Overview of Stunting in Newborns in Pekalongan Regency Health Centers: A Retrospective Study

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Abstract. The stunting rate in Indonesia is still high, with one in three children experiencing stunting. This illustrates the level of growth and development of infants that are not optimal. The incidence of stunting can be assessed since the newborn with criteria using the body length index according to age is if a child has a Z-score of -3SD to -2SD. Body length according to age in male infants aged 0 months has a value of -3SD = 44.2 and -2SD = 46.1. Meanwhile, for baby girls aged 0 months, the Z-score value is -3SD = 43.6 and -2D = 45.4. This study describes the incidence of stunting in newborns at the Pekalongan District Health Center. The design of this study is a descriptive study with a retrospective approach. This study took data from the records of mothers giving birth at the health center. The sample of this study was data on mothers who gave birth in 5 health centers with the highest stunting rates. The sampling technique used was total sampling, namely taking samples of all mothers who gave birth in 5 health centers in Pekalongan Regency as many as 84 mothers who gave birth. The data collection tool uses a documentation study of maternal records at the related health center. The results showed that 13 respondents (15,4%) met the criteria for stunting infants The results showed that the stunting rate in Pekalongan Regency was 15.4%, already below the national target of 20%. Nevertheless, poverty reduction and health improvement programs must continue to be implemented.

Keywords: Child Growth · Newborn Baby · Stunting Baby

1 Introduction

Stunting is a condition of growth failure in children under five due to chronic malnutrition so that children are too short for their age. Chronic malnutrition occurs since the baby is in the womb and in the early days after the baby is born. The definition of stunting according to the ministry of health is if a child has a Z score of less than -2SD (stunted) and less than -3SD (severely stunted) [15]. Stunting is a linear growth disorder caused by chronic malnutrition and/or chronic or recurrent infectious diseases. Stunted children are those who are too short for their age. These children can suffer severe irreversible

physical and cognitive damage that accompanies stunted growth. The devastating effects of stunting can last a lifetime and even affect the next generation, [17].

World Health Organization (WHO), (2018) estimated that in 2017, 150.8 million (22.2%) children under 5 globally suffered from stunting, 83.6 million of them were from Asia. Meanwhile, the incidence of stunting in Southeast Asia was 33% in 2017. The stunting prevalence rate in Indonesia was 37.2% in 2013 consisting of 18.0% very short and 19.2% short [4]. The prevalence of stunting in Indonesia in 2016 has declined to 27.2%, but it was still above the standard set by WHO, which is below 20% [5].

Based on the results of the Nutrition Status Monitoring survey in Indonesia, the stunted rate was 14.6% and the severe stunted rate was 7.1% in children aged less than 2 years. The prevalence of stunting in toddlers (aged 0–59 months) was 19.0 stunted and 8.5% severely stunted. The percentage of stunting in the toddler group was higher than in the under-twos [5].

Stunting is caused by multidimensional factors, not only malnutrition experienced by pregnant women and children under five, but also poor parenting practices by the family, including exclusive breastfeeding for 0–6 months followed by complementary feeding at 0–24 months. Maternal nutrition and health status before, during and after pregnancy affect the growth and development of children in the early stages of life. Severe infectious diseases in children cause slow growth of children so that children cannot reach optimal height and weight according to age. In addition, stunting is also influenced by the unresponsiveness of caregivers in feeding practices, inadequate child stimulation and activity insecurity due to household poverty (Antonio Suarez Weise, 2010).

Maternal nutritional status can cause stunting. The incidence of mothers experiencing Chronic Energy Deficiency (CED) in 2016 was 16.2%, it was higher than the previous year which was 13.3 [15]. Based on data and information of the Health Profile of the Indonesian Ministry of Health, Central Java was ranked as the fourth, with the CED prevalence rate of 84.7%. The highest on the rank were North Sulawesi with 91.7%, NTB with 88.7% and East Java with 85.6% [7].

Stunting causes growth disorders that have both short and long-term impacts including an increase in the morbidity and mortality rate, inadequate cognitive, motor and verbal development of children, as well as an increase in health costs. Another impact is that children will have non-optimal body postures as adults, increase the risk of obesity and other diseases, decline in reproductive health, learning capacity and less than optimal performance at school as well as low productivity and capacity in the world of work (Kemenkes RI, 2018).

International and national programs are encouraged to reduce stunting rates. Some of the recommended programs are strengthening interventions to improve maternal nutrition and health starting from adolescent girls, protecting and promoting exclusive breastfeeding in the first six months to provide essential nutrition and protect infants from gastrointestinal infections. Another prevention is by promoting the consumption of healthy, diversified diets including high-quality nutritious food in the complementary feeding period (six to 23 months). The other step is improving micronutrient intake through food fortification including complementary foods and foster safe food storage and handling practices to avoid infection. It is also necessary to strengthen community-based

intervention to protect children from infections, incorporate linear growth assessment in child health routines to provide critical, real time and progress monitoring, and integrate nutrition in health promotion strategies and strengthen service delivery capacities in primary health systems and communities–based care for prevention of stunting and acute malnutrition (Antonio Suarez Weise, 2010).

The health condition of pregnant women affects the growth and development of the fetus during pregnancy. Prevention of stunting in during pregnancy and delivery can be done by pursuing the first 1000 days of life program, increasing the coverage of integrated Ante Natal Care (ANC), increasing deliveries in health facilities, improving the nutritional status of pregnant women, early detection of disease, eradication of helminthiasis, and providing counseling for early initiation of breastfeeding and exclusive breastfeeding as well as counseling and family planning services (Kemenkes RI, 2018).

High incidence of stunting in Indonesia becomes a concern of various parties. Improving nutritional status of mothers in the period before and during pregnancy as well as the postdelivery is important. The purpose of this study was to determine the incidence of stunting in newborns by considering the health status of mothers in Pekalongan Regency.

2 Method

The research was a descriptive study with a retrospective approach. This study obtained data from the medical records of mothers giving birth at several health centers in Pekalongan Regency during March–April 2019. The population of this study was all mothers who gave birth at the Pekalongan Regency health centers. The sample of this study was data on mothers who gave birth in 5 health centers with the highest stunting rates, namely Karanganyar Health Center, Doro II Health Center, Bojong I Health Center, Wonokerto Health Center, and Wiradesa Health Center. The sample consisting of 84 mothers was obtained through a total sampling technique.

Data collection was carried out from 6th–17th May 2019. The research instrument being utilized was a data collection sheet that summarizes data from documentation of maternal birth records at the related health center. The data collection sheet contains the baby's body length, the identity of the mothers who gave birth including their age, education, occupation and the value of their upper arm circumference. The data were analysed by applying a univariate analysis.

3 Results

The results showed that the characteristics of the respondents are as follows. Most of the them aged 17–34 years (74 respondents or 88.1%), more than half of them were graduated from junior high school (45 respondents or 53.6%), and more than half of them were working mothers (50 respondents or 59.5%). Data analysis of newborn body length showed that as many as 15.4% met the criteria for stunting infants. The presentation of the data are depicted by the Tables 1 and 2.

Table 1. Characteristics of the Respondents

No	Variables	Frequency (n)	Percentage (%)
1.	Age		
	a. 17–34 years old	74	88.1
	b. ≥35 years old	10	11.9
2.	Education		
	a. Elementary school	45	53.6
	b. Junior high school	38	45.2
	c. Senior high school	1	1.2
3.	Occupation		
	a. Working mother	50	59.5
	b. Full-time mother	38	40.5
	Total	84	100

Table 2. Distribution of Stunting Data in Pekalongan Regency

No	Variables	Frequency (n)	Percentage (%)
1.	Babies' body length		
	a. Stunted	13	15.4
	b. Non-stunted	71	84.6
	Total	84	100

4 Discussion

The results of the research on the characteristics of the respondents were in line with a research conducted by Setiawan et al., (2018) that showed significant results between the level of mother's education and the incidence of stunting. Mother's education level had an influence on health, one of which was nutritional status. Mothers with higher education levels knew better about a healthy lifestyle and the ability to keep the body's vitality. Level of education was also related to income because their level education determined their income, especially for working mothers.

This study revealed that most of the respondents were working mothers. This point was different from the result of a research conducted by Ibrahim & Faramita, (2015) whose majority of the respondents were fulltime housewifes. A study carried out by Ngaisyah, (2015) showed that there was no relationship between mother's occupation and the incidence of stunting. However, the incidence of stunting was influenced by family income and education. Higher income gives the family more opportunity to meet their daily needs.

Children nutritional status can be determined by the nutritional status of their mother during pregnancy. One of the parameters of the nutritional status of pregnant women is the measurement of upper arm circumference. The maternal upper arm circumference of

this study's respondents was mostly less than or equal to 23.5 cm. These results indicated the nutritional status of the mothers was low. These results are different from the results of a study conducted by Prastia & Listyandini, (2020) revealing that mother's upper arm circumference value was an insignificant cause of stunting. Stunting could be caused by other factors besides the nutritional status of the mother, namely poor parenting, limited services during pregnancy including the height of the mother and father of the baby. To reduce the risk of stunting, improving services in the first 1000 days of life from pregnancy until the child is 2 years old should be enhanced.

Measuring body length to identify the incidence of stunting was done by comparing baby's body length/height to the standards. Body length measurements were used for children aged 0–24 months who were measured supine. When children aged 0–24 months were measured standing, then the measurement results must be added by 0.7 cm. The process of determining the short and very short (stunting) status was based on the index of body length/height according to age. The short criteria using the body length index according to age is if a child has a Z-score of -3SD to -2SD. Body length according to age in male infants aged 0 months has a value of -3SD = 44.2 and -2SD = 46.1. Meanwhile, for baby girls aged 0 months, the Z-score value is -3SD = 43.6 and -2D = 45.4. (Kemenkes, 2011). Ningrum & Cahyaningrum, (2018) found out the average body length of newborns was 48.3 ± 1.4 with a minimum value of 46. The numerical data showed that there were still newborns with a Z-score of -2SD.

The results of various research related to stunting illustrate that the stunting rate is still high in newborns. This condition is in accordance with a research carried out by wahyuningrum [16] which showed the results of the stunting incidence of 35%. Stunting can be assessed from the time the baby is born. Stunting rate in newborns is a picture of impaired fetal development while in the uterus. Linear growth fails to occur in the womb. The incidence of stunting at the age of less than 6 weeks needs to be observed to prevent permanent growth and development disorders at older age.

Through their study, [9] gave an overview of stunting development from birth to 2 years of age. The results showed that the prevalence of stunting newborns would increase at the age of 6, 12, 18 and 24 months with a prevalence of 6–16.6%. These results indicated the need to create a system to identify new cases of stunting, monitor stunting infants and provide adequate ANC, as well as provide an introduction of food for children in an early child age.

Stunting prevention is made internationally based on the World Health Organization (WHO) programs. Countries implement these programs in their respective countries. A research [2] showed several programs organized by exemplar countries either in the health sector or other sectoral strategies.

Nutrition interventions in health sector that are directly carried out could be in the form of promotion of healthy diet and physical activity during childhood, adolescence, maternal child food supplementation, maternal child micronutrient supplementation, including home fortification, delaying cord clamping, support for early immediate breast-feeding initiation, promotion and support for exclusive and continued breastfeeding, promotion of age-appropriate complementary feeding practice, management of MAM, treatment of SAM, anemia treatment. Indirect interventions could be disease prevention

and management strategies especially diarrhea, family planning and reproductive health services, maternal mental health support.

Indonesia has launched a specific nutrition intervention program since 2018 targeting pregnant women, breastfeeding mothers and children aged 0–23 months as priority targets, while the important targets are adolescents and women of childbearing age and children aged 24–59 months. In addition, other programs of sensitive nutrition intervention program in the form of increasing the supply of drinking water and sanitation, increasing access and quality of nutrition and health services, increasing awareness, commitment and practice of parenting and nutrition for mothers and children, as well as increasing access to nutritious food has also been launched [14].

5   Conclusion

The results showed that the stunting rate in Pekalongan Regency was 15.4%. It is lower than the national target of 20%. Nevertheless, poverty reduction and health improvement programs must continue to be implemented.

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