

Conference Paper

Family Factors Related to Stunting: Number of Family Members, Mother's Education Level, and Working Mother in Children aged 24-59 Months in Sungai Penuh City, Jambi Province, Indonesia

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ABSTRACT

Stunting in toddlers can cause lost generations. One of the factors that influence the occurrence of stunting is family factors. Stunting can be influenced by the number of family members in a household, which affects the amount of income and the amount of nutritional intake that must meet individual needs. In addition, mothers have had a crucial part in raising children, providing nutritious food, and nurturing children, so maternal knowledge and the time mothers spend caring for children can affect the nutritional status of toddlers. To identify the determinants of stunting, a cross-sectional design method was used with a sample size of 230 children aged 24-59 months in Sungai Penuh City, Jambi Province. Stunting was the dependent variable, whereas family size, the mother's occupation, and level of schooling were the independent variables. The main data source was the results of SSGI 2022. It is anticipated that the use of national survey data, the chi-square test, and logistic regression analysis with a 95% confidence level will help discover familial characteristics linked to stunting. The study's findings demonstrated that mother education was a contributing and predictive factor of stunting to the incidence of stunting in toddlers aged 24-59 months (p-value <0.05). However, the number of family members and working mother status showed negative predictor values. It is anticipated that this research will contribute and offer answers to resolving the gaps that occur in society in reducing stunting rates in Indonesia, especially in policy making.

Keywords: Stunting, family size, mother's education level, working mother

Introduction

Children who experience stunting have stunted growth and development as a result of chronic nutritional inadequacies, recurrent infections, and inadequate psychosocial stimulation (WHO, 2015). A person is considered stunted if their height for age is smaller than the WHO Child Growth Standards median (UNICEF, 2021). Stunting may outcome in higher rates of morbidity and mortality, stunted growth, a decreased capacity to have children, and an increased risk of infectious and non-communicable disorders (WHO, 2014; Utami et al., 2019). Children diagnosed with stunting are prone to fat accumulation, are at higher risk of diabetes, hypertension, and dyslipidemia, and over 2 years of age have an increased risk of obesity (Soliman et al., 2021).

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One of the most harmful conditions throughout the first 1000 days of life and until the age of two years old is stunting (WHO, 2015). In the first 2 years after birth, children's nutritional needs are very useful to support rapid growth and development, so if the needs are not met, it will hamper the growth of children. Lack of nutrition at the age of less than two years can put children at risk of stunting during this period, which causes children over 2 years old to have difficulty catching up with growth and are prone to stunting at this age (Roth et al., 2017). To identify the causes of stunting in children who have been diagnosed with stunting, which focuses on children over 2 years of age.

Globally, approximately as many as of the 148.1 million stunted children between the ages of 0 and 59 months in 2022 were in Asia, with Indonesia ranking third among Southeast Asian countries in terms of the frequency of stunting during the past ten years (Das et al., 2023). Nationally, the prevalence of stunting in 2022 in Indonesia has decreased by 21.6%, one of the provinces in Indonesia that has decreased stunting in 2022 is Jambi Province, which is 18.0%, however, among the 9 districts and 2 cities in Jambi Province, only Sungai Penuh City has increased the prevalence of stunting with a stunting prevalence of 26%, which exceeds the national stunting problem (Ministry of Health of the Republic of Indonesia, 2022). The Indonesian government has implemented a policy to expedite the decrease of stunting by focusing on priority populations, such as mothers and toddlers, through specific intervention programs. It is in recognition of the critical need to lower the incidence of stunting in Indonesia (Presidential Regulation of the Republic of Indonesia, 2021). However, there are multifactor stunting factors that need to identify the causes of stunting that are more widespread.

Stunting in children is caused by many factors and is complex, family circumstances are a significant indirect factor that closely contributes to the occurrence of stunting in children (UNICEF, 2021). One of the family factors that can cause stunting is the number of family members in a household, the greater the number of family members, the more food needs in a family, while stunting often occurs in poor families where the fulfillment of food is difficult to fulfill (Wahyudi et al., 2022). This situation can cause problems with several diseases related to growth and development in children. To overcome this, mothers play an important role, especially with higher knowledge, with high knowledge, the possibility of children experiencing stunting is smaller, this is due to increased awareness of child nutrition so that mothers can apply a good diet for children (Amaha & Woldeamanuel, 2021; Ahmed et al., 2022).

In addition, maternal parenting of children is also influenced by the style of parenting and the free time spent by the mother for the child. Mothers who work to help the family's economic situation have less time for children so the parenting of children's eating will be disrupted which can cause children to experience nutritional deficiencies during their growth period (Rahayuwati et al., 2023; Win et al., 2022). Given the importance of family factors to stunting, this study aims to identify family factors associated with the incidence of stunting in toddlers aged 24-59 months.

Material and Methods

Based on the findings of a nationwide survey carried out in Indonesia in 2022, this study used a cross-sectional study design technique to determine the association between family factors that contribute to the occurrence of stunting in children under five, specifically in the age range of 24-59 months. However, this study only focuses on one region in Indonesia, namely Sungai Penuh City, Jambi Province, Indonesia.

Data collection

This study uses secondary data from national survey activities organized by the Health Policy Development Agency in the Indonesian Nutrition Status Survey in 2022 (SSGI 2022), data collection is carried out by enumerators who have been given training and technical assistance workshops to conduct interviews using questionnaires and anthropometric measurements, then inputted by enumerators on the website that has been provided. In this study, researchers

checked the completeness of the appropriate data that could be used for this study through the SSGI 2022 guidelines and questionnaires, then the researchers submitted applications, filled out the required data forms, and sent proposals that had been tested and approved by the board of examiners through the official Health Policy Development Agency website.

Population and Sample

This study used secondary data based on findings from a nationwide study carried out by the Republic of Indonesia's Ministry of Health's Health Policy Development Agency with predetermined instruments and guidelines. Toddlers who participated in this survey amounted to 470 toddlers aged 0-59 months. However, this study focuses on toddlers aged 24-59 months so the sample that has complete data according to the needs of this study amounted to 230 toddlers.

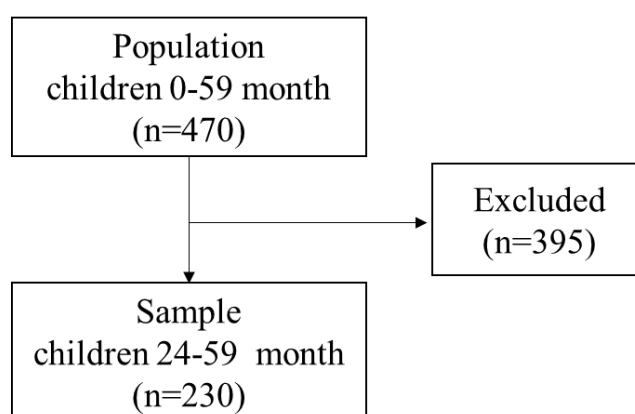


Figure 1. Population and sample

Data analysis

Examining the correlation among the stunting parameter and the parameters for the mother's educational level, the number of family members, and working mothers in Sungai Penuh City, Jambi Province. The study's data were subjected to a bivariate test utilizing the Chi-Square test with an acceptable threshold for significance of 5% data by applying univariate analysis (descriptive frequency distribution). The dependent variable, namely stunting, is categorized according to the calculation of the TB / U index Z-score, namely stunting and not stunting, and the independent variable is the number of family members categorized as small families (1-4 people), large families (≥ 5 people), the mother's education level is categorized as low education (no school-junior high school), higher education (high school-college), working mother status is categorized as working and not working. Output results from bivariate analysis that showed significant results (p -value < 0.05) will then be subjected to multivariate analysis with a logistic regression test. The application IBM SPSS statistics version 25 was used for all data analysis.

Research ethics

This study has complied with the principles of research ethics according to the Declaration of Helsinki and has received approval from the Research Ethics Commission of Dr. Moewardi General Hospital with letter number 463/II/HREC/2024. Before collecting data during the SSGI 2022 survey, respondents filled out and agreed to the informed consent provided by the enumerator. The data sent to the researcher did not include the identity of the sample but only contained the serial number.

Results and Discussion

This study involved 230 samples of toddlers aged 24-59 months in Sungai Penuh City, Jambi Province, Indonesia. Sungai Penuh City has an area of 391,5 km² terbagi menjadi 8 kecamatan dan

68 desa yang telah terklasifikasi sesuai kriteria perdesaan dan perkotaan into 8 sub-districts and 68 villages that have been classified according to rural and urban criteria (Statistics Indonesia, 2020; Central Bureau of Statistics, 2023). In this study, most of the stunting was experienced by children under five who lived in villages with urban classification, were male, at the age of 36-47 months, and the age of the mother was categorized at the ideal age of 25-34 years. The characteristics of this research sample are as follows (Table 1):

Table 1. Characteristics of the research sample

Socioeconomic Characteristics	Stunting		Not Stunting	
	n	%	n	%
Residence Classification				
Urban	56	76,7	121	77,1
Rural	17	23,3	36	22,9
Gender				
Male	39	53,5	75	47,8
Female	34	46,6	82	52,2
Toddler age				
24-35 months	24	32,9	47	29,9
36-47 months	28	38,4	54	34,4
48-59 months	21	28,8	56	35,7
Mom's age now				
15-24 years old	6	8,2	13	8,3
25-34 years old	49	67,1	91	58
35-44 years old	16	21,9	49	31,2
45-54 years old	2	2,7	4	2,5

The results showed that family factors contribute to the incidence of stunting in children under the age of 24-59 months based on the results of a national survey conducted in Sungai Penuh City, Jambi Province, Indonesia.

Table 2. Research results with bivariate tests

Variables	Stunting		Not Stunting		p-value	OR
	n	%	n	%		
Number of family members						
Small family	54	74,0	112	71,3	>0,05	1,142 (0,610+2,137)
Large family	19	26,0	45	28,7		
Mother's education						
Low	14	23,3	12	9,2	<0,05*	2,993 (1,288±6,953)
High	46	76,7	118	90,8		
Working mother status						
Work	48	65,8	76	48,4	<0,05*	2,046 (1,150±3,640)
Not working	25	34,2	81	51,6		

*Statistical significant variables at p-value < 0,05, chi-square test

After conducting a bivariate analysis which shows that maternal education and working mother status contribute to the incidence of stunting in toddlers, so to review how much the contribution of these variables is further modeling with logistic regression analysis which shows

that the interaction that constantly contributes to the incidence of stunting is maternal education (p -value $< 0,05$), although the number of family members and working mother status have a negative contribution, but the number of large family members has a risk of 0.883 (0.525+1.484) times the incidence of stunting, as well as working mothers, have a risk of 0.393 (0.506+1.321) times the incidence of stunting. This finding also shows that the number of family members and working mothers are predictors of stunting in children aged 24-59 months.

According to this study, a household's size has little bearing on the frequency of stunting in younger children, namely in those between the ages of 24-59 months with a p -value > 0.05 with OR 0.883 (0.525 + 1.484), stunting in toddlers is predicted by the number of family members although not correlate with the prevalence of stunting. This is because there is an influence between the quantity of family members and the fulfillment of the nutritional needs of each individual. According to several earlier research that supported the outcomes of this Bengkulu City study, the number of family members did not influence the percentage of children under five that are stunted (Khairani & Effendi, 2019). Additionally, studies done in Surabaya City revealed the quantity of family members had no bearing on the prevalence of stunting in children younger than five (Ni'mah & Nadhiroh, 2015). However, these findings are not in line with the results of research conducted in Tangerang Regency and Southern Ethiopia which showed that a large number of family members (5-10 people) are at risk of stunting compared to 1-4 people because the large number of family members can affect the value of the adequacy level of family members so that it will also have an influence on the nutritional condition of children, especially toddlers during their growth and development (Carolin et al., 2021; Fikadu et al., 2014). Based on the characteristics of the sample, it shows that most children live with an ideal number of family members, namely 1-4 people because they already have their own homes and live separately from extended families such as grandmothers, grandfathers, uncles, and aunts, so that the fulfillment of needs can be met by each member even though it is considered sufficient. In addition to the number of family members, maternal knowledge also plays an important and direct role in the nutritional status of children.

This study additionally indicates that stunting in children under five years old is influenced by the mother's educational level between the ages of 24-59 months with a p -value < 0.05 with OR 0.393 (0.207 + 0.748). Maternal formal education has a very important role in stunting toddlers, this has become a consistent trend in several countries such as Vietnam, Libya, Tanzania, and Indonesia (Vollmer et al., 2017). Due to their greater knowledge of childcare and pre-and postnatal care, mothers with higher levels of formal education have a good effect on their children's nutritional status; nevertheless, some parameters frequently change depending on the local environment and other factors (Amaha & Woldeamanuel, 2021). However, high maternal formal education also has a negative influence on the nutritional condition of children. These findings are in line with the results of this study, such as research conducted in Indonesia using IFLS secondary data showing that high maternal formal education has the potential to trigger the risk of stunting in toddlers (Handayani et al., 2023). Research conducted in West Java, Indonesia shows that it is not a determining factor in predicting stunting in toddlers, because of the tendency of highly educated mothers of toddlers not to provide direct care for their children. This study also confirms that there isn't a connection between maternal formal knowledge and stunting (Rahayuwati et al., 2023). Mothers with high formal education tend to entrust their children to others so that care is carried out by others so that the "golden age" of children is often missed by mothers to accompany the maturation and advancement of kids. Based on the characteristics of the region, it shows that mothers of toddlers with high formal education will prefer to work compared to being a housewife in addition to helping the family economy, they also often feel that the knowledge they have will be more useful if applied by working.

In addition, this study also shows that the status of working mothers has no contribution to the incidence of stunting in toddlers aged 24-59 months with a p -value > 0.05 with OR 0.818 (0.506 + 1.321) The status of working moms is a predictor of toddler stunting, even if it has little bearing

on the prevalence of stunting. This is because working women receive insufficient care support from other family members, such as grandparents or those who have caregivers, leading to less than ideal time to support children's growth and development (Win et al., 2022). This study validates research from Tolikara Regency that demonstrates a negative correlation exists between the incidence of toddler stunting and working mothers (Wanimbo & Wartiningsih, 2020).

A similar finding conducted by Dimu also shows that the status of working mothers does not have a positive connection to the prevalence of stunting in toddlers, even though mothers work but will have different times with fathers who work, because of the role of mothers who help the family economy (Chavez-Zarate et al., 2019). However, these results conflict with research from Dhaka, Bangladesh, which indicates a strong correlation between the occurrence of toddler stunting and working moms' lack of free time to observe their children's development (Win et al., 2022). Research conducted in Indonesia also shows that working mothers are more likely to have stunted children than non-working mothers, this study also emphasizes how important it is to consider the impact of working mothers on child health, especially in low-income urban areas (Laksono et al., 2022). Mothers who work have less time to spend with their children, so working mothers can influence parenting. Based on the characteristics of the sample, this finding can occur because even though the mother works, the mother has a lot of time with the child because the working time is not full one day but half a day, and some even only on certain days and shifts. Working mothers can help the family economy, and increase the mother's confidence and social influence because they have a high formal education.

Stunting can be influenced by several factors that are more complex and can affect stunting directly or indirectly, one of which plays an important role in family factors. Family factors can significantly affect the socioeconomic context of a family which is also influenced by variations between rural and urban residences which can describe the complex interactions of socioeconomics, cultural norms, and dynamics within the family (Fatima et al., 2020; Reyes et al., 2004). Each family has different characteristics so the nutritional status of each individual in a household will vary. This difference can occur due to diverse parental backgrounds such as parental reading ability, parental knowledge, parental curiosity about children's health, the number of children and siblings, family structure, the presence of parents, time spent caring for children, and the ability to overcome the challenges of economic problems (Yani et al., 2023; Gupta et al., 2015; Islam et al., 2020).

The family plays a crucial part in avoiding stunted growth in children because the family holds a non-medical element that can affect health outcomes from the past, this includes the condition of a person being born, growth and development, survival, aging, socialization, culture, and environmental conditions (Yani et al., 2023; Putri & Rong, 2021). In addition, stunting can also occur due to complex interactions between internal and external nutritional ecology, which include exposure to food systems and involve demographic, cultural, physical environment, climate, and health factors[33]. Many factors can affect stunting so it is hoped that future studies can expand the scope of the research sample and consider other variables such as the availability and quality of care support, health service-seeking behavior, hygiene practices, culture, family structure, maternal age, parental marital status, socioeconomic, and environmental factors that can have an impact on children's nutritional status.

Conclusion

The prevalence of stunting in children under five years old of age 24-59 months is influenced by family factors, which shows that 76.7% are stunted with mothers who have high formal education (p-value <0.05). This is due to the tendency of highly educated mothers to work and feel sufficient with their knowledge so that they have minimal knowledge of children's health, but even so, the number of family members and the status of working mothers have the potential to be predictors of stunting.

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