

Relationship of nutritional completeness with events of stunting in children age 1- 2 years

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ABSTRACT

The problem of stunting is one of the nutritional problems that the world face, especially in poor and developing countries. Stunting is a chronic malnutrition in the period of growth and development since early life. Nutrition is an important element in the fulfilment of nutritional needs because it serves to produce energy, build and maintain tissues, and regulate life processes in the body. In addition, nutrition is related to brain development, learning ability and work productivity. Stunting or short is a condition of failure to thrive in infants (0-11 months) and toddlers (12-59 months) as a result of chronic malnutrition, especially in the first 1,000 days of life so that the child is too short for their age. The objective is to determine the relation between the completeness of nutritional status and the incidence of stunting in children aged 1-2 years in the working area of Community Health Center I Kembaran. This type of research was quantitative using a descriptive correlation design with a cross sectional approach. The population in this study were children under 2 years who met the criteria. The sampling technique used was simple random sampling, namely 86 respondents were included. The analysis used was the chi square statistical test. Statistics in this study consisted of frequency of completeness of nutritional status with the occurrence of stunting in children aged 1-2 years. From the results of data processing, it was found that there was a relationship between the completeness of nutritional status with the incidence of stunting in children aged 1-2 years in the working area of Community Health Center I Kembaran with a p-value of 0,000 <0.005. There was a relationship between the completeness of nutritional status with the incidence of stunting in children aged 1-2 years in the working area of Community Health Center I Kembaran.

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1. INTRODUCTION

The problem of stunting (short children) is one of the nutritional problems that the world face, especially in poor and developing countries, stunting has become a health problem because it is related to the risk of morbidity and mortality, sub-optimal brain development, resulting in delayed motor development and stunted mental growth. This is a serious threat to the existence of children as the next generation of a nation. Short children are a widely accepted predictor of poor quality of human resources, which further reduces the productive ability of a nation in the future [1]. Stunting is a nutritional problem that has a negative impact on the quality of life of children in achieving optimal growth and development according to their genetic potential. Stunting can inhibit the development process in toddlers. Childhood stunting is the result of chronic malnutrition or growth failure in the past and is used as a long-term indicator for malnutrition in children [2].

In 2017, 22.2% or around 150.8 million toddlers in the world experienced stunting. However, this figure has decreased when compared to the stunting rate in 2000, which was 32.6%. In 2017, more than half of

stunting children in the world were from Asia (55%) while more than a third (39%) lived in Africa. Of the 83.6 million stunted toddlers in Asia, the highest proportion came from South Asia (58.7%) and the lowest proportion was in Central Asia (0.9%). Indonesia is among the third countries with the highest prevalence in the Southeast Asia/South-East Asia Regional (SEAR). The average prevalence of stunted toddlers in Indonesia in 2005-2017 was 36.4%. (joint child malnutrition estimates). The risk group for stunting is at the age of 6-23 months because at that age the growth and development of toddlers is very fast and is a golden period. If stunting at that age is not handled, it will have a negative impact on the long term, namely decreased learning achievement and immunity, while in the short term it will affect the disruption of brain development and physical growth in toddlers [3].

Based on a survey of stunting conducted in 2018, Banyumas Regency was one of the top 100 districts/cities with the highest stunting rate in Indonesia. This was conveyed by the *Kasubag Perencanaan Dinas Kesehatan Kabupaten Banyumas*, Tri Byar Wijayanti, SKM. The result of the study underpinning Banyumas being the top 100 districts of stunting area was a quick survey. And the result was that the stunting rate in Banyumas was 24 percent 4 from a sample of 300 toddlers in Banyumas. Meanwhile, the maximum WHO standard is 20 percent [4]. The results of measurement of the length of the BADUTA body in Banyumas Regency in 2019 showed that in the village of Kambaran 1 got results, male BADUTA were very short, totalling 54 children, female BADUTA totalled 26 children, short male BADUTA totalled 84 children, and short female BADUTA totalled 56 children. Based on this background, researcher is interested in examining the relationship with the completeness of nutritional status and the incidence of stunting in children aged 1-2 years in the working area of Puskesmas Kembaran I. The purpose of this study is to determine the relationship between the completeness of nutritional status and the incidence of stunting in children aged 1-2 years in the work area of Puskesmas Kembaran I.

2. RESEARCH METHOD

This research method used quantitative with a cross-sectional study design. The populations in this study were mothers with children aged 1-2 years in the working area of Puskesmas Kembaran I, with the total of 86 respondents. The technique used simple random sampling technique. The inclusion criteria in this study were: 1) Parents who had children aged 1-2 years, 2) Parents who were willing to become respondents, 3) Parents who were able to communicate effectively. The exclusion criteria were 1) Parents who had moved house, 2) Parents who did not participate in the research until the end, 3) Parents who had children more than 2 years old. The place and time of the study was conducted in the working area of Puskesmas Kembaran I in March-April 2020. The technique of collecting data was by filling out the questionnaire conducted by the respondents themselves. The analysis used the chi square statistical test.

3. RESULTS AND DISCUSSIONS

3.1 Respondents Characteristics

Table 1. Distributor of Respondents Characteristics

Characteristics	Frequency	Percentage
Age		
12-15 months	22	25,6 %
16-18 months	27	31,4 %
19-21 months	27	31,4 %
22-14 months	10	11,6 %
Gender		
Male	61	70,9 %
Female	25	29,1 %
Mother's work		
Housewives	35	40,7 %
Farmer	21	24,4 %
Trader	12	14,0 %
Civil servant	10	11,6%
Labor	8	9,3 %
Mother age		
<35 year	71	62,8%
>35 year	15	17,4%
Mother education		
Primary School	15	17,4 %
Junior High School	32	37,2 %
Senior high school	25	29,1 %
Diploma	7	8,1 %
Bachelor and higher	7	8,1 %

Number of children		
1	20	23,3 %
2	28	32,6 %
>2	38	44,2 %

The research conducted in the working area of Puskesmas I Kembaran with a total of respondents of 86 are mothers who have children aged 1-2 years who qualified requirements, obtained the results of the characteristics of children most aged 16-21 months and 19-21 months with 27 children each (31.4%). Haile (2016) states that toddlers aged 0-24 months have a risk of stunting. According to a research by Wiwien [5], children aged 1-2 years have risk factors that can affect the incidence of stunting, namely low levels of energy, protein, zinc, low birth weight (LBW) and high exposure to pesticides.

Based on research conducted in the working area of Puskesmas I Kembaran, it was found that the male gender is more than the female gender of 61 (70.9%). According to Christin [6] there is a significant relationship between genders and the incidence of stunting in toddlers aged 6-23 months. Gender determines the amount of nutritional needs for a person so that there is a relationship between nutritional status and stunting. Based on research conducted in the working area of Puskesmas I Kembaran, it was found that most of the respondents have a role as housewives 35 (40.7%), according to researcher, mothers who have a role as housewives do not work. The incidence of babies with stunting is more prevalent with mothers who do not work compared to mothers who have jobs, because mothers who work are able to help the family economy so as to increase the purchasing power of mothers for adequate nutritional intake, even though mothers who work has less parenting time with the child compared to mothers who do not work. Based on research conducted in the working area of Puskesmas Kembaran I, the result showed that there were more mothers aged <35 years, namely 71 (62.8%). [7]

According to research which states that there is no relationship between maternal age and the incidence of stunting, this is because the age of the mother is considered to be more of a role as a psychological factor for mothers such as acceptance of child pregnancies so that it affects the parenting patterns of children, in this case the feeding patterns. [8] This is in line which states that the physiological factors of maternal age have an effect on fetal growth, but the balanced food intake that is digested by the mother can have a positive impact [9]. The research conducted in the working area of Puskesmas I Kembaran found that mothers with the latest junior high school education have the highest frequency of 32 (37.2%). The results of research conducted by Mentari, states that there is no significant relationship between education level and the incidence of stunting.

The results of this study are not in line with research in South Africa, stating that children who experienced stunting are often found in mothers with low primary/junior high school education status. [10] Based on the research conducted in the working area of Puskesmas I Kembaran, it was found that most of the mothers have children > 2, namely 38 (44.2%). The number of family members has no significant relationship with the incidence of stunting in the Puskesmas Kenjeran, Surabaya. The same result by another research was also carried out in the Andalas Puskesmas, East Padang District, Padang City, that the number of family members did not have an effect on the incidence of Stunting. [11]

3.2 Description of the Completeness of Nutritional Status

Table 2. Description of the Completeness of Nutritional Status (n=86)

Variable	Frequency	Percentage
Complete	22	25,6%
Incomolete	64	74,4%

Based on the research that has been done, it can be seen that of the 86 respondents in the working area of Puskesmas Kembaran I, 64 (74.4%) have the completeness of nutritional status in the incomplete category, while in there are 22 (25.6%) respondents in the complete category. If the composition of dishes qualifies the needs of the body, both in terms of quality and quantity, then the body will get the best nutritional health condition. The level of completeness of nutrition status is in accordance with food consumption, the best level of nutritional health is the completeness of optimum nutrition. The body is free from disease and has the best work power, and has the highest endurance.

In this study, the data from the food recall eaten by toddlers still does not qualify the needs and completeness of the body. This is in line with the theory that food consumption affects a person's nutritional status. The condition of nutritional status is said to be complete if the body obtains enough nutrients to be used efficiently, thus allowing physical growth, brain development, work ability to achieve optimal health levels. Malnutrition can be caused by several factors. One of them is food consumption that is poor in terms of quantity and quality. Food consumption and parenting patterns a child receives will determine the child's nutritional status. The better the food consumption both in terms of quantity and quality and the better the parenting pattern a child receives, the better the nutritional status will be. During childhood, nutritional status directly affects immunity, cognitive development, growth, and stamina.

3.3 Description of the Incidence of Stunting in Children Aged 1-2 Years

Table 3. Description of the Incidence of Stunting in Children Aged 1-2 Years (n=86)

Variable	Frequency	Percentage
Stunting	50	58,1%
Not Stunting	36	41,9%

Based on research conducted in the working area of Puskesmas Kembaran I, it was found that most children aged 1-2 years experienced stunting with a total of 50 (58.1%) children from 86 respondents. The results of research conducted by Sri [12] showed that there were 35 toddlers in the stunting category, divided into 22 respondents (16.9%) who were short, while 13 respondents (10.0%) were very short. Meanwhile, the prevalence of toddlers has decreased from 30.8% in 2018 to 27.67% in 2019. The results of the study showed that there were 41 (31.1%) children aged 6-23 months in the working area of the Puskesmas Pisangan who experienced stunting [13]. The same result was found in a study that found that the stunting problem at 12-23 months was 21.8% in Depok. In addition, a research in Bogor also found that the problem of stunting in children aged 6-24 months was 18.6%. This showed that stunting was still common.

Diet affects the nutritional status of toddlers. Provision of an adequate diet is related to the good quality of food consumption for toddlers, which ultimately affects the nutritional status or completeness of the nutritional status of toddlers [14]. Nutritional status is a manifestation of the state of the body that reflects the results of every food consumed. Food intake that does not meet adequacy for a long time will result in malnutrition which has an impact on children's growth. In this study nutritional status has the TB/U index. This is in accordance with the results of previous studies showing a higher prevalence of stunting than this study [15]. The age of 12-24 months is a prone period where toddlers often experience infections or nutritional status disorders, because at this age toddlers experience a transition from babies to children. If parenting pattern is not properly considered, toddlers will often experience diseases, especially infectious diseases [16].

According to WHO [17] stunting can be caused by various factors. The causes of stunting in children are into 4 major categories, firstly, family and household factors which include maternal and family environmental factors, secondly, inadequate supplementary/ complementary food factors which include poor food quality, safe food, and inadequate feeding practices, thirdly, breastfeeding and infectious factors. The results showed that there were 36 (41.9%) baduta in the non-stunting category or normal height. Height is an important parameter to determine the state of growth and development, especially toddlers. Baduta that has a normal body length can be influenced by several factors such as nutritional adequacy. Another thing that affects the normal condition of the child is the composition of the food that is in accordance with the nutritional needs. The mother who can provide the best nutrition for her child is a mother who has good knowledge about nutrition so that it can be applied in daily life. According to UNICEF in BAPPENAS, the nutritional status of children is basically influenced by indirect factors related to the incidence of stunting, namely the characteristics of the family which are the parents' jobs, educations, and the family economic status. [18]

3.4 The Relationship of between the Completeness of Nutrition and the Incidence of Stunting

Table 4. Relationship between the Completeness of Nutritional Status and Incidence of Stunting in Children Aged 1-2 Years

Completeness of Nutritional	Stunting				Total	p-value	OR	
	Stunting		Not Stunting					
	n	%	n	%				
Incomplete	2	5,9%	32	94,1%	34	100%	0,000	.005
Complete	48	92,3%	4	7,7%	52	100%		
Total	50	58,1%	36	41,9%	86	100%		

Based on the results of the research on the relationship between the completeness of nutritional status and the incidence of stunting in the working area of the Puskesmas Kembaran I, obtained a results that is a significant relationship between completeness of nutritional status and the incidence of stunting in children aged 1-2 months in the working area of Kembaran I Health Center. This result is in line with a study that states that nutrients, namely zinc, have a significant effect with the incidence of stunting [19]. There are more toddlers who experience stunting are deficient in zinc consumption compared to normal toddlers According to Retty (2016), there are differences in the level of adequacy of energy, protein, zinc, and iron in stunting and non-stunting toddlers in the village of Kejawan Putih Tambak, Surabaya where toddlers who have sufficient levels of energy, protein, zinc and iron are at higher risk for stunting (inadequate energy = 9.5 times, inadequate protein = 10.6 times, inadequate zinc = 7.8 times, inadequate iron 3.2 times). That there is a relationship between the pattern of nutrition and the incidence of stunting [20].

The adequacy of the nutrients studied are macronutrients (energy, protein) and micronutrients (vitamin C). Lack of energy intake is an indication of other nutrients deficiencies. If this condition is left for a long time, it will result in obstruction of the bone growth process which causes stunting in toddlers. Lack of protein causes growth retardation and bone maturity since protein is an essential nutrient in growth. Protein has a function that cannot be replaced by other nutrients, namely building and maintaining body cells and tissues. The nutrients consumed by baduta will affect the nutritional status of baduta, differences in nutritional status of baduta have a different effect on each child's development, if the balanced nutrition consumed is not fulfilled, the achievement of child growth and development will be inhibited [21]. There is a significant relationship between nutritional status and the incidence of stunting in toddlers. This research is inversely proportional to research conducted which states that there is no relationship between nutritional status and development of toddlers.

Nutritional disorders including stunting are caused by primary and secondary factors. The primary factor occurs due to the lack of food consumption in quantity and quality. While secondary factors are all factors that cause the nutrients that have been consumed do not reach the cells of the body, for example, is an infectious disease [22], although the results in this study indicate that the level of protein intake is not related to the incidence of stunting, but the pattern may show that most children who do not experience stunting have a good level of protein intake (93%). Currently, a comprehensive effort is needed to maintain the growth and development of children as early as possible from the time of pregnancy to the age of 5 years. Providing stimulation is required according to the age of the child. Increasing the participation of mothers to always get information about child's development, so that if there is a suspicion of growth disorders or stunting as early as possible, it can be detected.

4. CONCLUSION

Based on the results and discussion of research on "the Relationship between the Completeness of Nutritional Status and the Incidence of Stunting in Infants Aged 1-2 Years in the Working Area of Puskesmas Kembaran I", namely the characteristics of the respondents in this study were mostly children aged 16-18 months and 19-21 months, which were 27 children each (31.4%). While the characteristics of the majority of mothers were 35 housewives (40.7%), with an average age under 35 years were 71 mothers (62.8%). The majority of mothers' last education was junior high school with 32 mothers (28.3%) and the number of children most of them had were more than 2 children, namely 38 mothers (44.2%). And there is a significant relationship between the completeness of nutritional status and the incidence of stunting in children aged 1-2 months in the working area of Puskesmas Kembaran I.

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