention perception among mothers in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency. A quantitative approach was employed using a semantic differential scale instrument administered to 140 mothers selected through purposive sampling. Data were analyzed using descriptive statistics and the Independent Samples T-Test. Results showed that most respondents were aged 35–49 years (43.6%), and most (58.6%) had a high-category stunting-prevention perception (mean = 148.30; median = 153.00). The comparison between the 17–24 age group (mean = 141.11) and the 25–34 age group (mean = 161.61) yielded $t = -2.542$ ($df = 25$, $p = .018$), a statistically significant difference at the 5% level with a large effect size (Cohen's $d = -1.038$). Younger mothers exhibited lower stunting-prevention perception than older mothers, as older age is associated with broader childcare experience and better nutritional understanding. Intensive and sustainable nutrition-education programs are recommended, particularly for young reproductive-age mothers in transmigration areas.

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Submitted; Revised; Accepted

How to cite: Rosita, W. (2026). The Influence of Maternal Age on Stunting Prevention Perception in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency, South Kalimantan. *Indonesian Journal of Entrepreneurship Learning and Innovation*, 1(1), 33–45. <https://doi.org/xx.xxxxx/xxxxx>

INTRODUCTION

Stunting, or growth failure, is a condition in which a child's height falls below the standard for their age, measured using a height-for-age (HAZ) z-score of less than -2 standard deviations (SD) from the median of the WHO Child Growth Standards (WHO, 2023). This condition reflects the cumulative effect of chronic nutritional deficiency occurring from pregnancy through the first two years of a child's life, a period known as the First 1,000 Days of Life (UNICEF, WHO, & World Bank, 2023).

Globally, the prevalence of stunting among children under five declined from 26.3% in 2012 to 22.3% in 2022, yet it still exceeds the WHO threshold of 20% (WHO, UNICEF, & World Bank, 2023). In Indonesia, stunting prevalence based on the 2022 Indonesian Nutritional Status Survey (SSGI) was recorded at 21.6% (Kemenkes RI, 2022). South Kalimantan Province is one of twelve priority provinces for accelerated stunting reduction, with a prevalence of 24.6% in 2022. Barito Kuala Regency (Batola) is the most critical area, with a stunting prevalence of 33.6% in 2022, far exceeding the WHO threshold. By 2023 this figure had been reduced to 15.9% based on the Indonesian Health Survey (SKI), although accelerated reduction efforts remain a priority agenda (Antara Kalsel, 2024). Multisectoral coordination among regional health offices, village governments, and community stakeholders has been identified as a determining factor in accelerating stunting reduction across the province's regencies, encompassing program design, budget allocation, and village-level administrative capacity (Andrestian et al., 2025; Goi et al., 2024; Indra & Khoirunurrofik, 2022).

Kampung Inggris in Puntik Dalam Transmigration Village, Mandastana Subdistrict, is one of the areas of concern in Barito Kuala Regency. As a transmigration area, this region has unique demographic characteristics, including diversity in maternal age groups from various social and cultural backgrounds, which influences mothers' knowledge, attitudes, and perceptions regarding stunting prevention (Rahmawati et al., 2019). Household-level determinants such as intra-household food distribution patterns and specific family characteristics have likewise been shown to shape children's nutritional outcomes in transmigration and rural community settings across Indonesia (Wibowo et al., 2015; Khairani & Effendi, 2019; Mariani & Barkah, 2024; Anugraheni & Kartasurya, 2012).

Mothers' perception of stunting prevention plays a central role in shaping feeding behavior, child health care, and the utilization of health services. Positive perception is correlated with exclusive breastfeeding practice, appropriate complementary feeding, and regular visits to integrated health posts (posyandu) (Indah, 2020; Kusuma et al., 2017). Health Belief Model constructs—particularly perceived benefits and perceived barriers—have been shown to predict exclusive-breastfeeding behavior in Indonesian settings (Editia et al., 2022), early initiation of breastfeeding is associated with reduced neonatal mortality (Phukan et al., 2018), and maternal knowledge remains a dominant determinant of exclusive-breastfeeding success (Kapti et al., 2023). Posyandu cadres, in turn, play a strategic role in translating these constructs into routine

community practice through health education, growth monitoring, and household visits (Ariyanti et al., 2024). Maternal age is a demographic factor considered influential on health perception and behavior; older mothers generally have broader childcare experience, so their perception of child nutrition and health tends to be more favorable (Rahmawati et al., 2019).

This study used a semantic differential scale instrument developed by Osgood to measure maternal perception multidimensionally, encompassing affective, cognitive, and evaluative components simultaneously (Osgood et al., 1957, as cited in Sage Research Methods, 2011). Based on this background, the present study aims to analyze the relationship between maternal age and stunting-prevention perception in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency, South Kalimantan.

Stunting is defined as a condition in which a child's height-for-age (HAZ) is less than -2 SD based on WHO child growth standards (WHO, 2023). This condition is a manifestation of chronic malnutrition that begins during the prenatal period. The impact of stunting is multidimensional: physically, it increases susceptibility to infection; cognitively, it delays brain development and reduces learning capacity; and in the long term, it lowers economic productivity in adulthood (Black et al., 2013; Ramlah, 2021). These consequences persist into adulthood: childhood stunting has been linked to adverse cardiometabolic risk profiles later in life (De Lucia Rolfe et al., 2018) and is associated with substantial lifetime economic costs attributable to maternal psychosocial risk factors across low- and middle-income countries (Smith Fawzi et al., 2019).

The causes of stunting are multifactorial. According to UNICEF (2013), direct causes include inadequate food intake and recurrent infection, whereas indirect causes include food insecurity, inappropriate feeding practices, and limited access to health services. Underlying factors include poverty, low maternal education, poor sanitation, and sociocultural factors (Rufaida et al., 2020).

Mothers hold a key role in stunting prevention because they are directly responsible for childcare, feeding, and health care from the time the child is in the womb (Putra, 2022). Maternal knowledge and perception of nutrition strongly determine the quality of care provided. Fundamental stunting-prevention behaviors include exclusive breastfeeding for the first six months, timely and nutritious complementary feeding, complete immunization, growth monitoring at posyandu, and maintaining environmental hygiene and sanitation (Tendean et al., 2022). Maternal knowledge of the First 1,000 Days of Life is an important foundation for shaping optimal stunting-prevention behavior (Yurissetiowati & Baso, 2023).

Perception is a cognitive process through which individuals interpret information from their environment to form understanding and specific attitudes (Indah, 2020). The Health Belief Model (HBM), originally formulated to explain preventive health behavior (Rosenstock, 1974) and validated across a decade of subsequent empirical research (Janz & Becker, 1984), provides a

relevant theoretical foundation, in which health behavior is influenced by perceptions of susceptibility, severity of illness, the benefits and barriers of preventive action, and cueing factors (Kusuma et al., 2017). Research indicates that some mothers in rural areas still have limited understanding of the impact of stunting, tending to regard it as merely hereditary, which becomes a serious barrier to prevention efforts (Ejournal UIKA-Bogor, 2024), a pattern echoed in recent reviews reporting persistently limited maternal knowledge of stunting despite various educational interventions (Harni et al., 2025; Novianti et al., 2024; Rahangmetan et al., 2024).

Maternal age is a demographic variable that consistently influences maternal health knowledge, attitudes, and perception (Rahmawati et al., 2019). Older mothers have broader childcare experience, so their perception of health risks tends to be more mature and comprehensive (Salamung et al., 2019). Conversely, young mothers—particularly those who married at an early age—are at higher risk of having stunted children, partly due to lower maturity of nutritional knowledge (Zulhakim et al., 2022). This pattern has been corroborated across Indonesian settings: national-level analyses confirm a significant association between adolescent marriage and stunting risk in children under five (Simbolon et al., 2024), region-specific qualitative evidence from South Kalimantan links early marriage to inadequate infant feeding practices (Andrestian et al., 2023), and quantitative studies elsewhere report significantly poorer nutritional outcomes among children of adolescent mothers (Pangaribuan et al., 2020; Andarini & Indrawan, 2022). Structural drivers of early marriage—including limited educational attainment—further compound these risks by constraining mothers' capacity to invest in children's long-term health (Anggraini et al., 2019; Prickett & Augustine, 2016), and comparative cohort evidence shows that children of adolescent mothers experience poorer growth trajectories through the first two years of life relative to children of adult mothers (Le Roux et al., 2019). In the context of heterogeneous transmigration areas, the relationship between maternal age and stunting-prevention perception becomes a compelling variable to examine further.

The semantic differential scale was developed by Charles E. Osgood in the 1950s to quantitatively measure the psychological meaning of a concept using pairs of bipolar adjectives on an interval scale (Sage Research Methods, 2011). The main advantage of this instrument is its ability to simultaneously measure the cognitive, affective, and conative components of perception, and it has demonstrated good reliability and validity in public-health research contexts (Takahashi et al., 2016; Rismawan et al., 2023).

METHOD

Research Design and Location

This study used a quantitative approach with a comparative descriptive design to measure and compare stunting-prevention perception across maternal age groups objectively and systematically (Sugiyono, 2015). The research was conducted in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency, South Kalimantan Province—a

transmigration area with unique demographic characteristics and a relatively high stunting prevalence.

Population and Sample

The population of this study comprised all mothers residing in Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, Barito Kuala Regency. The sample consisted of 140 respondents selected using a purposive sampling technique based on the following inclusion criteria: (1) mothers with a child under five (0–59 months of age), (2) permanent residence in the study area, and (3) willingness to participate as a respondent. Of the 140 samples collected, one data point was missing for the stunting-prevention perception variable, so the final dataset analyzed comprised 139 respondents.

Research Instrument

Data were collected using a semantic differential scale questionnaire designed to measure maternal perception of stunting prevention. The instrument used pairs of bipolar adjectives relevant to the concept of stunting prevention, such as important–unimportant, necessary–unnecessary, easy–difficult, and successful–unsuccessful. The total score was obtained by summing all items, with scores ranging from a minimum of 51 to a maximum of 189. Perception was categorized into three levels: low (score $\leq$ Q1), moderate (between Q1 and Q3), and high (score $\geq$ Q3).

Data Analysis Technique

Data were analyzed using SPSS. Descriptive statistical analysis was used to describe the frequency distribution of respondents' ages and stunting-prevention perception categories, including the mean, median, mode, standard deviation, variance, minimum and maximum values, and percentiles. An Independent Samples T-Test was used to examine differences in mean perception scores between two maternal age groups, preceded by Levene's test to verify the homogeneity of variance between groups.

RESULTS AND DISCUSSION

Results

Age Distribution of Respondents

The age distribution of respondents is presented in Table 1.

Table 1. Age Distribution of Respondents

Age Category	n	%
17–24 years	9	6.4
25–34 years	18	12.9
35–49 years	61	43.6
50–64 years	38	27.1
$\geq$ 65 years	14	10.0
Total	140	100.0

Source: Primary data, processed with SPSS (2024)

The largest age group was 35–49 years, comprising 61 respondents (43.6%), followed by the 50–64 age group with 38 respondents (27.1%). The youngest age group (17–24 years) was the smallest, with only 9 respondents (6.4%). The mode for the age variable was the 35–49 age group, indicating that middle-aged, economically productive mothers dominate the Puntik Dalam transmigration community.

Distribution of Stunting-Prevention Perception

The stunting-prevention perception variable was analyzed descriptively, yielding the following results: mean = 148.30; median = 153.00; mode = 168; standard deviation = 26.536; variance = 704.169; minimum score = 51; maximum score = 189; 25th percentile = 134.00; 75th percentile = 168.00. The categorization of perception is presented in Table 2.

Table 2. Categorization of Stunting-Prevention Perception

Perception Category	n	%
Low	4	2.9
Moderate	53	37.9
High	82	58.6
Total Valid	139	99.3

Source: Primary data, processed with SPSS (2024)

Most respondents (82 people, 58.6%) had a high-category stunting-prevention perception. A total of 53 respondents (37.9%) were in the moderate category, and only 4 respondents (2.9%) were in the low category. The median value (153.00), being higher than the mean (148.30), indicates a slightly negative (left-skewed) distribution, meaning that more respondents had scores above the average.

Test of Difference in Stunting-Prevention Perception by Age Group

A difference test was conducted to compare mean stunting-prevention perception scores between the 17–24 age group and the 25–34 age group. Descriptive statistics per group are presented in Table 3.

Table 3. Descriptive Statistics of Stunting-Prevention Perception by Age Group

Age Group	N	Mean	SD	SE Mean
17–24 years	9	141.11	26.122	8.707
25–34 years	18	161.61	15.901	3.748

Source: Primary data, processed with SPSS (2024)

The 25–34 age group had a higher mean perception score (161.61) than the 17–24 age group (141.11), a mean difference of 20.50 points. The results of the Independent Samples T-Test are presented in Table 4.

Table 4. Independent Samples T-Test Results (Stunting-Prevention Perception, Equal Variances Assumed)

Statistic	Value
F (Levene)	0.567
Sig. (Levene)	0.459
t	-2.542
df	25
Sig. (2-tailed)	0.018
Mean Difference	-20.500
Lower 99% CI	-42.981
Upper 99% CI	1.981

Source: Primary data, processed with SPSS (2024)

Levene's test yielded $F = 0.567$ with a significance of .459 ($p > .05$), so the assumption of homogeneity of variance was met, and interpretation refers to the equal-variances-assumed row. The t-value was -2.542 with $df = 25$ and a two-tailed significance of .018. Because $p = .018 < .05$, H_0 was rejected, indicating a significant difference between the stunting-prevention perceptions of the two age groups. The effect size yielded Cohen's $d = -1.038$ (large-effect category), Hedges' correction = -1.006 , and Glass's delta = -1.289 , both consistently indicating a large effect.

Discussion

Characteristics of Maternal Age in the Puntik Dalam Transmigration Area

The age distribution of mothers in Kampung Inggris, Puntik Dalam Transmigration Village, is dominated by the middle-aged adult group (35–49 years), reflecting the typical demographic structure of a transmigration area that has developed over several decades. The low proportion of young mothers (17–24 years), at 6.4%, warrants particular attention, as this group is the most vulnerable in terms of stunting-prevention perception. Zulhakim et al. (2022) found that early marriage and low nutritional knowledge among young mothers contribute significantly to stunting incidence, a situation exacerbated by limited access to health information in remote areas.

Level of Stunting-Prevention Perception

Most mothers (58.6%) had a high-category stunting-prevention perception, indicating that the majority of mothers in the Puntik Dalam area already possess good awareness. This may reflect the effectiveness of socialization and health-education programs conducted by the Barito Kuala Regency government (PKK Kalsel, 2023). Cross-sector collaboration between health offices, village governments, and trained posyandu cadres has similarly been reported as a key contributor to stunting-reduction outcomes elsewhere in Indonesia (Goi et al., 2024; Ariyanti et al., 2024). However, the presence of 2.9% of respondents with low perception and 37.9% with moderate perception remains a concern. The high variability in scores ($SD = 26.536$) indicates considerable heterogeneity of perception among mothers in the area, consistent with findings that some mothers in rural areas still misidentify the causes of stunting (Ejournal UIKA-Bogor, 2024).

Differences in Stunting-Prevention Perception by Age Group

The Independent Samples T-Test results showed a significant difference ($p = .018$) between the stunting-prevention perceptions of the 17–24 age group (mean = 141.11) and the 25–34 age group (mean = 161.61), with a large effect size (Cohen's $d = -1.038$). This finding is consistent with Rahmawati et al. (2019), who confirmed a positive correlation between maternal age and level of knowledge about stunting. Older mothers have more experience in childcare, gradually forming a more mature perception of the importance of stunting prevention. From a developmental theory perspective, mothers aged 25–34 years are generally in the early-adulthood stage, which is more emotionally and cognitively stable, enabling them to process health information more effectively (Indah, 2020).

In the context of transmigration areas, this difference may be exacerbated by limited access to information among young mothers who have newly settled in the area, compared with older mothers who have lived longer in the community (Salamung et al., 2019). It is important to note that not all studies have found a consistent relationship between age and knowledge about stunting; a study by Budianto and Akbar (2023) in the Sragen area found no significant relationship, suggesting that other variables such as education, economic status, and access to health services may be more dominant in certain contexts.

Implications for Stunting-Prevention Programs

The findings of this study carry three practical implications. First, nutrition-education programs specifically targeting young mothers (17–24 years) with lower perception scores are needed, which could be integrated into posyandu activities, antenatal care (ANC) services, and the Toddler Family Development (BKB) program. Tailoring such programs to mothers' demographic characteristics, including age, has likewise been recommended as a strategy for more precisely targeted stunting-prevention policy (Wulandari et al., 2022). Second, given the high variability in perception, intervention programs need to be designed more personally and on a community basis, using a variety of media—visual, audio, and group discussion—to more effectively raise perception across age groups (Ansori, 2022). Third, this study supports the importance of empowerment programs for young mothers as a long-term investment, given that the 17–24 age group represents the phase in which mothers are just beginning their role as caregivers (Kemenkes RI, 2022).

CONCLUSION

Based on the results and discussion, three main conclusions can be drawn. First, the age distribution of mothers in Kampung Inggris, Puntik Dalam Transmigration Village, is dominated by the 35–49 age group (43.6%), reflecting the typical demographic structure of a well-established transmigration area. Second, most mothers (58.6%) have a high-category stunting-prevention perception (mean = 148.30; median = 153.00; SD = 26.536), indicating fairly good awareness within this community despite considerable variability. Third, there is a significant difference between the stunting-prevention perceptions of the 17–24 age group (mean = 141.11) and the 25–

34 age group (mean = 161.61) based on the Independent Samples T-Test ($t = -2.542$; $df = 25$; $p = .018$), with a large effect size (Cohen's $d = -1.038$), indicating that maternal age is a relevant factor in shaping stunting-prevention perception.

The practical implication of this study is the need for nutrition-education intervention programs specifically targeting young mothers aged 17–24 years in transmigration areas. Future research should further examine other factors that may influence stunting-prevention perception, including education level, economic status, access to information, and social support in the context of South Kalimantan's transmigration communities.

ACKNOWLEDGEMENTS

The author would like to thank the mothers of Kampung Inggris, Puntik Dalam Transmigration Village, Mandastana Subdistrict, who participated as respondents in this study, as well as local health cadres and posyandu officers who assisted with data collection.

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