

An Analysis Of Stunting Incidence In Indramayu District

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ABSTRACT

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Health and nutrition development policies for the period 2015-2019 / Perpres No.2 / 2015 are focused on reducing the prevalence of stunting. Stunting problems are influenced by the condition of the mother, fetus, baby, including illnesses suffered during infancy and other conditions that affect health. The government targets in 2019 the prevalence of stunting in children under 2 years must decrease to 28% of cases that occur in Indonesia. This study aims to analyze the incidence of stunting in Indramayu Regency. This study uses a quantitative research design with cross sectional approach.

Research variables include genetic , prenatal, postnatal, environmental sanitation, and personal hygiene variables in Indramayu Regency. The population in this study were mothers who had stunting children in the working area of the Kandanghaur Community Health Center in Indramayu District, while the sample of this study was 308 people. The instruments used were questionnaire sheets and observation sheets . Analysis of the data used is univariate analysis.

Based on the results of measurements returned to a sample of 308 children who had been declared stunted it was known that there were only 119 children who were declared stunting. This happens because there are errors in measurement during posyandu activities, measurement results at posyandu are not well documented so the reported data does not match the data in the field.

The conclusion in this study is that the high number of stunting is not entirely caused by cases in the field, but errors in measurement and reporting are the main contribution in increasing the stunting level. It is necessary to conduct training on posyandu management for posyandu facilitators.

I. Introduction

Problems *stunting* have backed p engaruhi majority of children globally ⁽¹⁾. According to the *World Health Organization* (WHO) the prevalence of *stunting* becomes a public health problem if the prevalence is 20% or more. An estimated 162 million of *stunting* in 2012, J ika trends d continues without effort reduction, is projected to be 127 million by 2025 ⁽²⁾.

Health development in the Health and Nutrition Development Planning Policy in Indonesia is contained in the National Medium-Term Development Plan-RPJMN for the period of 2015-2019 / Perpres No.2 / 2015 which is focused on four priority programs namely Reducing Maternal and Infant Mortality, Decreasing *stunting* prevalence , Infectious Disease Control and Non-Communicable Disease Control. The government targets in 2019 the prevalence of *stunting* in children under 2 years must decrease by 28% of cases that occur in Indonesia ². The prevalence of *stunting* in Indonesia shows the percentage of nutritional status of short children (short and very short) in Indonesia in 2007 was (36.8%), in 2013 was (37.2%), and in 2015 (35.6%) ⁽³⁾.

TB / U indicators describe chronic nutritional status which means it arises as a result of a long-standing condition. Short problems at b Alita in West Java was found 35.4% children *stunted* . S ne s atu districts in West Java which is the target activities of *stunting* is Indramayu district ⁽⁴⁾.



Based on the annual report of the Weighing Toddler of Indramayu District Health Office in 2015 the discovery of *stunting toddlers* by holding anthropometric measurements was 5,638 people (7.69%) and in 2016 a total of 11,173 people (9.9%), in 2017 a total of 24,427 lives (10.8%) and can be interpreted to mean an increase in the number of *stunting* toddlers in Indramayu Regency ^{(5), (6), (7)}.

In 2017 it was found that there were 5 puskesmas working areas with the greatest prevalence of *stunting* including Kandanghaur puskesmas with a percentage of 1337 people *stunting* (22 , 28 %), Lelea 1005 people (15 , 63 %), 1390 people Sindang (15 , 49 %), Kerangkeng 1770 souls (1 5 , 03 %), and Gabus Wetan 1087 people (1 3 , 0 6 %), with the number of *stunting* toddlers in Indramayu Regency at 24 . 427 people (10.8%) ⁽⁷⁾.

The incidence of *stunting* in Indramayu from 2016-2017 continues to increase, it is interesting to do research because Indramayu is geographically one of the districts rich in natural resources, which should all the nutritional needs of children can be met easily. So that the causes of *stunting* can be known, it is necessary to do an analysis of the causes of *stunting*. Whether the *stunting* incident in Indramayu is caused by genetic, prenatal, and postnatal factors. Genetic factors are traits inherited from both parents. Prenatal factors include maternal nutritional status, smoking behavior, endocrine, radiation exposure, infectious diseases, and immunity. While postnatal factors include exclusive breastfeeding, child sex, child age, race / ethnicity, hormones, health care and environmental sanitation ⁽⁸⁾.

Based on the results of basic health research in 2018 cases of *stunting* in children under five in West Java 31.1% exceeded the national figure of 30.8%. While the problem of *stunting* among children under five in Indramayu Regency itself reached 2018 (20.5%), the figure was still high and was a priority for problem solving in Indramayu District ^{(9), (10)}.

The most effective prevention of *stunting* is done in the First 1,000 Days of Life (HPK). The 1,000 HPK period covers 270 days during pregnancy and the first 730 days after the baby is born has been scientifically proven to be a period that determines the quality of life. Adverse effects in the short term are disruption of brain development, intelligence, physical growth disorders, and metabolic disorders in the body. Whereas in the long run can decrease cognitive abilities and learning achievement, decreased immunity so that it can easily hurt, and high risk for the emergence of disease ⁽²⁾. The practical benefits of this research can be used as material for consideration by the *government* in determining policies for handling *stunting* problems .

II. Method

Study Design and Sampling Procedures

This study uses a quantitative research design with cross sectional approach. Research variables include genetic, prenatal, postnatal, environmental sanitation, and personal hygiene variables. Prenatal variables include maternal nutritional status, maternal smoking behavior, smoking behavior of family members, infectious diseases affecting the mother, radiation exposure, immunization during pregnancy, consumption of Fe tablets, fruit consumption, vegetable consumption, side dish consumption. Posnatal variables include child immunization, provision of vitamin A, initiation of early breastfeeding, exclusive breastfeeding. Environmental sanitation and personal hygiene variables include toilet ownership, clean water sources, hand washing habits, waste management, household wastewater disposal, drinking water sources, drinking water treatment, floor types and house ventilation. The population in this study were all *stunting* children in the Work Area of the Kandanghaur Health Center in Indramayu Regency as many as 1337 children. The research sample was calculated using the Slovin formula with an error margin of 5% so that the sample was obtained as many as 308 people. Data collection uses *accidental sampling technique* on samples that meet the inclusion criteria, namely mothers and children who are detected *stunting* based on secondary data from the Kandanghaur Health Center and the original residents of Kandanghaur District. P enelitian

was conducted throughout the village which is a region Puskesmas Kandanghaur Indramayu district in July 2019.

Ethical Considerations

The research was conducted after the Ethical Clearance (EC) exit from the Gajah Mada University *ethics committee* with the letter number Ref.No. : KE / FK / 0788 / EC / 2019. Before conducting interviews with respondents, researchers provide explanations in advance to the respondent covering the research objectives, benefits and guaranteeing the confidentiality of the identity and data provided. After that the new researcher asked for research approval from the respondent. After the informed consent is obtained, the researchers only conduct research by conducting interviews, observations and measurements.

Data analysis

Primary data obtained by observing and interviewing using a questionnaire with mothers who have stunting children and measuring back to children who have been declared stunting. Determination of stunting or not is calculated using anthropometry. Whereas secondary data was obtained using KIA book records and data available at village midwives and at the puskesmas. Analysis of the data used is univariate analysis to see the frequency distribution that causes stunting in Indramayu, while the statistical test equipment used is statistical applications with computers ⁽¹¹⁾.

III. Results and Discussion

A. Results

Table 1
Overview of a Stunting Child

Child Stunting	Frequency (f)	Percentage (%)
Yes Stunting	119	38.6
No Stunting	189	61.4
Total	308	100.0

Based on table 1 it is known that 119 stunted children (38.6%)

Table 2
Genetic description of the family

Having Stunting Descent	Frequency (f)	Percentage (%)
Have	34	28.6
Do not have	85	71.4
Total	119	100.0

Based on table 2 it is known that the children who have offspring stunting as many as 34 (28.6%)

Table 3
Characteristics of Respondents

Characteristics of Respondents	Frequency (f)	Percentage (%)
Mother's Education		
Not attending school / Not completing elementary school	6	5
Elementary school	67	56.3
Middle School	30	25.2
High school	14	11.8
College	2	1.7
Mother's job		

Housewife	100	84
entrepreneur	11	9.2
Civil Servants	4	3,4
Farmers	3	2.5
Factory workers	1	0.8
My mother's age		
<20 years	3	2.5
20 - 35 years old	86	72.3
> 30 years	30	25.2
Maternal BMI When Pregnant		
Very thin	1	0.8
Thin	3	2.5
Normal	43	36.1
Overweight	16	13.4
Obesity	56	47.1
Family Income		
<1 Million	7	5.9
1-2 Million	57	47.9
> 2 million	55	46.2

Table 3 shows that 67 (56.3%) of mothers were elementary school, 100 (84%) of mothers were housewives, 86 (72.3%) of mothers were aged 20-35 years, and maternal BMI 56 (47.1) pregnant are Obesity, 57 (47.9%) Family Income is 1-2 Million per month, 34 families (34.6%) have stunting.

Table 4
Overview of Prenatal Variables

Prenatal Variable	Frequency (f)	Percentage (%)
Maternal Nutritional Status		
Chronic Energy Deficiency	28	23.5
No Chronic Energy Deficiency	91	76.5
Mother's Smoking Behavior		
Yes	5	4.2
Not	114	95.8
Smoking behavior of family members		
Yes	89	74.8
Not	30	25.2
Infectious Disease		
Yes	6	5,0
Not	113	95.0
Perform X-rays During Pregnancy		
Yes	8	6.7
Not	111	93.3
Get the vaccine in the upper arm		
Yes	99	83.2
Not	20	16.8
Iron Consumption (Fe)		
Yes	89	74.8
Not	30	25.2
Consumption of iodized salt		
Yes	99	83.2
Not	20	16.8
Consuming Fruit		
Yes	112	94.1
Not	7	5.9
Consuming Vegetables		
Yes	111	93.3
Not	8	6.7
Eat side dishes		

Yes	116	97.5
Not	3	2.5

Based on table 4 it is known that the nutritional status of mothers as much as 28 (23.5%) is a lack of chronic energy, smoking behavior of mothers as much as 5 (4.2%) as active smokers, smoking behavior of family members as many as 89 (74.8%) are smokers active, while containing 6 (5.0 %) of infectious diseases, 8 (6.7%) of the mothers had taken x-rays, 99 (83.2%) of the mothers had had an injection in the upper arm, 89 (74, 8%) mothers always consume Fe, 99 (83.2%) mothers consume iodized salt, 119 (94.1 %) mothers consume fruit, 111 (93.3%) mothers consume vegetables, and as many as 116 (97.5%) Mother consumes side dishes .

Table 5
Overview of Postnatal Variables

Postnatal Variable	Frequency (f)	Percentage (%)
BCG Immunization		
Yes	111	93.3
Not	4	3,4
Do not know	4	3,4
Polio Immunization 1		
Yes	106	89.1
Not	9	7.6
Do not know	4	3,4
Polio Immunization 3		
Yes	97	81.5
Not	14	11.8
Do not know	8	6.7
DPT Immunization 1		
Yes	106	89.1
Not	8	6.7
Do not know	5	4.2
DPT Immunization 2		
Yes	103	86.6
Not	10	8.4
Do not know	6	5,0
DPT Immunization 3		
Yes	97	81.5
Not	15	12.6
Do not know	7	5.9
Measles immunization		
Yes	97	81.5
Not	16	13.4
Do not know	6	5,0
Hepatitis B immunization		
Yes	73	61.3
Not	31	26.1
Do not know	15	12.6
Hepatitis B2 immunization		
Yes	64	53.8
Not	35	29.4
Do not know	20	16.8
Hepatitis B3 immunization		
Yes	58	48.7
Not	40	33.6
Do not know	21	17.6
Provision of Vitamin A		
Yes	115	96.6
Not	4	3,4
Initiating Early Breastfeeding (IMD)		

Yes	84	70.6
Not	35	29.4
Exclusive breastfeeding		
Yes	58	48.7
Not	61	51.3

Based on table 5 it is known that the stunting children immunized BCG in 111 (93.3%), Polio 1 in 106 (89.1%), Polio 2 in 97 (81.5%), in polio 3 in 97 (81.5 %), DPT 1 is 106 (89.1%), DPT 2 is 103 (86.6%), DPT 3 is 97 (81.5%), measles are 97 (81.5%), hepatitis B1 is 73 (61.3%), hepatitis B2 64 (53.8%), hepatitis B3 58 (48.7%). Getting vitamin A as much as 115 (96.6%), doing IMD as much as 84 (70.6%). When viewed from the description of exclusive breastfeeding in stunting children as many as 58 (48.7%) get exclusive breastfeeding.

Table 6
Overview of Environmental Sanitation and Personal Hygiene

Environmental Sanitation and Personal Hygiene Variables	Frequency (f)	Percentage (%)
Latrine Ownership		
Yes	104	87.4
Not	15	12.6
Clean Water Source		
Dug Well	13	10.9
PDAM	42	35.3
Jet Pump	41	34.5
Pump wells	23	19.3
Handwashing with Soap		
Yes	92	77.3
Not	27	22.7
Waste management		
Removed to polling stations	45	37.8
Burned down	71	59.7
Disposed into the river / ditch / river / pond	2	1.7
Hoarded / thrown into the yard of the house	1	0.8
Household Liquid Waste Disposal		
Dumped into a ditch / river	113	95.0
Thrown into the absorption hole	3	2.5
Thrown into the fields	2	1.7
Disposed into open land	1	0.8
Drinking Water Source		
Refill drinking water	90	75.6
Dug Well	1	0.8
Jet Pump	11	9.2
PDAM	8	6.7
Pump wells	9	7.6
Drinking Water Treatment		
Boiled	34	28.6
Drink right away	85	71.4
Type of House Floor		
Ceramic / marble / granite	78	65.5
Cement	30	25.2
Tegel	5	4.2
Soil	6	5.1
Home Ventilation		
There is enough	82	68.9
Not enough	30	25.2
There is no ventilation	7	5.9

Based on table 6 it is known that 104 (87.4%) have latrines, 42 (35.3%) clean water sources are from the PDAM, 92 (77.3%) handwashing habits use hand washing with soap, 71 (59.7%) waste treatment is processed by burning, 113 (95%) liquid waste discharges are disposed into sewers / rivers, 90 (75.6%) drinking water sources use refill drinking water and refill water. 80 (88.9) used are refills from drinking water depots, based on the drinking water treatment process as many as 85 (71.4%) of drinking water used directly drunk, the type of house flooring is known to be 78 (65.5%) floors ceramics, ventilation 82 (68.9%) have ventilation.

B. Discussion

The results of this study indicate that based on data obtained from 308 respondents who have been declared stunted after being re-measured it is known that only 119 (38.6%) children were categorized as stunting, amounting to 189 (61.4%) children of normal status. This happens because of cadres' mistakes in measuring, errors in determining nutritional status, and the reported data do not match real field data. Cadre error in measuring and determining the nutritional status is because there are no baby length gauges at the posyandu, the posyandu only has height gauges and the device is also not standardized. Another cause is because cadres have not received training on how to measure children's length and height and have not received training on determining the nutritional status of children. While the reported data discrepancies occur because the records made at the posyandu are still manual and have not been well documented. Based on these findings it is known that the actual cases of stunting that continued to increase from 2015-2017 were not entirely due to cases in the field but there were also contributions from data errors. If this problem is not resolved, it is likely that even though the stunting case no longer exists, due to data errors in the field, there will always be a stunting case.

Seeing from the picture in the field like that, the government should prioritize stunting problem solving rather than just focus on risk factors for stunting. The government must prioritize also related to solving problems in the causes of data errors in the field. Because the stunting case report is not only because there are actually cases in the field, but data error in the field also contributes to the existence of stunting case data.

Seeing the results of measurements that have been made, the researchers conducted an analysis of stunting events only to 119 respondents who were categorized as stunting. Based on the characteristics of respondents it is known that maternal education of 67 (56.3%) is elementary, occupation of mothers as many as 100 (84%) are housewives, maternal age is 86 (72.3%) aged 20-35 years, BMI of mothers when 56 (47.1) pregnant women are Obesity, Family Income of 57 (47.9%) is 1-2 Million per month. Research conducted by Rahayu is known that maternal education has an important role in the incidence of stunting⁽¹²⁾. Strengthened by the results of Sulastri and Ni'mah's research, it is known that mother's education level and family economic level will affect the nutritional status of children^{(13), (14)}.

The results of the analysis of the description of causative factors from the prenatal aspect are known that the nutritional status of the mother as much as 28 (23.5%) is a chronic lack of energy, the smoking behavior of the mother as much as 5 (4.2%) as active smokers, smoking behavior of family members as many as 89 (74, 8%) are active smokers, as long as they contain 8 (6.7%) of infectious diseases, as many as 8 (6.7%) mothers have taken x-rays, 99 (83.2%) mothers have received injections in the upper arm, as many as 89 (74.8%) mothers always consume Fe, 99 (83.2%) mothers consume iodized salt, 61 (54.5%) mothers consume fruit, 111 (93.3%) mothers consume vegetables, and as much 116 (97.5%) mothers consumed side dishes. Prenatal variables are variables that cause *stunting* originating from the mother starting from the time of fetal development until the time of birth. Nutritional intake in pregnant women is very important because it will affect the development of the fetus, besides that pregnant women must protect themselves from environmental factors such as radiation, disease transmission, and chemical exposure that can endanger the mother and fetus. Wahdah stated in her research results that infectious diseases that occur in mothers during pregnancy have no relationship with the incidence of stunting⁽¹⁵⁾, besides the history of SEZ during pregnancy is also not a risk factor for stunting⁽¹⁶⁾. During pregnancy, mothers should be able to avoid cigarette smoke because smoking in the home has an influence on stunting⁽¹⁷⁾.

Prenatal and postnatal periods are periods where the potential for toddler growth and development can grow optimally into a golden generation. The first thousand days of life, 270 days in the prenatal period and 730 days in the postnatal *period*, are the *golden period*, so that as much as possible the growth and development of children can be optimized so that children can grow into healthy, intelligent and achievement generations⁽¹⁸⁾. Efforts to optimize the growth and development of children in the postnatal period are by providing exclusive breastfeeding, immunization, and providing MP-ASI that has balanced nutrition in children. The results showed that children *stunting* immunized for BCG were 111 (93.3%), Polio 1 was 106 (89.1%), Polio 2 was 97 (81.5%), polio 3 was 97 (81.5%), DPT 1 is 106 (89.1%), DPT 2 is 103 (86.6%), DPT 3 is 97 (81.5%), measles are 97 (81.5%), hepatitis B1 is 73 (61.3%), hepatitis B2 64 (53.8%), hepatitis B3 58 (48.7%). Getting vitamin A as much as 115 (96.6%), doing IMD as much as 84 (70.6%). When viewed from the description of exclusive breastfeeding in *stunting* children as many as 58 (48.7%) get exclusive breastfeeding.

Immunization is an attempt to actively boost immunity to a disease, hope n yes if one day exposure to infectious diseases then the child will not get sick or experience only mild illness for his own protection. So that morbidity and disability due to infectious diseases can be prevented⁽¹⁹⁾. If the child has been immunized, the child's growth and development will run optimally, especially if supported by exclusive breastfeeding and the provision of MP-ASI which has balanced nutrition. If nutritional intake can be fulfilled properly, *stunting* can also be prevented. The results of a study conducted by Agustia revealed that breastfeeding is not exclusive and incomplete immunization is a risk factor for *stunting*⁽²⁰⁾. Results of research conducted by Yosephin known that *b Alita* who did not receive early initiation of breastfeeding at risk 1,555 times through *stunting*. Whereas toddlers who do not get vitamin A supplements risk *stunting* 2.402 times⁽²¹⁾.

The results of the study based on the description of environmental sanitation, and personal hygiene, showed that 104 (87.4%) had latrines, 42 (35.3%) clean water sources came from PDAMs, 92 (77.3%) handwashing habits (%) washing hands using soap, processing waste as much as 71 (59.7%) treated by burning, 113 (95%) discharged liquid waste discharged into sewers / rivers, drinking water sources as much as 90 (75.6%) using Refill drinking water and refill water used as much as 80 (88.9) are refills from drinking water depots, based on the drinking water treatment process as much as 85 (71.4%) drinking water used is directly drunk, the type of house floor is known as much 78 (65.5%) ceramic floors, ventilating 82 (68.9%) had ventilation.

Environmental sanitation is a disease prevention effort that focuses on activities that focus on environmental hygiene efforts to realize public health⁽²²⁾. The condition of the physical environment of the house and environmental sanitation affect the health conditions of the occupants of the house, if the physical environment, *personal hygiene* and environmental sanitation are good, it will affect the health condition of the family who will follow in a good direction, or vice versa⁽²³⁾. This was proven by Sinatrya, based on the results of her research it was found that poor handwashing habits in mothers contributed to the incidence of *stunting*⁽²⁴⁾.

Health care is an effort organized by individuals and together in an organization that aims to improve the degree of public health, make prevention, recovery and cure disease⁽²²⁾. Destiadi's research results found that posyandu services have an important role in monitoring children's growth and development, it is known that children who are less active to posyandu have a risk of *stunting* 3.1 times compared to children who actively come to posyandu⁽²⁵⁾. Impacts that will occur Impacts that will occur from the occurrence of *stunting* are increased mortality and morbidity, decreased cognitive and motor development of children which will have an impact on decreased intelligence and learning capacity, and after adulthood will have an impact on decreased ability and work capacity⁽²⁶⁾. In addition *Stunting* is also a *risk period of length that can trigger the disease is not transmitted when the age of adulthood, although it still can be prevented from an early age*⁽²⁷⁾.

Based on the results of the research conducted, further research needs to be done related to the variables that have been studied whether the variables studied have an influence on the incidence of *stunting* in Indramayu. Besides that, because of *stunting* cases, it is not just because there are *stunting* cases in the field, but because there are errors in measurement and calculation

data, so that posyandu cadres should be given anthropometric measurement training, an application is made to calculate nutritional status and recapitulation of data at posyandu and posyandu is given an inventory of measurement tools. standardized length and height.

IV. Conclusion

The results of this study indicate that based on data obtained from 308 respondents who have been declared stunting after being re-measured it is known that only 119 (38.6%) children are categorized as stunting, 34 (28.6%) have stunting offspring, based on prenatal variable is known that the variable which is very high in percentage and the problem is the smoking behavior of family members as many as 89 (74.8%) are active smokers, whereas based on the postnatal variable the variable that has the lowest percentage does not reach 50% namely the administration of hepatitis B3 immunization 58 (48, 7%), and exclusive breastfeeding of 58 (48.7%). If seen from the environmental sanitation variable, it is known that 71 (59.7%) waste treatment is processed by burning, 113 (95%) household wastewater discharged into the gutter, 90 (75.6%) drinking water sources use Refill drinking water and refill and water used as much as 80 k (88.9) is refillable from drinking water depots.

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