

Stunting Analysis In Toddlers In West Java 2014-2021

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Abstract.

Stunting in toddlers is a global health problem affecting children's physical and mental development. This study aims to analyze the prevalence, trends, causes, and impact of stunting on toddlers in West Java province from 2014-2021. It also provides poor nutrition, sanitation, and access and healthcare practices. The analysis results show that although preventive and intervention efforts have been undertaken by the government, stunting rates in children under 5 years of age in West Java still remain high during the study period. Bad nutrition, especially bad nutrition in the first 1,000 days of life, was identified as the main cause of stunting in this region. In addition, poor hygiene and lack of access to health care also played a big role in this problem. Stunting has a serious impact on the physical and cognitive development of toddlers and can affect their productivity and health in the future. Therefore, real steps need to be taken to improve good nutritional access, provide education on the importance of nutrition in pregnancy and childhood, as well as improving the health infrastructure and medical services facilities in West Java. This study provides an in-depth understanding of stunting dynamics in children under 5 years of age at the regional level, so that it can serve as a foundation for more effective intervention policies and programs to lower the malnutrition rate.

Keywords: *Stunting, Nutrition, Infrastructure, Physical And Cognitive Development and West Java Province.*

I. INTRODUCTION

Stunting is a disorder that occurs in children and affects their development. Some of you may not be familiar with this term, but stunting cases are quite common in Indonesia. stunting is one type of child health disorder caused by malnutrition, especially if the condition lasts for a long time. This condition can be caused by malnutrition in pregnant women or when the child is growing up. The most common characteristic of stunting children is that they are shorter than their age. But the child's posture is basically influenced by many factors. According to WHO (2015), stunting is a growth disorder caused by chronic malnutrition and recurrent infections, characterized by high or high below normal [1]. Before diagnosing If you have a stunting diagnosis, the doctor will ask for food to the baby, a history of care, health status during pregnancy and after childbirth, as well as a residential environment. This is important for doctors to know, because many factors can cause this decline, starting with improper diet, pregnant women's condition when pregnant.

The doctor will then continue the physical examination to look for signs of shape abnormalities in the child. By measuring the weight and height, measure the head and arms circles. If the height is below the red line of the growth curve recommended by the World Health Organization (WHO), this may indicate a decrease. Although developmental delays affect adults, this condition can be treated [2]. According to the Ministry of Health's Stunting Bulletin, stunting is influenced by the example of parents, the scope and quality of health care, the environment, and food security. One of the first treatments that can be applied to children with less than normal height diagnosed with developmental delays is to supplement them including early breastfeeding initiation (IMD), exclusive breastfeeding until 6 months of age, and breastfeeding with MPASI until 2 years of age [3]. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend that babies aged 6 to 23 months receive optimal breast milk supplements (MPASI). Food shall contain at least 4 or more kinds of food. This food includes cereals or bulbs, nuts and nuts. It can be used as a food source for nuts, dairy products, eggs or other protein sources, and intake rich in vitamin A or others [4].

II. METHODS

In this research method uses long data analysis, which this method is the data obtained from repeated measurements (repeat Measurement) against a number of individual. The correlation between observation in the same unit on the long-dinal statistics procedures, especially the generalised linear modelling (GLM), can't be applied. The right method used to analyze data [5][6].

It was collected into one in West Java province of West Java from 2014 to 2021. But we don't include in the data collection but the data collected by West Java government and in school became read by the entire community, students, students, and the workers who want the increase in the number of the number of. We as a student also helped use the data that has been based on good and spread through data website such as kagle, we get the data from opendata.jabarprov.go.id website for as a lecture service support [7][8]. In set data available there are 8 columns containing id, code_kabupaten, code_kabupaten, code_provinsi, the_ent, the term for further explanation below:

- ID: It is a column that contains unique identification for every item in data collection. Each line has different identification to distinguish one item with other items.
- The_ Provincial code: This column contains code identification in Indonesia. Every province has the own code to distinguish this province with other provinces.
- Regency code: The column contains regency code or town. Every regency or town has its own code.
- The name_abup Regency: This column contains a complete name of regency or town identified by_abupaten code. This can also provide context about geographic location of the data contained in the line.
- Presentase: This is a column that may contain numerical value (usually in percentage) describing the presentase of each population or samples affected by editor. The Presentase gave a picture of how far the editor of the population in every regency or town examined.
- Unit: This column explains the unit that will be used to measure a presentase. For example, the editor can be measured in percent (%), and this information will be listed in this column.
- Year: This is a column containing information about the year in which the data was collected or recorded. It enables stunting analysis over time, helping in understanding how stunting levels have changed over the given period (2014 to 2021).

III. RESULT AND DISCUSSION

Stunting is a statement of illness that must be handled immediately, if not handled quickly, then it will be entrusted to the younger generation who are under the age of 17 years old. The factor that has a significant influence has been the accounting for ballads in West Java. These factors include bad nutrition, accessories health, hygiene, education, and mothers. In analysts, this is also done to understand each factor's relative contribution to stunting problems in this area.

Stunting Data In West Java

In the data image below are the results of data collected by the number of stunting from 2014 to 2021. It is seen that the data below has 8 columns which contain about id data up to year data in West Java province. In the data, there are various Regency codes as well as the percentage of the increase and decrease rate of stunting that occurred in the province. This data also has different graph levels each year. We processed this data using Pentaho and also Jupyter Notebook. why use this software? because we think as students it is very suitable and suitable software for beginners and to display graphics we use Jupyter Notebook. Jupyter Notebook is a free web application used by data scientists to create and share documents containing code, computational workflows, analysis, visualization and other data processing. Jupyter Notebook is an abbreviation of three programming languages, namely Julia (Ju), Python (Py) and R. This application can be used to collaborate with other teams because it is open source and can be shared easily.

No	nama_regi_kode	nama_regi	sub_persentase_sasaran	tahun	
1	32	JAWA BAR	3203 KABUPATEN	9,04 PERSEN	2014
2	32	JAWA BAR	3202 KABUPATEN	12,21 PERSEN	2014
3	32	JAWA BAR	3205 KABUPATEN	24,32 PERSEN	2014
4	32	JAWA BAR	3204 KABUPATEN	17,14 PERSEN	2014
5	32	JAWA BAR	3206 KABUPATEN	7,12 PERSEN	2014
6	32	JAWA BAR	3208 KABUPATEN	21,8 PERSEN	2014
7	32	JAWA BAR	3207 KABUPATEN	5,12 PERSEN	2014
8	32	JAWA BAR	3208 KABUPATEN	7,32 PERSEN	2014
9	32	JAWA BAR	3209 KABUPATEN	12,04 PERSEN	2014
10	32	JAWA BAR	3210 KABUPATEN	20,42 PERSEN	2014
11	32	JAWA BAR	3211 KABUPATEN	0 PERSEN	2014
12	32	JAWA BAR	3212 KABUPATEN	0 PERSEN	2014
13	32	JAWA BAR	3213 KABUPATEN	3,55 PERSEN	2014
14	32	JAWA BAR	3214 KABUPATEN	8 PERSEN	2014
15	32	JAWA BAR	3215 KABUPATEN	13,79 PERSEN	2014
16	32	JAWA BAR	3216 KABUPATEN	10,2 PERSEN	2014
17	32	JAWA BAR	3217 KABUPATEN	16,36 PERSEN	2014
18	32	JAWA BAR	3218 KABUPATEN	7,63 PERSEN	2014
19	32	JAWA BAR	3271 KOTA BOG	12,76 PERSEN	2014
20	32	JAWA BAR	3272 KOTA SING	6,68 PERSEN	2014
21	32	JAWA BAR	3273 KOTA BAN	11,34 PERSEN	2014
22	32	JAWA BAR	3274 KOTA CIB	11,63 PERSEN	2014
23	32	JAWA BAR	3275 KOTA BEN	8,43 PERSEN	2014
24	32	JAWA BAR	3276 KOTA MEG	12,47 PERSEN	2014
25	32	JAWA BAR	3277 KOTA CIMA	13,19 PERSEN	2014
26	32	JAWA BAR	3278 KOTA TAS	6,76 PERSEN	2014
27	32	JAWA BAR	3279 KOTA TAS	4,4 PERSEN	2014

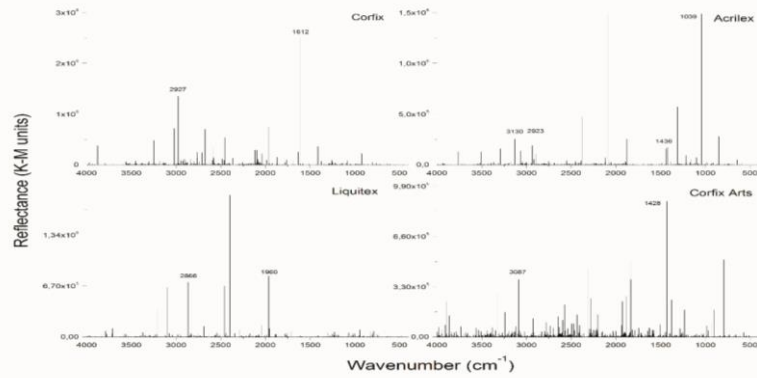


Fig 1. Stunting Data In West Java

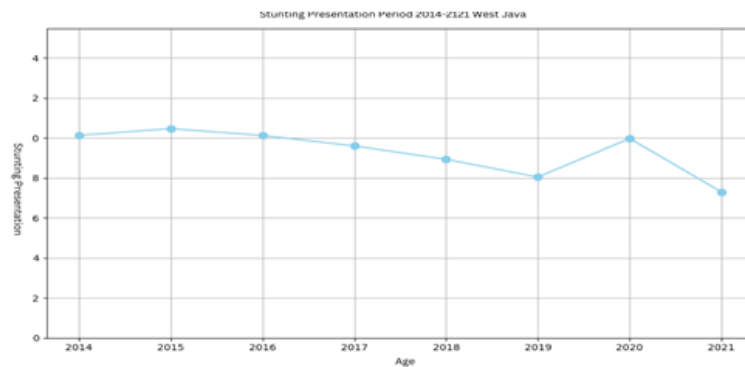


Fig 2. Stunting Presentation Period 2014-2021 West Java With Jupyter Notebook program apps

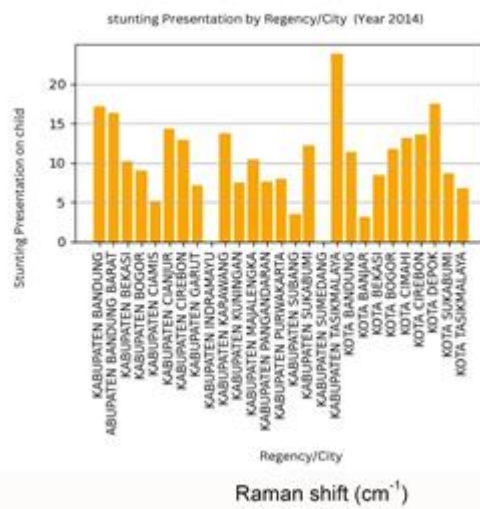


Fig 3. Percentage of Stacking Graphs In Year 2014

The above chart shows that there were increases and decreases in 2014 so that the data are unstable and consistent in the regencies and cities in the province of West Java. The highest chart in 2014 was determined by the Tasik Regency of Malaya, which was found to be the most stunting than any other area in West Java.

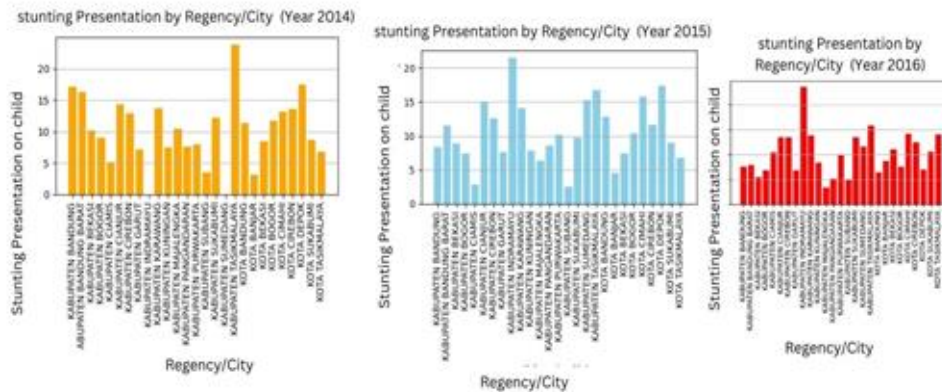


Fig 4. Distinction of Stunting Presentation In 2014 to 2016 Period

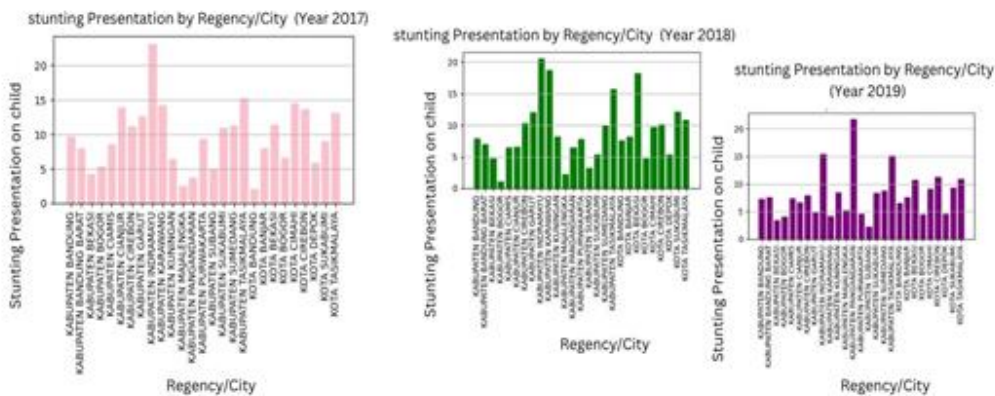


Fig 5. Distinction of Stunting Presentation In 2017 to 2019 Period

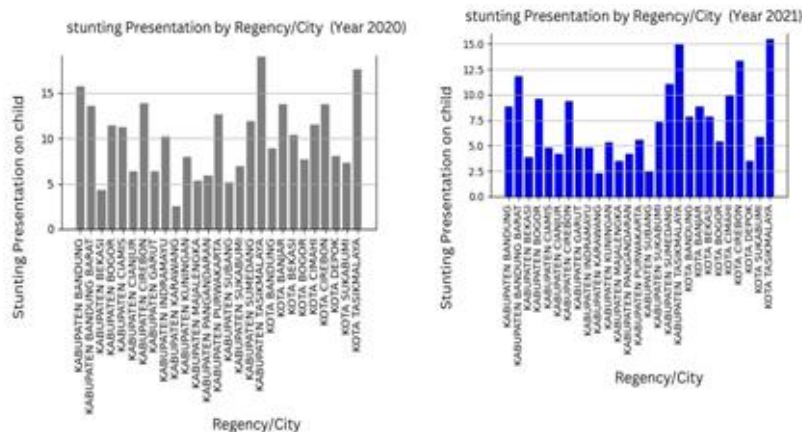


Fig 6. Distinction of Stunting Presentation In 2020 to 2021 Period.

A Map of the Prevalence of Stunting In World

This Prevaluation map illustrates that the data that is displayed about the Stunting that occurred in the world also experienced it, ranging from Asia to America's stunting region also exists in the region. However, Indonesia's position, which is also representative of other countries in the Asian region, is in 6th place with a 25.7 percentage, which is quite not very large, but if it is allowed, it will also have an impact on the human generation in the Asian region.

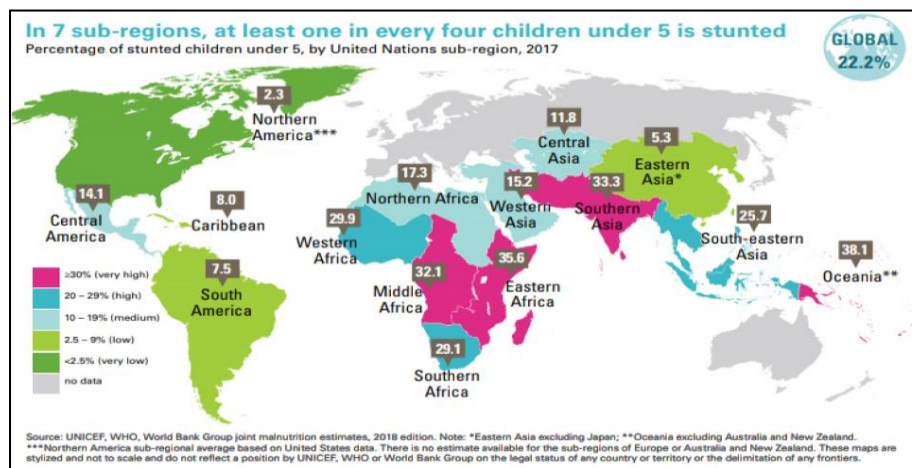


Fig 7. A Map Of The Prevalence Of Stunting That Happened In The World In 2017
Stunting Presentation in West Java

	min	max	mean
tahun			
2014	0.00	23.80	10.135185
2015	2.56	21.44	10.470741
2016	3.38	23.49	10.131852
2017	1.99	23.06	9.608519
2018	1.08	20.51	8.935556
2019	2.20	21.67	8.049630
2020	2.54	18.97	9.980000
2021	2.30	15.46	7.300000

Fig 8. Table Of Stunting Presentations In West Java

The table above represents the min, max and mean presentations in the stunting data in West Java, showing that differences from 2014 to 2021 have increased, and that in 2021 there are descendants in the number of Mean which is 300000 compared to the number in 2020 which is 980000. The figures are quite changeable and local governments are also trying to help the stunting decline in regencies and cities throughout West Java.

How to Prevent Stunting



Fig 9. Height Differences in the Two Children

In addition to administering animal protein supplements, several steps can be taken to minimize the risk of developing late childhood, including:

1. Provide exclusive breastfeeding to infants up to 6 months of age
2. Monitor the growth of children and conduct children to posyandu regularly
3. Regular use of blood supplement pills (TTD)
4. Giving nutritious MPASI food rich in animal protein to children over 6 months of age

By implementing stunting prevention efforts in children above, we hope to reduce stunting risk in children in Indonesia. Continue to apply clean and healthy living behavior and immediately to nearby health facilities if experiencing symptoms to get health treatment facilities immediately.

IV. CONCLUSION

This study highlights the problem of obstacles in children under 5 years of age in West Java from 2014 to 2021. Despite the year-on-year changes, the number of obstacles still remains high, indicating that stunting challenges still exist for children's health. Factors such as malnutrition, poor hygiene, and limited access to healthcare continue to play an important role. These findings highlight the need for an integrated approach involving government, health and social organizations to combat bullying. Comprehensive intervention focusing on nutritional, hygiene and health approaches is needed to reduce the number of barriers and ensure the future growth and development of children in West Java.

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