

Research Article



Stunting Determinants in Kulonprogo District, Yogyakarta Year 2019

Desi Nurfita^{1*}, Annisa Parisudha¹, Sugiarto Sugiarto²

¹ Public Health Faculty, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

² Kulonprogo Health Office, Yogyakarta, Indonesia

* **Correspondence:** desi.nurfita@ikm.uad.ac.id. Phone: 62821-9135-0472

Received 30 April 2021; Accepted 02 August 2021; Published 23 January 2022

ABSTRACT

Background: UNICEF stated that in 2014, about 66% of children aged less than five years in lower-middle-income countries were stunted. Stunting is a predictor of poor quality of human resources and reduces a nation's productivity in the future. Stunting control in the Kulonprogo District is one of the priority districts in Indonesia. This study aimed to analyze the determinants of stunting in the Kulonprogo District.

Methods: This research was conducted in Kuponprogo District. The population was children under five in Kulonprogo District. Analysis was done through a descriptive approach. Descriptive quantitative research was used by employing secondary data from the year 2013.

Results: The prevalence of stunting among children under five in the Kulonprogo District was 11.12%, spread across all primary health centers (Puskesmas) in the Kulonprogo District. The three puskesmas with the highest prevalence rate were Puskesmas Girimulyo 2, Puskesmas Samigaluh 2, and Puskesmas Kalibawang. The analysis found that low-income families, maternal education, age at pregnancy, chronic energy deficiency during pregnancy, anemia during pregnancy, early initiation of breastfeeding, exclusive breastfeeding, and parenting mode are the determinant factors of stunting in the Kulonprogo District in 2019.

Conclusion: Several determinants of stunting were found, namely low-income families, maternal education, age at pregnancy, chronic energy deficiency during pregnancy, anemia during pregnancy, early initiation of breastfeeding, exclusive breastfeeding, and parenting mode.

Keywords: Stunting; Determinants; Malnutrition; Under-five children

INTRODUCTION

Stunting is a chronic undernutrition status during growth and development since early life. This situation is indicated by the z-score of height for age (height-for-age) less than -2 standard deviations (SD) based on growth standards according to WHO (1). (2) Nutritional problems,



especially stunting in toddlers, can hinder child development, with negative impacts in the next life, such as intellectual decline, vulnerability to non-communicable diseases, decreased productivity that causes poverty, and risk factors for delivering low birth weight baby (3). Stunting is the point of the six global nutrition targets in 2025 and one indicator of the post-2015 development agenda (2).

Family socioeconomic status such as family income, parental education, mother's knowledge of nutrition, and the number of family members can indirectly relate to stunting (4). Research in South Ethiopia states that the number of family members is a risk factor for stunting in toddlers aged 24-36 months (6). The incidence of stunting in children under five is influenced by low income and parental education (5). Families with high incomes will have easier access to education and health to improve children's nutritional status (6).(7)

The direct causes of stunting are infectious diseases and nutrient intake (8)(9). The intake of nutrients that significantly affect the linear growth of children is a protein (10), zinc (11), iron (12) as well as vitamin A (13). Theoretically, differences in topography and geographical location give their characteristics to people's eating patterns and impact food availability in certain areas (14).

The selection of 100 priority districts/cities for stunting interventions in Indonesia is based on the criteria for the number and prevalence of stunted under-fives, taking into account the district/city poverty level (14). Kulon Progo is the only district in the Special Region of Yogyakarta that is included in the 100 priority districts for stunting intervention in Indonesia. The prevalence of stunting under five in Kulon Progo in 2013 was 26,31%. The incidence of stunting decreased in 2018 to 12,66%. (15) Stunting in Kulon Progo is almost spread in every village. Based on data from the Kuloprogo District Health Office in 2019, Kulonprogo District has 10 Stunting Prevention Priority Villages. Priority villages consist of Nomporejo, Tuksono, Karang Sari, Mediumsari, Donomulyo, Sidoharjo, Gerbosari, Ngargosari, Pagerharjo, and Kebonharjo.

Stunting is an exciting topic to study, considering that stunting has a profound impact in short-term and long-term. The short-term impact would be closely connected with morbidity and mortality on the baby or under five-year-old children, the midterm effect relating to low cognitive skills, and the long term relating to human resource quality and degenerative illness in the adult period (16). Accordingly, the researcher is attracted to analyze the determinants of stunting in the Kulonprogo District. This research contributes to informing policymaker about the factors associated with stunting in this region. It is essential to explore because the COVID-19 pandemic that occurred at the beginning of 2020 could exacerbate the situation of nutritional fulfillment in the marginal group.

METHOD

The design of this study was descriptive quantitative research that attempts to collect quantifiable information for statistical analysis of the population sample. We used secondary data from the Kulonprogo health office Data for Stunting Toddlers in Kulonprogo District Year 2019. Those data-based on community data surveys with the population of children under five in this area. We analyzed using frequency distribution.

RESULTS

Based on the data from the Kulonprogo District Office, in 2019, there were 2.740 toddlers out of a total of 24,644 toddlers. We figure out the number of toddlers based on the number of toddlers of their body weight in Posyandu. This measurement is one indicator of posyandu achievement in each health center. Figure 1 shows the comparison between the number of children under five and the number under five that measure their body weight in Kulonprogo during 2019.

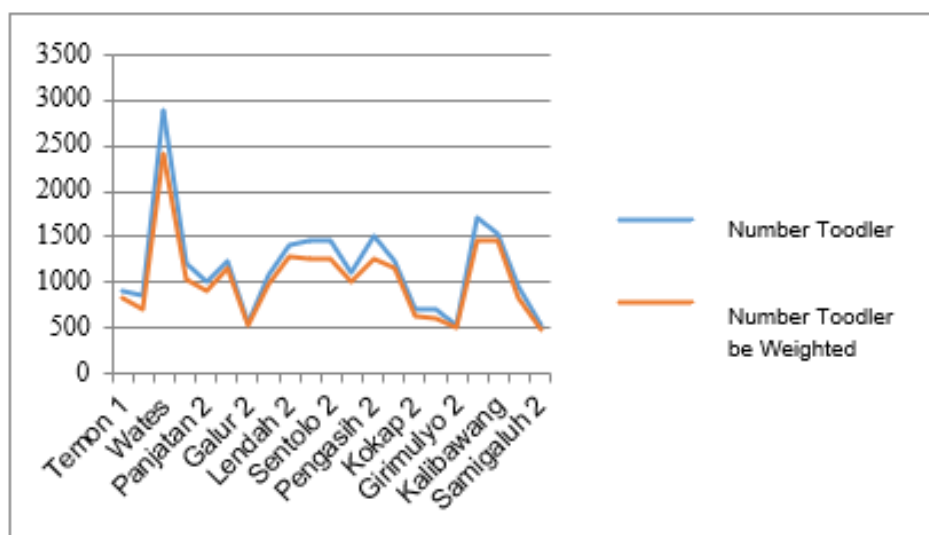


Figure 1. Comparative Analysis of Toddlers who Came and Weighed in Kulonprogo District in 2019

Based on Figure 2, it is known that most of the Puskesmas in Kulonprogo District are not achieving 100% of toddlers coming and being weighed yet. The highest achievement was reached by Puskesmas Kalibawang with more than 95%, and the lowest achievement was Puskesmas Temon 2 with about 83%.

Stunting in Kulonprogo District

Figure 3 shows the proportion of stunted children under five by Puskesmas in the Kulonprogo District. It is known that the highest proportion of stunting toddlers under five is in Puskesmas Girmulyo 2, followed by Puskesmas Samigaluh 2 and Kalibawang Health Center. While the lowest stunting toddler under five is in Puskesmas Nanggulan.

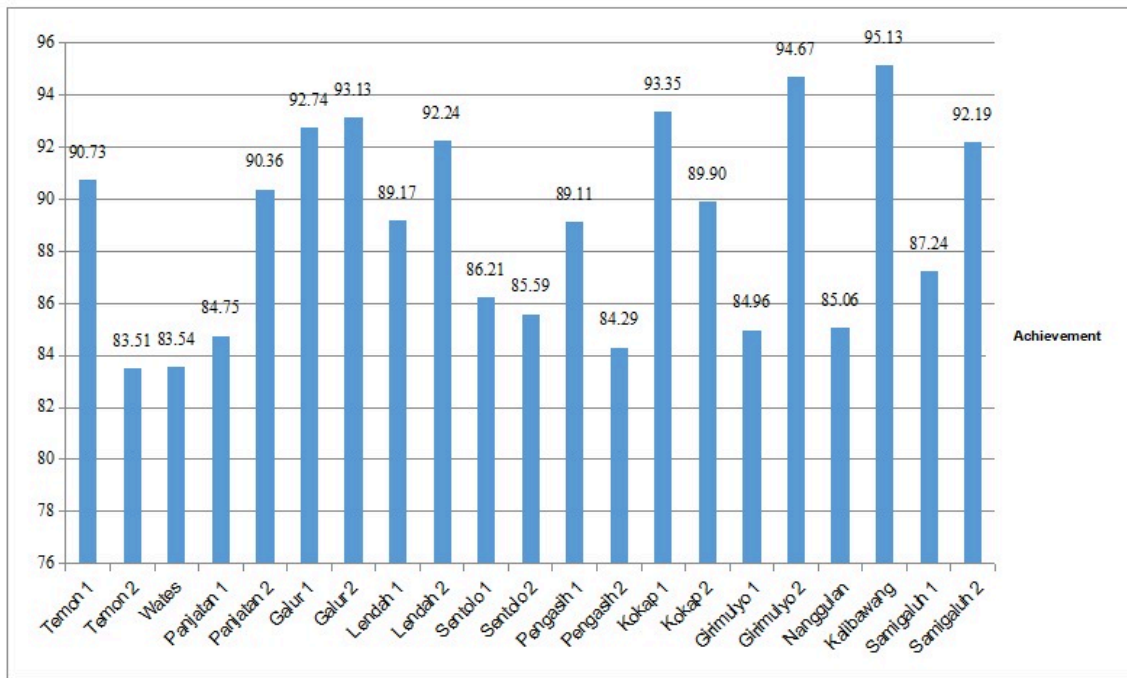


Figure 2. The proportion of Toddlers Who Come and Weighed by Health Center in Kulonprogo District in 2019

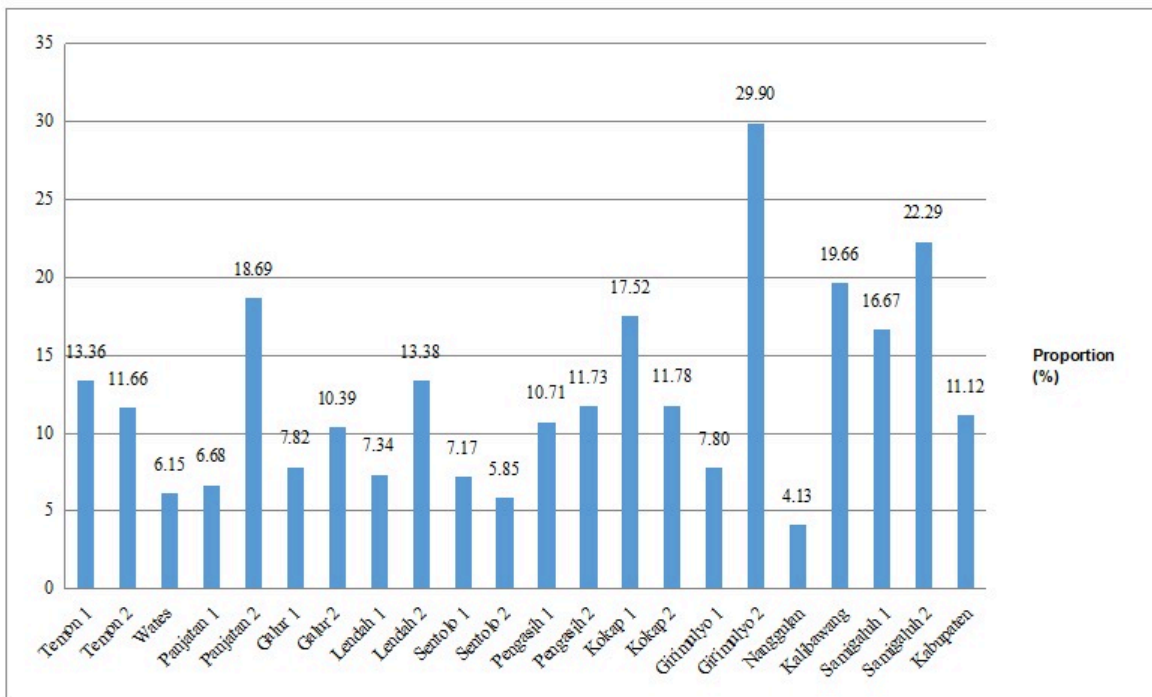


Figure 3. The proportion of Stunting Toddlers per Health Center in Kulonprogo District in 2019

Regarding the gender of the toddler who was getting stunting, it was known that mostly stunting children were dominated by a male toddler (53%). However, it seems the proportion was not significant (Figure 4).

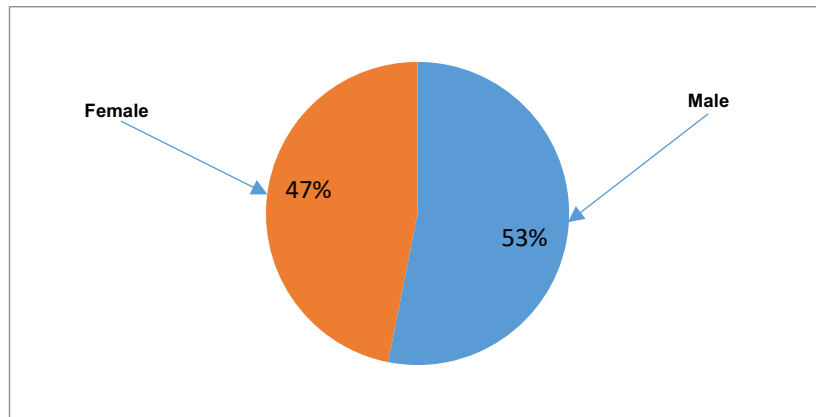


Figure 4. Stunting Toddlers by Gender in Kulonprogo District in 2019

Determinants of Stunting in Kulonprogo District

Table 1. Frequency distribution analysis the determinants of stunting in Kulonprogo District

Indicator	Number	Percentage (%)
Family Status		
Poor	1475	56
Wealthy	1146	44
Mother's education		
Primary school	123	6
Junior high school	406	22
Senior high school	1250	52
Diploma/University	105	6
Age when pregnant (year)		
15 – 20	96	5
20 – 30	938	47
30 – 35	727	37
>35	216	11
Chronic energy deficiency during pregnancy		
Yes	767	30
No	1817	70
Anemia status		
Yes	370	25
No	1108	75
Early initiation of breastfeeding status		
Yes	1750	70
No	743	30
Exclusive breastfeeding status		
Yes	1710	66
No	893	34
Parenting mode		
By themselves	1757	77
Helped by others	106	5
Mix	418	18

Based on Table 1, as many as 44% of children under five with stunting come from low-income families. About 52% of mothers with stunting toddlers have a high school education. There are still mothers who give birth at an age that has a high risk, namely 5% at the age of 15-20 years and 11% at the age of >35 years. There are still risk factors for insufficient total energy intake, which is 30% of pregnant women. There are still risk factors for anemia, which is 25% of pregnant women. The majority of mothers with toddler stunting have done early breastfeeding initiation (70%). Most mothers with stunting children conducted exclusive breastfeeding (66%). Most toddlers are cared for by their mothers (77%).

According to our data, the determinants of stunting in Kulonprogo during 2019 were low-income families, mother's education, age during pregnancy, chronic energy deficiency during pregnancy, anemia during pregnancy, early initiation of breastfeeding, exclusive breastfeeding, and parenting mode.

DISCUSSION

Kulonprogo District is an area that is included in the 100 priority districts/cities for stunting intervention and is also the only district in the Special Region of Yogyakarta that is suffering from stunting problems. Unbalanced nutrient intake or inadequate complementary feeding is one factor that directly affects stunting. Nutrient intake is influenced by the quality of the food, especially macronutrient and micronutrients, and the eating behavior of the families, especially mothers and children, which will impact the rule of feeding practice. Changes in behavior can occur when mothers have sufficient knowledge about balanced nutrition and understand nutritional problems at risk for stunting in children (17).

The quality and quantity of a person's food depend on the nutritional content of the food, the presence or absence of other food in the family, the purchasing power of the family, and the mother's characteristics regarding food and health. Nutritional status is determined by two aspects: the food eaten and the state of health. The state of health is also related to the mother's characteristics of food and health, the family's purchasing power, the presence or absence of infectious diseases, and the reach of health services.

Stunting is caused by multi-dimensional factors and not only caused by poor nutrition experienced by pregnant women and children under five (18). Therefore, interventions that will be very decisive in reducing stunting prevalence need to be carried out in the first 1,000 Days of Life. Poor maternal education is related to the incidence of stunting in children. Lack of maternal education and knowledge about nutrition is associated with stunting in toddlers aged 6-59 months (19). Stunting is also related to food and animal source food expenditure in families of children under five (household-level food security) (20). Family income is also reported as one of the determinants of stunting. Several studies have stated that children from low economic levels tend to be at risk of stunting(19,21–23) Research reports that toddlers living in families with low incomes are at 6.24 times greater risk of experiencing stunting than toddlers with families with sufficient income, which is the main factor of stunting in toddlers (23). Another determinant factor of stunting in Indonesia is related to gender. The male sex is the dominant gender that suffers stunting than the female sex.

Many studies related to the history of insufficiency total energy intake in pregnant women with stunting have been carried out. The research conducted by Dewi et al. (2020) found that mothers with a history of chronic energy deficiency were associated with stunting (24). However, another study conducted by Prabandari et al. (2016) obtained an inversely proportional result. There was no significant relationship between the history of poor nutrition during pregnancy and the incidence of stunting in toddlers (25).

Based on research conducted by Febrina (2017), it was found that there is a significant relationship between anemia in pregnant women and the incidence of stunting (26). However, another study conducted by Warsini et al. (2016) obtained different results (27). Another study conducted by Prabandari et al. (2016) in Boyolali District also showed that a history of maternal anemia did not significantly correlate with the incidence of stunting in children under five.

Toddlers under two years who experience stunting will have a lower level of intelligence, making children more susceptible to disease and, in the future, maybe at risk of decreasing productivity levels. In the end, stunting will broadly inhibit economic growth, increase poverty, and widen inequality (15). Therefore, stunting prevention needs to be carried out to develop a healthier generation.

CONCLUSION

In conclusion, several determinants of stunting under-five children were identified in Kulonprogo District: low-income families, mother's education, age during pregnancy, chronic energy deficiency during pregnancy, anemia during pregnancy, early initiation of breastfeeding status, exclusive breastfeeding for six months, and parenting mode.

Authors' contribution

DN contributed to data collection, analysis, report writing, and manuscript publication. AP contributed to the data collection and report writing. SS contributed to the data collection and licensing.

Funding

This research has not received external funding

Conflict of interest

There is no conflict of interest in this research.

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