



# Relationship Between Early Marriage and Incidence of Stunting in Children Aged 24-59 Months

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## ABSTRACT

Stunting is one of the concerned nutritional problems in Indonesia and the world, with irreversible effect which caused of lack nutrition due to chronic manifestation of malnutrition with recurrent infections during the first 1000 days of a child's life. One of the interrelated factors is the mother's age at marriage that signify an impact on the mother and her born will be at greater risk stunting. This research was conducted to determine the relationship between early marriage and incidence of stunting in under-fives aged 24-59 months. This research is using an observational study with a cross-sectional research design on 130 toddlers in the Grogol Petamburan District Health Center, Wijaya Kusuma Sector from September to November 2019. Samples were taken using the consecutive non-random sampling technique. Data collected by questionnaire. Data analysis using chi-square and the significance level used was 0.05. Prevalence of early marriage of 38.5% and stunting 40%. There is a significant relationship between early marriage and incidence of stunting in under-fives aged 24-59 months ( $p = 0.001$ ). The relationship between early marriage and stunting in under-fives aged 24-59 months is proven.

**Keywords:** *Marriage; Stunting; Child; Under-Fives Aged 24-59 Months*

## 1. INTRODUCTION

The incidence of stunted children under-fives aged 24-59 months is a nutritional problem that has become one of the world's serious problems. Stunting is defined by WHO as a child with an indicator of height for age (TB/U) or body length for age (PB/U) obtained the value of Z score  $< -2$  standard deviations [1]. Based on the 2018 Basic Health Research (RISKESDAS) data, the prevalence of stunting children is still relatively high, for those that are very short and short at 30,8% and 17,7%, respectively [2].

Stunting is influenced by various interrelated factors: complementary feeding (MP-ASI), exclusive breastfeeding, mother's height, education, age at marriage, and completeness of children's primary immunization. According to UNICEF in the Convention on the Rights of the Child, early marriage carried out by a couple whose one or both are less than 18 years old. Maternal age at marriage is one factor that plays a role in stunting children [3]. Early marriage ( $\leq 18$  years) is still high in Indonesia, one of which is in DKI Jakarta Province [4]. This causes the first pregnancy to occur at an early age, affecting the mother's readiness for

children's caring and poor reproductive health, resulting in a greater risk of having nutritional problems such as stunting [5].

A previous study conducted by Agista et al. showed a significant relationship between teenage pregnancy and the incidence of stunting in under-fives aged 24-59 months. The younger the mother's age experiencing pregnancy, the greater the risk of the child experiencing stunting [6]. On the other hand, another study conducted by Atmilati et al. showed no statistically significant relationship between maternal age at early marriage and the nutritional status of children under-fives aged 24-59 months [7]. Based on the explanation of the background and the inconsistencies of the previous studies results, hence, this study aims to obtain a relationship between marriage at an early age and the incidence of stunting in children aged 24-59 months.

## 2. METHOD

An observational study with a cross-sectional design was conducted at the Grogol Petamburan health center, Wijaya Kusuma Village, from September to November 2019. The population was children aged 24-59 months.

Subject selection was carried out using the Consecutive Non-Random Sampling technique by taking data on respondents with the target of 130 children. The inclusion criteria included all children aged 24–59 months, children and mothers willing to be respondents, who had filled out informed consent, and their biological children. Meanwhile, the exclusion criteria were children with congenital abnormalities and  $TB/U > +2$  SD. The instrument used was a questionnaire to determine stunting in under-fives aged 24-59 months, including gender, age, birth weight, exclusive breastfeeding, complementary feeding, basic immunization, early marriage in mothers, mother's height, and education. Furthermore, height measurement of the mothers and their under-fives aged 24-59 months using the microtoise measuring instrument. Subsequently, univariate and bivariate analyses were conducted using the Chi-Square test to examine the relationship between early marriage and the incidence of stunting in under-five aged 24-59

months. Moreover, the stages of data processing and analysis were carried out using the Statistical Package for the Social Sciences (SPSS) program. The initial stage in this study was to determine the frequency of each stunting parameter by sampling 130 children. This research has been approved by the Research Ethics Commission Faculty of Medicine, Trisakti University, Jakarta with the ethical clearance number 81/KER-FK/VII/2019.

### 3. RESULT AND DISCUSSION

#### 3.1. Result

The initial stage in this study was to determine the frequency distribution of children under five characteristics of each stunting parameter by sampling 130 children.

**Table 1** Frequency distribution of children under five characteristics (n = 130)

Data	Frequency (subjects)	Percentage (%)
<b>Stunting</b>		
Stunting	52	40.0
Not stunting	78	60.0
<b>Age</b>		
24-36 months	39	30.0
37-48 months	45	34.0
49-59 months	46	35.0
<b>Gender</b>		
Male	72	55.4
Female	58	44.6
<b>Birth Weight</b>		
LBW	8	6.2
Normal	122	93.8
<b>Exclusive Breastfeeding</b>		
Not exclusive	48	36.9
Exclusive	82	63.1
<b>Complementary Feeding – Breastfeeding</b>		
No	34	26.2
Yes	96	73.8
<b>Basic Immunization</b>		
Incomplete	4	3.1
Complete	126	96.9

Based on Table 1, it is known that from 130 children, 52 (40%) are included in the stunting category, and 78 are not (60%). There are 39 children aged 24-36 months (30%), 45 (34.6%) aged 37-48 months and 46 (35.4%) aged 49-59 months. The majority are male, with a number of 72 (55.4%), and the majority are born with normal weight, with a number of 122 children (93.8%). About 82 (63.1%) received exclusive breastfeeding in terms of exclusive breastfeeding. Moreover, 96 (73.8%) are given complementary feeding at 6 months, and 126 children (96.9%) have completed basic immunizations.

The next stage in this study was to determine the frequency of each parameter of height, age of marriage, and last education of 130 mothers.

Based on Table 2, from 130 subjects, 50 children have mothers who married at an early age (38.5%), and 80 have mothers who did not marry at an early age (61.5%). Furthermore, based on the mother's height, 89 mothers (68.5%) have an average height category ( $\geq 150$  cm), and most of them have a secondary education level (high school graduation) which is 68 mothers (52.3%).

**Table 2** Frequency distribution of maternal characteristics (n = 130)

Data	Frequency (Person)	Percentage (%)
<b>Early marriage</b>		
Early marriage ( $\leq 18$ years)	50	38.5
Not early Marriage ( $> 18$ years)	80	61.5
<b>Mother's height</b>		
Short	41	31.5
Normal	89	68.5
<b>Education</b>		
Lower	46	35.4
Secondary	68	52.3
Higher	16	12.3

**Table 3** Relationship between early marriage and stunting

Variable	Stunting				p
	Yes	No	Yes	No	
	n	%	n	%	
<b>Early marriage</b>					
Yes	29	58	21	42	0.001*
No	23	28.7	57	71.3	

Based on Table 3, in mothers who married at an early age ( $\leq 18$  years), stunting was found in 29 children (58%) while the remaining 21 (42%) were not. In mothers that did not marry at an early age ( $> 18$  years), the incidence is found in 23 children under five (28.7%) while the rest 57 (71.3%) do not experience it. The results of the Chi-Square statistical test obtain p-value = 0.001 where p-value  $< 0.05$ . Therefore, it can be concluded that there is a significant relationship between early marriage and the incidence of stunting.

### 3.2. Discussion

Stunting is influenced by various interrelated factors: complementary feeding (MP-ASI), exclusive breastfeeding, completeness of children's basic immunizations and maternal height, education, age at marriage [3].

#### 3.2.1. Characteristic of Under-fives Aged 24-59 Months

The prevalence of stunting is 40.0%; however, basic Health Research Data (RISKESDAS) in 2018 shows that the prevalence in the DKI Jakarta area is 17.7% [2]. Therefore, the prevalence in this study is higher than in the DKI Jakarta area. There are 30.0% children aged 24-36 months, 34.6% aged 37-48 months, and 35.4% aged 49-59 months. According to the study conducted by Manggala A et al. in 2016, the majority of subjects aged 24-59 months are male (54.2%) [8]. The 2018 Indonesian Child Profile data strengthens this: the Indonesian population aged 2-5 years signify that male is more than female [9].

The majority of babies are born with an average weight of 93.8%, and only 6.2% are born with low body

weight (LBW). Similarities as comparison from the 2018 RISKESDAS data. For the DKI Jakarta area, the prevalence of LBW babies is 6.1%, while the babies that categorized that were born weighing 2500 grams in Indonesia is 90.1% [2]. This is in line with the study conducted by Manggala et al., in 2016, which found that most of the birth weights of the children aged 24-59 months who were the subject are included in normal birth weight ( $\geq 2500$  grams) of 93.4% [8].

It was found that 63.1% of children received exclusive breastfeeding, while the remaining 36.9% did not. Based on SUSENAS data, 55.96% of babies in Indonesia are exclusively breastfed. The DKI Jakarta area is 50.65%, according to the Global World Health Assembly's target of achieving at least 50% exclusive breastfeeding in the first six months of a baby's life [10]. Most of the subjects had been given exclusive breastfeeding, but subjects were still not given exclusive breastfeeding. Based on the interview results, the reason was that the breast milk has not come out at birth, especially young mothers who are having their babies for the first time have difficulty giving breast milk. Therefore, it has an impact on insufficient breastfeeding for their children. Moreover, some mothers work and preferred to give formula milk. Giving complementary foods too early can also prevent exclusive breastfeeding. This is similar to the results by Tucker et al. that the cause of teenage mothers not exclusively breastfeeding their children was because they had difficulty breastfeeding [11].

Exclusive breastfeeding for babies should be optimal, and several factors can influence this. One of which is the frequency and duration of mothers giving breast milk to babies. The higher the frequency of getting breast milk,

the more optimal nutrition. The duration of the mother giving breast milk to the baby will also affect growth. When breast milk is provided for a longer duration, the baby will receive a balanced intake of foremilk and hindmilk [12],[13]. The duration and frequency of exclusive breastfeeding in this research are unknown. Therefore, it is unknown whether babies received exclusive breastfeeding with optimal duration and frequency.

The results show that as many as 73.8% of under-five got complimentary foods right at the age of 6 months while the remaining 26.2% did not. However, improperly giving complementary foods too late or early can cause the growth and development of children to be hampered because the nutritional needs are not fulfilled [14] according to Teshome et al. [15]. It is not known whether the complementary feeding given is nutritionally complete, sufficient, balanced, and provided in the right way or not.

This research also finds that 96.9% children have received complete basic immunization. This is appropriate with the Ministry of Health's 2019 RENSTRA target, where 93% received complete basic immunization [2]. Although there are still children who have not received complete basic immunizations of 3.1%. Based on SUSENAS data, the type of basic immunization obtained in DKI Jakarta Province for BCG is 94.26%, DPT is 91.70%, Polio is 94.61%, measles is 81%, and hepatitis B is 85.97% [10]. In a study conducted by Aridiyah et al. In 2015, the provision of complete basic immunization does not necessarily guarantee that children are protected from stunting. Children under five who are given complete and incomplete basic immunizations have the same chance of experiencing stunting [16]. Many children under-fives received complete basic immunizations because the parents did not provide the type that should be repeated, such as 3 times DPT and Hepatitis B and Polio, which should be given 4 times.

### 3.2.2. Mother's Characteristic

The age at marriage is grouped into two categories, early marriage ( $\leq 18$  years) and non-early marriage. The Grogol Petamburan Health Center shows that 38.5% are included in early marriage. The results obtained are not much different from the 2018 Indonesian Child Profile data, in which 37.91% of women aged 10-17 years have married [9]. Based on the age of first marriage, 39.17% or 2 out of 5 girls aged 10-17 years had married before the age of 15. 37.91% were married at the age of 16, and 22.92% at the age of 17 [9].

The results show that 68.5% of mothers have a height included in the normal category ( $<150$  cm). Moreover, a study by Sinha et al. showed that children born to mothers with a height of  $<150$  cm have twice the chance of stunting compared to mothers with a height of 150 cm

[17]. The shorter the mother, the higher the risk of stunting in under-five [17]. However, the factors that influence maternal height are not investigated. Therefore, whether the current maternal height is a genetic influence or due to pathological influences or malnutrition cannot be distinguished.

Most of the last mother's education level is at the secondary education level or graduating from high school (52.3%); only a few are at the higher education level (12.3%). The level of education can affect a person receiving and processing the information obtained. Mothers with a high level of education understand better the nutritional needs, growth, and development of a child; therefore, they can provide better care and parenting [8]. Meanwhile, low maternal education allows inappropriate parenting practices that can lead to stunting [18].

### 3.2.3. Relationship Between Early Marriage and The Incidence of Stunting in Under-Fives Aged 24-59 Months

Based on the bivariate analysis, there is a significant relationship between early marriage and the incidence of stunting in under-five aged 24-59 months at the Grogol Petamburan Health Center with a p-value = 0.001. This is consistent with the study conducted by Prakash et al. that early marriage leads to poor reproductive health in mothers [5]. Furthermore, it can cause the first pregnancy to occur at an early age, affecting the mother's readiness to caring their children and has a poor reproductive health. This results in children born with a low risk of life opportunity and a greater chance of having nutritional problems such as stunting [5]. The results by Efevbera et al. showed that children born to mothers who married before the age of 18 had a higher chance of experiencing stunting [19].

On the other hand, a study by Atmilati et al. showed no significant relationship between maternal age at early marriage and body length according to the children's age [7]. The result showed that most respondents marry early because of their low education level. Subsequently, low levels of education tend to provide inappropriate parenting practices [7],[18].

The majority incidence of stunting occurs in the first two years of life and continue. The initial period of malnutrition in children is during fetal development in the pregnancy caused by malnourished mothers [20]. Therefore, maternal nutrition before and during pregnancy plays an essential role in a healthy pregnancy outcome [21]. Women aged 18 years still need adequate nutrition to grow and develop into adulthood. This nutritional need will increase when pregnancy occurs [22]. Therefore, the age of pregnant women (maternal age) should not be too young or old. Pregnant women under 20 years old or more than 35 are included in high-risk pregnancies [23].

Another impact for mothers due to early marriage is the risk of losing the opportunity to continue their education, making them unable to reach a higher level. As a result, the parenting practices provided by the mother are not appropriate. The long-term impact is the loss of opportunities to get a job [9]. Marriage at an early age will also cause mothers to be burdened with the responsibilities of being a wife, sex partners, and motherhood which are not ready for women at the age of 18 [9]. The impact on children, such as babies born can be premature, suffer from poor nutrition, stunting, and getting the wrong parenting pattern due to the limited knowledge of the mother [9]. According to UNICEF, several factors influence the incidence of early marriage, including poverty, social norms, customary or religious laws that allow the practice of early marriage, and the weak laws governing early marriage [9]. Therefore, it is necessary to have the policy to prevent early marriage in Indonesia.

The highest number of stunted children is found in mothers married at the age of 18 years and > 18 years which are 58.0% and 28.7%. Therefore, it can be concluded that the incidence of stunting is at a higher risk in children under-fives whose mothers married at the age of 18 years. Subsequently, the mother's age at marriage is a factor that influences the incidence of stunting from the sample in this research.

#### 4. CONCLUSION

The univariate analysis shows that the prevalence of early marriage at the Grogol Petamburan Health Center is 38,5%, and the prevalence of stunting in children aged 24-59 months is 40%. Meanwhile, bivariate analysis shows a significant relationship between the two parameters at 24-59 months. Further study is then recommended to assess the nutritional adequacy rate in the sample using food recall. It is also suggested to assess the duration and exclusive breastfeeding of the sample to determine the nutritional adequacy of the child by using a case-control research method.

For the community, marriage at early age should be prevented for mothers to continue to a higher level of education. Hence, knowledge about appropriate parenting practices can reduce the risk of stunting. Subsequently, mothers are expected to provide adequate nutritional intake to reduce the risk of stunting. The Joint Health Office of the DKI Jakarta Government, especially West Jakarta, is required to provide information through counselling and training to the public or health cadres regarding stunting and the importance of the First 1000 Days of Life (HPK) of a child. The Government also can apply premarital counselling to couples who are getting married.

#### ACKNOWLEDGMENT

The authors are grateful to Allah SWT, Father, Mother, and Sister/Brother for all the support, love, and prayers during the preparation of this thesis. They also appreciate the West Jakarta Health Sub-department and all Grogol Petamburan District Health Center staff, West Jakarta, who have helped the research process. Furthermore, for all the lecturers of Medicine Faculty, Trisakti University, especially dr. Nathalia Ningrum, Sp.A. and Dr. dr. Yenny, Sp.FK. as the examiner lecturer who has prepared this study.

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