

ICMHS 2022 SPECIAL EDITION

RESEARCH ARTICLE

Food security and parenting as risk factors of stunting in toddlers aged 24 to 59 months

Ninna Rohmawati¹, Abdul Azis Akbar¹, Tiara Nurfaradila²

¹ Nutrition Programme Study, Faculty of Public Health, Universitas Jember, Indonesia

² Galis Health Center, Pamekasan Regency, Indonesia

Keywords

Food security
Parenting
Stunting

Correspondence

Ninna Rohmawati
Faculty of Public Health
Universitas Jember
Indonesia
ninnarohmawati@unej.ac.id

Abstract

Background: Stunting is one of the global health problems that need to be considered because the impacts are very complex and long term. There are various factors that influence the incidence of stunting, including food security and parenting. **Objective:** The aim of this study was to analyse the status of household food security and parenting, as risk factors of stunting among toddlers in Pamekasan regency. **Method:** This research was done using the observational analytic with a case control design. **Result:** Household food security status had a significant relationship with the incidence of stunting. Toddlers who were in food-insecure households had a 3.5 times greater risk of experiencing stunting compared to toddlers in food-resistant families. There is a relationship between these two variables. Toddlers with poor parenting had an 8.4 times higher risk of experiencing stunting compared to toddlers with good parenting. **Conclusion:** The status of household food security and parenting is a risk factor for the incidence of stunting.

Introduction

The frequency of stunting is still greater than 20%, making it one of the significant global health issues (World Health Organization, 2010). The global prevalence of stunting is now at 21.9%. The Southern prevalence of 31.9%, is one of the regions having a greater incidence of stunting than the global average. With Indonesia being the sixth of the eleven WHO Southeast Asia region member states, the incidence of stunting is currently 30.8% (Kemenkes, 2018; WHO, 2019). This demonstrates that three out of ten children under the age of five in Indonesia are stunted. Stunting difficulties are classified as severe if the prevalence is 30% to 39%, and as serious or critical if the prevalence is 40% or higher (Trihono *et al.*, 2015).

In the province of East Java, there are 11 priority districts for stunting of which the Pamekasan regency is one of the major regencies. The frequency of stunting in Pamekasan Regency is about 42.5%, indicating that the problem of stunting in Pamekasan Regency is severe (Food Security Agency, 2018b). Pamekasan Regency includes ten villages with

stunted loci located throughout three major subdistricts: Pademawu, Palenga'an, and Proppo. According to the results of the August 2019 weighing month, Proppo district had the greatest frequency of stunting among the ten stunting loci villages. There are three stunting loci villages in Proppo district: Campor, Candi Burung, and Pangbatok, with prevalence rates of 48.70%, 41.340%, and 26.170%, respectively (Pamekasan District Health Office, 2019).

According to the conceptual framework of the determinants of child undernutrition proposed by UNICEF (2013), stunting can be caused by a number of factors classified as direct causes, indirect causes, and underlying causes. The Indonesian government designs an ideal intervention plan covering multiple connected sectors. Generally, stunting therapies fall into two categories: It could be targeted and sensitive. Specific interventions are carried out by the health sector, which plays a 30% role and is only effective in the first 1000 days of life, whereas sensitive interventions are carried out by the non-health sector, which plays a 70% role and targets the general public (Trihono *et al.*, 2015).

In the sensitive intervention, 12 initiatives are administered by diverse non-health sectors. Improving food and nutritional security is one of the delicate interventions (Trihono *et al.*, 2015). Pamekasan Regency is the district in East Java province with the lowest food security score of 66.35. According to Adelina and the authors, household food security can contribute to the emergence of nutritional issues in the home. It is thought that if this condition persists for an extended period, it may cause toddlers in the household to develop chronic malnutrition and stunted growth (Adelina *et al.*, 2018).

The family's responsibility is not limited to producing food but also includes parenting. Increasing parental care knowledge is a sensitive intervention as well (Trihono *et al.*, 2015). Thus, parenting is a factor that must be evaluated about the incidence of stunting. The findings of a number of several environments or interactions between caregivers and toddlers are also one of the determinants of toddlers' growth, development, and nutritional status (Yuniarti, 2015; Septisya *et al.*, 2017; Linu *et al.*, 2018).

This study was undertaken to examine the state of household food security and parenting as risk factors for stunting in children under the age of five in Pamekasan regency, based on the supplied background information.

Methods

Design

This is an observational analytic study using a case-control design. In March 2020, this study was undertaken in three stunting loci villages in the Proppo district, Pamekasan Regency, specifically Campor Village, Candi Burung, and Pangbatok. In this study, the population was separated into two groups: the case population and the control population. In the stunting locus village (Proppo district), the case population consists of toddlers aged 24-59 months who are stunted, while the control population consists of toddlers aged 24-59 months who are not stunted.

This study sample comprised 44 toddlers with stunting in the case group and 44 toddlers without stunting in the control group. This sample was obtained by stratified random proportional sampling.

Assessment

In this study, the state of household food security and parenting styles are independent variables, whereas the incidence of stunting is a dependent variable. In Panaguan village, data was collected by interviewing mothers of children under the age of five using a questionnaire that had been tested for validity and reliability. The data were evaluated using the chi-square test with a percentage significance threshold (0.05) and presented in narrative form and tables.

Results

Characteristics of a toddler

The gender and age of toddlers are considered in this study as characteristics of toddlers. The distribution of children under the age of five based on these factors is shown in Table I.

Table I: Distribution of toddler features by their frequency

Characteristics of a toddler	Case (stunting toddler)		Control (non-stunted toddlers)	
	N	%	N	%
Age group				
2 - <3 year	22	50	22	50
3 - 5 year	22	50	22	50
Total	44	100	44	100
Gender				
Male	24	54.5	24	54.5
Female	20	45.5	20	45.5
Total	44	100	44	100

Status of food security in the household with a stunting incidence

The odd ratio result of 3.509 indicates that children under five living in food-insecure homes are 3.5 times more likely to be stunted than toddlers living in food-insecure households (see Table II).

Parenting in the face of stunting

Bad parenting is a risk factor for stunting because the value is more than 1. This also indicates that toddlers with poor parenting are eight-and-a-half times more likely to be stunted than toddlers with good parenting (see Table III).

Table II: Relationship between household food security (HHFS) and incidence of stunting

Status of HHFS	Case (stunting toddler)		Control (non-stunted toddlers)		p-value	OR (95%CI)
	N	%	N	%		
Food insecurity	25	56.8	12	27.3	0.005	3.509 (1.438-8.563)
Food security	19	43.2	32	72.27		
Total	44	100	44	100		

Table III: Relationship between parenting and incidence of stunting

Status of HHFS	Case (stunting toddler)		Control (non-stunted toddlers)		p-value	OR (95%CI)
	N	%	N	%		
Poor parenting	27	61.4	7	15.9	0.005	8,395 (3.056-23.058)
Good parenting	17	38.6	37	84.1		
Total	44	100	44	100		

Discussion

Characteristics of a toddler

Age and gender are the major characteristics of toddlers considered in this investigation. This study included toddlers from 24 to 59 months. This is because stunting does not occur until a toddler is 24 months old (Ramayulis *et al.*, 2018). The results demonstrated that there were 44 toddlers in both the toddler and preschool groups.

About 54.5% of stunted toddlers are boys, the majority of whom are male. This is consistent with the findings of several prior research on toddler stunting. Hendrayati and Asbar disclosed that 57.9 % of their study was male (Hendrayati & Asbar 2018). This is consistent with the findings of Mugianti and authors, which indicated that the majority of respondents, where 64.5%, were male and 65.2% of these males were stunted (Mugianti *et al.*, 2018).

Status of household food security with stunting incidence

Theoretically, according to UNICEF (2013), household food security is one of the causes of stunting. Adriani and Wirjatmadi (2014) further noted that the onset of

nutritional issues may represent the lack of household food security. As many as 25 homes with stunted children under the age of five were food insecure in a study (56.8 %). By the findings of Adelina and authors, and Fentiana, authors the majority of stunting toddlers reside in food-insecure homes, whereas more non-stunting toddlers come from food-secure households (Adelina *et al.*, 2018; Fentiana *et al.*, 2019).

Based on interview results, it is known that nearly all respondents, precisely 80 (91%), are concerned that their household's food supply will run out before they have the funds to replenish it. This is possible since the majority of respondents had spouses who are farmers, whose incomes are not fixed. This is also consistent with the findings of Fadzila and Tertiyus's research work, which indicates that households with spouses who work as farmers frequently feel anxious if they don't have enough money to buy enough food for the family. This is because the majority of household income remains below the regional minimum wage and income is not set. According to Amalia and Mahmudiono, who studied food security in farming households, the level of food security in farming households is highly reliant on crop yields. When the farmer's opinion or crop yields improve, the food security score will decrease, indicating that the household is food secure (Amalia & Mahmudiono, 2017).

Based on the chi-square test results, a *p*-value of 0.005 was determined. As the *p*-value is less than 0.05, this indicates that there is a substantial association between household food security and the occurrence of stunting. The odds ratio value of 3.509 (CI =1.438-8.563) indicates that household food security status is a risk factor for stunting and that children under the age of five in food-insecure households have a risk of stunting that is 3.509 times higher than toddlers in food insecure families. This study's findings are consistent with those of Safitri and Nindya (2017); Fadzila and Tertiyus (2019); and Safitri with the colleague (2017), who found that food security is substantially associated with the incidence of stunting in children under the age of five. With a *p*-value of 0.049 and an odd ratio of 3.059, Adelina (2018:367) finds that there is a substantial association between household food security and stunting.

Utami and Sisca (2015) indicated that households with toddlers are less likely to experience stunting if they have a higher level of food security. Toddlers from food-insecure households are 10.9 times more likely to have stunting. Food-insecure homes can lead to malnutrition in sensitive populations, such as children. In households with food security, toddlers

will have greater access to food, both in terms of quality and quantity. Therefore, the nutritional requirements of toddlers for appropriate nutritional health. This is in contrast to toddlers in food-insecure households, who have limited access to food, which can result in a reduction in the quantity and quality of meals for toddlers, as they must still share with other family members (Utami & Sisca, 2015; Fentiana, 2019).

Parenting in the face of stunting

Parenting can be characterised as care provided by mothers or other caregivers in the form of attitudes and behaviors relating to proximity to children, showing affection, feeding, caring for, maintaining cleanliness, etc (Septiari, 2012). Based on the findings from the interviews and the accumulation of three characteristics of parenting, it is evident that the majority of respondents, or as many as 27 respondents (61.4%), in the case group employed bad parenting techniques with their toddlers. This is consistent with the findings of Kullu, Yasnani & Lestari's study, which indicates that toddlers with inadequate parenting are more likely to have stunting than toddlers with adequate parenting (Kullu, Yasnani & Lestari, 2018). Ni'mah and Muniroh also noted that women with superior parenting are likely to have toddlers with higher nutritional status (Ni'mah & Muniroh, 2015).

Based on the chi-square test results, a p -value of 0.000 was determined. As the p -value is less than 0.05, it indicates that parenting has a substantial link with the occurrence of stunting. In the study by Rizyana and Yulia, the p -value for the chi-square test between parenting and stunting is also 0.000, indicating that parenting is strongly associated with toddler stunting (Rizyana & Yulia, 2018). According to the findings of Widyaningsih and authors, there is a significant association between parenting and the incidence of stunting in toddlers, with a chi-square value of 0.015 ($p \leq 0.05$) (Widyaningsih *et al.*, 2018). According to Juliani's (2018) research, there is a substantial correlation between parenting and the occurrence of stunting. The findings of this study are consistent with this finding.

The value of the odd ratio between parenthood and stunting was 8.395 (CI=3.056-23.058). Therefore, inadequate parenting is a risk factor for short stature, as the odd ratio value is greater than one. This atypical ratio result also indicates that toddlers with bad parenting have an 8.4-fold increased risk of stunting than toddlers with poor parenting. Have effective parenting. Using a p -value of 0.021, Masyudi and authors determined that parenting correlates

with the occurrence of stunting. In addition, Masyudi and authors found that toddlers with inadequate parental care were 3,6 times more likely to have low nutritional status (Masyudi *et al.*, 2019). This is further supported by the findings of Ramadhani and authors who report that parenting is one of the risk factors for stunting with an OR value of 5.57, indicating that toddlers with poor parenting have a 5.57-fold increased risk of stunting compared to toddlers with good parenting (Ramadhani *et al.*, 2019).

Conclusion

According to the study's findings, household food insecurity and inadequate parenting increase the risk of stunting in children under the age of five.

References

- Adelina, F. A., L. Widajanti, dan S. A. Nugraheni. 2018. Relationship between mother's nutrition knowledge, levels of nutrition consumption, family food security status with stunting underfives). *Jurnal Kesehatan Masyarakat*. **6**(5): 361-369
- Amalia dan Mahmudiono. 2017. Association between household income, total expenditure, proportion of food expenditure and food security of small holder farmers (study in Nogosari village, Rambipuji sub-district, Jember district). *Amerta Nutrition*. **1**(2): 143-152
<https://doi.org/10.20473/amnt.v1i2.2017.143-152>
- Dinas kesehatan kabupaten Pamekasan. 2019. Data on August 2019 TB/U weighing results in lokus stunting village. Pamekasan: Pamekasan district health office
- Fadzila, D. N dan E.P. Tertiyus. 2019. Household food security of stunted children aged 6-23 months in Wilangan, Nganjuk district. *Amerta Nutrition*. **3**(1): 18-23
<https://doi.org/10.20473/amnt.v3i1.2019.18-23>
- Fentiana, N., D. Ginting, dan Zuhairiah. 2019. Food security for toddlers 0-59 months in stunting priority villages. *Jurnal Kesehatan*. **12**(1): 24-29.
<https://doi.org/10.24252/kesehatan.v12i1.7847>
- Hendrayati dan R. Asbar. 2018. Determinant factors of stunting in toddlers age 12 to 60 months. *Media Gizi Pangan*. **25** (1): 69-76.
<https://doi.org/10.32382/mgp.v25i1.64>
- Juliani, U. 2018. Relation of parenting style with stunting prevalence at PAUD Al-Fitrah, Sei Rampah subdistrict, Serdang Bedagai district 2018. Thesis. Medan: Health Polytechnic, Republic of Indonesia Ministry of Health Medan
- Kementerian Kesehatan Republik Indonesia (Republic of Indonesia Ministry of Health). 2018. Laporan nasional

- Risikesdas 2018. Jakarta: Republic of Indonesia Ministry of Health
- Kullu, V. M., Yasnani, dan H. Lestari. 2018. Factors associated with stunting incidents in toddlers aged 24-59 months in Wawatu village, North Moramo district, South Konawe regency in 2017. *Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat*. **3**(2): 1-11
- Laili, A. N., Al Munawir, dan F. Wahyuningtiyas. 2018. Food intake and food security as determinants of stunting children under five years. *Health Notions*. **2**(1): 25-32
- Masyudi, Mulyana, dan T. M. Rafsanjani. 2019. Impact of parenting and weaning age on the nutritional status of toddler with WFA index. *Aceh Nutrition Journal*. **2**(4): 111-116. <https://doi.org/10.30867/action.v4i2.174>
- Mugianti, S., A. Mulyadi., A. K. Anam, dan Z. L. N. 2018. The description of stunting's causal factors in children aged 25-60 months in kecamatan Sukorejo Blitar city. *Jurnal Ners dan Kebidanan*. **5** (3): 268-278. <https://doi.org/10.26699/jnk.v5i3.ART.p268-278>
- Ni'mah, C dan L. Muniroh. 2015. Correlation between education level, knowledge level, and parenting style with wasting and stunting in toddlers of poor families. *Media Gizi Indonesia*. **10**(1): 84-90
- Ramadhani, F. N., B. I. Kandarina, dan I. M. A Gunawan. 2019. Parenting and feeding patters as risk factors for stunting toddlers aged 6-24 months Papuans and Non-Papuans. *Berita Kedokteran Masyarakat*. **35**(5): 175-183
- Safitri, A. M., D. R. Pangestuti, dan R. Arruben. 2017. Relationships on family food security and patterns consumption with the nutritional status of under-free farmers. *Jurnal Kesehatan Masyarakat*. **5**(3): 120-128.
- Safitri, C. A dan T. S. Nindya. 2017. Relations food security and diarrheal disease to stunting in under-five children age 13-48 months at Manyar Sabrangan, Mulyorejo sub-district, Surabaya. *Amerta Nutrition*. **1** (2): 52-61. <https://doi.org/10.20473/amnt.v1i2.2017.52-61>
- Septisya, T. M., S. Rompas, dan Y. B. Bataha. 2017. Hubungan pola asuh dengan status gizi pada anak di taman kanak-kanak kecamatan pulutan kabupaten Talaud. *Jurnal Keperawatan*. **5** (2): 1-8
- Trihono., Atmarita., D. H. Tjandrarini., A. Irawati., N. H. Utami., T. Tejayanti, dan I. Nurlinawati. 2015. Stunting in Indonesia, problems and solutions. Jakarta: Badan Penelitian dan Pengembangan Kesehatan
- United Nations Children's Fund (UNICEF). 2013. Improving child nutrition. New York: UNICEF. Available at https://data.unicef.org/wp-content/uploads/2015/12/NutritionReport_April2013_Final_29.pdf
- Utami, N. H dan D. Sisca. 2015. Household food security is associated with nutritional status of children under two years old in Kebon Kalapa, Central Bogor subdistrict, West Java. *Gizi Indonesia*. **38**(2): 105-114. <https://doi.org/10.36457/gizindo.v38i2.184>
- Widyaningsih, N. N., Kusnandar, dan S. Anantanyu. 2018. Food diversity, parenting and stunting in toddlers ages 24-59 months. *Jurnal Gizi Indonesia*. **7**(1): 22- 29. <https://doi.org/10.14710/jgi.7.1.22-29>
- World Health Organization. 2010. Nutrition Landscape Information System. Geneva: WHO
- World Health Organization. 2019. World Health Statistics data visualizations dashboard. <https://apps.who.int/gho/data/node.sdg.2-2-viz-1?lang=en>
- Yuniarti, S. 2015. Neonatal growth and development care, infant toddlers, and pre-school children). Bandung: Refika Aditama