

Epidemiological Description of Stunting Prevalence in Banjarbaru City

Hadrianti H.D. Lasari¹, Musafaah², Indra Haryanto Ali³, Ghina Anastasia Muhtar⁴, Wahyuni⁵,
Septiana Widyana Sonda⁶, Nurul Hibah⁷, Hartati⁸, Anis Kamila Saleha⁹

{hadrianti.lasari@ulm.ac.id¹, musafaah01@ulm.ac.id², indra.ali@ulm.ac.id³, ghiniastraw@gmail.com⁴,
ywahyuni0916@gmail.com⁵, 2110912220020@mhs.ulm.ac.id⁶, 2210912120023@mhs.ulm.ac.id⁷,
2210912220002@mhs.ulm.ac.id⁸, 2110912120023@mhs.ulm.ac.id⁹}

^{1,2,3,6,7,8,9}Public health, University Lambung Mangkurat, Banjarmasin, Indonesia

⁴Geography, University Lambung Mangkurat, Banjarmasin, Indonesia

⁵Nursing, University Lambung Mangkurat, Banjarmasin, Indonesia

Abstract. Stunting is one of the major nutrition problems faced by Indonesia, with a significant prevalence, especially in the South Kalimantan region. In 2020, the prevalence of stunting in South Kalimantan reached 44.2%, far above the national rate of 24.4%. Stunting is a condition of growth failure in children that has a serious impact on physical and cognitive development, and increases the risk of chronic diseases in adulthood. Prevention and treatment of stunting requires a good understanding of the distribution of the disease and its risk factors. This study aims to determine the epidemiology of stunting prevalence in Banjarbaru City. The methods used include spatial-temporal analysis and case-control methods to identify risk factors for stunting. Based on the results of this study, the epidemiological description of stunting shows that the highest prevalence by gender is in males, who account for 55% of the cases. The age group most affected by stunting is 1 year old, with a prevalence of 25%. The highest prevalence of stunting in Banjarbaru City is in Landasan Ulin Utara and Loktabat Utara villages, each with 15% of cases.

Keywords: Stunting, determine the epidemiology,

1 Introduction

Stunting is now one of the most prominent public health problems worldwide. In Southeast Asia, about three in five children are stunted [1]. In 2017, the global prevalence of stunting reached 22.2%, with approximately 150.8 million children under five affected. Data from the Data and Information Center of the Indonesian Ministry of Health (2018) noted that in 2015, the global stunting prevalence rate reached 23.2% [2]. In Asia, there are approximately 83.6 million stunted children under five, with the highest proportion in South Asia (58.7%) and the lowest in Central Asia (0.9%) [3].

According to the World Association Organization (2018), the prevalence of stunting in Indonesia in 2018 was 30.8%, making it one of the countries with the highest stunting rates in Southeast Asia [2]. This rate is even higher than other nutritional problems in children under five, such as malnutrition and obesity. In South Kalimantan, the prevalence of stunting in 2020 reached 44.2%, far exceeding the national rate of 24.4%. This shows that South Kalimantan is still far from the national normal standard. In Banjarbaru City, it is reported that the stunting prevalence in 2023 is 13.03%, which is already below the national target of 14%. Although this figure has met the national target, it is still important to conduct research to identify in depth the specific risk factors that influence stunting in this region. [4], [5].

Stunting is a condition of impaired growth and development of children that occurs due to insufficient daily intake of energy and nutrients, especially in the first 1000 days. The period in the womb to the first two years of life is a very sensitive period to environmental influences. This time is short and unrepeatable, so it is often referred to as the Window of Opportunity, or the window of opportunity to support optimal child development. Other contributing factors include recurrent infections and lack of psychosocial stimulation, which can result in impaired growth and development. These conditions have a significant impact on the health and future of children, especially in developing countries [6], [7], [8].

Stunting has a significant impact in both the short and long term. In the short term, stunting can reduce children's immunity, making them more vulnerable to disease. In the long term, stunting inhibits motor and cognitive development, increases the risk of death, and reduces children's future productivity and economic capabilities. These impacts directly affect the quality of human resources in Indonesia. Therefore, handling stunting must be a top priority to improve the welfare of the community. This step is important to break the chain of stunting and build a healthier and more productive future generation [9], [10].

There are various factors that influence stunting in terms of geography, environment and socio-culture. Risk factors for stunting from an individual perspective are gender, child age, birth weight and birth length. To effectively address stunting as needed, an in-depth understanding of the epidemiological picture of stunting is needed. Based on this, this study aims to develop an epidemiological picture, conduct mapping, and model the prevalence of stunting in Banjarbaru City.

2 Methods

This research is a quantitative study with a descriptive approach that uses secondary data. The data used includes the number of stunting cases during the 2021-2023 period. This data was obtained from the Banjarbaru City Health Office. The purpose of this study is to describe the epidemiology of stunting prevalence in Banjarbaru City using the trend analysis method. Data processing was carried out with the help of the Microsoft Excel program. The study population included all stunting cases reported in each sub-district to the Banjarbaru City Health Office. The variables used in this epidemiological description are gender, age, place, birth weight and birth length.

3 Results and Discussion

3.1 Results

Banjarbaru City is the capital city of South Kalimantan Province. The area of Banjarbaru City is 305.153 divided into 5 (five) sub-districts. Banjarbaru City consists of 5 sub-districts and 20 villages. Based on data from the Population and Civil Registration Office of Banjarbaru City, the population in Banjarbaru City in 2023 reached 286,800 people, consisting of 144,014 men and 142,786 women. The sex ratio shows that there are slightly more males than females [11].

The population of Banjarbaru City continues to increase every year. Based on data from the Pusdatin of the Indonesian Ministry of Health, in 2022 the population of Banjarbaru City was recorded at 280,110 people, and increased to 286,800 people in 2023, with 144,014 men and 142,786 women. The number of toddlers (0-4 years) in Banjarbaru City is 8% (22,160) [11].

Based on data from the Banjarbaru City Health Office, the total prevalence of stunting from 2021 - 2023 is 3960 cases. The following graph presents the prevalence of stunting in Banjarbaru City in 2021-2023.

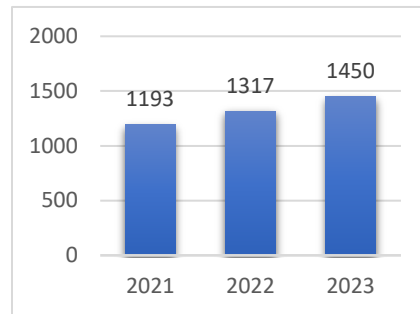


Fig. 1. Number of Stunting prevalence in Banjarbaru City in 2021-2023

Figure 1 shows an increase in the prevalence of stunting during the period 2021 to 2023. In 2021, 1,193 cases were recorded, then increased to 1,317 cases in 2022. In 2023, the number of stunting cases continued to grow, reaching 1,450 cases. This trend shows that the problem of stunting in Banjarbaru City is growing and requires more intensive attention and health interventions to reduce the rate.

The distribution of stunting prevalence based on gender and age, in the following table.

Table 1. Frequency Distribution of Stunting Prevalence

Characteristics	Frequency	%
Gender		
Male	2163	55
Female	1797	45
Ages (month)		

0-11	901	23
12-23	999	25
24-35	828	21
36-47	674	17
47-59	558	14

Based on Table 1, it is known that male gender dominates the prevalence of stunting with a total of 2163 cases (55%) while women recorded 1797 cases (45%). This identifies that male experience more stunting than female. In age characteristics, the highest prevalence of stunting was in children aged 12 -23 month or 1 year as many as 999 cases (25%).

3.1.1 Number of Stunting prevalences by Place in Banjarbaru City in 2021-2023

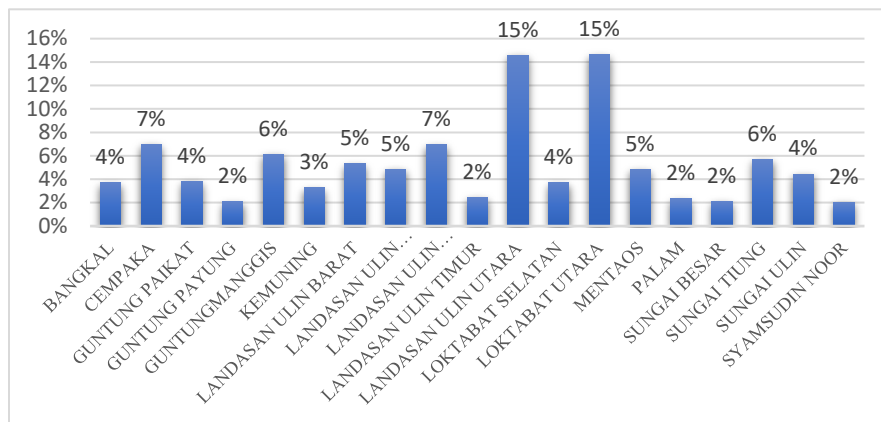


Fig. 2. Number of Stunting prevalence by Place in Banjarbaru City in 2021-2023

Based on Figure 2, it is known that the prevalence of stunting by village in Banjarbaru City in 2021-2023, the highest cases occurred in Landasan Ulin Utara and Loktabat Utara villages with a percentage of 15%. Villages with the lowest prevalence of stunting are Guntung Payung, Landasan Ulin Utara, Palam, Sungai Besar and Syamsudin Noor with a percentage of 2%.

3.1.2 Number of Stunting prevalence Based on Weight Birth weight in 2021-2023 in Banjarbaru City

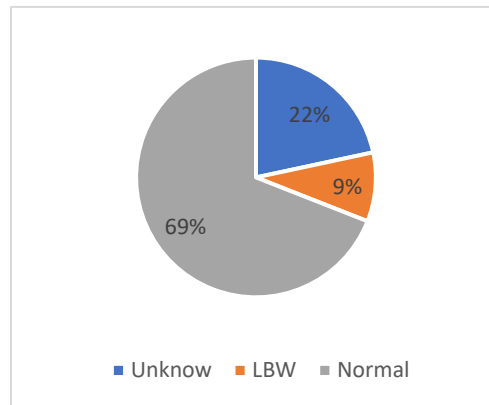


Fig. 3. Number of Stunting Prevalences Based on Weight Birth Weight in 2021-2023 in Banjarbaru City

Figure 3 shows that 69% of the stunted children were born with normal weight. Meanwhile, 9% of cases were associated with children born with low birth weight, suggesting an association between birth weight and stunting risk. A total of 22% of stunting cases had no birth weight information, which is an area that has not been clearly identified in this analysis.

3.1.3 Number of Stunting prevalences Based on Birth Length in 2021-2023 in Banjarbaru city

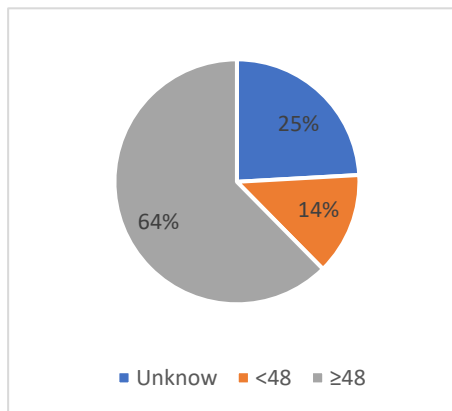


Fig. 4. Number of Stunting prevalences Based on Birth Length in 2021-2023 in Banjarbaru city

Figure 4 shows stunting cases based on birth length, which shows that 64% of stunted children had a birth length of more than 48 cm. A total of 14% of stunting cases occurred in children with a birth length of less than 48 cm. Meanwhile, 25% of cases did not have information related to birth length.

3.2 Discussion

Based on the results of secondary data analysis regarding the prevalence of stunting in Banjarbaru City in 2021-2023, it is known that the prevalence of stunting is more prevalent in boys, with the number of cases reaching 2,163 or 55%. This is in line with research conducted by Alda dan Alkaff, which shows that male toddlers are more prone to stunting. Hamal et al. also suggested that stunting is more common in male infants due to different patterns of development and growth, which are often associated with environmental factors [12].

These environmental factors include psychological aspects of child development, including the ability to control emotional expression, understanding, as well as the influence of parenting in meeting good nutritional needs. Researchers argue that boys are more prone to stunted growth due to psychological factors. This psychological development includes understanding, controlling expression, and the various emotions that children experience. In addition, this development is strongly influenced by the care provided, especially in fulfilling food needs. A warm, loving and responsive environment plays an important role in supporting children's psychological development [13].

In age characteristics, the prevalence of stunting is most prevalent at 12-23 months or one year of age, with a prevalence of 999 cases (25%). This is in line with research conducted by Asmin et al. That stunting is mostly found in toddlers aged more than one year and less than one year [14]. Children aged ≥ 24 months generally do not understand the concept of personal hygiene, especially if they are in an environment that does not support healthy living behavior. Poor hygiene conditions make toddlers more vulnerable to disease. When sick, toddlers' appetite tends to decrease, resulting in insufficient nutritional intake into the body. As a result, children's growth is disrupted and they are at risk of stunting [12].

Research by Ardiansyah et al. also shows that children aged 12-23 months have a 1.849 times higher risk of stunting than children aged 0-11 months. This is due to the increase in nutrient requirements with age to support the body's energy metabolism. Children in the age range of 12-23 months require higher nutritional intake to support their growth and development process [15].

Based on Figure 2, the number of stunting prevalences by place shows that Landasan Ulin Utara and Loktabat Utara villages have the highest stunting rates, at 15% each. These two villages are also located in areas with large populations, which could potentially influence the high number of stunting cases. Landasan Ulin Utara is located in Liang Anggang Subdistrict, which has the third largest population in Banjarbaru City. Meanwhile, Kelurahan Loktabat Utara is in Kecamatan Banjarbaru Utara, the second most populous sub-district in the city. These percentages indicate a serious problem with the nutritional status of children in these two areas, which requires more attention through health interventions and improved nutrition [11].

The prevalence of stunting is often closely related to birth weight. Based on the data obtained, 369 stunting cases (9%) were recorded as having a history of low birth weight (LBW). According to Sihombing's research (2019), which shows that low birth weight is associated with the prevalence of stunting, caused by maternal malnutrition during pregnancy. Malnutrition during pregnancy causes stunted fetal growth in the womb, so babies are born with low birth weight [16].

Birth weight is an important indicator of newborn health and is often used to describe fetal growth during pregnancy. Infants with low birth weight are more vulnerable to unfavorable environmental factors and have a higher risk of stunting than infants born with normal weight. In addition, infants with a history of LBW and inadequate diet may face difficulties in meeting their nutritional needs [16].

Figure 4 shows that 14% of stunting cases are associated with a history of below-normal birth length (<48 cm). According to the Ministry of Health, the normal birth length of newborns ranges from 49-50 cm, so a birth length less than this is one of the risk factors for stunting. Birth length is an important determinant of developmental delay. The risk of growth faltering is higher in infants who have experienced previous delays, including conditions during pregnancy and prematurity. Birth length has a significant effect on the development of future infant growth [17], [18].

4 Conclusion

Based on stunting epidemiology data in Banjarbaru City from 2021-2023, stunting is more common among boys (55%), suggesting the presence of gender-related risk factors. The condition is most common in children under 12-23 months of age, signaling the need for interventions in this age group. Landasan Ulin Utara and Loktabat Utara villages recorded the highest stunting rates in the city, at 15% each. Birth factors also play an important role, with 9% of stunting cases related to low birth weight (LBW) and 14% related to below-normal birth length (<48 cm). These findings emphasize the importance of birth factors in later development and point to the need to focus on sex, age and birth factors in stunting prevention efforts.

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