PalArch's Journal of Archaeology of Egypt / Egyptology

SPATIAL SPREAD OF STUNTING INCIDENT IN TODDLERS

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Yessy Aprihatin[1 2], Nurhasan Syah[2], Indang Dewata[2], Erpita Yanti[1 2], Armaita[1 2], Spatial Spread Of Stunting Incident In Toddlers– Palarch's Journal of Archaeology of Egypt/Egyptology 17(6) (2020). ISSN 1567-214X.
Keywords: toddler, nutrition, stunting, spatial, pariaman

ABSTRACT

Pariaman City has a high prevalence of the nutritional status of toddlers, which one of the effects can result in children experiencing stunting. In this study, it is intended to know the spatial spread of stunting events or short toddlers in Pariaman City in 2019. The method used in this study is quantitative descriptive with a secondary data analysis approach or secondary data is the main source in this study. Data collection is conducted with spatially analyzed interviews and documentation using a SIG approach and quantitatively with data tabulation. The results of the study spatially showed that in 2019, almost all villages in Pariaman City had cases of stunting, except in Apar village-North Pariaman sub-district, and BatangTajongkek village-South Pariaman sub-district. The highest cases with more than 20 cases were found in South Tungkal village-North Pariaman sub-district (23 cases), East Pauh village-East Pariaman sub-district (26 cases), Cimparuh village-central Pariaman sub-district (38 cases), Taluak village-south Pariaman sub-district (26 cases) and Marunggi village-south Pariaman sub-district (34 cases). Furthermore, quantitatively the results of tabulation data show the central Pariaman sub-district and North Pariaman sub-district have a total of more than 150 cases of stunting. The results of the interview explain that stunting events that occur in Pariaman City can be caused by low awareness and knowledge of the mother about the necessary nutritional intake both when the child is in the womb and at the age of a toddler. Besides, it can also be driven by the economic condition of families with low incomes, the source of drinking water by using uns clean water, and no availability of latrines in the home environment.

Introduction

Nutrition problems are problems that until now have not been completed completely especially for developing countries, such as in Indonesia. Data from[1] states that the current development of nutrition in Indonesia that can be controlled is about vitamin A deficiency, impaired due to iodine deprivation, and nutritional anemia in children aged 2-5 years, where when viewed in the body length index compared to lifespan (PB/U) or height compared to age (TB/U) has a limit (z-score) less than -2 SD[2]. Malnutrition in the womb is influenced by the history of maternal nutritional status that can impact fetal

growth and development, so that babies born with Low Birth Weight (BBLR), small, short thin, low endurance and have a risk of death[3 4].

Stunting is one of the assessments in the Global Hunger Index (GHI) compiled by the International Food Policy Research Institute (IFPRI) on a country's food security. GHI's results in 2017, show Indonesia ranked 72nd out of 119 countries[5] or ranked 10th out of 15 countries in the Asia Pacific in addressing food security challenges[6]. The low results of the assessment by IFPRI, following WHO data showing Indonesia has a higher prevalence of stunting than countries in Southeast Asia[6], which was based on basic health research in 2010, the prevalence of stunting in school-age children was 35.6 with 15.1% of children with very short nutritional status and 20.5% short, furthermore, in 2018 the proportion of very short nutritional status was 11.5% and short nutritional status by 19.3%[7].

Based on data[7] the prevalence of nutritional status of toddlers in West Sumatra province was volatile, whereas for toddlers who experienced stunting in 2013 had a higher index value than the national value, while in 2018 experienced a decrease and was below the national index with a difference of only 0.8 only[8]. The percentage of stunting toddlers in Pariaman City in 2018 was 17.7% and decreased in 2019 by 9.8 %. It means Pariaman City has been able to run programs from the central government, but there must be more coaching in the prevention of stunting. Although there has been a decline, it still shows that many mothers in Indonesia including in Pariaman City of West Sumatra Province who give birth to babies with low birth weight, children experience slow development, intellectual decline, susceptibility to un communicable diseases, decreased productivity to cause poverty[9].

Many factors can cause the child to experience stunting, including low parental income and education[1], genetic factors, infectious diseases as well as maternal parenting and care patterns towards their child[10], and the level of maternal education with child nutrition status[11]. These factors if not noticed and followed up, then stunting events will increase which then impacts on the level of child intelligence, the susceptibility of children to disease, decreased productivity, inhibits economic growth, increases poverty and inequality[12], and exacerbates inequality that leads to a reduction of 10% of total lifetime income[13]. The amount of impact that is inflicted on toddlers in the event of stunting, causing the need for information about the spread of the location where the malnutrition problem occurs. The information can be used by the government to follow up on families, especially mothers with toddlers or children aged 0-59 months who experience stunting. This research aims to find out the spatial spread of stunting in toddlers in Pariaman City in 2019.

Methods

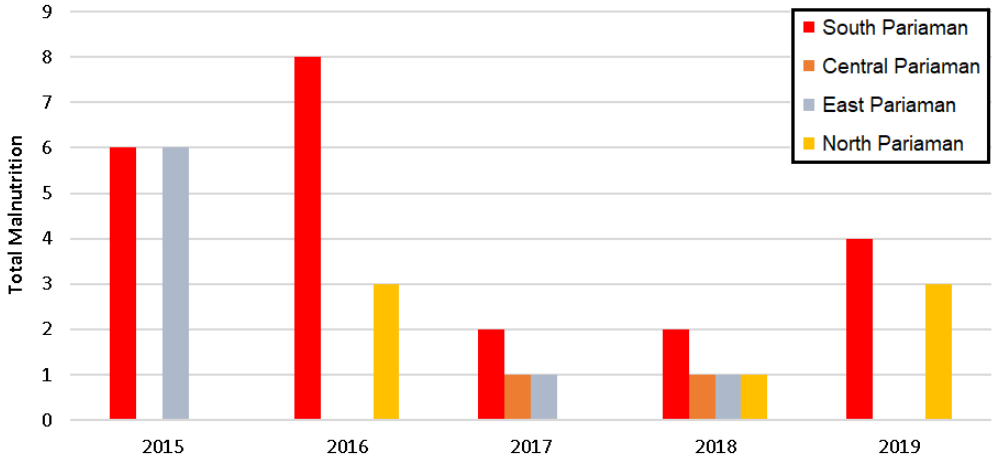
The research was conducted in Pariaman City with the type of research conducted is a descriptive quantitative research using a secondary data analysis approach. That is, in this study secondary data is used as the main data source. Data collection was conducted using interviews of mothers found in all sub-districts of Pariaman City with random sampling techniques. Besides, documentation techniques were obtained from Pariaman City in numbers, Pariaman City Health Office, and Pariaman People's Welfare Indicators. Data analysis is done spatially and quantitatively[14 15 16]. Spatially, data is analyzed with the concept of Geographic Information Systems (GIS) that can visualize, explore, parse data, and analyze data using ArcGIS 10.3.1. Quantitatively, the

data obtained is tabulated data, so that the data can be easily understood, then explained descriptively to the data that has been generated.

Results

The quality of human resources can be determined through their nutritional status, especially when still in the womb and the growth period or children. Children who have good nutritional status will have stronger endurance, better learning ability, and higher work productivity in the future compared to children who have malnutrition status[17] [18] [19] which can lead to ignorance and retardation. Nutrition problems, one of which resulted in stunting, can be generally caused by low knowledge and public awareness about the importance of nutrition obtained by children when in custody or toddlers, so that the pattern of family foster care is not very noticed. Nutrition problems for toddlers also occur in Pariaman City.

Malnourished Toddler in Pariaman City In 2015-2019 (Fig 1)

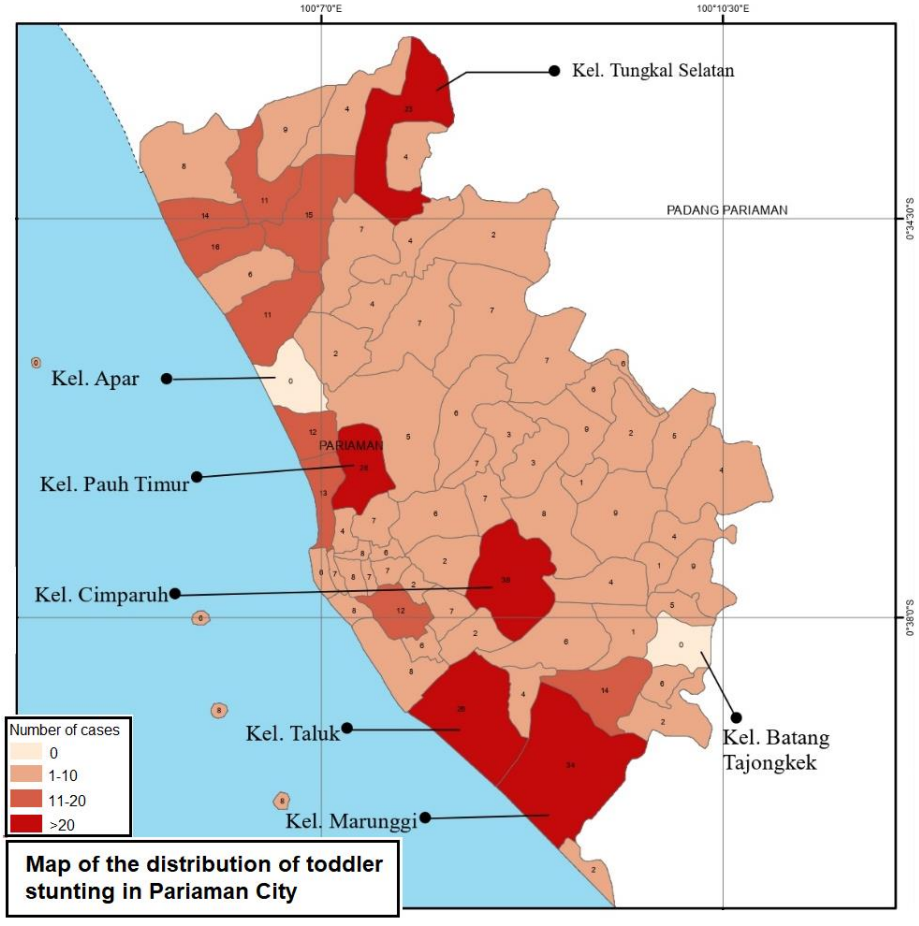


Based on Fig. 1 it is known that Pariaman City which has 4 sub-districts i.e South Pariaman, Central Pariaman, East Pariaman, and North Pariaman has malnutrition problems with toddlers. However, not all sub-districts experience such problems every year. This means that from 2015-2019, there are sub-districts that do not experience these nutritional problems. For example, in Central Pariaman during that period, only 2017 and 2018 experienced nutritional problems, while South Pariaman every year experienced malnutrition in toddlers. Similarly, North Pariaman increased again in 2019. This shows that the community especially the mother in Pariaman City still has a fairly low awareness of the nutrition of her toddler.

This is supported from the results of the National Socioeconomic Survey (SUSENAS) in 2009, where only 61.3% of infants aged 0-5 months received exclusive breast milk, in 2011, increased by 69.41%, still below the target of SPM, but the figure is still below the target set by Pariaman City Health Office which is 67% and Minimum Service Standard (SPM) with a target of 80%[20]. In addition to the low exclusive breastfeeding of the mother, the nutritional problems can also be caused by low awareness of the outage especially the mother in paying attention to vitamins in toddlers. Data from[21] showed the administration of vitamin A capsules for toddlers in Pariaman City in 2016 was conducted in only 3,401 toddlers out of 3,630 toddlers or 93.6%[22]. This means there are still ± 200 toddlers who do not get vitamin A.

Stunting or short toddlers become one of the effects of such nutritional problems where the toddler has a condition of failing to grow so that the child is too short for his age. The condition of stunting in toddlers is also experienced by children in Pariaman City. The spread of toddlers experiencing stunting in Pariaman City can spatially be seen in Fig. 2. The picture shows that almost all villages in Pariaman City have cases of stunting in toddlers, except Apar village of North Pariaman and Batang Tajongkek village of South Pariaman. Furthermore, the villages with the highest number of cases or more than 20 cases are found in South Tungkal village of North Pariaman (23 cases), East Pauh of village East Pariaman (26 cases), Cimparuh village of Central Pariaman (38 cases), Taluak village of South Pariaman (26 cases) and Marunggi village of South Pariaman (34 cases). In addition to having more than 20 cases, Pariaman City also several of cases of 11-20 scattered in the Western Pariaman City precisely in 6 villages in North Pariaman, 1 in Central Pariaman, and 2 in South Pariaman.

Fig. 2 The Spread of Stunting or Short Toddler Conditions in Pariaman City in 2019



In general, in the picture, it appears that Pariaman City is dominated by a low number of cases of 1 to 10 cases of stunting spread almost all sub-districts in Pariaman City and mostly in the eastern part of Pariaman City. More clearly, the number of stunting cases in 2019 can be seen in Fig. 3, which shows Central Pariaman has the highest number of cases with a total of 165 cases, while East Pariaman has the lowest number of cases. As such. From the result

of spatial and quantitative distribution of cases, stunting in Pariaman City can be categorized as having a low number of cases

Fig. 3 Short Toddler Case in Pariaman City 2019

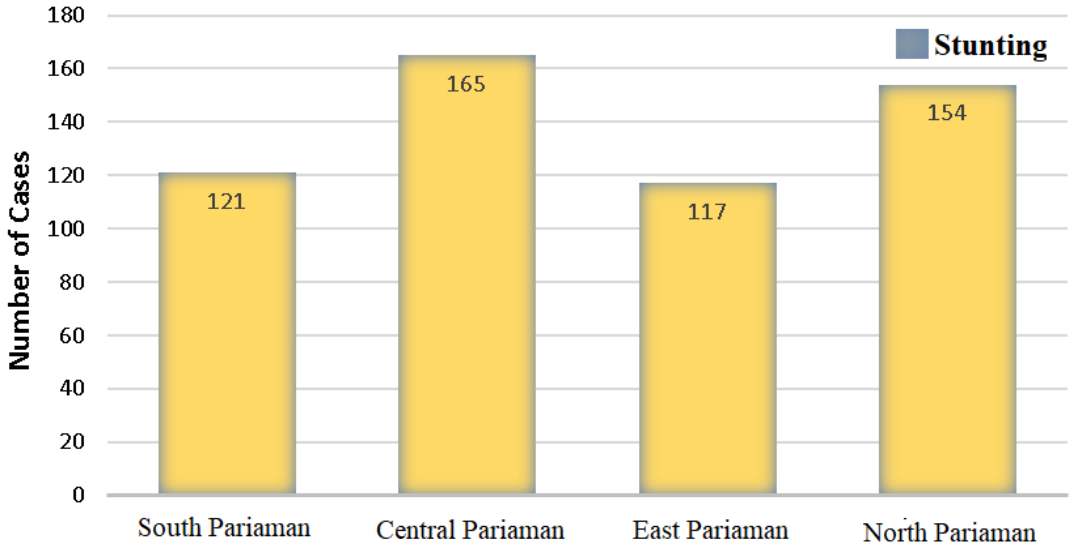
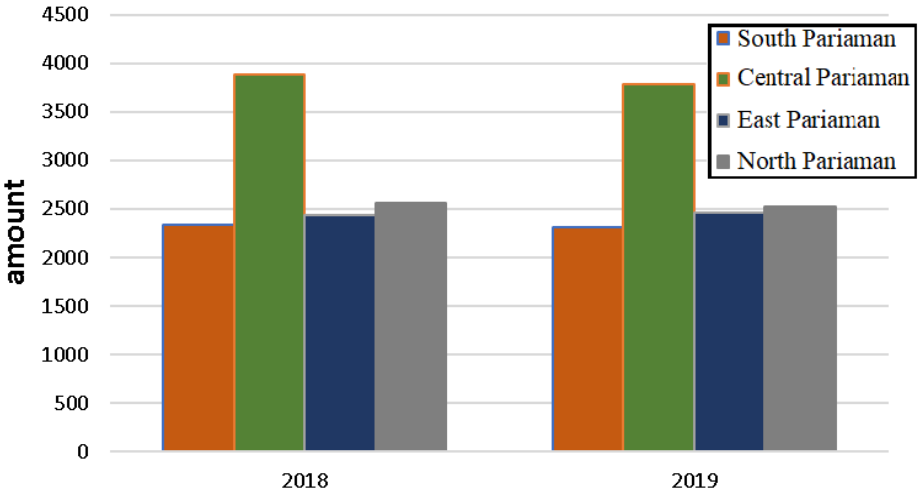


Fig. 3 the case of Stunting/toddler stunting case in Pariaman City, making the decline of the prevalence of malnourished toddlers and stunting becomes an important target that will be achieved in the priority role of working group IV PKK Pariaman City in 2020, so that no more people, especially children in Pariaman City have nutritional problems and stunting results. The results of interviews conducted on mothers in several villages representing deity show that there are still many mothers who do not know the importance of nutrition obtained by children during pregnancy and toddlers. The results of this study are following with[21] which explains that in 2017 in Pariaman City the knowledge of mothers on the benefits and importance of vitamin A administration for toddlers has a meaningful relationship, where 51.6% of respondents have low knowledge, 64.5% have negative attitudes about vitamin A, and 34.4% of mothers do not give vitamin A capsules in toddlers. Furthermore, it is known that nearly half of toddlers experience stunting caused by zinc consumption in toddlers in Rambai Village, South Pariaman in 2014[23].

Vitamin A administration and zinc consumption in toddlers, related to the level of maternal education in conducting food selection[24]. Parents who have higher education will have sufficient knowledge of nutrition and tend to choose foods with balanced nutrition and pay attention to the nutritional needs of children[25]. According to [26], mothers who have enough knowledge of nutrition will be able to use the household income allocation to choose good food and be able to pay attention to good nutrition for their child. In research conducted by[27], it was found stunting was most common in boys and children who had low-educated mothers, especially in rural areas of 54.8%. In addition to the knowledge and education of mothers, some mothers already know of it but are constrained by the economy. This means that the family has not been able to meet the nutritional needs for the mother (child in the womb) and the child in the age of a toddler, so the family income also affects stunting[28] [29] with a risk of stunting 2.30 times. Data from[30] mentions families with relatively fixed incomes, less weight prevalence and, lower shortness prevalence compared to families on unsized incomes. Families with fewer incomes, when they experience a

decrease in income, will experience a decrease in food quality and quantity or prevent individuals from consuming nutritious nutrients and if income increases, consumption patterns will be more diverse so that the consumption of foods of high nutritional value will also increase[31].

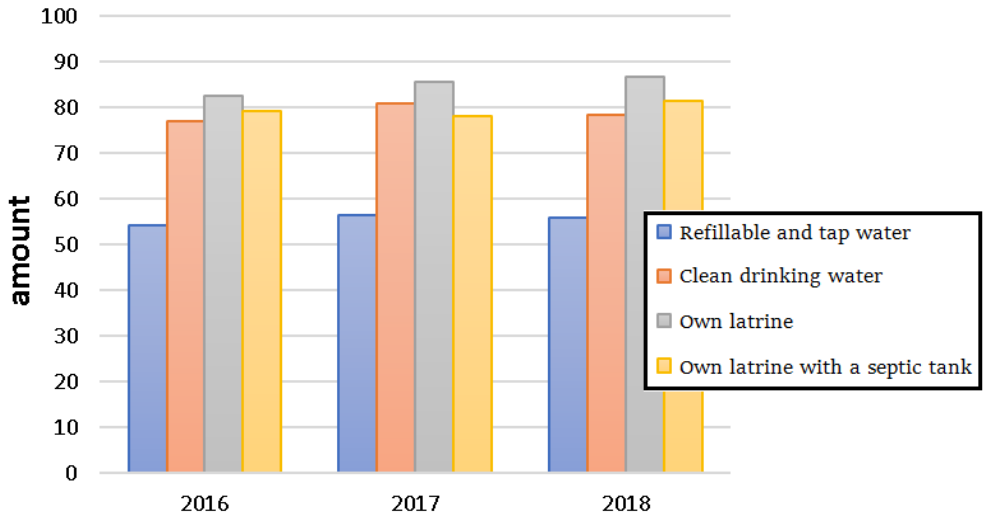
Fig. 4 Pre-Prosperous Families in Pariaman City 2018-2019



This economic factor is the dominant factor influencing stunting events in the Central Pariaman sub-district (the sub-district with the highest number of stunting cases). Based on data of Pariaman City in 2020, in 2018-2019 Pariaman City still has families with the highest category of welfare in Central Pariaman, i.e almost reaching 4000 families. Even though it has seen a decline in the number of pre-prosperous, but still not significant. Furthermore, North Pariaman has a pre-prosperous environment family number of 2500 families. This result is in line with the stunting events contained in Fig. 3 which show that the Central Pariaman and the Northern Pariaman have a total of more than 150 cases. Meanwhile, the East Pariaman experienced a slight increase in universal families and vice versa in South Pariaman.

In addition to economic factors, stunting events in Pariaman City can also be influenced by healthy living habits and the quality of environmental sanitation. [34]research show insufficient sanitary conditions and inappropriate water have risk factors for stunting in toddlers 1.37 times and 1.09 times, respectively. If reviewed, sanitary conditions based on Fig. 5 in Pariaman City are still quite concerning, where the acquisition and use of clean water decreased from 2016-2018, while the availability of latrines increased although not yet significant. Conditions, where there are still people who consume uns clean water, can be a factor in stunting in toddlers. That is households that drink water without being processed influence stunting events in toddlers[32]. So is the availability of latrines, where there are still communities that do not have latrines. It can also lead to stunting clown events[33].

Fig. 5 Sanitary Conditions of Pariaman City



Thus, stunting or short toddler events that occur in all Pariaman sub-districts with the highest number of cases are Central Pariaman, which can be caused by low awareness and knowledge of the mother about the necessary nutritional intake both in the womb and at the age of toddlers. Besides, it can also be driven by the economic condition of low-income families, the source of drinking water by using uns clean water, and the no availability of latrines in the home environment. Whereas toddlerhood according to 37 is an important period due to the physical growth and development of psychomotor (0-24 months), mentally and socially experienced by the toddler. If in the important period or golden period of the toddler or 0-24 months is not fulfilled his nutritional intake, then the toddler will experience a critical period that can hinder the child's development at that time and also in the future of adulthood.

Conclusions

Pariaman City is one of the cities/districts in West Sumatra Province that has a case of stunting or short toddler. Spatially, most Pariaman City has a small number of cases out of 10 spread almost in all villages, except Apar village of North Pariaman and Batang Tajongkek village of South Pariaman, while the highest number of cases or more than 20 cases are only a few villages located in the southern and Northern parts of Pariaman City. Furthermore, quantitatively, Central Pariaman and North Pariaman became sub-districts with the highest number of cases or more than 150 cases in Pariaman City. The incidence of stunting or short toddlers in Pariaman City can be caused by the low awareness and knowledge of the mother about the nutritional intake required both when the child is in the womb and at the age of the toddler. Besides, it can also be driven by the economic condition of families with low incomes, the source of drinking water by using uns clean water and the no availability of latrines in the home environment.

Acknowledgements

The author would like to thank the Health Officer of Pariaman City and all those who have helped in collecting data for the preparation of this Scientific Writing. Thank you, the authors also convey to the head of the Study Program of Environmental Science Doctoral for his input, criticism, and advice.

Ethical Clearance is taken from the institutional ethical committee of Universitas Negeri Padang–Indonesia as per rules.

Source of Funding: Self

Conflict of Interest: Nil

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