

# Stunting Incidence Determinants in Toddlers (24–59 Months) Born to Early Married Mothers

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## ABSTRACT

In 2019, the prevalence of stunting in Indonesia was 27.67%. With a 23% stunting rate, Kediri ranked top in East Java in 2020. This study aimed to determine the stunting determinants in toddlers (24-59 months) born to early married mothers in Mojoroto District, Kediri City. This research is a descriptive-analytic study employing a cross-sectional design. A total of 61 mothers who married at an early age in the Mojoroto District constituted the sample. Purposive sampling approach. The significance value is less than 0.05 ( $\text{sig} < 0.05$ ) for the effect of the independent variable on the dependent variable through the intervening variable, namely breast milk exclusion, education, nutritional status of pregnant women, and environmental sanitation, according to the results of multivariate research using the path test (path). The significance value for variables with no significant effect is more than 0.05 ( $\text{sig} > 0.05$ ), including a history of infection, Nutrient Complementary Foods, socioeconomic status, occupation, age of delivery, low birth weight, and health services. Diverse sectors, particularly the health sector, pay close attention to women of reproductive age who marry early, focusing on their nutritional quality throughout pregnancy. Furthermore, efforts to discourage early marriage are enhanced.

**Keywords:** Early Marriage, Stunting, Toddlers aged 24 – 59 month

## INTRODUCTION

Stunting is a failure to thrive in toddlers under five years old (infants under five years old) due to chronic malnutrition, resulting in the youngster being too short for his age. The stunting frequency among toddlers under five years has decreased by 6.4% over the past five years, from 37.2% (2013) to 30.8%, according to the 2018 Baseline Health Research results<sup>1</sup>. Meanwhile, the integration of the March 2019 National Socio-Economic Survey and the 2019 Indonesian Toddler Nutritional Status survey showed a stunting prevalence of 27.67%.

In East Java, the frequency of stunting among toddlers under five decreased by 0.2% during five years, from 27.1% (2015) to 26.9% (2019)<sup>2</sup>. While the prevalence of stunting under five (0-59 months) by city/district, the city of Kediri has increased from 2019 by 10% to 23% in 2020 and ranks first in East Java, followed by Pasuruan Regency (20.9%) and Kediri Regency (19.6%)<sup>3</sup>. The causes of stunting in the Mojoroto District were determined through a preliminary study undertaken by researchers. From 2 public health centres (Mrican and Campurejo), pregnant women aged 20 years produced the highest cases of stunting, followed by economic factors.

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The study aimed to determine the determinants of stunting in infants (24-59 months) from mothers who married at an early age in Mojoroto District, Kediri City. While the benefits are expected to be used by health service providers and related parties for information on the incidence of stunting in toddlers under five from early marriage so that there is a particular intervention for perpetrators of early marriage.

## METHOD

This research is descriptive-analytic in design. This study used a cross-sectional design. The sample size of women who married early in the Mojoroto district of Kediri City between 2017 and 2020 was 61. This study's sample method is based on inclusion criteria, namely, women who marry at an early age registered with the local Religious Affairs Office, married women aged 19 years, and mothers who marry at an early age between 2017 and 2020 who are not stunted. This research was conducted in the Mojoroto District of Kediri City, namely the Campurejo Health Center, Sukorame Health Center, and Mrican Health Center work areas.

The research will be conducted between May and June of 2022. The instruments in this study were a questionnaire and a toddler's height measurement (mikrotoice).

This study utilizes variables, the independent variable being the mother's early marriage. The dependent variable is the incidence of stunting, and the intervening variables are infection history, exclusive breastfeeding, Nutrient Complementary Foods, socioeconomic status, level of education, maternal nutritional status during pregnancy, premature delivery, history of low birth weight, environmental hygiene and sanitation, parent's occupation, and utilization of health services. Analysis of bivariate data using the basic linear regression test consists of two parts: (1) the effect of the independent variable on the intervening variable and (2) the effect of the intervening variable on the dependent variable. In the interim, multivariate data analysis utilized the Path Analysis Method.

## RESULTS

**Table 1: Description of Research Variable Characteristics Characteristic Total Percentage**

Married Age 1 < 19 years old 61 100%		
Characteristic	Total	Percentage
1 Yes	9	14.8
2 No	52	85.2
Exclusive breastfeeding		
1 Yes	13	21.3
2 No	48	78.7
Nutrient Complementary Foods		
1 Not suitable	59	96.7
2 Suitable	2	3.3
Socio-economic		
1 Above Regional Minimum Wage	29	47.5
2 Under Regional Minimum Wage	32	52.5
Education		
1 Low	39	63.9
2 High	22	36.1
Work		
1 Work	9	14.8
2 Not Work	52	85.2
Childbirth Age		
1 Premature	13	21.3
2 Not premature	48	78.7
Low Birth Weight		
1 Not Low Birth Weight	54	88.5
2 Low Birth Weight	7	11.5
Pregnant Women Nutritional Status		
1 Abnormal	41	67.2

2	Normal	20	32.8
Environment sanitation			
1	Not healthy	25	41.0

Table 2:

	Characteristic	Total	Percentage
2	Healthy	36	59.0
Health services			
1	Enough	4	6.6
2	Good	57	93.4
Stunting Incident			
1	Stunting	12	19.7
2	Not Stunting	49	80.3
	Total	61	100

Source: Processed Research Data (2022)

In the univariate analysis, table 1 shows that of the 61 mothers who married early, almost all of them, namely 49 toddlers under five (80.3%), did not experience stunting.

The characteristics of the respondents in this study were almost entirely. Namely, 52 people (85.2%) had no history of infection, almost entirely as many as 48 toddlers (78.7%) did not give exclusive breastfeeding, and almost entirely obtained 59 people (96.7%) gave exclusive breastfeeding, Nutrient Complementary Foods but not suitable. Most of them are as many as 32 people (52.5%) with income below the minimum wage, 39 people obtain most, or 63.9 % have low education. Almost all of them were as many as 52 mothers (85.2%) with no working status, almost entirely obtained 48 mothers (78.7%) gave birth at non-premature delivery age, and almost entirely obtained 54 toddlers or 88.5 % born with no history of Low Birth Weight, mainly obtained 41 mothers (67.2%) had abnormal nutritional status, most of them as many as 36 people (59.0%) had a healthy environment and almost all of them as many as 57 people (93.4%) had good health services.

Table 3: Effects of Independent Variable on Intervening Variables

No	Independent Variable	Intervening Variable	Regression Coefficient	T Stat	P	Description
1	Early Married Woman	Infection history	0.238	2.66	0.010	Significant
2	Early Married Woman	Exclusive breastfeeding	0.130	1.20	0.235	Not significant
3	Early Married Woman	Nutrient Complementary Foods	0.054	1.15	0.254	Not significant
4	Early Married Woman	Socio-economic	-0.166	-	0.212	Not significant
5	Early Married Woman	Education	0.251	2.03	0.047	Significant
6	Early Married Woman	Work	-0.106	-	0.262	Not significant
7	Early Married Woman	Childbirth age	0.130	1.20	0.235	Not significant
8	Early Married Woman	Low Birth Weight (LBW)	-0.154	-	0.067	Not significant

Table 4:

No	Independent Variable	Intervening Variable	Regression Coefficient	T Stat	P	Description
9	Early Married Woman	Pregnant Woman Nutritional Status	0.334	2.85	0.006	Significant
10	Early Married Woman	Environment sanitation	-0.264	-	0.042	Significant

11	Early Married Woman	Health service	0.098	1.51	0.135	Not significant
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Source: Processed Research Data (2022)

The bivariate analysis was carried out using a simple linear regression test, namely the influence of the independent variable on the intervening variable. Of 11 variables, 4 had a significant influence, namely infection history, pregnant woman nutritional status, education and environmental sanitation. In comparison, the variables that did not significantly affect exclusive breastfeeding, socio-economic, Nutrient Complementary Foods, work, low birth weight and health service.

Table 5. Effects of Intervening Variables on Dependent Variable

No	Intervening Variable	Dependent Variable	Regression Coefficient	T Stat	P	Description
1	Infection history	Stunting Incident	0.291	2.062	0.044	Significant
2	Exclusive breastfeeding	Stunting Incident	-0.250	-	0.045	Significant

Table 6:

No	Intervening Variable	Dependent Variable	Regression Coefficient	T Stat	P	Description
3	Nutrient Complementary Foods	Stunting Incident	0.203	0.703	0.485	Not significant
4	Socio-economic	Stunting Incident	0.019	0.187	0.852	Not significant
5	Education	Stunting Incident	-0.261	-	0.013	Significant
6	Work	Stunting Incident	-0.100	-	0.492	Not significant
7	Childbirth Age	Stunting Incident	-0.250	-	0.045	Significant
8	Low Birth Weight	Stunting Incident	-0.101	-	0.537	Not significant
9	Pregnant Woman Nutritional Status	Stunting Incident	0.218	2.049	0.045	Significant
10	Environment sanitation	Stunting Incident	0.209	2.055	0.044	Significant
11	Health service	Stunting Incident	0.860	4.868	0.000	Significant

Source: Processed Research Data (2022)

In the bivariate analysis table 2 which was carried out using a simple linear regression test, between the intervening variables and the dependent variable, from 11 variables, there were 7 variables that had a significant influence, namely infection history, exclusive breastfeeding, education, age of delivery, nutritional status of pregnant women, sanitation environment and health services. While the variables that did not have a significant effect were nutrient complementary foods, socioeconomic, occupation and Low birthweight.

Based on the multivariate test the results are as follows:

Table 7: The Effects of The Independent Variable on The Dependent Variable through The Intervening Variables

No	Independent Variable	Intervening Variable	Regression Coefficient	T Stat	P	Description
1	Early married woman	Infection History	0.069	2.019	0.048	Significant
2	Early married woman	Exclusive breastfeeding	-	-	0.023	Significant
3	Early married woman	Nutrient Complementary Foods	0.011	0.482	0.632	Not significant

4	Early married woman	Socio-economic	-	-	0.885	Not significant
5	Early married woman	Education	0.066	2.328	0.023	Significant
6	Early married woman	Work	0.011	0.471	0.639	Not significant
7	Early married woman	Childbirth age	0.032	0.955	0.344	Not significant

Table 8:

No	Independent Variable	Intervening Variable	Regression Coefficient	T Stat	P	Description
8	Early married woman	Low Birth Weight	0.016	0.526	0.601	Not significant
9	Early married woman	Pregnant Woman Nutritional Status	0.073	2.050	0.045	Significant
10	Early married woman	Environment sanitation	0.055	2.223	0.030	Significant
11	Early married woman	Health service	0.084	1.418	0.161	Not significant

Source: Processed Research Data (2022)

In the multivariate test, table 4 was carried out using the path test to test the effect of the independent variables on the dependent variable through the intervening variable, which had a significant effect. The significance value was less than 0.05 (sig < 0.05), namely a history of infection, exclusive breastfeeding, Education, nutritional status of pregnant women, and environmental sanitation. While the variables have no significant effects, the significance value is more than 0.05 (sig > 0.05), namely nutrient complementary foods, socioeconomic, occupation, age at delivery, low birthweight and health service.

## DISCUSSION

**Exclusive breastfeeding:** The research results showed that early married women affect the stunting incident through exclusive breastfeeding, which a significance value of 0.023 (sig < 0.05).

The results of this study are in line with the results of research conducted by <sup>4</sup> in Palestine that Early married women aged 15-20 years were significantly more likely to give exclusive breastfeeding to their babies than mothers who married at the age of more than 19. A possible explanation for this relationship is a culture in which families and parents are responsible for their toddlers in the early stages of married life that occurs in Arab countries, including Palestine, so that young mothers in Palestine receive more social support from extended breastfeeding activities.

It is also in accordance with research <sup>5</sup> that toddlers who are not exclusively breastfed are more likely to have stunting than those who are exclusively breastfed. In contrast to the results of research conducted by <sup>6</sup> Desa Purwakerto Village, Patebon district, Kendal regency, namely where the variables that are not proven as risk factors for stunting are birth weight, duration of exclusive breastfeeding and nutrient complementary foods score with p value > 0.05.

The benefits of exclusive breastfeeding are many, starting from increasing immunity, fulfilling nutritional needs, being cheap, easy, clean, and hygienic and improving the relationship or inner bond between mother and child. Research conducted in the city of Banda Aceh stated that stunting was caused by low family income, non-exclusive breastfeeding, poor nutrient complementary foods, and incomplete immunization, with the most dominant factor influencing non-exclusive breastfeeding <sup>7</sup>.

The researcher assumes that early married women are mentally and physically not mature enough to give birth and care for toddlers. It will impact the parenting pattern given by mothers to their toddlers, which in this study is fulfilling adequate exclusive breastfeeding, namely until the child is six months old. In this study, almost all stunting infants were not exclusively breastfed. It could be due to the influence of culture/the surrounding environment. It can also be due to knowledge due to the mother's low educational history.

**Education:** This investigation yielded a regression coefficient of - 0.261, a t-value of 2.553, and a significance level of 0.023. The significance value of these data is less than 0.05 (sig 0.05), indicating a significant relationship between education and stunting.

Based on the results of a survey on early marriage in several provinces of Indonesia, it was determined that early marriage could cause girls to drop out of school, become isolated, and miss out on the chance to receive a formal education, thereby restricting the development of women's qualities and obstructing the process of empowering women <sup>8</sup>.

The results of this study are supported by research conducted by <sup>9</sup> conducted research on the relationship between maternal education level and the incidence of stunting in the Kandanghaur Public Health Center Work Area. The results of this study indicate that there is a relationship between the education level of mothers and stunting, where mothers who have lower education will have a greater risk of stunting in toddlers.

It is supported by research which states that toddlers born to parents who have higher education tend to be easier to receive health education during pregnancy, for example, in the importance of meeting nutritional needs during pregnancy and exclusive breastfeeding for 6 months <sup>10</sup>.

Other research that is not in line is research from <sup>11</sup> in Tembalang District, Semarang City, from the results of statistical tests it is known that there is no relationship between maternal education level (p = 0.646) with stunting in toddlers and also research from <sup>12</sup> which was carried out in the working area of the Kupang Island Health Center, Kapuas Regency, there was no relationship between the level of education and the incidence of stunting (p-value 0.757 > 0.05).

Education can bring someone to have or achieve the broadest insight and knowledge. People with higher education will have broader insight and knowledge compared to those with lower education.

The researcher assumes that the younger the age of marriage, the lower the level of education the child achieves. Marriage often causes toddlers to no longer go to school/drop out of school because they have new responsibilities as wives and prospective mothers. Early married women tend to be more isolated from the outside world because some are ashamed of their marriage and pregnancy.

## CONCLUSION

The study indicated that the relevant determinants were parental history, exclusive breastfeeding, education level, pregnant woman nutritional status, and environmental sanitation. As a result, it is anticipated that many sectors would build health services for toddlers' care and integrate under-five monitoring to minimize the prevalence of child marriage and impaired growth and development in toddlers under five years old.

## REFERENCES

1. Kemenkes RI. Hasil Riset Kesehatan Dasar Tahun 2018. Kementerian Kesehatan RI. 2018;53(9):1689-1699.
2. RKPd. Rkpd\_P\_Jatim\_2020.Pdf. Published online 2020.
3. Dinas Kesehatan Provinsi Jawa Timur... Profil Kesehatan Provinsi Jawa Timur 2019. Dinas Kesehatan Provinsi Jawa Tengah,. Published online 2020:1-123. [www.dinkesjatengprov.go.id](http://www.dinkesjatengprov.go.id)
4. Samar Ghazal Musmar, Shaden Qanadeelu. Breastfeeding Patterns among Palestinian Infants in the First 6 Months in Nablus Refugee Camps: A Cross-Sectional Study. J Hum Lact. 2012;28(2):196-202. <https://journals.sagepub.com/doi/10.1177/0890334411432715>

5. Rohmatun Y. Hubungan tingkat pendidikan ibu dan pemberian asi eksklusif dengan kejadian. *Progr Stud Ilmu Gizi Fak Ilmu Kesehat Univ Muhammadiyah Surakarta*. Published online 2014.
6. Meilyasari & Isnawati. Volume 3, Nomor 2, Tahun 2014, Halaman 26. 2014;3:26-32.
7. Al-rahmad et al. Kajian Stunting Pada Anak Balita Ditinjau Dari Pemberian Asi Eksklusif, Mp-Asi, Status Imunisasi Dan Karakteristik Keluarga Di Kota Banda Aceh. *Kesehat Ilm Nasuwakes*. Published online 2013:169-184.
8. Badan Pusat Statistik, UNICEF. Kemajuan yang Tertunda : Analisis Data Perkawinan Usia Anak di Indonesia. *Unicef Indones*. 2016;(Analisis Data Perkawinan):1-100. doi:978-978-064-963-6
9. Husnaniyah D, Yulyanti D, Rudiansyah R. Hubungan Tingkat Pendidikan Ibu dengan Kejadian Stunting. *Indones J Heal Sci*. 2020;12(1):57-64. doi:10.32528/ijhs.v12i1.4857
10. Haile D, Nigatu D, Gashaw K, Demelash H. Height for age z score and cognitive function are associated with Academic performance among school children aged. *Arch Public Heal*. 2016;(December). doi:10.1186/s13690-016-0129-9
11. Anindita P. Hubungan Tingkat Pendidikan Ibu, Pendapatan Keluarga, Kecukupan Protein & Zinc Dengan Stunting (Pendek) Pada Balita Usia 6-35 Bulan Di Kecamatan Tembalang Kota Semarang. *J Kesehat Masy*. 2018;1(2):617-626. <http://ejournals1.undip.ac.id/index.php/jkm>
12. Rizcewaty, Rahman E, Suryanto D. Hubungan Tingkat Pendidikan Dan Pengetahuan Tentang Status Gizi Dengan Kejadian Stunting Anak 12-59 Bulan Di Wilayah Kerja Puskesmas Pulau Kupang Kabupaten Kapuas Tahun 2021. *J Kesehat Masy*. 2021;09(01). <https://ojs.uniska-bjm.ac.id/index.php/ANN/article/view/7184>