

ORIGINAL ARTICLE

Maternal Factors and Stunting among Children Age 0-24 Months in Banten Province Indonesia

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ABSTRACT

Introduction: Pandeglang regency in Banten province is one of the top 100 counties noted for stunting issue. In 2018 stunting prevalence was recorded to be 8,303 children (38.5%). Indonesia was in the fifth rank in the world with stunting prevalence of 37.2%. This study aimed to determine the correlation between maternal factors and stunting in children aged 0-24 months in Koroncong Village. **Methods:** This study used cross sectional method and total sampling technique. Total samples in this study were mother with children aged 0-24 months in Koroncong Village, Koroncong Sub-County, Pandeglang County which passed inclusion and exclusion requirements as 63 respondents. **Results:** Data analyses showed stunting among 19 respondents (30%) in the population. The percentage of stunting was significant among mothers with >2 children and 5.8 times higher than mothers with <2 children. **Conclusion:** This finding shows that the percentage of stunting cases is high and requires more aggressive promotion and prevention.

Keywords: Maternal Factors, Stunting, Children Age 0-24 months

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INTRODUCTION

The term of stunted and severely stunted is based on nutritional status using Body Length Index on age or Body Height on age. By using WHO-MGRS (Multicenter Growth Reference Study) standards published in 2005 with body length/ height according to age as parameters, children aged 0-24 months with score of -2SD are classified as stunted and classified into severely stunted if the score is less than -3SD(1). According to the 2007 Health Research Association, stunting among children aged 0-59 months in Indonesia were 36.8%. The prevalence of stunting slightly decreased to 35.6% in 2010 to 37.2% in 2013 (2). In 2018 it decreased to 30.8% (3). The Nutritional Status Survey in 2015 showed that stunting among children aged 0-59 months in Indonesia were 29%(4). The number declined in 2016 to 27.5% but the prevalence of child stunting again increased to 29.6% in 2017 (4).

Stunting is the failure to thrive in children aged 0-59

months with chronic malnourishment, especially in the first thousand days of life (5). Stunting affects brain growth and development. Stunted children also have a higher risk of chronic disease in adulthood. In fact, stunting and malnutrition were expected to contribute to the reduction of 2-3% of Gross Domestic Product (GDP) each year (5).

It was found that 13 million children under five were stunted and 4.5 million wasted in the Pacific and East Asia in 2018(6). The problem starts within the first 6 months of their life, only 2 out of 5 children were exclusively breastfed(6). Three out of five children aged 6-23 months do not eat foods from the minimum number of food groups that can support rapid growth of their bodies and brains(6). According to East Asia and Pacific (EAP) 2018, Indonesia ranked second in the prevalence of children under 5 who did not grow well (stunting, wasting or overweight) (6). One in two children under 5 suffered hidden hunger due to lack of vitamins and other essential nutrients (7).

Triple burden of malnutrition harms children, adolescents and women. Malnutrition and hidden hunger in pregnant women and children contribute to stunting and underweight in children (7). The cause of

stunting is not solely due to deficiency in children but also due to maternal factors. Darteh et al., stated three major factors causing stunting include, distal factors such as socioeconomic; intermediate factors such as environmental and maternal factors; and proximal factors related to children (8), (9). The study among the toddlers also shows dependency on economic status of family (10). Hemoglobinopathies and maternal undernutrition have been found also to be closely related to the development of low birth weight (11).

Pandeglang County is one of 100 most priorities counties in handling stunting. In 2017 stunting prevalence was recorded to be 38.57% or as many 46.775 children(1). The interventions are focused on certain Koroncong village. This study was conducted in Koroncong Village, Koroncong Sub-County, Pandeglang County, Banten Province. Koroncong Village was one of six targeted villages in Pandeglang County to solve stunting issue. Health Ministry decided six Sub-County in Pandeglang County as locus in handling stunting issue which is caused by poor nutrients intake: Koroncong, Saketi, Banjar, Sindangresmi, Cipeucang and Kadunghejo(12). Interview with health workers at the Community Health Center in Koroncong Village found that 46 children were stunted in 2017, and 37 children were stunted in 2018 with 14 children aged 0-24 months in Koroncong Village. There is no recent research on the nutritional status of children aged 0-24 months in Koroncong Village, Pandeglang Regency, because the main purpose of this study is to describe the nutritional status of children aged 0-24 months in Koroncong Village, Pandeglang Regency in the period September 2019.

MATERIALS AND METHODS

Study population

This research was located in Koroncong Village, Pandeglang Regency, Banten Province in September 2019. Koroncong Village has three Integrated Service Post locations that have data on all mothers who have children aged 0-24 months, totaling to 63 respondents. Previously trained health workers from the Community Health Centers, cadres, village midwives and health promoters in the area assisted in collecting door-to-door data.

Data collection

Respondent data based on mother’s demographic characteristics (age, education, occupation and number of children) and characteristics of children (age) were collected using a questionnaire, while the height/length of children were directly measured by physical examination. Measurement of the child’s height was measured in centimeters according to the standards of the Ministry of Health of the Republic of Indonesia. The measuring instrument used was RGZ-20A microtoise Gea baby scale, baby GEA WBC stam. Ethical approval for this study was obtained from the Research Ethic

Committe YARSI University (Ref No: 038/KEP-UY/BIA/VIII/2019).

Statistical analysis

This study was an observational study with a quantitative approach to the cross-sectional design. The data were processed with the editing, coding, processing, and cleaning programs SPSS Data Analysis which includes univariate and bivariate analysis using the chi-square test.

RESULTS

In this study it was found that there were 19 cases of stunting (30%) among 63 children aged 0-24 months (Table I). The percentage of mothers with stunting was higher in the age range of 26-45 years (Table II). Mothers with lower educational levels have more stunting children (13 cases), and mothers with higher educational levels also have stunted children (6 cases). Cases of stunting among housewives was found to be quite high, there were 16 of 19 cases of stunting. Significantly higher percentage of mothers who have more than 2 children have stunted children (p-value 0.003). Odd ratio found that mothers with >2 children were 5.8 times higher risk of having stunting children compared to mothers who had <2 children (Table II).

Table 1. Distribution of Stunting Classifications for Children Age 0-24 months in Koroncong Village (N=63)

Stunting Classifications	N	%
Stunting	19	30
Not Stunting	44	70
Total	63	100

Table II: Characteristic of Maternal on Stunting Classifications in Koroncong Village (N=63)

Variables	Stunting	Not Stunting	P-value	OR
	N (%)	N (%)		
Age				
17 - 25	7 (37%)	16 (36%)	0.971	1.021
26 - 45	12 (63%)	28 (64%)		
Educational Level				
Elementary	13 (68%)	23 (52%)	0.235	1.978
High School	6 (32%)	21 (48%)		
Occupation				
Housewife	16 (84%)	35 (80%)	1.000	1.371
Working	3 (16%)	9 (20%)		
Number Of Children				
> 2	10 (53%)	7 (16%)	0.003	5.873
≤ 2	9 (47%)	37 (84%)		

DISCUSSION

This study found that the percentage of stunting in this population is quite large at 30%. Although this finding is not significant statistically but 12 of the 19 respondents who have stunting were children aged 0-24 with months mothers with an age range of 26-45 years. These findings align with Agustiningrum (13) who reported stunting in mothers with an age range above 25 years was found among 70 respondents. Mother's age is very important for psychological balance during pregnancy which also affects the child's nutritional patterns. In physiological factors, maternal age is very important for fetal growth, so adequate absorbable nutrients intake will bring positive outcomes (14).

Researchers found 13 (68%) stunted children had mothers with elementary school level education and showed 1.9 times higher risk of having stunted children. It is similar to Rahayu and Khairiyati research that reported women who had low levels of education have 5.1 times more chances than women who have high educational background to have stunted children (15). Researchers found that the number of stunted children was significantly higher in mothers who had more than two children (p-value 0.003), because mothers shared attention with their children and had a 5.8 times higher risk of having stunted children than mothers who had less than two children. This is related to household management for nutritional needs and food portions. When the number of children is more than two then it affects the availability of family food, causing food intake to be inadequate. As a result, these children are more prone to malnutrition that causes stunting. Along with this there is lack of affection and attention because mothers prioritize care for younger children. Based on interviews found that most children that were found to be stunted were in case of housewives (84%). The mother also has an excessive burden, besides taking care of more than two children, she also must take care of the household. Stunted children among housewives are 1.37 times higher than working mothers.

It was also found that if maternal education was low, then the chances of stunted children was 68%. While changes in attitudes and behavior are greatly influenced by the level of education. Mutia (2016) stated that mothers with low education give less attention towards choosing of food for their children and less in monitoring children's height, so mothers are unaware of the growth and development of their children (16).

Another factor that contributes to stunting is the time gap between pregnancies. Prasetyo (2008) in Mutia (2016) stated that intervals between pregnancies have an indirect contribution to the incidence of stunting because a child's nutritional intake pattern with a two-year interval between siblings creates inappropriate eating habits (16). This is similar to Santrock (2002) in

Mutia (2016) which study states that intervals between pregnancies affect nutritional patterns and eating habits among children. An adequate time gap between pregnancies will give the mother to recovery completely after giving birth, then she can provide good care for her children including adequate eating habits (16).

For future studies, it is recommended to include other variables such as time gap between pregnancies and others paternal factors must be studied to analyze other factors that contribute to stunting incidence.

CONCLUSION

Statistical analysis showed that maternal age, educational background and occupational variables were not significantly correlated, but important clinical findings revealed that children aged 0-24 months reported stunting among 19 children (30%) in the study population. Researchers found that the number of children with >2 offspring in the family is significant related (p-value 0.003) to stunting. Further interventions are required to handle stunting problem of these 19 respondents of children aged 0-24 months. Health educational program to improve the parental awareness of nutritional status of their children along with alertness of the impact on growth and development of children will further eliminate the stunting incidence.

ACKNOWLEDGEMENTS

The authors are very grateful to all participants in this study. The authors would like to thank the local Community Health Center staff for their assistance in recruiting research assistants and collecting data on subjects. Local health office that has given permission for research.

REFERENCES

1. Kemiskinan TN. 100 kabupaten/kota prioritas untuk intervensi anak kerdil (stunting). Jakarta: Tim Nasional Percepatan Penanggulangan Kemiskinan. 2017.
2. Dasar RK. Penyajian Pokok-Pokok Hasil Riset Kesehatan Dasar 2013.
3. Kementerian Kesehatan RI. Hasil Utama RISKESDAS 2018. Development. 2018;
4. Kurniasih N. Situasi Balita Pendek (Stunting) di Indonesia. In: Sakti ES, editor. Buletin Jendela Data dan Informasi Kesehatan. Pusat Data Dan Informasi Kementerian Kesehatan RI; 2018. p. 1-56.
5. Kementerian PPN/ Bappenas. Pedoman Pelaksanaan Intervensi Penurunan Stunting Terintegrasi Di Kabupaten/ Kota. Rencana Aksi Nasional dalam Rangka Penurunan Stunting: Rembuk Stunting 1-51 (2018) Available from: <https://www.bappenas.go.id>
6. Keeley B, Little C, Zuehlke E. The State of the

- World's Children 2019: Children, Food and Nutrition--Growing Well in a Changing World. UNICEF. 2019 Oct.
7. UNICEF. Children, food and nutrition: The state of the world children 2019 [Internet]. 2019. 258 p. Available from: <https://www.unicef.org/media/63016/file/SOWC-2019.pdf>
 8. Darteh EKM, Acquah E, Kumi-Kyereme A. Correlates of stunting among children in Ghana. *BMC Public Health*. 2014;14(1).
 9. García Cruz LM, González Azpeitia G, Reyes Suárez D, Santana Rodríguez A, Loro Ferrer JF, Serra-Majem L. Factors associated with stunting among children aged 0 to 59 months from the central region of Mozambique. *Nutrients*. 2017;9(5):1–16.
 10. Pangaribuan IK, Simanullang E, Poddar S. The analyze toddler growth and development according to family's economic status in Village Limau Manis, Districts Tanjung Morawa. *Enfermería Clínica*. 2020 Jun 1;30:92-5.
 11. De M, Halder A, Podder S, Sen R, Chakrabarty S, Sengupta B, Chakraborty T, Das U, Talukder G. Anemia and hemoglobinopathies in tribal population of Eastern and North-eastern India. *Hematology*. 2006 Oct 1;11(5-6):371-3.
 12. Kosasih E. Enam Kecamatan di Pandeglang Masuk Lokus Stunting. *BantenHits.com* [Internet]. 2018 Sep 26; Available from: <https://bantenhits.com/2018/09/26/enam-kecamatan-di-pandeglang-masuk-lokus-stunting/>
 13. Agustiningrum T, Rokhanawati D. Hubungan Karakteristik Ibu Dengan Kejadian Stunting Pada Balita Usia 24-59 Bulan Di Wilayah Kerja Puskesmas Wonosari I. *Univ 'Aisyiyah Yogyakarta*. 2016;1.
 14. Hayward CE, Greenwood SL, Sibley CP, Baker PN, Challis JR, Jones RL. Effect of maternal age and growth on placental nutrient transport: potential mechanisms for teenagers' predisposition to small-for-gestational-age birth?. *American Journal of Physiology-Endocrinology and Metabolism*. 2012 Jan 15;302(2):E233-42.
 15. Rahayu A, Khairiyati L. Risiko pendidikan ibu terhadap kejadian stunting pada anak 6-23 bulan. *Nutrition and Food Research*. 2014 Dec;37(2):129-36.
 16. Ayuningtias M. Hubungan Karakteristik Keluarga Dengan Kejadian Stunting Pada Anak Baru Sekolah [Internet]. *Sekolah Tinggi Ilmu Kesehatan Ngudi Waluyo Ungaran*; 2016. Available from: <https://docplayer.info/36832926-Hubungan-karakteristik-keluarga-dengan-kejadian-stunting-pada-anak-baru-sekolah-artikel-ilmiah.html>