

CORRELATION BETWEEN LOW BIRTH WEIGHT, EXCLUSIVE BREASTFEEDING HISTORY AND BODY LENGTH AT BIRTH TO THE INCIDENCE OF *STUNTING* IN 7-23 MONTH CHILDREN AT PANONGAN HEALTH CENTER, TANGERANG REGENCY

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ABSTRACT

Title : Correlation Between Low Birth Weight, Exclusive Breastfeeding History and Body Length at Birth to The Incidence of *Stunting* in 7-23 Month Children at Panongan Health Center, Tangerang Regency.

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Study Program : Nutrition

Backgroud : The *stunting* prevalence in Indonesia in 2013 was 37.5%, Panongan Health Center in Tangerang Regency had a *stunting* prevalence of less than the national average of 8.1% (Puskesmas, 2017).

Objective : Determine the correlation between history of low birth weight , exclusive breastfeeding history and body length at birth to the incidence of *stunting* in 7-23 months children at Panongan Health Center, Tangerang Regency.

Methods : This type of research is conducted by observational approaches (observations) and interviews. The study used a *cross sectional* design. The sample of this study amounted to 50 children aged 7-23 months. Statistical testing with *chi-square* test.

Result : The characteristics of respondents were male sex (54%) and women (46%), incidence of *stunting* (22%), history of low birth weight (22%), history of exclusive breastfeeding (30%) and body length at birth (22%). The results of the statistical test of the relationship between low birth weight history ($p = 0,0001$) and body length at birth ($p = 0,0001$) showed a significant relationship ($p < 0,05$) to the incidence of *stunting*, while the exclusive breastfeeding history ($p = 0.736$) showed no significant relationship ($p < 0.05$) on the incidence of *stunting*.

Conclusion : There was a correlation between low birth weight history, body length at birth to the incidence of *stunting* in children aged 7-23 months, and there was no relationship between the history of exclusive breastfeeding for the incidence of *stunting* in children aged 7-23 months in Panongan Health Center, Tangerang Regency.

Keywords : *Stunting* incidence, history of low birth weight, body length at birth and history of exclusive breastfeeding.

INTRODUCTION

Stunting (short) is a condition of linear growth disorders due to lack of chronic intake. Toddlers have stunting or short status if the results of measurements of height according to age show numbers below minus two standard deviations (Nasikhah, 2012). Globally, around one in four toddlers experience stunting (UNICEF, 2013). Indonesia is ranked fifth in the world developing countries which has the highest prevalence of stunting toddlers (UNICEF, 2009). Basic health research (2013) reports that over the past three years (2010-2013) there was an increase in the prevalence of stunting for toddlers from 35.6% to 37.2% and 18.5% of them including severe stunting or very short categories.

Stunting that occurs in childhood is a risk factor for increased mortality, cognitive functioning, and low motor development and unbalanced bodily functions (Allen & Gillespie, 2001).

The consequences of stunting not only apply during childhood, but can continue into adulthood. A person who has a history of stunting at an early age tends to have a lower body when adult (Garza, et al, 2013). Some of the factors that influence the incidence of stunting include birth weight, birth length, gestational age, parent education facts, socio-economic conditions, breastfeeding, the incidence of LBW and maternal parenting (Kukuh et al, 2013). Chronic energy deficiency or anemia

during pregnancy can cause mothers to give birth to babies with low weight (Meilyasari and Isnawati, 2014). The high rate of LBW is thought to be the cause of the high incidence of stunting in Indonesia. The nutritional status of pregnant women greatly affects the state of health and development of the fetus.

Impaired growth in the womb can cause low birth weight (WHO, 2014). Research in Nepal shows that babies with low birth weight have a higher risk of stunting (Paudel, et al., 2012).

Research by Zaenal Arifin (2012), states that risk factors are the incidence of stunting in children aged 6-59 months, birth weight, toddler nutrition, exclusive breastfeeding, history of infectious diseases, knowledge of maternal nutrition, family income, and birth distance. Another study by Picauly (2013) stated that the risk factors for stunting were family income, working mothers, knowledge of nutrition and maternal parenting, had a history of infection, had no history of complete immunization, and had low protein intake. While low maternal education is a protective factor for the incidence of stunting. Ahmad et al (2010), stated that stunting is more commonly found in children who have poor nutritional intake and food and breast milk. ASI as an anti-infection so that it can increase the risk of stunting.

Based on these problems, a study of the relationship between history of birth weight, history of

exclusive breastfeeding and body length at birth to the occurrence of stunting in infants in the working area of Panongan Health Center, Tangerang Regency.

METHODS

This research was conducted at Panongan Health Center, Tangerang Regency, this research was conducted in August 2018 - January 2019. This type of research was carried out with an observational approach (observation) and interviews. The study used a cross sectional design. The population in this study were toddlers aged 7-23 months who came to weigh the Panongan Health Center in Tangerang Regency as many as 153 children. The sample is partially taken from all respondents who were studied and considered to represent the entire population (Arikunto, 2002). The sample in this study were toddlers aged 7-23 months who came to weigh to Panongan Health Center, Tangerang Regency.

RESULT & DISCUSSION

Table 1 shows that stunting toddlers with low birth weight were 11 people, while toddlers who were not stunting with normal birth weight were 39 people. Based on the Fisher Exact test results with a 95% confidence level, it was found that there was a significant relationship between the history of low birth weight and the incidence of stunting in children under five ($p = 0.0001$).

The impact of babies who have a low birth weight will take place between one generation to the next. Children who are LBW in the future will have less anthropometric size in adulthood. For women who are born with low weight, they have a greater risk of becoming stunting mothers so they will tend to give birth to babies with low birth weights such as themselves.

Parity is a significant risk factor for LBW. Mothers with parity more than 3 times risk 2.4 times greater for giving birth to LBW children. Female reproductive organs less than 20 years old are not ready to accept pregnancy and childbirth. Stress can affect the baby through physical changes that occur such as an increase in heart rate and an increase in adrenaline. Mothers who experience high stress can increase the risk of premature delivery. 35-year-old women are at high risk for pregnancy and childbirth because at this age various diseases and complications of pregnancy and labor complications increase (Asiyah et al, 2010). Children born with low birth weight are at risk of experiencing stunting due to stunted growth and development of children.

Birth weight is a strong predictor of future body size determination. This is because in general IUGR babies cannot catch up to normal size during childhood. A review of 12 studies that provided growth data on IUGR infants (except premature infants) stated that IUGR infants could not pursue growth

optimally during the two years of life growth (Allen and Gillespie, 2011).

Growth faltering or failure of growth which results in stunting or underweight generally occurs in a short period (before birth to less than 2 years old), but which has serious consequences later on. A boy who will later become a stunted adult too, with all the consequences, among others, is the production of less work to have an impact on economic status. Someone who is stunted, like

she will become a stunted adult woman, will later be born a LBW baby (Kusharisupeni, 2002). This was also revealed by Victora in a cohort study in five countries showing that the effects of low-content malnutrition could extend to three generations, as indicated by the relationship between the size of grandmother's height and birth weight of babies born to women (Victora et al, 2008).

Tabel 1. Karakteristik Balita pada Kelompok Stunting dan Kelompok Balita Tidak Stunting

Karakteristik Balita	<i>Stunting</i>		<i>Tidak Stunting</i>		P-Value
	n	%	n	%	
Riwayat BBLR					
< 2500 gr	11	100	0	0	0.0001
≥2500 gr	0	0	39	100	
Riwayat Pemberian ASI					
ASI Eksklusif	6	20	24	80	0.736
Tidak ASI Eksklusif	5	25	15	75	
Panjang Badan Saat Lahir					
<48 cm	11	100	0	0	0.0001
≥48 cm	0	0	39	100	

Based on table 1, toddlers in the stunting group who have a history of not exclusive breastfeeding are higher (5%) than the group of toddlers who have a history of exclusive breastfeeding. Chi-Square test results showed that there was no significant relationship between exclusive breastfeeding history and the incidence of stunting in infants. Exclusive breastfeeding history not being a risk factor for stunting is possible because most

subjects in the study did not give exclusive breastfeeding. Most of the mothers in this study provided breast milk with a combination of formula milk. Insufficient milk production or breast milk does not come out at all and the mother who is busy working is the reason most why the subject mother does not give exclusive breastfeeding.

Exclusive breastfeeding not a risk factor in this study is also possible because Exclusive

breastfeeding has an effect on a certain age, ie 0-6 months. Families that provide good parenting, especially for nutritional needs, will affect the nutritional status of children. Proper administration of MP-ASI to children aged 12-24 months will reduce the risk of malnutrition, because at that age the nutritional needs of children cannot be fulfilled only from breast milk alone (Anugraheni et al, 2012).

The results of this study indicate that exclusive breastfeeding is not the only factor affecting the incidence of stunting, this is consistent with the theory that exclusive breastfeeding is not the only factor that influences the incidence of stunting with other factors such as nutritional intake, infectious diseases, food availability, status nutrition of pregnant women, birth weight, body length at birth and MP ASI (Indonesian Ministry of Health, 2012).

Based on table 1, toddlers in the stunting group had a proportion of body length at low births of 11 people while in the toddler group who had a proportion of body length at normal birth as many as 39 people. Fisher Exact test results with a confidence level of 95% found that there was a significant relationship between body length at birth and the incidence of stunting in infants ($p = 0.0001$).

Body length at birth describes the baby's linear growth during the womb. Low linear size usually indicates a poor nutritional state due

to lack of energy and protein suffered in the past which begins with slowing or retardation of fetal growth (Supariasa, 2012).

Maternal intake that is inadequate before pregnancy causes growth disturbances in the fetus so that it can cause babies to be born with short birth lengths. Babies born have a baby's birth length at 48-52 cm (Ministry of Health R. I 2011).

Determination of very good intake is very important to pursue the length of the body that should be. Newborn weight, gestational age and parenting are some of the factors that influence the incidence of stunting. Baby's body length at birth is one of the risk factors for stunting in infants (Meilyasari, 2014). Short baby body length at birth is influenced by the fulfillment of the baby's nutrition while still in the womb. The risk for growth (growth faltering) is greater in infants who have experienced phalter, namely the condition during pregnancy and prematurity. This means that the body length is far below the birth average because it has experienced growth retardation while in the womb (Kusharisupeni, 2004).

Growth failure in each birth status group occurred at an early age (age 2 months). Because of the relatively similar environment, it is assumed that the pattern and quality of food consumed is the same. Therefore not enough nutritional intake for normal infants causes an increase in the number of babies with growth failure. This result is not

different from the study in Mexico which showed that growth failure at 6 months of age was influenced by intake and nutrient intake. Low pattern of food intake, coupled with exposure to infection, the impact on the most severe normal group. Infants with failure to grow at an early age indicate a risk of experiencing failure to thrive in the next age period (Zaenab, 2006).

The results of this study indicate that, the proportion of

stunting toddlers is more common in stunting toddlers more commonly found in toddlers with short body length at birth compared to toddlers with body length at normal birth. This is due to insufficient nutritional intake in stunting toddlers which causes growth faltering (failure to thrive). Low nutritional intake and exposure to infections have a more severe growth faltering effect on stunting toddlers.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Low birth weight and baby body length at birth are factors associated with the incidence of stunting in infants. Conversely, a history of exclusive breastfeeding is not related to the incidence of stunting in infants.

Suggestion

Based on the results of research conducted by researchers, then there are some suggestions or inputs that can be given such as:

For Communities (Toddler Mothers)

- For mothers who have toddlers with normal bodies it is recommended to maintain body condition by always applying a healthy lifestyle. Whereas, for mothers who have children under five with a short body (stunting) and at risk of chronic malnutrition it is recommended to consume nutritious and balanced foods, and immediately

referred as early as possible to the health care unit if problems arise in the child's growth and development.

- For mothers who have children under five with low birth weight it is recommended that in the future during pregnancy more nutritious food is consumed so that mothers are not at risk of Chronic Energy Deficiency (SEZ), with the SEZ condition mothers are at risk of giving birth to LBW children with stunted growth. How to deal with children who are LBW so that the growth is not hampered is the mother gives exclusive breastfeeding and MP-ASI on time.

For Further Researchers

Similar studies need to be conducted with a larger sample size and use a cohort study that is studying the relationship between risk factors and effects (illness or health problems) by selecting study groups based on different risk factors, then

following a certain period of time to see how many subjects in each each group experienced the effects of a disease or health problem, to describe more accurate results regarding the effect of low birth weight history, exclusive breastfeeding history and body length at birth with the incidence of stunting. In addition, there is also a need for further research regarding other variables related to stunting such as maternal height, father's height, parental education, parents' income and parental work that have not been revealed in this study. So the results of the study can be used to improve stunting prevention efforts in toddlers.

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