



**THE EFFECT OF ANTENATAL CARE (ANC) EXAMINATION ON THE  
INCIDENCE OF STUNTING IN TODDLERS**

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**ABSTRACT**

Stunting is a serious problem experienced by Indonesian children due to chronic malnutrition that affects their growth and development, making them too short for their age and requires immediate action. The stunting rate in Indonesia is still quite high at 21.6% based on the results of the Indonesian Nutrition Status Survey (SSGI) in 2022. According to the World Health Organization (WHO) in 2020 Indonesia has the second highest prevalence of stunting in Southeast Asia, reaching 31.8%. Antenatal Care (ANC) is a health service that is carried out or given to pregnant women starting from the beginning of pregnancy until the time of delivery. The purpose of this literature review is to determine the effect of Antenatal Care (ANC) examination on the incidence of stunting in toddlers. Method is using the literature review with the PRISMA Flow Chart principle. Scientific articles or journals were downloaded from PubMed, Garuda Portal, and Google Scholar with SINTA IV and V standards. The keywords in this article search are Antenatal Care and stunting. 143 articles were found in the search results. All articles were selected based on the inclusion criteria, resulting in 11 research articles to be reviewed. The results showed that there was an effect of Antenatal Care (ANC) checks on the incidence of stunting in toddlers. ANC visits are one of the family approaches in the stunting prevention program.

Keywords: antenatal care; chronic nutrition; stunting; toddlers

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**INTRODUCTION**

Stunting is a linear growth disorder that mainly occurs in children. Stunting is one of the indicators of chronic nutritional status that describes long-term malnutrition that causes growth retardation (Fitriani, L., et al. 2021). Stunting is a condition in which the body is short or very short based on the Index of Body Length by Age (PB/U) or Height by Age (TB/U) with a threshold (z score) between -3 SD to < -2 SD. Children are categorized as stunted if their length/height is less than -3 elementary school from the median Child Growth Standards according to the World Health Organization (WHO) for the same age and gender category. Stunting can occur from the time the fetus is still in the womb and will be seen when the child is two years old (Suarayasa, K., 2021). Data on the prevalence of stunted children under five according to the World Health Organization (WHO) in 2020 Indonesia is the second highest in Southeast Asia reaching 31.8%, the first highest stunting prevalence is Timor Leste at 48.8%, Laos is third with 30.2% then Cambodia is in fourth position with 29.9% and stunted children the lowest came from Singapore with 2.8%. There are 37.2%, the PSG (Determination of Nutritional Status) data in 2016 is 27.5%, while the limit set by WHO is

<20%. Where stunting is experienced by 8.9 million children in Indonesia. As many as 1/3 of Indonesia's children under five are less than normal in height (Hatijar, H. 2023).

The factors that cause stunting are direct and indirect causes. One of the indirect factors causing stunting in toddlers is the Antenatal Care service. Good quality Antenatal Care services are services that are carried out according to the standards that have been set, namely providing nutrition education, monitoring fetal growth and development and detecting and immediately carrying out appropriate management if growth and development abnormalities are found, in addition to Antenatal Care services also includes visits that are carried out regularly by mothers in accordance with those recommended by the Indonesian Ministry of Health (Madi, A. S., et al. 2023). ANC continues to be promoted in Indonesia as the main strategy to strive for the achievement of the third Sustainable Development Goals (SDGs) regarding health insurance for all groups, especially maternal and infant health. ANC is carried out in order to improve maternal and fetal health during pregnancy and detect and prevent complications that can occur during pregnancy and childbirth, even until the postpartum period (Nurkhayati, E., et al. 2023).

Antenatal Care coverage during pregnancy consists of K1, ideal K1, and K4. K1 is a health service received during the last child's pregnancy by health workers, at least 1 time without taking into account the examination time period. Ideal K1 is a health service received during the last child's pregnancy by health workers, and the pregnancy examination is first carried out during the 1st trimester of pregnancy. K4 is a pregnancy health examination service by health workers with a frequency of ANC during the last child's pregnancy at least 6 times according to the criteria, namely at least 1 time during pregnancy in the 1st trimester, 2 times in the 2nd trimester and 3 times in the 3rd trimester (Tunny, R., et al. 2022). Based on the description above, which includes the effect of Antenatal Care (ANC) examination on the incidence of stunting in toddlers, it is necessary to identify to prevent stunting. The purpose of this literature review is to determine the effect of Antenatal Care (ANC) examination on the incidence of stunting in toddlers.

## **METHOD**

This study uses the *literature review method*. Literature is obtained by reviewing articles or scientific journals downloaded from *PubMed*, Garuda Portal and *Google Scholar* with SINTA IV and V standards listed in Figure 1. Screening articles based on provisions include articles published in 2020-2023, published articles can be downloaded in *full text* and have open access, articles that examine the effect of *Antenatal Care* (ANC) examinations on the incidence of *stunting* in toddlers. Keywords in the article search include *Antenatal Care* and *stunting*.

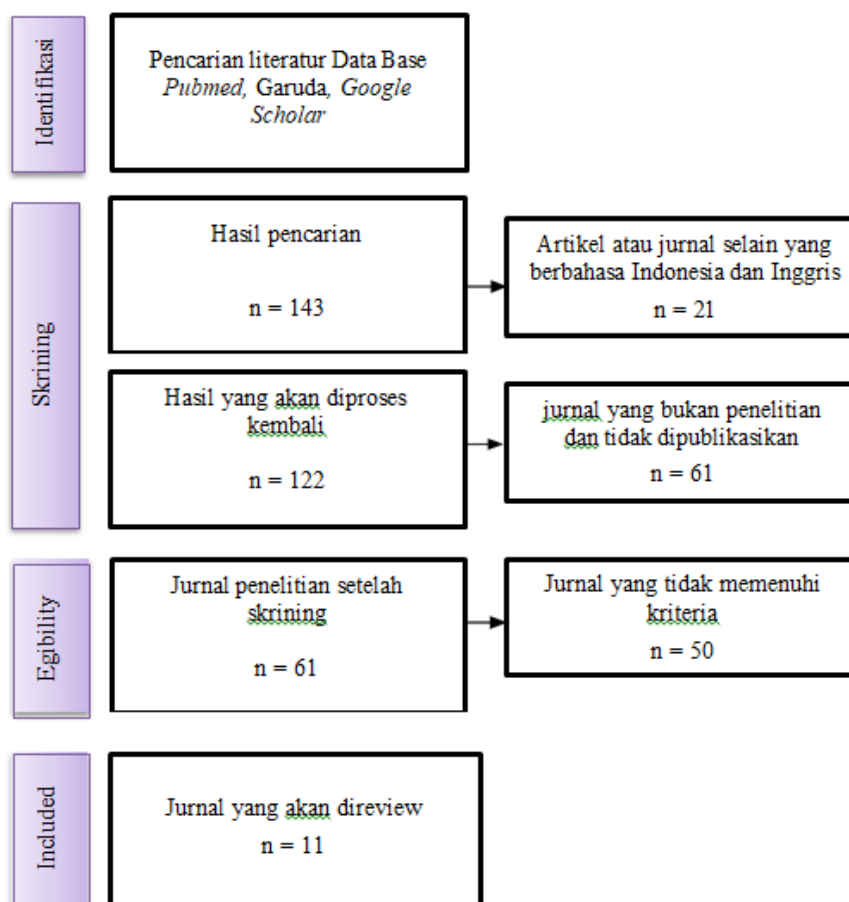


Figure 1. PRISMA Flow Research Article The Effect of Antenatal Care (ANC) Examination on the Incidence of Stunting in Toddlers

**RESULT**

143 articles found in the search results. All articles were entered in the search and screening and then filtered based on Indonesian Language and United Kingdom, method, indexed sinta IV and V and published in journals. The 11 research articles to be reviewed consist of 1 PubMed article and 10 articles from Google Scholar used in this study.

Table 1. Results of Article Review

Author's Name	Year	Article Title	Location	Number of samples	Research Design	Result	Determinant Factors
Agus Darmawan, Reski, Rininta Andriani	2022	ANC Visits, Posyandu and Immunization with Stunting Incidence in Toddlers in Central Buton Regency	Lakudo Health Center, Central Buton Regency	81	This study is an analytical survey research with a cross sectional study design.	The results showed that the history of ANC visits had a relationship with the incidence of stunting (p=0.044), posyandu visits had a relationship with the incidence of stunting (p=0.001), and immunization status had a	Antenatal Care Visits, Posyandu, Immunization, Stunting

Author's Name	Year	Article Title	Location	Number of samples	Research Design	Result	Determinant Factors
						relationship with the incidence of <i>stunting</i> (p=0.005). The history of ANC visits, visits to Posyandu, and immunization status are related to <i>stunting</i> events.	
Diani Magasida; Erawati	2021	The Relations hip of <i>Antenatal Care</i> to the Incidence of <i>Stunting</i> in Toddlers Aged 24-59 Months.	Four Villages in Kalibawang District	100	<i>Research design using cross sectional</i>	The results of this study were obtained that there was a relationship between <i>Antenatal Care</i> and the incidence of <i>stunting</i> in the working area of the Kalibawang Kulonprogo Health Center p<0, 000 (p>0, 05). <i>Antenatal Care</i> is most included in the category met by 58%, <i>stunting</i> classification is most in the <i>stunting</i> category at 69%, very <i>stunted</i> at 31%. The correlation between <i>antenatal care</i> and the incidence of <i>stunting</i> was shown by an r-value of 0.389, meaning that the relationship was moderate.	Quality ANC, <i>Stunting</i> , Literatur Review
Masta Hutasoit, Khristina Dias Utami, Nur Fitri Afriylini	2020	<i>Antenatal Care Visits</i> Related to <i>Stunting</i> Incidence	Kalibawang Health Center, Kulon Progo Regency	100	<i>This study is an analytical survey research with a cross sectional study design.</i>	The results of the study were obtained that there was a significant relationship between <i>Antenatal Care visits</i> and <i>stunting incidence</i> , which was known with a p-value of 0.000 (p<0.05). The relationship is moderately close and is characterized by a correlation coefficient value of (r)=0.389.	<i>Antenatal Care, Stunting</i>
Nur Annisa Hamid, dkk	2021	<i>Antenatal Care</i> (ANC) Visit with <i>Stunting</i>	Country Bonto Maru	70	<i>The type of research used is a type of analytical</i>	The results of this study for bivariate analysis showed that there was a relationship	Children Under Two Years Old, <i>Antenatal Care</i> (ANC) Visits, <i>Stunting</i>

Author's Name	Year	Article Title	Location	Number of samples	Research Design	Result	Determinant Factors
		Incidence in Infants Aged 6 – 23 Months.			<i>observational research with a Cross Sectional design</i>	between Antenatal Care (ANC) visits and stunting incidence (p value = 0.000), there was a relationship between the completeness of 10T services and the incidence of <i>stunting</i> (p value = 0.001), and there was a relationship between birth length and <i>stunting</i> incidence (p value = 0.011).	

## DISCUSSION

Based on the 11 articles that have been obtained, there is an effect of Antenatal Care (ANC) examination on the incidence of stunting in toddlers.

### Stunting Incidence in Toddlers

Stunting is a condition of failure to grow in children under five years old as a result of chronic malnutrition, so that the child is too short for his age. Malnutrition occurs from the time the baby is in the womb and in the early days after the baby is born, but the stunting condition only appears after the baby is 2 years old. Short (stunted) and severely stunted toddlers are toddlers with body length (PB/U) or height (TB/U) according to their age compared to the standard standard of WHO-MGRS (Multicentre Growth Reference Study) 2022. Meanwhile, the definition of stunting according to the Ministry of Health (Kemenkes) is children under five with a z-score of less than -2SD/standard deviation (stunted) and less than -3SD (severely stunted) (Abdullah, et al. 2021). Based on UNICEF in 2018, the prevalence of stunting in Indonesia is that almost 3 out of 10 children in Indonesia under the age of five suffer from stunting or are too short of their age. Based on the results of Basic Health Research (RISKESDAS) in 2017, the prevalence of stunted children under five was 30.8%, which decreased compared to the results of basic health research in 2013, which was 37.2%. The prevalence of stunting in toddlers in 2019 based on the Ministry of Health has decreased again by 3.1% so that the prevalence of stunting toddlers is 27.7% (Ekawati, G., et al. 2022).

The main cause of stunting is chronic malnutrition experienced by children since the first 1000 days of life (HPK). The 1000 HPK period is a golden age period for children, starting from pregnancy or the formation of a fetus until the child is 2 years old. Other literature also shows that several factors that can cause children to experience growth and development disorders, namely (1) maternal and antenatal care factors, (2) home environment factors, (3) factors of breastfeeding practices, and (4) factors of feeding toddlers. In reducing the prevalence of stunting, it is necessary to prevent and provide interventions to all factors that contribute to the incidence of stunting in children, including maternal and antenatal care factors (Mediani, H. S., et al. 2023).

### Antenatal Care (ANC)

Pregnancy development, both improved maternal health and normal fetal development can be monitored at Antenatal Care examination visits. In addition, Antenatal Care examination can also detect early possible danger signs that occur in pregnancy that can affect the condition of the mother and baby (Montol, A. B., et al. 2022). The maternal mortality rate (AKI) and

infant mortality rate (AKB) in Indonesia are still high. Data in 2021 shows that AKI in Indonesia still has not reached the Millennium Development Goals (MDGs) target in 2015 and Sustainable Development Goals 2 (SDGs) in 2030. The reduction of AKI and AKB continues to be carried out and one of the efforts made is to maximize the implementation of ANC (Lolitasari, A. et al. 2023). Antenatal Care (ANC) is a health service that is carried out or provided to pregnant women from the beginning of pregnancy to the time of delivery (Siregar, A. E., et al. 2023). ANC frequencies that are in accordance with the standards, the implementation of ANC quality will run optimally. If there is a disorder in the first trimester and pregnant women come to health workers, they will get good education and case management that can help minimize the abnormalities that occur that can have an impact on the fetus (Istiningsih, T. et al. 2022).

Antenatal Care (ANC) is an effort made to prevent the causes of morbidity and mortality in pregnant women and children. The purpose of ANC is to prepare as well as physically and mentally as well as save mothers and children in pregnancy, childbirth and postpartum periods, so that during postpartum the condition of the mother and child is healthy and normal physically and mentally (Zuchro, F. et al. 2022). The Effect of Antenatal Care (ANC) Examination on the Incidence of Stunting in Toddler. The process of stunting is a long process, starting with growth failure both during pregnancy and after birth in the first two to three years of life. Thus, examination at Antenatal Care (ANC) is an important factor to prevent stunting. According to the Ministry of Health, the 10T pregnancy examination consists of: measuring the mother's height, measuring LILA, weighing the mother's BB and measuring blood pressure, measuring TFU, calculating the fetal heart rate, TT immunization status, giving Fe tablets, lab examinations, counseling, administration and treatment. This 10T examination is an examination that must be given to pregnant women for early detection in pregnant women so that it can be treated more if there are problems or complications (Astuti, F., D. et al. 2023).

WHO has given the lowest limit to each country, province, and district on the stunting problem, which is 20%. From the target given by WHO, Indonesia is still far from the target of 36.4%. Meanwhile, based on the 2017 Nutrition Status Monitoring (PSG), out of 34 provinces in Indonesia, only 2 provinces have crossed the WHO limit, namely Yogyakarta (19.8%) and Bali (19.1%). Meanwhile, other provinces are still dominant, around 30% to 40% (Ramadhini, N. et al. 2020). One of the risk factors for stunting is the quality of Antenatal Care in theory, not only the scope and services that affect but also the quality of Antenatal Care during pregnancy is also one of the things that must be considered when getting services (Magasida, D. et al. 2021). Efforts to prevent stunting have been carried out through specific nutrition interventions and sensitive nutrition interventions in the First 1000 Days of Life (HPK) group, starting from pregnancy, infants to 2-year-old children which are carried out jointly by the health sector and the non-health sector (Hanum, N. et al. 2023). Regular Antenatal Care visits can reduce maternal and fetal mortality. Antenatal Care visits start from K1 to K4 which is an indicator to see the quality of health services for pregnant women. Therefore, ANC visits are very important for the health of the mother and fetus. Antenatal Care (ANC) is a health check-up given by health workers to pregnant women during their pregnancy. Non-standardized ANC visits are one of the risks of stunting that can be prevented with standardized health checks for pregnant women. This can prevent complications or defects in the mother and fetus early (Hamid, N. A., 2021).

During the ANC visit, pregnant women will receive a thorough examination of their pregnancy, receive nutritional counseling, receive folic acid and iron supplements, and

appropriate health education. So that all of this can prevent mothers from experiencing anemia, prevent mothers from giving birth prematurely and small babies and babies get adequate nutrition from the womb. It can reduce the incidence of stunting in toddlers (Hutasoit, M. 2020). Poor ANC quality and irregular ANC visits have a significant association with the incidence of low birth weight infants (BBLR). Poor ANC quality and unprogrammed ANC visits have a 6 times greater risk of giving birth to low birth weight babies because BBLR is a factor that plays a role in stunting incidence (Darmawan, A. 2022).

## **CONCLUSION**

Maternal factors are one of the things that can cause stunting. These factors include poor nutritional status during preconception, pregnancy and postpartum, low maternal height, infections, teenage pregnancy, mental health, Intrauterine Growth Restriction (IUGR), premature birth, short pregnancy spacing, and hypertension. In addition, the ANC visit is also one of the family's approaches in the stunting prevention program. Based on the conclusion above, there is an effect of Antenatal Care (ANC) examination on the incidence of stunting in toddlers. Suggestions for the community are hoped that with this study, the community can minimize the causative factors, related to the prevention of stunting in toddlers and for future researchers, it is recommended to look for other variables in the incidence of stunting in toddlers.

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