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RISK FACTORS STUNTING INCIDENCE IN CHILDREN AGED 6-36 MONTHS IN JEMBER REGENCY

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ABSTRACT

Background: Period toddlers are vulnerable malnourished. One of the nutritional problems that are often encountered in toddlers is stunting. Stunting in children under five is an indicator of nutritional status that can give you an idea disruption overall socio-economic situation in the past. Based on the results Riskesdas 2013 the prevalence of stunting in children under five years of 37.2% Indonesia. There are various factors related to the occurrence of stunting. This study aims to know risk factors associated with the incidence of stunting among children aged 6-36 months in the district of Jember. **Methods:** This research is an observational research with quantitative methods and using cross-sectional design. The research sample was 120 toddlers in Kalisat districts of Jember regency that met the inclusion criteria. The data obtained and in the bivariate analysis using chi-square then continued right with multivariate analysis by using logistic regression. **Results:** The results showed that stunting children come from families who have parents with lower education and income family, parenting and poor diet, and not given breast milk exclusive, never suffered an infection, have parents were classified as short. **Conclusions:** The most dominant risk factors on the incidence of stunting that family income and father's height.

Keywords: stunting, family income, father's height.

INTRODUCTION

Childhood period is an important period in growth because at this time the basic growth that will influence and determine the development of the next child (golden age). One of the nutritional problems that are often encountered in toddlers is stunting that adversely affect the quality of life of children in achieving optimal growth according to their genetic potential (WHO, 2010). Stunting that occurs in childhood is a risk factor for increased mortality, cognitive abilities and low motor development and unbalanced body functions (Allen & Gillespie, 2010). Stunting is one of the nutritional problems that adversely affect the quality of life of children in achieving optimal growth and development appropriate genetic potential. Stunting in toddlers is an indicator of nutritional status that can give you an idea disruption overall socio-economic situation in the past. Stunting in children in an area or areas of poor starts since about six months of age and occurs primarily in two to three years early in life and continues until the age of 18 years (Sudiman, 2008). Based on the results Riskesdas 2013, the prevalence of stunting in toddlers Indonesia amounted to 37.2%, which means an increase compared to the year 2010 and 2007, which amounted to 35.6% and 36.8%. In 2010 stunting prevalence decreased by 1.2%, originally

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at 36.8% in 2007. However, by the year stunting prevalence has increased by 1.6% when compared to 2010. In 2013 the prevalence of stunting 18.0% severely stunted and 19.2% stunted (Kemenkes RI, 2013). Data of Jember District Health Office stated that until In December 2012, the health center health center Kalisat a number of toddlers with the highest stunting. There are 4.2% of children aged 25-59 months in the working area of Kalisat Puskesmas having to stunting.

There are various factors related to the occurrence of stunting. Sosial family economy: education, employment, and income is a risk factor stunting in children (Ramli et al., 2009). Maternal breastfeeding and complementary feeding of early milk are correlated with stunting in children (Adair & Guilkey, 1997). The high prevalence of stunting also is caused by repeated exposure to a pandemic or other events that may disadvantageous health (Sudiman, 2008). The child's height has a significant relationship with the mother's height (Hizni et al., 2010). There is a relationship between parenting with the incidence of stunting in toddlers (Asrar et al., 2009). Considering the impact of stunting that is very detrimental for the future, it is necessary to know the risk factors associated with the incidence of stunting in Jember regency.

METHODS

This study was an analytic observational research with cross sectional design using quantitative method and implemented from May until August 2014 in Kalisat sub-district, Jember regency. The population of this study was all toddlers, the study sample was determined based on the inclusion criteria of children aged 6-36 months, have surviving parent, mother of child (respondent), while for exclusion criteria: subject suffer from congenital/sequence) due to seizures/brain inflammation or birth history with complications, premature birth, and LBW. The sample size was determined by using the difference formula of two population proportions with a confidence level (Z1-α) of 95%, test strength (Z1-β) of 90%. how the sampling is done by using simple random sampling technique. The sample size is 120 people.

The data collected consisted of the characteristics of the subjects (age, sex, history of infectious diseases, parental education, parent occupation, number of family members, income, parenting, diet, breastfeeding and height of parent body). Primary data in this study were obtained from interviews using a questionnaire. Secondary data in this research is the incidence of stunting in Jember obtained from the health department and health centers Kalisat Jember. The analytical method used is univariate analysis to know the description of frequency distribution characteristic of research subject, bivariate analysis that is chi-square to know the variables related with stunting event (p value <0,05), multivariate analysis to know variable which is determinant to stunting event. The variables of bivariate analysis with statistically significant relationship to stunting event with p value <0.25 were then analyzed further by using logistic regression. Determination of logistic regression model is done gradually. The appropriate variable for the model is a variable that has a value of p <0.05, so that a variable that does not meet the criterion value is removed from the model.

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RESULTS

Table 1. Distribution Characteristics of Subjects

Characteristics	n	%
Age of toddlers (months)		
6 - 24	66	55
25 - 36	54	45
Gender		
Man	48	40
Women	72	60
Father's education		
No school	4	3.3
SD	57	47.5
SMP	45	37.5
SMA	12	10
College	2	1.7
Mother's education		
No school	7	5.8
SD	72	60
SMP	32	26.7
SMA	8	6.7
College	1	0.8
Father's occupation		
Does not work	2	1.7
Farmers	6 1	50.8
Merchants	49	40.9
Private employees	4	3.3
PNS / TNI / Polri	4	3.3
Mother's job		
Not working (housewife)	75	62.5
Farmers	30	25
Merchants	12	10
Private employees	1	0.8
PNS / TNI / Polri	2	1.7
Number of family members		
> 4 people	40	33.3
≤ 4 people	80	66.7
Number of children		
<2	50	41.7
≥ 2	70	58.3

In the age group of toddlers are categorized at the age of 6-24 months and 25-36 months. The results of this study indicate that 55% of subjects aged 6-24 months and 45% aged 25-36 months, and as many as 40% of which are male sex while women as much as 60%. The education of both parents (father and mother) mostly graduated from elementary school (SD) with percentage of each as much as 47,5% and 60%. The work of both parents is generally as a farmer that is 50.8% and 25%. Number of family members 66.7% less than the same as four and as many as 58.3% of respondents had children less than equal to two (Table 1).

Table 2. Distribution of Stunting Events by Age and Sex of Toddlers

Characteristics of Toddlers	*Stunting*		Non *Stunting*	
	n	%	n	%
Age Group (Month)				
6 - 24	28	48.3	36	61.3
25 - 36	30	51.7	26	38.7
Gender				
Man	23	39.7	25	40.3
Women	35	60.3	37	59.7

This study shows that 48.3% of toddler suffer stunting. Based on Table 2 it can be seen that the age group of children under five stunting is the most in age group 25-36 month that is equal to 51,7% (30 toddlers) and percentage of girl who suffers stunting tends to be more than boys that are 60.3% (35 toddlers).

The socioeconomic characteristics of the families in this study include parent education, parent employment status, family income, and number of family members. Parental education statistically has a significant relationship with the occurrence of stunting (p-value <0.05).

The level education of parents of children under five stunting most is low education (not school, elementary, junior high). The number of parents of toddlers with low educational attainment was 79.3% (46 toddler's fathers) and 86.2% (50 toddler's mothers). Parents' work is not related to stunting events (p-value> 0.05). Based on the status of work, most stunting fathers are 98.3% (57 people), while for stunting employment the mother of stunting child is not working with the percentage of 70,7% (41 people). Stunting family income of stunting children has low

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monthly income (below the MSE of Jember Regency). The percentage of family income is 89.3% (52 people). Family income is known to be associated with stunting events. The number of family members of stunting children is small family category (≤ 4 people), that is 72,4% (42 toddlers). Family income is unrelated to stunting events.

Table 3. Distribution of Subject study Characteristics

Variables	Stunting		Non Stunting		*p value*
	n	%	n	%	
Father's education					
Low	46	79.3	60	96.7	0.011
High	12	20.7	2	3.3	*
Mother's education					
Low	50	86.2	61	98.4	0.003
High	8	13.8	1	1.6	*
Father's occupation					
Does not work	1	1.7	1	1.6	0.508
Work	57	98.3	61	98.4	
Mother's job					
Work	17	29.3	28	45.2	0.422
Does not work	41	70.7	34	54.8	
Family income					
Low	52	89.7	40	64.5	0.001
Enough	6	10.3	22	35.5	*
Number of family members					
> 4 people	16	27.6	24	38.7	0.811
≤ 4 people	42	72.4	38	61.3	
Parenting					
Less	40	68.9	22	35.4	0.002
Good	18	31.1	40	64.6	*
Dietary habit					
Less	47	81.1	46	74.2	0.229
Good	11	18.9	16	25.8	
Breastfeeding					
Not exclusive	51	87.9	14	22.6	0.021
Exclusive	7	12.1	48	77.4	*
Infection					
Ever	49	84.4	30	48.4	0.002
Never	9	18.8	32	51.6	*
Height of father					
<- 2 SD	45	77.6	21	33.9	0.001
≥ - 2 SD	13	22.4	41	66.1	*
Mother's height					
<- 2 SD	48	82.8	17	27.4	0.003
≥ - 2 SD	10	17.2	45	72.6	*

Note: * = significant p *value* <0.05

Parenting has a relationship with the incidence of stunting (p = 0.002). This suggests that toddler who get poor parenting are at risk of suffering greater stunting than well-nurtured children. Stunting among children under 81.1% (47 toddlers) have diets lacking. A diet is not associated with the incidence stunting (p-value = 0.229).

The results showed that 87.9% (51 toddler stunting) did not get exclusive breastfeeding. Exclusive breastfeeding is associated with stunting events (p-value = 0.021). Infection is known to be associated with stunting events (p-value = 0.002). Most (84.4%) of 49 toddlers had an infection. Distribution of subject study characteristics as presented in Table 3.

DISCUSSION

In this study, prevalence highest stunting in children aged 25-36 months at 51.7%. Prevalence *stunting* showed an increase in the age of 2-3 years (Adair & Guilkey, 1997). At the age of 2-3 years the children need a very large nutritional intake in the long term or long term compared with the next age because at that age peak or fastest peak growth rate (Sudiman, 2008). The period of major deficit growth lasts for ages 0-3 years and height can't be recovered with proportional growth according to age (Manary & Solomon, 2009). The results of this study indicate that stunting prevalence in girls is greater than that of men (60.3% and 39.7%).

Socio-economic relationship with stunting incidence

Based on the survey results revealed that the majority of fathers and mothers of toddlers are stunted in a low educational

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level (79.3% and 86.2%). This is because the community is still developing the idea that education is important and related to the support of the family to pursue higher education is still not optimal. Other than that caused by average family income in the lower categories so that most of the revenue obtained is used to meet day-to-day life. The results showed that there is a relationship between education and the incidence of stunting. Education parents have a relationship with the incidence of stunting (Adair & Guilkey, 1997). Fathers with higher education have a greater chance of getting a better job so as to meet the needs of their families (Semba *et al*., 2008).

Job status can be used as the background of attitude determination on giving parenting. The results showed that between the status of work and the incidence of stunting in children under five did not have a significant relationship. In this study, parents who do not work have short children more than the parents who work. This indicates that the employment status is not directly related to the nutritional status of children under five. There is no significant correlation between the status of work and the nutritional status of children under five (Linda & Hamal, 2011). This indicates that the nutrition status of toddler ais caused not only by the status of the work, but there are many factors that can lead to problems such as dietary intake of nutritional status and history of infectious disease.

Family income is an important factor in providing adequate parenting and can ensure the needs of children in their growth. This study shows the average yield on a child stunting family income is lower than a normal child's family income. Status economy significantly associated with a stunt (Taguri et al., 2009). Status low family economy in North Maluku significantly associated with the incidence of stunting and severe stunting in children aged 0-59 months (Ramli et al., 2009). This study reveals that family income is an important factor in providing adequate childcare and can ensure the needs of children in their growth. The lower the income the incidence of stunting tends to be higher.

Children who grow up in a poor family are most vulnerable to malnutrition because if a large family grows then food for every child is reduced and many parents do not realize that very young child need more food than older ones (Suhardjo, 2003). Based on the study found that the number of family members is not a factor that can affect the occurrence of stunting in toddler (p-value = 0.811). The number of household members is one of the essential elements in preventing short or chronic malnutrition (Henningham & McGregor, 2009).

Parenting relationship with stunting incidence

The results of the analysis in this study indicate that the pattern of parenting with the incidence of stunting in children under five have a significant relationship. The low level of care shown in this study is related to the low education of parents, especially mothers, thus affecting the pattern of child care. The better the parenting pattern the better the nutritional status. The pattern of parenting of children under five relates to patterns of exclusive breastfeeding, colostrum, pre-lacteal foods, complementary foods of breast milk and breast milk substitutes (Masithah et

al., 2005). Lack of parenting occurs early in life (at less than two years old) such as not getting a colostrum that acts as an antibody, not getting exclusive breastfeeding, being given early breastfeeding, and getting inadequate of complementary foods of breast milk in both quantity and quality, in addition to these there are still taboos on certain foods, such as toddlers should not eat fish and fatty foods, This incident has a negative impact on the child's growth (achieved size). Good parenting is a very important factor to ensure optimal child growth.

Relationship to diet with stunting incidence

Diet between children stunting with normal children is almost the same. Most of the stunting pattern of children under five is included in the category of less (81.1%). In bivariable test results in this study showed the results that diet has no relationship to the occurrence of stunting in children under five. It is seen from p-value value> α (0,05) that is 0,229. This is caused by the existence of other factors that affect nutritional status of children under five. Factors such as infectious and genetic diseases of the elderly. Similarly, previous research suggests that energy intake is not significantly related to stunting (Assis et al., 2004). Food intake is not the only cause of stunting, but the cause is multifactorial. Factors such as poverty, population density and the possibility of food contamination and infectious disease can have an impact on the health status of children. The various factors that affect energy adequacy are weight, height, growth and development (age), gender, energy reserves for children and adolescents, and thermic effect of food (TEF) (Hardiansyah et al., 2012).

Relationship of exclusive breastfeeding with stunting incidence

This study shows the relationship between exclusive breastfeeding and stunting events. Exclusive breastfeeding was one of the factors associated with a decrease in stunting incidence in children over 4 years in Peru (Lechtig, 2009). At the time of the study several newborns were not breastfed but bottled first with the reason that the milk was not yet out. In addition, when breastfeeding is released slightly or not smoothly mothers immediately replace breast milk with bottle feeding. Giving bottle milk into the baby's body may not be able to digest the baby well, especially if the way of making bottle milk does not fit the dosage and does not maintain the cleanliness of milk bottles it will cause diarrhea in infants so growth will be disrupted.

The relationship of infectious diseases with stunting incidence

The results of the analysis in this study indicate there is a relationship between infectious diseases with stunting events in toddler infection can interfere with linear growth by first affecting the nutritional status of children under five. This happens because infectious diseases can decrease food intake, interfere with nutrient absorption, lead to direct loss of nutrients, increase metabolic demand (Supariasa et al., 2012).

Parental relationship height with stunting incidence

Genetic factors include innate and normal pathological factors that can affect

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a person's growth and development (Supariasa et al., 2012). The results show that the factor of parental height is a factor affecting the occurrence of stunting in children under five. This study shows that both parents whose height is relatively short tend to have stunting children. Based on data obtained most of the height of children under five associated with parental height. Short moms are associated with stunting in children. As has been done in Bangladesh that shows the result that found child stunting in families who have mothers with height <148 cm (Rayhan & Khan, 2006). A study in Bogota Columbia concluded that one of the contributing factors to stunting in children was maternal height (Deker et al., 2010). Short-lived elderly people due to pathological conditions (such as growth hormone deficiency) had a gene in chromosomes carrying short traits that increased the chances of children inheriting the gene and grow into stunting. However, if the parent is short due to nutritional deficiencies or illness, the child may grow at normal height as long as the child is not exposed to other risk factors and the environmental conditions of support and nutrient intake of toddlers can be met well (Nasikhah, 2012).

Determinants of stunting incidence

The result of multivariate analysis shows that family income and height of father is the most determining risk factor for stunting incidence in toddler. Limited family income is a determinant factor for stunting incidence in school children (Senbanjo, 2011). Parental height is one of the major risk factors for stunting in newly admitted children (Amigo et al., 2001).

Based on the analysis of research results, it is necessary to increase family income related to the causes and impacts of stunting in toddler, among others through family assistance program in order to optimize the existing resources to meet the nutritional needs of the family, by utilizing the local yard and foodstuff, and need to conduct health education activities by providing information related to good parenting, good diet, and the importance of exclusive breastfeeding.

CONCLUSION

Most of the stunting children come from families with parents with low family education and income, poor parenting and eating patterns, and no exclusive breastfeeding, have had infections, have a short fathers / mothers. The most dominant risk factors for stunting events are family income and height of father.

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