



THE ASSOCIATION OF ADOLESCENT PREGNANCY WITH STUNTING INCIDENCE IN CHILD UNDER FIVE YEARS OLD

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ABSTRACT

Background: Nowadays early marriage is a worldwide issue and influences maternal outcome and increases the incidence of stunting. Stunting is known as one of the most significant barriers to human development and globally affects around 162 million children under the age of 5 years. The Global stunting incidence in children under 5 years is 149.2 million or about 22.0% of all children under five. The prevalence of stunting in children aged less than 5 years old in Africa is around 31.7%, Southeast Asia is 30.1%, the Eastern Mediterranean Region is 26.2% and in Indonesia it is 24.4%. It is known that children born of women who are less than 20 years have a 1.3 times risk of experiencing stunting and the prevalence of stunting in adolescent pregnant women is around 44.4% compared to mothers who are old enough, namely 35.6%.

Purpose: This study aims to determine the relationship between teenage pregnancy and the incidence of stunting

Method: This was a literature review collected from four e-databases search was conducted by PubMed (Medline), Web of science, Scopus and ScienceDirect for articles published between 2019 and 2021 that examine teenage pregnancy and stunting. Existing articles will be filtered and eliminated according to the inclusion criteria and analyzed to find the conclusions from the entire study.

Results: The search led to primary research publications including qualitative and quantitative research. The articles were published between 2019 and 2021. Most of the articles showed that young maternal age influences maternal outcome and we need to pay attention to stunting incidence. Even though there are a lot of factors that play a role in stunting such as nutrition, disease, parent height, etc. but five articles that have been filtered agree that adolescent pregnancy is the main factor that plays a role in stunting..

Conclusion : Our review found the closely related factors that related with stunting are early marriage, clean-healthy behaviors and mental emo-disorder of adolescent mothers. However, there are other factors causing stunting namely direct and indirect factors. Robust programs to support pregnant women and monitor children's heights from birth will help prevent intergenerational stunting. Nevertheless, it is also necessary to review the policy on how stunting criteria are set in Indonesia based on socio-demographic conditions.

INTRODUCTION

Stunting is one of the most significant barriers to human development and globally affects about 162 million children under the age of 5 years (WHO, 2014), and is a growth and development disorder in children due to malnutrition, recurrent infections and inadequate psychosocial stimulation (WHO, 2014). And have negative impacts both in the short and long term (Yadika, Berawi, & Nasution, 2019). Stunting is caused by malnutrition since the baby is in the womb and in the early days after the baby is born, but the stunting condition only appears after the child is 2 years old (Wemakor, Garti, Azongo, Garti, & Atosona, 2018). Stunting is one of the nutritional problems that are prone to occur in toddlers due to chronic low food intake (Pertiwi, Lestari, & Ulfiana, 2019).

In 2020 the global incidence of stunting in children under 5 years of age is 149.2 million or around 22.0% of all toddlers who are estimated to be too short for their age. and the prevalence of stunting in children aged less than 5 years in 2020 is highest in Africa, which is around 31.7%, Southeast Asia at 30.1% and the Eastern Mediterranean Region at 26.2% (WHO-COVID, 2022). In Indonesia, the prevalence of stunting in children under 5 years in 2020 is 24.4%.

Stunting is caused by several factors. One of the factors that cause stunting is teenage pregnancy. It is known that teenage pregnancies have an 8 times greater risk than adult women. Stunting can cause children to get sick easily, can cause economic losses to both the family and the country, the form of body posture cannot be maximized as an adult, body functions become unbalanced, and the worst impact that is very worrying is the cognitive ability of children is reduced (Eka, Krisnana, & Husada, 2020).

Adolescent pregnancy is a pregnancy in women aged 15-19 years (WHO-COVID, 2022) with an incidence of around 12 million pregnant adolescents who give birth every year or about 777,000 girls under 15 years old give birth every year in developing countries.

Adolescent pregnancy is associated with stunting and can increase the prevalence of stunting. The prevalence of stunting is higher in under-fives from teenage pregnant women, namely 44.4% compared to mothers who are old enough, namely 35.6%. Married adolescent women have a 1.2 times risk, and women who are less than 20 years pregnant have a 1.3 times risk of experiencing stunting under five. Children of adolescent mothers are 8 times more likely to be stunted compared to adult mothers because they are 13 times more likely to be Stunting (Wemakor et al., 2018).

In Indonesia Teenage pregnancy is known as one of the causes of stunting. According to Cindy Ega Fiolentina and Rini Ernawati (2021) teenage pregnancy has an impact on stunting, which is 40%. According to (Irwansyah, Ismail, & Hakimi, 2016) teenage pregnancy is associated with the incidence of stunting in children aged 6-23 months by controlling the variables of maternal education, birth weight, and maternal stature.

Teenage pregnancy is known to have a negative impact on pregnancy outcomes and infant/toddler health. Therefore, this study aims to explore some of the literature on the relationship between teenage pregnancy and the incidence of stunting in children aged 0-59 months. This study is expected to provide useful information about the impact of teenage pregnancy, stunting and minimize the incidence of stunting caused teenage pregnancy.

RESEARCH METHODS

The research was carried out by identifying the Medical Subject Headings (MeSH) specific to this topic, in the thesaurus dictionary controlled by the National Library of Medicine (NLM), and non-MeSH words, using them to search for the work—individually or in association with each other—through the use of the boolean operators “AND”, “OR”: Adolescent Pregnancy; Teenage Pregnancy; Adolescent Mother; Stunting; Failure to thrive; Stunted growth; Growth Disorder.

The articles were selected based on the following criteria: Publication dates: from 1 January 2019 to 2021; Languages: English, Indonesian; Article types: qualitative and quantitative articles with open access option. The articles must give information about the relationship between Adolescent Pregnancy and stunting. The search results were screened by reading the titles and abstracts. All articles that were not related to the scope of this review were excluded. Studies not including human subjects were excluded.

A literature search was conducted using electronic databases namely, PubMed (Medline), Web of science, Scopus and ScienceDirect. Key words entered into the search in various combinations included “adolescent pregnancy or teenage pregnancy or adolescent mother and stunting.” Limitations placed on each search include the year of publication between 2019 and 2021 in both Indonesian and English language. The results of the articles search will be described more clearly on the flow diagram of the database search process.

a. Study Design Selection

The journal search strategy was carried out by entering all keywords in each of the intended journals to find the appropriate data and getting the number 2650 journals. After going through the screening of titles and abstracts, only 104 articles were appropriate and 656 articles were declared not in accordance with the research objectives. The selection process was continued by reading the entire article by paying attention to the inclusion and exclusion criteria and then getting 15 suitable articles. However, after we equated it with the research objectives, there were only 5 articles that could be followed up.

b. Inclusion and exclusion criteria

Inclusion criteria: Reputable journal (ScienceDirect, Pubmed, Web of Science, Scopus) with quantitative and qualitative research conducted in Indonesia and open access. The exclusion criteria were Thesis, Thesis, Final Project, Health profile, booklet.

RESULTS AND DISCUSSION

In this article, we attach a prism flow chart that is carried out as a process of screening articles that will be used in this literature review

No	Researcher/Year	Title	Sample	Methods	Results
1	J Flynn, FF Alkaff, WP Sukmajaya, S Salamah, Tahun 2020	Comparison of WHO growth standard and national Indonesian growth reference in determining prevalence and determinant s of stunting and underweight in children	218	Cross sectional	Multivariate analysis indicated that Children with maternal age under 20 years old during pregnancy are more likely to be underweight

			under five: a cross-sectional study from Musi sub-district		
2	Noviati Fuada, Leni Latiifah, Diyah Yunitawat, Hadi Ashar	Assessment of Nutritional status of children under-five in families of Adolescent Mothers in Indonesia 2012	978 Families of adolescent mothers of children under-Five	cross-sectional study Design	This study showed mental emotional disorder of adolescent mother, related with underweight and stunting. Another factor, which is related with nutritional status is clean and healthy behaviors of the mother .
3	Ingka K. Pangaribuana, Isyos Sari, Marlina Simbolona, Basaria Manurung, Kosheila Ramuni	Relationship between early marriage and teenager pregnancy to stunting in toddler at Bangun Rejo Village, Tanjung Morawa District, Tanjung Morawa, Deli Serdang	645 toddler aged between 0 and 59 months	cross-sectional study Design	The result showed that there was correlation between early marriage and teenage pregnancy to stunting in a toddler.
4	Heru Subaris Kasjono, Agus Wijanarko, Rizki Amelia, Dina	Impact of Early Marriage on Childhood	310 children aged 0-59	cross-sectional study	Teenage pregnant women who had stunting children

	Fadillah, Wahyu Wijanarko, Sutaryono	Stunting	months	design	were at the Kundi Health Center (78.6%) and Sekar Biru Health Center (83,3%). There was a significant relationship between the early married teenagers and stunting in their children. Early marriage (under 20 years old) increases the risk of stunting in children.
5	Kencana Sari, Ratu Ayu Dewi Sartika	The Effect of the Physical Factors of Parents and Children on Stunting at Birth Among Newborns in Indonesia	756 newborn	cross sectional	In terms of age, children whose parents were both younger than 20 or older than 35 had the highest proportion of stunted newborns (12.8%), of which the proportion of males (13.7%) was higher than females (11.4%)

1. Outline of the results of the journals obtained

Based on 5 journals that discuss teenage pregnancy with stunting in children under five years of age, it is concluded that there is a relationship between teenage pregnancy and stunting. In 2016, globally there were 154.8 million children under the age of 5 years suffering from child stunting, which is around 22.9%. The highest prevalence of stunting in the Southeast Asian region is Indonesia. The average prevalence of stunting under five in Indonesia is 36.4% (Kemenkes, 2021). Child

stunting can occur in the first 1000 days after conception which is influenced by many factors, namely socio-economic status, food intake, infection, maternal nutritional status, infectious diseases, micronutrient deficiencies and the environment. From WHO data, it was found that women aged 15-19 years who had given birth at least once, can be at risk of having babies with low birth weight and children can be stunted. This happens because the mother's own growth has not been completed at this age (Marques, Loureiro, Avelar-Rosa, Naia, & Matos, 2020). Teenage pregnancy is a high risk pregnancy. Prevention of pregnancy complications is actually possible through early detection carried out with regular and quality inspections (Sulis, Wahyuni, & Prasetyo, 2020).

In a study conducted by Jeannie Flynn and friends in 2020, it was found that children born to mothers with maternal age under 20 years during pregnancy had a greater likelihood of being underweight (Flynn, Alkaff, Sukmajaya, & Salamah, 2020). The prevalence of stunting and underweight is significantly lower when measured using Indonesian national benchmarks compared to using WHO standards. In the study, it was stated that the national growth reference of each country is more suitable to reflect the condition of its own population (Mo-Suwan & Choprapawon, 2016).

Currently, early marriage has become a global problem, as well as the nutritional status of children under five. At the age of teenagers, they are not ready to get married, both in terms of reproductive health and mental health. Early marriage can contribute to a cycle of poverty and powerlessness in women. A study conducted by Novianti in 2013 discussed factors related to the nutritional status of children under five. The research design used was cross sectional with logistic analysis (chi-square test) on 978 samples. The results of the study found that a significant factor related to malnutrition was the mother's emotional mental disorder. Underweight, stunting, wasting, are closely related to clean and healthy living behavior and emotional mental disorders in adolescent mothers (Fuada, Latifah, Yunitawat, & Ashar, 2020).

In another study conducted in Bangun Rejo Village, Tanjung Morawa District, Deli Serdang in 2019 showed that there was a relationship between early marriage and teenage pregnancy with the incidence of stunting in toddlers. Teenage pregnancies have a greater chance of giving birth to premature babies or babies with low birth weight. Teenage pregnancies are usually unplanned and occur more frequently in economically disadvantaged populations. Lack of education in adolescent mothers causes poor parenting in children (Pangaribuan, Sari, Simbolon, Manurung, & Ramuni, 2020). This study revealed that the majority of stunting occurred in the first 2 years of life. The early period of child malnutrition starts from the period of fetal development in malnourished mothers. Maternal nutrition during pregnancy plays an important role in the growth and survival of the child. Mothers who experience pregnancy at a young age are not fully developed biologically. This results in less nutrient flow to the fetus during pregnancy. Physically, teenage pregnant women are also still not fully developed, so there can be a struggle for nutrients between the fetus and the mother's own metabolism. This situation will lead to insufficient intake of maternal nutrients so that the fetus will experience growth retardation. This stunted growth can increase the risk of the fetus being born

with low birth weight or premature birth. Both of these risk factors are responsible for the occurrence of stunting in infants.

From the journal entitled *Impact of Early Marriage on Childhood Stunting*, Heri and colleagues conducted a study using the Cross Sectional method. This research was conducted at 8 Public Health Center in West Bangka Belitung Islands, Indonesia in October-November 2018. The research sample consisted of 310 children aged 0-59 months. Based on variables that have risk factors for stunting in West Bangka Regency, the age of early marriage (under 20 years) is still high. Early marriage among adolescents is generally associated with early pregnancy, and pregnancy increases the need for iron and affects iron deficiency and iron deficiency anemia experienced by adolescent girls. Approximately 1,000 mg of iron is needed to support changes associated with pregnancy, such as increased blood volume, ideal fetal growth and development. Most pregnant women, both in developing and developed countries, have low iron stores in early pregnancy. Teenage pregnancy becomes more risky because of the increased need for iron during pregnancy coupled with the need for iron during the mother's own growth spurt. Malnutrition with anemia and underweight can cause low birth weight babies when compared to women of childbearing age who are safe for pregnancy (Kasjono, Wijanarko, Amelia, Fadillah, & Wijanarko, 2020).

Kencana Sari and Ratu Ayu Dewi in 2021 conducted a study by analyzing secondary data from the 2018 Indonesian Basic Health Survey conducted in 34 provinces and 512 regencies/cities. The results showed that the incidence of stunting could be associated with maternal age at the time of first pregnancy, parity, parental height, parental age, and gestational age. Children of mothers who gave birth first at the age of 25 years or older were less likely to be stunted at birth compared to the age group of mothers under 25 years. Children whose parents are both < 20 years old are twice as likely to be stunted at birth. Women who gave birth for the first time at the age of less than 27 years had lower levels of maturity (Finlay, Özaltın, & Canning, 2011) Mothers whose first pregnancy was in the 27-29 year age range were more likely to live in better sanitary conditions, have higher levels of education, have higher socioeconomic status, have a partner, and live in urban areas (Sari & Sartika, 2021).

At the age of 20 and under, a woman's uterus and pelvis are not fully developed and have a greater chance of developing severe preeclampsia, eclampsia, postpartum hemorrhage, poor fetal growth, and fetal distress. Pregnant women aged 35 years have a greater chance of preterm delivery, hypertension, superimposed preeclampsia, severe preeclampsia, and a reduced risk of chorioamnionitis. Older women (≥ 40 years) have an increased risk of mild preeclampsia, fetal distress, and poor fetal growth (Kyojuka et al., 2021). Preeclampsia still becomes an important topic related to cardiovascular system health in more than 300 million women worldwide and has both short-term and long-term morbidity (Akbar, Kinanti, Ernawati, & Lestari, 2021). This suggests that maternal age during pregnancy can result in poor birth outcomes that hinder the growth potential of the child. Young mothers are advised to delay pregnancy. Because pregnancy in adolescent mothers poses an adverse risk to the health of the child, one of which is stunting. Midwives play an important role in providing education to young mothers to increase awareness of their own health.

2. **Another various cause of stunting**

a. **Direct and indirect factors of stunting**

Stunting is a chronic nutritional problem caused by multifactorial and is intergenerational. There are two factors causing stunting, namely direct and indirect factors. Direct factors were determined by the intake of food, birth weight, and disease, while the indirect factors were such as economic, cultural, education and employment, health-care facilities. Education is one of the indirect factors that can also affect the occurrence of stunting because the mother's low knowledge in providing nutrition to her child is also not optimal. The age of parents who are too young, which is less than 20 years old, has twice the risk of stunting compared to pregnancy at the ideal age, in boys the incidence is higher than in girls. Children whose parents are below average height are six times more likely to experience stunting.

b. **Parenting**

Stunting is also caused by several factors, one of which is parenting. Parents in providing parenting to children play an important role in shaping children's eating behavior and eating patterns (Govender, Taylor, & Naidoo, 2020). Parenting patterns are defined as the behavior of parents in caring for toddlers. Negative parenting by parents, especially mothers, increases the risk of stunting in children (Pertiwi, Lestari and Ulfiana, 2019). Negative parenting patterns are often associated with parental age, parental education and knowledge in providing care to children. Parenting patterns are one of the main factors that have a close relationship with the incidence of stunting in the community (Yenita, Thamrin, Amin, & Agrina, 2021).

According to (Govender et al., 2020) Maternal parenting is one of the factors causing the high prevalence of stunting in toddlers aged 12-36 months. Mothers with poor parenting have a 1.47 times higher prevalence of stunting under five than mothers with good parenting. In addition, pregnant adolescents have problems in parenting behavior, difficulties in raising children, and physical and mental health problems. A teenage mother still has to be guided because she is not ready to become a mother and a comprehensive education program is needed for teenage mothers in childcare readiness

CONCLUSION

Adolescent pregnancies that occur in Indonesia in most of the articles are the cause of stunting, but there are also some articles which announce that there is no relationship between teenage pregnancy and the incidence of stunting in children under 5 years of age. However, we need to compare the incidence rates in Indonesia with other developing countries so that we can conclude the main problem causing stunting in developing countries.

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