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Factors affecting stunting growth in children who have a birth weight less than 2500 grams

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Abstract---Height is an indicator to determine the incidence of stunting. It is hoped that children will not be stunted because it can affect intelligence. This study aims to analyze the factors that influence the growth of stunting in children whose birth weight is less than 2500 grams. This type of observational analytic research, cross-sectional design. The study population was all toddlers who have a birth weight of less than 2500 grams in Tulungagung Regency. The inclusion criteria were 36-48 months of age. The sample is 271 respondents. Data collection was carried out using questionnaires and height measurements, then the data were analyzed using Pearson, Chi-Square, and Spearman rho tests. The results showed there was a relationship between exclusive breastfeeding and maternal knowledge with the incidence of stunting. The time for giving complementary foods is right, but due to the lack of knowledge of mothers about the nutritional needs of toddlers, it causes less nutritional needs, resulting in stunting.

Keywords---age 36-48 months, birth weight, growth, stunting.

Introduction

The growth process increases the size, number of cells and intercellular tissue, which can affect the physical size of the body structure partially or completely. (Rohmawati I, 2016). Growth can be seen from anthropometric measurements, including body weight, height, head circumference and upper arm circumference. The normal growth of a child follows a growth curve according to their age (Soetjningsih, 1995). But not all children can pass it. If the height growth, the body does not fit the growth curve based on the child's age, then the child is said to have linear growth retardation (stunting). Stunting is caused by chronic malnutrition, which begins when the fetus is in the womb and is born with a body less than 2500 grams (Nasir, 2010).

WHO has a maximum tolerance limit for stunting of 20%. Indonesia is recorded that 35.6% of children are stunted (Yulianto, 2018). Based on data from the health profile of Tulungagung district in 2015, it was found that the number of births with a birth weight of less than 2500 grams was 464 (3.09%) of the number of live births and 86 (18.5%) were stunted. Stunted children have sub-optimal brain growth and intelligence levels that are not optimal, which makes children more susceptible to disease and the future can be at risk of decreasing productivity levels and can harm the country (Anam, 2018). One way to overcome stunting is to reduce the incidence of babies born weighing less than 2500 grams, and increasing nutritional status, especially for children who are born weighing less than 2500 grams. The results showed that babies born less than 2500 grams were the most dominant risk factors associated with stunting (Rahayu A, Yulidasari, Putri, Rahman, 2015). Based on the data above, the aim of this study is to analyze the factors that affect the growth of stunting in children who have a birth weight of less than 2500 grams.

Method

This study was an observational analytic study with a cross-sectional design. The study population was all toddlers who have a birth weight of less than 2500 grams. Inclusion criteria aged 36-48 months. With total sampling obtained 271 respondents. The research was conducted from 13 October to 18 November 2018 in the Tulungagung district. The data were collected by using a questionnaire and measuring the child's height, Data analysis techniques, continuous data sample factor data were described in terms of n, mean, SD, minimum and maximum. Catagorical data sample characteristics are described in terms of n and proportion (%). Data analysis to see the relationship of each variable under study used the Pearson, Chi-Square, and Spearman rho test techniques with the degree of confidence used was $\alpha = 0.05$.

Result

The description of the characteristics of the respondents used univariate analysis. This univariate analysis aims to determine the number and percentage of respondent. The presentation of this data aims to determine the amount given by exclusive breastfeeding and the timing of complementary feeding Nutritional Status based on Height.

Exclusive breastfeeding



Figure 1. Exclusive breastfeeding

Based on Figure 1, it is found that 184 (68%) of the respondents were not given exclusive breastfeeding.

Time for giving complementary foods

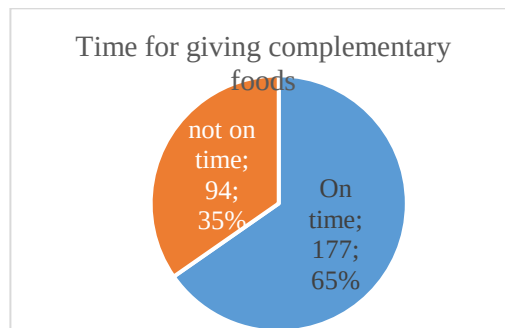


Figure 2. Time for giving complementary foods

Based on Figure 2, it is known that the complementary feeding of ASI given on time is 177 respondents (65%). Characteristics of respondents Continuous data is presented in the form of analysis of the minimum, maximum, mean and standard deviation. Presentation of this data aims to determine the average score of height, birth weight and time of giving complementary foods compared to the maximum assessment score.

Table 1

The descriptions of the research data were variables of height, birth weight and time of breastfeeding

Variabel	n	minimum	maximum	mean	Sd
Height	271	75	106	92,2	5.029
Birth weight	271	1050	2450	2042	3.325
Time of complementary feeding	271	1	18	6	1.813

Based on table 1, the data shows that the average height of the child is 92.2 cm and the minimum height is 75 cm, the average birth weight is 2042 grams and the average time of complementary feeding is at the age of 6 months.

Relationship between exclusive breastfeeding and nutritional status based on height

Table 2

Data description of the exclusive breastfeeding study variables with nutritional status based on height

		Nutritional status				Nilai p value/RP
		Normal		Stunting		
		Cou nt	%	Coun t	%	
Exclusive breast feeding	Given	50	27	37	43	P 0.009/ 0.783
	Not	135	73	49	57	
	Given					

Based on table 2, it is obtained data that 49 (57%) of children who are stunted are not given exclusive breastfeeding, there is a relationship between exclusive breastfeeding and the incidence of stunting, exclusive breastfeeding can provide protection for babies from the incidence of stunting as much as 78%.

The relationship between the timing of complementary foods and nutritional status based on height

Table 3

Data description of the research variables when giving complementary foods with nutritional status based on height

		nutritional status						Nilai p value
		Normal		Stunting		Total		
		Count	%	Coun t	%	Count	%	
timing of complementa ry foods	On time	121	68,4	56	31, 6	177	100	P 0.963
	Not On time	64	68,1	30	31, 9	94	100	

Based on table 3, the data shows that there is no relationship between the timing of complementary feeding and the incidence of stunting.

Relationship between Mother's Knowledge of Toddler Nutrition and Nutritional Status based on height

Table 4
Description of research data variables: Maternal Knowledge about Toddler Nutrition on nutritional status based on height

		Nutritional Status				Nilai p value/OR
		Normal		Stunting		
		Count	%	Count	%	
Maternal Knowledge about Toddler Nutrition	good	142	76,8	55	64	P 0.028
	Not good	43	23,2	31	36	OR= 1,861

Based on table 4, it can be seen that 31 (36%) children under five who were stunted, their mothers had less knowledge about toddler nutrition. There is a relationship between maternal knowledge about the nutrition of children under five and nutritional status based on height. Mothers who have poor knowledge about toddler nutrition are at risk of giving birth to stunted children 2 times greater than mothers who have good knowledge about toddler nutrition.

Relationship between Birth Weight and Nutritional Status Based on Height.

Table 5
Data description of the research variables, birth weight to height

Variabel independen	Variabel dependen (TB)
Birth Weight	P value 0.957

Based on table 5, the data shows that there is no relationship between birth weight and the child's height.

Discussion

Stunting can be caused by several factors, including the factors of parenting practices which include the mother's knowledge of nutrition, exclusive breastfeeding, and age of first complementary breastfeeding.

Knowledge of mothers about toddler nutrition

Based on table 4, it is known that there is a relationship between maternal knowledge about the nutrition of children under five with a P value of 0.028. 95% CI = 1.07-3.25, OR = 1.861 means that mother had less knowledge about toddler nutrition, are at risk of having a child with stunting 2 times greater than mothers who have good knowledge. According to Wulandari (2014) there is a relationship between maternal knowledge and the incidence of stunting in children under five at Ulak Muid Health Center. In this study, the knowledge of mothers about nutrition is one of the factors causing stunting in toddlers. Mothers who have less

knowledge about toddler nutrition, provide nutrition to their children as far as their knowledge.

The phenomenon that researchers encountered in the field and the results of interviews from researchers, mothers who have less knowledge, provide food to their children 1-2 times a day, mothers only provide food that their children like, mothers cannot determine their child's food needs and cannot modify the form of food and the way of serving food that their children like. Besides that, sometimes children are also only fed with side dishes of crackers, when in fact the family is classified as capable of buying food according to their child's needs.

The above phenomena can cause children to get unbalanced nutrition or not according to their needs. Even though the child is given exclusive breastfeeding, after that the child does not get proper nutrition, then the child will experience lack of nutrition, especially because the respondents of this study have a history of malnutrition while in the womb, who should get more nutrition than children born with weight normal. All of the above conditions, if it continues, can cause the child to experience chronic malnutrition which will impact on the child's height growth or the child is stunted.

Exclusive breastfeeding

Exclusive breastfeeding, which is providing only breast milk as the only source of food for babies. Exclusive breastfeeding starts from a newborn with early initiation of breastfeeding, namely as soon as the baby is born it is placed on the mother's chest and allowed to breastfeed itself and this breast milk is given until the baby is 6 months old.

Based on Figure 1, it shows that 184 (68%) of the respondents were not given exclusive breastfeeding. The results of interviews with mothers of toddlers who were research respondents indicated that the reasons for mothers under five who did not exclusively breastfeed their children, among others: the baby had to be cared for in an incubator, the baby had an abnormality, and the breast milk did not come out. In addition, even though the milk has been released, mothers still give formula milk to their babies through pacifiers. This causes the baby to experience nipple confusion and refuse to breastfeed, and in the end the mother decides to give more formula than breast milk and over time the milk production becomes less smooth and doesn't even come out at all. the above conditions cause the baby to be given formula milk instead of breast milk.

Based on table 2, the results show that there is a relationship between exclusive breastfeeding and the incidence of stunting, exclusive breastfeeding can provide protection for toddlers from stunting by 78%. The results of this study are in line with the research of Arifi N (2012) and Fikadu, et al. (2014) in Southern Ethiopia who showed that toddlers who were not exclusively breastfed during the first 6 months had a greater risk of stunting. Breast milk has many benefits, for example increasing children's immunity against diseases, ear infections, reducing the frequency of diarrhea, chronic constipation and so on (Henningham and McGregor, 2009). Breast milk is the most ideal food for newborns up to 6 months of age because it contains essential nutrients for the baby's growth and

development. Breast milk not only contains high nutritional value but also contains immune substances that can protect babies from various diseases, so that babies don't get sick easily (Septikasari, 2018). Babies who are not fully breastfed are susceptible to various diseases such as diarrhea and ARI. Toddlers who are often sick need more nutrition than children who are never sick, this is used for the healing process of their disease. If toddlers do not get the nutrients they need, the child will experience malnutrition and if this continues for a long time the child may experience chronic malnutrition or experience stunting.

Age of first complementary feeding

Based on table 3, data shows that there is no relationship between the timing of complementary feeding and the incidence of stunting in children aged 3-4 years. MP-ASI is an additional food given to infants or children aged 6-24 months to meet nutritional needs apart from breast milk, this food must be complementary and can meet the needs of the baby (Sitompul, 2014).

Maternal knowledge about when is the right time to start complementary foods and how to regulate complementary foods is very important to support optimal health and development of babies (Saskia, 2018). Based on Figure 2, it is known that the provision of complementary feeding which is given on time is 177 respondents (65%). From these data, the mother actually knows when is the right time to give complementary foods, this is evident from table 1 that the average time of complementary feeding is 6 months. A good complementary food is to meet the requirements on time, is fully nutritious, sufficient and balanced, safe, and given in the right way (Nurkomala, Siti and Nuryanto, 2018). Even though in this study, complementary feeding is given on time, but if the method of giving and its nutritional composition is not in accordance with the needs of the child in the sense that the given is insufficient or even insufficient for the child's nutritional needs, then over time the child will experience malnutrition and if it continues, Over time the child will experience malnutrition and if it continues, the child can experience chronic malnutrition and can cause the child to become stunted.

Conclusion

The results showed that there was a relationship between exclusive breastfeeding and maternal knowledge about toddler nutrition and the incidence of stunting.

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