Determinants of Stunting in Indonesian Toddlers

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Abstract

Children who are malnourished for a long time can experience a failure to thrive, namely stunting.This situation occurs in many developing countries such as Indonesia. Stunting is a linear growth disorder characterized by a TB/U z-score less than -2SD. The study aimed to examine the incidence of stunting in children under five in terms of exclusive breastfeeding (ASI), complementary foods of breast milk (MP-ASI), immunization status, family characteristics. The research approach is quantitative with a Case-Control Study design and is carried out in West Java Province, with a sample size of 120 people. Data analysis includes bivariate using Chi-Square. The results showed that the incidence of stunting in children under five was due to low family income (p = 0.004; OR= 9.33), non-exclusive breastfeeding (p= 0.001; OR= 28.5), poor complementary feeding (p= 0.001; OR= 16), and incomplete immunization (p = 0.00; OR = 17). Stunting in children under five is closely related to low family income, non-exclusive breastfeeding, poor complementary breastfeeding, and incomplete immunization. Meanwhile, non-exclusive breastfeeding is a dominant factor as a risk factor for children experiencing stunting.

Keywords:*Stunting, Exclusive Breastfeeding (ASI), MP-ASI, Immunization Status*

Introduction

Nutrition is an important factor that determines the level of human health and well-being. Good nutrition if there are a balance and harmony between the physical development and mental development of the person. There is a very close relationship between nutritional status and food consumption. The optimal nutritional status level will be achieved if the optimal nutritional needs are met.[1,2]

Malnutrition is often assumed to be the result of food insecurity alone, data from many countries states that food or food is not the only or even the main cause of malnutrition, unless it is under conditions of hunger.[3]Based on various studies, there are other factors such as maternal knowledge, parenting, access to health services, water, and sanitation that play an important role.[1,2]

One of the health indicators assessed for the success of its achievement in the MDGs is the nutritional status of children under five. Childhood under five is a group that is prone to experiencing malnutrition, one of which is stunting.[4]Stunting (short) is a linear growth disorder caused by chronic malnutrition or chronic or recurring infectious diseases. Stunting is the result of measuring the nutritional status of infants as seen from the TB/U indicator, which describes their chronic nutritional status, meaning that they arise as a result of long-lasting conditions such as poverty, improper parenting, frequent disease recurring due to proper hygiene, and sanitation not good.[5,6]

Stunting is a major nutritional problem that will have an impact on social and economic life in society. Besides, stunting can affect children under five in the long term, namely disrupting their health, education, and productivity in the future. Stunting children under five tend to find it difficult to achieve optimal growth and development potential both physically and

psychomotor.[6,7]

Stunting in children under five is an indicator of nutritional status that can provide an overview of the disruption of overall socio-economic conditions in the past. Stunting that occurs during childhood is a risk factor for increased mortality, low cognitive abilities and motor development, and imbalanced bodily functions. The incidence of stunting is related to various factors including family environment (education, employment, income, parenting, diet, and number of household members), nutritional factors (exclusive breastfeeding andduration of breastfeeding), genetic factors, infectious diseases, and the incidence of LBW.[7,8]

Based on the background and problems above, the formulation of the problem in this study is what is the incidence of stunting in children under five when viewed from exclusive breastfeeding (ASI), MP-ASI, immunization status, and family income in West Java Province.

Material And Method

This research is a quantitative type with a Case-Control Study design. The sample used in this study was 120 of them consisting of 60 cases and 60 controls. The sample criteria in this study consisted of cases; babies aged 12-60 months who are stunted, are recorded in the weighing register, there is supporting data (KMS), control, babies aged 12-60 months are not stunted, are recorded in the weighing register, there is supporting data (KMS. and age of children under five at intervals: 12-23 months, 24-35 months, 36-47 months, 48-60 months).

Findings

Table 1. Risk Factors for Stunting in Indonesia

Variable	Bivariate					
	Stunting				P-Value	OR CI (95%)
	Case		Control			
	n	%	n	%		
Exclusive Breastfeeding						
Not exclusive	57	95	24	40	0.001	28,5 3,13-257,44
Exclusive	3	5	36	60		
Complementary foods with breast milk (MP-ASI)						
Not good	48	80	12	20	0.001	16 3,40-75,35
Good	12	20	48	80		
Immunization Status						
Incomplete	45	75	9	15	0.000	17 3,46-83,45
Complete	15	25	51	85		
Family Income						
Low	42	70	12	20	0.004	9,33 2,18-39,96
High	18	30	48	80		

Discussion

Incidence of Stunting Based on Breastfeeding

Breastfeeding is associated with growing children. The lower the level of breastfeeding, the higher the growth rate for children in the malnutrition category, both in terms of the index weight/age and height/age. Newborn babies are not immediately given breast milk but are given formula milk because the milk has not yet come out. If the milk has been released, the mother gives breast milk but first the first milk that comes out is discarded, it is not immediately given to the baby because the first discharge is still dirty. If the breast milk is released a little, the mother immediately replaces the breast milk with bottle feeding. Giving formula milk that enters the baby's body does not mean that the baby can digest it properly, especially if the method of making formula milk is not according to the dosage and does not keep the milk bottle clean, it will cause diarrhea in the baby so that its growth will be disrupted.[7,9]

One of the benefits of exclusive breastfeeding is that it supports infant growth, especially height because breast milk is more efficiently absorbed than breastmilk substitutes or formula milk. So that babies who are given exclusive breastfeeding tend to have a higher height and according to the growth curve compared to babies who are given formula milk. Breast milk contains more calcium and can be absorbed by the body properly so that it can maximize growth, especially height, and can avoid the risk of stunting..[10,11]

Breast milk also has lower levels of calcium, phosphorus, sodium, and potassium than formula milk, while copper, cobalt, and selenium are present in higher levels. The content of breast milk is following the needs of the baby so that it can maximize the baby's growth, including height. Based on this, it can be ascertained that the baby's needs are met, and the baby's nutritional status becomes normal both in height and weight if the baby is exclusively breastfed.[12]

Low exclusive breastfeeding is one of the triggers for stunting in children under five in West Java Province as a result of past events and will have an impact on the future of children, on the other hand, good breastfeeding by mothers will help maintain the balance of children's nutrition so that child growth is achieved normally.[13]

Incidence of Stunting Based on Complementary Feeding (MP-ASI)

Growth disorders at the beginning of a baby's life include, among others, malnutrition from infancy, feeding of complementary foods too early or too late, complementary foods with insufficient nutrition according to the baby's needs or poor feeding patterns according to age, and inadequate infant care. In giving baby food, it is necessary to pay attention to the accuracy of the time of delivery, frequency, type, amount of foodstuff, and method of manufacture.[13,14]

Complementary feeding (MP-ASI) is food given to babies after the baby is 6 months old which functions to provide additional nutrients apart from breast milk. With the increasing age of the baby accompanied by weight gain and height, the need for energy and other nutrients will also increase. Increased nutritional needs cannot be met through breast milk alone but also through complementary foods. Complementary foods for infants should produce energy at least 360 kcal per 100 g of ingredients.[15]

Feeding (complementary feeding) to infants should be adapted to the baby's development. For example, a baby learns to chew at the age of six or seven months, by which time he is ready to eat solid food.[16]If solid food is not given at that time, the baby will experience malnutrition because breast milk/formula alone cannot fulfill all the nutritional needs of the baby at that time. Conversely, giving MP-ASI too early can cause digestive disorders such as diarrhea, vomiting, and difficulty defecating. On the other hand, giving MP-ASI too slowly causes the baby to have difficulty learning to chew, dislike solid food, and the baby is malnourished.[14,17]

Mothers provide complementary foods other than breast milk at the age of 0-4 months because the milk that comes out is small while the mother cannot afford to buy baby milk due to economic factors.[15]If MP-ASI is given too early while the baby's intestines are not able to absorb the food, often the baby experiences constipation or has difficulty defecating so that the baby's health is disturbed, it can cause other diseases so that their growth will be disturbed.[18]

Mother's actions in giving complementary foods are very much influenced by the mother's formal education. Based on the data obtained, the majority of respondents have a Diploma/Bachelor's degree. This concludes that the mother's formal education affects the level of nutritional knowledge where the higher the level of education of the mother, the higher the level of mother's knowledge to absorb practical knowledge information in her environment through mass media related to complementary feeding and child growth.[19]

Stunting Incidence Based on Completeness of Immunization

Malnutrition and infection can both start from poverty and an unhealthy environment and poor sanitation. It is also known that infections inhibit normal immunological reactions by depleting the body of energy. If toddlers do not have immunity to disease, they will lose their body energy more quickly due to infectious diseases, as the first reaction due to infection is a decrease in the child's appetite so that the child refuses the food given by the mother. Refusal of food means reduced intake of nutrients in the child's body.[20,21]

Basic immunization is very important for the immunity of children under five, which is following the national target that complete basic immunization must reach the target of up to 100.0%. Because children who are not fully immunized will have immune disorders against infectious diseases because the production of antibodies decreases resulting in easy entry of germs, this can interfere with the production of various types of enzymes for digestion of food.[22]Food cannot be digested properly and this means that the absorption of nutrients will be impaired, which can worsen the nutritional state. As the first reaction in the child's body is a decrease in appetite so that the child refuses the food given by the mother, refusal to food means a reduced intake of nutrients into the child's body.[23]The final impact of this problem is a failure of optimal growth following the rate of increasing age, which will increase the prevalence of stunting.[24]

Stunting Incidence Based on Family Income Level

One of the root causes of the impact of infant growth is the economic crisis. There is an inability of the head of the family to meet adequate nutrition for infants, both in terms of quality and quantity, so that it has an impact on the baby's nutritional growth.[25]Besides, the results of this study are following Soekirman's opinion, which states that families with low or poor socioeconomic status generally face malnutrition problems which are completely reversed from overnutrition, that a good family income can support children's development. Because parents provide all the needs of their children.[26]

Family income is related to the ability of the household to fulfill primary, secondary and tertiary life needs. High family income makes it easier to meet the necessities of life, on the other hand, low family income has more difficulties in fulfilling life needs.[27]

Low income will affect the quality and quantity of foodstuffs consumed by the family. The food obtained will usually be less varied and in small amounts, especially in foods that function for children's growth, a source of protein, vitamins, and minerals, thereby increasing the risk of malnutrition.[28,29]These limitations will increase the risk of a toddler experiencing stunting. Low-income levels and weak purchasing power make it possible to overcome eating habits in certain ways that hinder effective nutrition improvement, especially for their children.[17]

The low income of a family in West Java Province is an obstacle that causes the family to be unable to buy the required amount of food. So that the result of high and low income greatly affects the purchasing power of families for food which ultimately affects the state of both stunting and normal nutrition, especially children under five because at that time a lot of nutrients are needed for the growth and development of children under five in West Java Province.

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