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THE RELATIONSHIP BETWEEN EARLY MARRIAGE AND THE INCIDENCE OF STUNTING

Wahida[1)], Idayati[2)], Ajeng Hayuning Tiyas[3)], Gusriani[4)]
Email: wahida@poltekkesmamuju.ac.id [1)], idayati.syahruddin@gmail.com[2)],
ajeng.hayuningtiyas20@gmail.com [3)], gusriani@borneo.ac.id[4)]
[1,2,3)]Department of Midwifery, Politeknik Kesehatan Kementerian Kesehatan Mamuju,
Jalan Poros Mamuju-Kalukku Km. 16, Orobatu, Mamuju Regency, West Sulawesi
[4)]Bachelor of Midwifery Study Program, Universitas Borneo Tarakan, Jalan Amal Lama No 1,
Tarakan, North Kalimantan, Indonesia

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Abstract

Stunting is a chronic nutritional disorder influenced by multiple factors, including child marriage. West Sulawesi is one of the provinces in Indonesia with a high prevalence of both stunting and child marriage. This study aimed to examine the association between child marriage and stunting among children aged 23–59 months in Mamuju Regency. An analytical observational study with a cross-sectional design was conducted involving 62 mothers selected through purposive sampling. Data were collected through interviews and anthropometric measurements and analyzed using the chi-square test and Odds Ratio (OR). The results showed no significant association between child marriage and stunting (p = 0.667; OR = 0.72; 95% CI: 0.16–3.27). These findings suggest that stunting is a multifactorial condition influenced by various determinants beyond child marriage, highlighting the need for a comprehensive approach to its prevention. The Technology Readiness Level (TRL) of this study was Level 2.

Keywords: *Child marriage, Children under five, Mothers, Stunting*

Correspondence:
Wahida, Politeknik Kesehatan Kementerian Kesehatan Mamuju
email wahida@poltekkesmamuju.ac.id

1. Introduction

Stunting is a condition of impaired growth in children under five resulting from chronic malnutrition, particularly during the first 1,000 days of life [1][2]. Stunting not only results in impaired physical growth but also has implications for cognitive development and productivity, as well as an increased risk of degenerative diseases in the future [3]. The Government of Indonesia has designated the reduction of stunting prevalence as a national priority through the 2020–2024 National Medium-Term Development Plan (RPJMN), targeting a reduction to 14% by 2024 as part of efforts toward a Prosperous Indonesia 2025 and Golden Indonesia 2045, while also supporting the achievement of Sustainable Development Goal (SDG) 2 [4]. However, these achievements still face various challenges, particularly in regions with high stunting prevalence. According to the 2022 Indonesian Nutritional Status Survey (SSGI), the prevalence of stunting in West Sulawesi was the second highest in the country at 35%, marking a 1.2% increase compared to the previous year [5].

Stunting is a multifactorial health issue influenced not only by nutritional intake but also by various other factors, such as caregiving practices, access to healthcare services, socioeconomic

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conditions, and maternal factors [6][7]. One maternal factor receiving increasing attention is early marriage. Early marriage is defined as marriage occurring before the age of 19, a time when individuals are still in the adolescent phase and have not yet reached optimal biological and psychological maturity. The phenomenon of early marriage remains prevalent in Indonesia. Data from Statistics Indonesia (BPS) for 2022 indicate that 19.24% of women married for the first time between the ages of 16 and 18, while 33.76% did so between the ages of 19 and 21. Notably, West Sulawesi recorded the highest prevalence of early marriage in the country, at 17.71%. The high rates of both early marriage and stunting in this region suggest a potential link between the two phenomena, which could significantly impact the quality of human resources [8][9].

Theoretically, early marriage increases the risk of pregnancy at an age of biological and psychological immaturity. This condition can lead to various maternal health issues, such as chronic energy deficiency, anemia, and pregnancy complications. Furthermore, limited knowledge and preparedness regarding child-rearing among mothers who marry early can influence feeding practices, the utilization of healthcare services, and parenting styles. These factors can indirectly increase the risk of stunting in children [10][11].

Early marriage has long-term consequences for a child's health and development. Marriage at a very young age is often accompanied by unplanned pregnancies and a lack of access to adequate healthcare services. These factors contribute to a high risk of stunting in children. Stunting carries serious long-term implications for a child's health and quality of life; it can lead to impaired cognitive ability and stunted physical development, as well as an increased risk of chronic diseases in adulthood. Furthermore, stunting can affect individual productivity and have a negative impact on economic growth [1][12][14].

Although there are strong indications that early marriage and the incidence of stunting are linked, the relationship between the two is not yet fully understood. Therefore, this study aims to explore the association between early marriage and the occurrence of stunting. The research is expected to provide deeper and more comprehensive insights into the factors contributing to stunting and the role played by early marriage in this context. With adequate information regarding the correlation between early marriage and stunting, it is hoped that more effective prevention efforts and interventions can be developed to reduce stunting rates in West Sulawesi. Furthermore, the findings are expected to provide a robust empirical basis for policymakers to strengthen regulations and programs aimed at addressing early marriage and malnutrition, thereby improving the well-being and quality of life of children and bolstering human capital in West Sulawesi, through the study titled "The Relationship Between Early Marriage and the Incidence of Stunting in Mamuju Regency, West Sulawesi."

2. Research Methods

This study is a quantitative, analytic observational study employing a cross-sectional design. The study population consisted of all mothers with children aged 23–59 months in the study area. The sample comprised 62 respondents selected using purposive sampling. Inclusion criteria included mothers with children aged 23–59 months who resided in the study area and consented to participate by signing an informed consent form. Exclusion criteria included respondents with incomplete data or children for whom valid anthropometric measurements could not be obtained.

The data sources for this study consist of primary data obtained directly from respondents through interviews and

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anthropometric measurements. Data collection involved the use of a structured questionnaire to gather information on respondent characteristics and age at marriage, as well as the measurement of children's height using a calibrated standard measuring device (microtoise).

The independent variable in this study is the mother's age at marriage, categorized into two groups: <19 years (early marriage) and ≥19 years. The dependent variable is the occurrence of stunting in children, measured using the height-for-age (H/A) index. Children are categorized as stunted if they have a z-score of ≤ -2 standard deviations based on World Health Organization standards.

The research procedure began with obtaining research permits, followed by selecting respondents based on established criteria, explaining the study to the respondents, and obtaining informed consent. Subsequently, interviews using a questionnaire were conducted, and the children's heights were measured. The collected data underwent completeness checks (editing), coding, and data processing (entry and cleaning) prior to analysis.

Univariate analysis was conducted to describe the frequency distribution of each research variable. Bivariate analysis was performed using the chi-square test to examine the relationship between age at marriage and the incidence of stunting. The strength of the association was determined by calculating the Odds Ratio (OR) and the 95% Confidence Interval (CI), with the significance level set at $p < 0.05$.

This study received ethical approval from the Health Research Ethics Committee of the Insan Cendekia Medika Institute of Technology, Science, and Health, Jombang (reference number 101/KEPK/ITSKES-ICME/V/2024). All respondents were informed of the study's objectives and procedures and expressed their willingness to participate voluntarily by providing informed consent.

3. Results and Discussion

Table 1. Frequency Distribution of Early Marriage

Length of Marriage	Amount	Percent
≥ 19 year	9	14.5%
< 19 year	53	85.5%
Total	62	100%

Table 1 shows that the majority of respondents in this study married at an age of less than 19 years (53 individuals, or 85.5%), whereas only 9 respondents (14.5%) married at the age of 19 or older. The number of respondents in the marriage age groups of <19 years and ≥19 years was unbalanced due to the distribution of respondent characteristics obtained during the sampling process. Nevertheless, the analysis was conducted using all respondents who met the inclusion criteria to maintain the sample's representativeness regarding the study population.

Table 2. Frequency Distribution of Nutritional Status

Nutritional status (Height/Age)	Amount	Persent
SD ≤ - 2	45	72.6%
SD > -2	17	27.4%
Total	62	100%

Table 2 shows that the majority of the respondents' children—45 (72.6%)—fall into the poor nutritional status category (SD ≤ -2), while 17 children (27.4%) fall into the normal nutritional status category (SD > -2).

Table 3. Association between Early Marriage and the Incidence of Stunting

Variabel		Status Gizi		Jumlah	OR (95% CI)	*p-value*
		SD ≤ -2	SD > -2			
Usia Pernikahan	≥ 19 tahun	6	3	9	0.72 (0.16 – 3.27)	0.667
	< 19 tahun	39	14	53		

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Total	45	17	62

Table 3 shows no significant association between age at marriage and the occurrence of stunting in children (p=0.667). This indicates that, statistically, the difference in the proportion of stunting cases between mothers who married at age <19 and those who married at age ≥19 is not significant. Based on the Odds Ratio (OR) of 0.72 (95% Confidence Interval [CI]: 0.16–3.27), it can be interpreted that mothers who married at age ≥19 were less likely to have stunted children compared to those who married at age <19. However, since the CI range includes the value of 1, the association is not statistically significant.

The wide Confidence Interval indicates a high degree of estimation uncertainty, likely influenced by the relatively small sample size. Therefore, the study results do not support the conclusion of a strong association between early marriage and the occurrence of stunting.

Overall, these results indicate that early marriage is not a factor directly associated with the incidence of stunting in this study; instead, other factors likely play a more significant role in determining a child's nutritional status. This study focused on analyzing the relationship between age at marriage and stunting as one of the determinants within the life course approach. However, stunting is a multifactorial issue influenced by various other factors, such as maternal education level, employment status, socioeconomic conditions, birth weight, birth length, history of exclusive breastfeeding, infectious diseases, and child-feeding practices. These factors were not analyzed in this study as they fell outside its scope. Therefore, the findings should be interpreted as reflecting the relationship between age at marriage and stunting, without disregarding the contributions of other influential factors.

Research indicates that there is no significant association between early marriage and the incidence of stunting. Although early marriage is often considered a factor influencing maternal and child health, this study reveals that other factors such as maternal nutritional status, access to healthcare services, and exclusive breastfeeding practices play a more significant role in preventing stunting [15][17]. These findings suggest that other factors play a more dominant role in determining a child's nutritional status. Maternal nutritional status during pregnancy is a key factor contributing to fetal growth and child development. Mothers who receive adequate nutrition during pregnancy tend to give birth to healthier children, thereby minimizing the risk of stunting, regardless of the mother's age at marriage [18][20].

Furthermore, good access to antenatal care (ANC) services plays a crucial role in preventing stunting. Mothers who undergo regular prenatal check-ups and receive adequate information and care can prevent various health issues that pose a risk of stunting, such as anemia, infections, or malnutrition. This demonstrates that even in cases of early marriage, proper health monitoring can reduce the risk of stunting in children. [21][22].

The practice of exclusive breastfeeding is also a crucial factor in preventing stunting. Research indicates that exclusive breastfeeding during a child's first six months of life ensures they receive sufficient nutrition to support their growth. Therefore, mothers who are able to exclusively breastfeed even those who married at an early age can help prevent stunting. A family's socioeconomic status has also been shown to have a greater influence on the incidence of stunting than the mother's age at marriage. Families with favorable socioeconomic conditions enjoy better access to nutritious food, education, and healthcare services that support child growth. Conversely, poor socioeconomic conditions can increase the risk of stunting due to limited access to the resources necessary to support a child's health [23][24].

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Thus, although early marriage may be associated with certain social and economic challenges, other factors such as maternal nutrition, adequate healthcare services, and socioeconomic conditions exert a far greater influence on the incidence of stunting. Therefore, it is important to view the issue of stunting holistically, taking into account more complex and diverse factors, rather than simply linking it to the mother's age at marriage.

One relevant study is the one conducted by Wati et al. (2022) The study indicates that while there is a link between maternal age at pregnancy and the incidence of stunting, no significant association was found between early marriage and the child's overall nutritional status. It highlights that other factors such as economic conditions and access to healthcare services have a greater influence on the incidence of stunting than the mother's age at marriage [25][26].

In addition, research by Beal et al. (2018), …also indicate that factors such as food insecurity and socioeconomic conditions have a greater impact on the incidence of stunting than the mother's age at marriage. They found that children from food-insecure families were more likely to experience stunting, regardless of the mother's age at marriage [27]. This indicates that early marriage may not be the sole factor contributing to stunting; rather, broader social and economic contexts play a more significant role. Another study supporting these findings is the research conducted by Ettyang et al. (2019), …which analyzed data from demographic and health surveys in Cambodia and Kenya. They found that stunting was more common among children from poor families, and there was no strong evidence indicating that early marriage directly contributed to stunting. The study suggests that economic and environmental factors play a greater role in determining a child's nutritional status [28][29].

Furthermore, research by Yaya et al. (2020), …indicate that household structure and maternal characteristics have a greater influence on the incidence of stunting than age at marriage. They emphasize the importance of a mother's education and socioeconomic status in determining child health. This suggests that interventions focusing on improving education and family economic conditions could be more effective in reducing stunting than simply focusing on age at marriage [10][11][19]. Overall, although early marriage is frequently linked to various health issues including stunting evidence indicates that other factors such as food insecurity, education, and socioeconomic conditions exert a more significant influence. Consequently, a more holistic approach is required to address stunting, one that encompasses various aspects of family and community life. Several studies demonstrate that factors such as maternal education, economic status, and access to healthcare services have a more significant impact on the incidence of stunting than the age at marriage.

4. Conclusion

This study indicates that there is no significant association between early marriage and the incidence of stunting among children aged 23–59 months in Mamuju Regency. Although differences in stunting prevalence were observed across marriage age groups, statistical analysis revealed no significant relationship; thus, early marriage is not a primary determinant in this study.

These findings reinforce the understanding that stunting is a multifactorial issue driven more by factors such as maternal nutritional status, access to healthcare services, and socioeconomic conditions. Consequently, stunting prevention efforts must be comprehensive and not focus solely on the age at marriage.

Further research employing a more robust study design, a larger sample size, and an analysis of confounding variables is needed to gain a deeper understanding of this relationship, including the indirect

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mechanisms linking early marriage to stunting.

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