






# Analysis of Family and Infant Characteristics of Potential Stunting Event

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**Abstract.** Background. Stunting is still a complex problem for Indonesia, especially in Nusa Tenggara Timur, the highest stunting rate province. Objective. To find out the relationship between family and infant characteristics for the potential of stunting. Methods. This research was quantitative research with a design cross-sectional on 203 respondents who were mothers breastfeeding babies from 0–24 years using the accidental sampling representing ten villages in Timor Tengah Utara Regency: Amol, Kaubele, Manunain A, Maubesi, Akomi, Bannae, Bitefa, Fafinesu C, and Sainoni. The survey distribution was assisted by enumerators (posyandu cadres and nutrition officers) using a survey instrument that had been validated beforehand. To determine the relationship one by one between the variables studied using The Chi-Square test with a confidence level of 95%. Results. Family characteristics were not related to the incidence of stunting. From the results of the analysis, stunting was more common in infants older than six months and weight loss infants. Conclusions. Exclusive breastfeeding is still an excellent nutritional intake for babies, but after six months of age, they must get breastmilk complementary food that fits the baby's needs to prevent Stunting. We can use local wisdom daun kelor to meet babies' nutritional needs without spending much money.

**Keywords:** Stunting · nutrition · infant · characteristic family · complementary foods

## 1 Introduction

Currently, Indonesia is the 5th (five) highest country in the world, with some toddlers experiencing stunting. Based on data from the Indonesian Toddler Nutrition Status Survey (SSGBI) in 2021, the prevalence of stunting in Indonesia is 24.4% [1]. This figure shows an improvement from the previous year, which means that about one in four

children under five (more than eight million children) in Indonesia is stunted. Prevalence stunting Indonesia in 2018 decreased from the previous 6.4% [2, 3]. This target covers stunting and wasting in children under the age of 5 years. The three provinces in Indonesia with the highest stunting rates in 2021 were NTT (37.8%), West Sulawesi (33.8%), and Aceh (33.2%). The Medium-Term National Development Plan (RPJMN) 2020–2024 targets a reduction in stunting of up to 19% by 2025 [4], so maximum efforts must be made to achieve it. Factors that can influence the incidence of stunting include inadequate nutrition for newborns up to 2 years of age, poor parenting practices, lack of access to nutritious food, clean water, and sanitation, and limited access to integrated health services for pregnant mothers. Stunting causes not only disruption of children's physical growth but brain growth that affects achievement, productivity, and creativity in children of productive age [5, 6]. NTT has successively become a locus with a high prevalence of stunting, so the focus of stunting management will be centered on these loci. The uniqueness of each province makes the handling area-based so that the core problems of stunting can be identified. This study aims to determine the relationship between family and infant characteristics on the potential for stunting.

## 2 Method

This was a quantitative research design with cross-sectional. The first step was to prepare research instruments. The instrument validation was constructed with the help of expert validators. Instruments include respondent data, the general identity of the respondent's family, anthropometric data for breastfeeding mothers, and baby anthropometry. The survey was conducted on 203 respondents with inclusion who were mothers breastfeeding babies from 0–24 months, using accidental sampling, representing ten villages in Timor Tengah Utara (TTU) Regency Nusa Tenggara Timur (NTT): namely Amol, Kaubele, Manunain A, Maubesi, Akomi, Bannae, Bitefa, Fafinesu C, and Sainoni. The survey instrument distributed to the respondents directly used a hardcopy instrument sheet and informed consent. The survey distribution was assisted by enumerators (posyandu cadres and nutrition officers) in ten villages in TTU District, and we conducted training to equalize the perception of the research questionnaire. Data analysis used univariate analysis to see the frequency distribution of each variable studied, bivariate analysis was run to determine the relationship one by one between the variables studied using The Chi-Square test with a confidence level of 95%.

## 3 Result

Maternal age was divided into four age groups, and the highest was the age between 26 to 35 (41,38%). The most highest maternal education was high school, and the father's education was in elementary school; most Mother's job was as a housewife, and father job was a farmer, the most prominent family income (91.63%) was below local minimum salary (LMS), the most significant number of children was below three children, the largest body mass index (BMI) and arm circumference in the mother was standard. The largest infant gender was male, the largest breastfeeding is exclusive (84.73%) and 46 infants were stunted. Social demographic characteristics of families

with stunting incidence obtained no significant relationship. There was a significant relationship between infant characteristics (age and weight loss) with stunting, and there was no relationship between gender and head circumference of infants to Stunting (Table 1).

**Table 1.** Analysis of the Relationship between Socio Demographic Characteristics and Stunting

Characteristic	Non stunting		Stunting		p-value
	n	%	n	%	
Mother's age					0,225
17–25	45	81,8	10	18,2	
26–35	68	81	16	19	
36–45	43	69,4	19	30,6	
>45	1	50	1	50	
Mother's education					0,35
Elementary School	51	77,3	15	22,7	
Junior High School	21	67,7	10	32,3	
Senior High School	57	80,3	14	19,7	
College	26	83,9	5	16,1	
Others	2	50	2	50	
Father's education					0,44
Elementary School	60	78,9	16	21,1	
Junior High School	30	76,9	9	23,1	
Senior High School	48	76,2	15	23,8	
College	18	81,8	4	18,2	
Others	1	33,3	2	66,7	
Mother's job					0,211
Gov employee	0	0	1	100	
Private employees	12	85,7	2	14,3	
Housewife	133	76	42	24	
Others	11	91,7	1	8,3	
Father's job					0,775
Gov employee	2	50	2	50	
Private employees	8	80	2	20	
Entrepreneur	26	74,3	9	25,7	
Farmer	110	79,1	29	20,9	
Fisherman	1	100	0	0	

(continued)

**Table 1.** (continued)

Characteristic	Non stunting		Stunting		p-value
Laborer	1	100	0	0	
others	9	69,2	4	30,8	
Number of Children					0,431
Less than 3	114	79,2	30	20,8	
More than 3	43	72,9	16	27,1	
Family Income					0,319
≤LMS	146	78,5	40	21,5	
>LMS	11	64,7	6	35,3	
Mother's BMI					0,424
Thin	25	71,4	10	28,6	
Normal	96	76,8	29	23,2	
Fat	36	83,7	7	16,3	
Mother's LILA					0,749
Below normal	54	76,1	17	23,9	
Normal	103	78	29	22	
Baby age					0,000
0–6	47	97,9	1	2,1	
0–12	44	77,2	13	22,8	
13–18	46	70,8	19	29,2	
19–24	20	60,6	13	29,2	
Gender					0,886
Male	86	78,2	24	21,8	
Female	71	76,3	22	23,7	
Latest baby weight					0,000
Thin	21	40,4	31	59,6	
Normal	136	90,1	15	9,9	
Head circumference					0,624
Below normal	4	100	0	0	
Normal	153	76,9	46	232,1	

## 4 Discussion

Family characteristics were not related to the incidence of stunting because local government programs in socializing stunting prevention with exclusive breastfeeding in infants under six months have been successful. The above data shows that 85% of mothers give

exclusively breastfeeding and already understand the importance of providing nutritional intake through breastfeeding to infants; This result is in line with the level of mothers' education that most of the mothers had the last education of High School. Furthermore, breastfeeding (ASI) is one factor in meeting infants' nutritional needs because breast milk has a lot of hormones, nutrients, growth factors, and immunity, which is expected to reduce the prevalence of stunting.

From the analysis results, stunting was more common in infants older than six months. We assumed it is because, after the age of 6 months, the breastfeeding mothers no longer give exclusive breastfeeding, meaning that the baby has been given adequate feeding, but the adequate foods that were not suitable become a new problem causing stunting. From the data, the income family was mostly under local minimum salary which resulted the lack of ability to provide adequate breastmilk complementary food that needs to be fulfilled. In contrast, we know that when exclusive breastfeeding, there is no expenditure. Many growth failures nowadays are due to the poor quality of adequate breastmilk complementary food, so it can cause children to suffer from malnutrition [7]. Parents must be able to analyze whether the adequate breastmilk complementary food given is appropriate; in other words, it is about more than just giving breastmilk complementary food to babies [8]. The baby's needs increase with age. in the second 6 months, the baby's needs in the form of energy increase by 800 kcal/day, protein 15 g/day, fat 35gr/day, and carbohydrates 105 gr/day [9–11]. Utilizing local wisdom in the NTT area, for example, the use of moringa oleifera we call daun kelor, which are numerous and thrive in the area in line with many studies researching and finding breastmilk complementary food based on local food [12–15].

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