

Literature Review: Nutritional Status of Pregnant Women in Relation to Stunting Incidence

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Article Info	Abstract
Article History Submitted, 2025-11-02 Accepted, 2025-11-30 Published, 2025-12-31 Keywords: Nutritional for Pregnant, Stunting	Stunting is currently a concern for the government. According to UN Statistics 2020 that more than 149 million (22%) toddlers worldwide experience stunting, of which 6.3 million are young children or stunted toddlers, namely Indonesian toddlers. The condition known as stunting arises from persistent inadequate nutrition over an extended period, starting from pregnancy and continuing until the child reaches two years old, which impedes normal development. This research approach relies on reviewing existing scholarly works. The study chose publications using phrases like "nutrition for expectant mothers" and "stunting," while applying specific requirements: readily available complete articles, presented either in Indonesian or English, and released from 2022 to 2025. The study found nine publications that matched the requirements. Every research paper originated from investigations carried out within Indonesia. Based on the literature review, it can be inferred that a connection exists between a mother's nutritional well-being while pregnant and the prevalence of stunted growth among children throughout Indonesia. The results of this literature review suggest that health professionals are essential in educating pregnant women about their nutritional requirements, with the goal of lowering the likelihood of stunting in young children within their regions. Moreover, communities can enhance their understanding and dedicate increased focus to nutritional consumption, especially for expectant mothers, to guarantee sufficient nourishment for the developing baby.

Introduction

Stunting is a complex nutritional problem for many countries in the world, especially in poor and developing countries other than Indonesia (Astuti et al., 2024). According to the WHO (World Health Organization) global nutritional status in 2022, there were 148.1 million children under 5 years of age who were too short for their age (stunting), 45.0 million children were too thin for their height (wasting), and 37.0 million children were too heavy for their height (overweight) (UNICEF & WHO, 2023). Based on the results of the 2024 Indonesian Nutritional Status Survey (SSGI), the national prevalence of stunting decreased from 2021: 24.4%, 2022: 21.6%, 2023: 21.5%, 2024: 19.8%. This decline shows significant progress in the government's efforts to address the problem of stunting. By 2024, the national stunting prevalence is projected to drop to 19.8 percent, equivalent to 4,482,340 toddlers. This figure is a 1.7 percent decrease compared to 21.5 percent in 2023. A total of 377,000 new cases of stunting in toddlers have also been prevented.

Stunting is not only an individual problem but also has long-term impacts on national development. Factors suspected to cause stunting include parental factors, which are seen in the mother's condition during pregnancy, such as the mid-upper arm circumference (MUAC), which reflects Chronic Energy Deficiency (CED), body mass index, and height. A mother's nutritional status before and during pregnancy can influence the growth of the fetus. A mother with normal nutritional status before and during pregnancy is more likely to give birth to a healthy, full-term baby with a normal birth weight. In other words, the quality of the baby born is highly dependent on the mother's nutritional status before and during pregnancy (Ma'wa et al., 2025).

The impacts of stunting include suboptimal cognitive, motor, and verbal development in children, increased morbidity and mortality, suboptimal body posture in adulthood (shorter than average), and suboptimal learning capacity and performance during school (World Health Organization, 2023). Children who experience stunting tend to have low academic achievement, limited economic opportunities, and a poor quality of life. Therefore, efforts to prevent and address stunting are a national priority in Indonesia's human resource development agenda.

Government efforts to prevent stunting have been implemented since pregnancy, particularly during the first 1,000 days of life (HPK). One way is by increasing mothers' knowledge about their attitudes and behaviors to prevent stunting. To improve mothers' knowledge and attitudes about health and nutrition, a nutritional package is needed, including providing supplementary food, vitamin A, and iron tablets to pregnant women and toddlers, as well as understanding proper care (Fadhilatusafitri & Kurniati, 2025).

Pregnant women face many challenges and important responsibilities related to their unborn babies. A mother's nutritional status before and during pregnancy can affect the growth of her fetus. A mother with normal nutritional status before and during pregnancy is more likely to give birth to a healthy, full-term baby with a normal birth weight. In other words, the quality of the baby born is highly dependent on the mother's nutritional status before and during pregnancy. Poor fetal growth in pregnant women with CED will result in a baby with low birth weight (Pratiwi et al., 2025).

Based on the results of research conducted by Astari et al (2022), the results of the study showed a p-value of $0.023 < 0.05$, which means there is a relationship between education, age, and socioeconomic status related to the nutritional condition of pregnant women, this condition affects the growth of the unborn child. The condition of women before and during pregnancy greatly influences this condition (Rikayoni & Rahmi, 2023). If healthy, they will give birth to a baby with normal weight. The level of maternal education has the most dominant relationship with the incidence of stunting (Ramadhaniati et al., 2024)

Health professionals' duty in this matter is to educate expectant mothers and potential brides at the integrated health post (posyandu) about reducing risk factors that lead to childhood stunting. Stunting can also be prevented by paying attention to nutritional adequacy in the first 1000 days of life for both mother and child during pregnancy, pregnant women must undergo pregnancy checks or Antenatal Care by paying attention to the development of recording and reporting of Maternal and Child Health programs. The goal of this study is to perform a systematic evaluation of the association between nutritional status of pregnant women and the incidence of stunting based on the results of previous studies.

Methods

The study employed a literature review method. The search process for articles was limited to databases such as Google Scholar. The keywords used were maternal nutrition and stunting. The inclusion criteria for the articles were articles published in accredited national journals, publications within the last three years (2022-2025), full text, open access, and no limitations related to research design. The keyword search yielded 16,200 articles from several databases. After identifying the relevance of titles, abstracts, and duplicate articles, 40 articles were obtained. The nine selected articles were then analyzed in full text. The article analysis process can be seen in the Prisma scheme in Figure 1.

There are 9 research articles as sources for systematic studies on the nutritional status of pregnant women in cases of stunting.

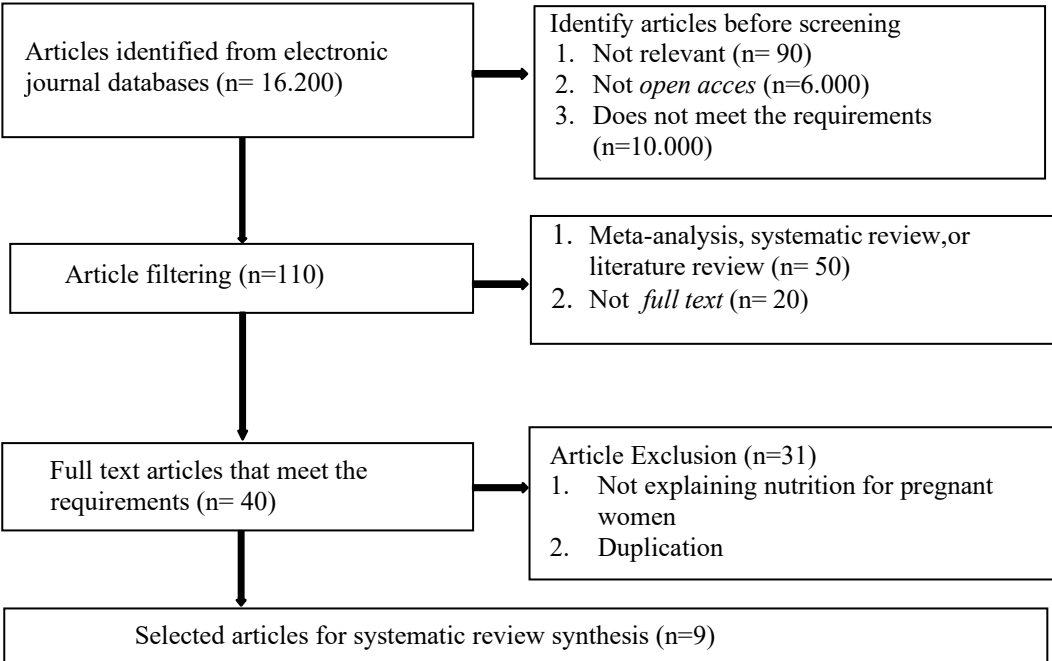


Figure 1. Article Selection Scheme Using Prisma Flow

Results and Discussion

Based on the article search, nine articles were analyzed using a matrix table (Table 1) to identify each of the variables studied related to maternal nutritional status and stunting incidence. Three of the nine articles used a cross-sectional study design, while the remaining articles used a case-control, observational study, and retrospective methodology, including correlation analysis. Nine articles were published in Indonesia. The variables that were the focus of this literature review were maternal nutritional status and stunting incidence. The results of the article synthesis analysis can be seen in Table 1.

Table 1. Jurnal Analysis Result

No	Citation	Method	Sample	Results
1	Rikayoni, Dian Rahmi, Tahun 2022	Correlation analysis using a retrospective cohort approach	30 mothers who have babies 0-36 months	1. The nutritional status of mothers during pregnancy in the Sijunjung Community Health Center's work area shows that 25 mothers (83.3%) had good MULA, while 5 mothers (16.7%) had poor MULA. 2. The incidence of stunting in the Sijunjung Community Health Center's work area shows that 27 toddlers (90.0%) had normal MULA, while 3 toddlers (10.0%) had stunting. 3. There is no relationship between maternal nutritional status during pregnancy and the incidence of stunting in the Sijunjung Community Health Center's work area.
2	Yuni Ramadhaniati, Pitri Subani, Yeni Puspita Sari. Tahun 2024	The analytical survey method uses a case-control approach.	The sample size in this study was 78, with a 1:1 ratio of case to control groups. Therefore, the case group comprised 39 mothers with stunted toddlers. The control group comprised 39 mothers without stunted toddlers.	The Chi-square statistical test (continuity correction) yielded a x2 value of 12.126 with p=0.000<0.05, indicating a significant relationship between nutritional status and stunting in toddlers aged 24-59 months in the Tanjung Aur Community Health Center work area.
3	Arifatul Ma'wa, Noor Azizah,	Retrospective cohort research	Populasi dan Sampel yaitu seluruh ibu yang	The results of the Spearman Rank Correlation statistical test data analysis. Based on the results of the

	Indah Puspitasari. Tahun 2025	design.itian cohort retrospective .	memiliki balita di desa lokus stunting di puskesmas jepara yang berjumlah 39 ibu hamil. Total sampling.	analysis using the Spearman Rank statistical test, a value of 0.543 was obtained. This indicates that there is no significant relationship between the nutritional status of pregnant women as measured by the MUAC and the incidence of stunting in toddlers in the village where the stunting occurred at the Jepara Health Center.
4	Wilda Fadhilatusafitri, Nurul Kurniati Tahun 2025	Analytical Survey, using Cross Sectional design	The sampling technique used in this study was purposive sampling, with a total of 74 samples.	There is a significant relationship between the nutritional status of pregnant women and the incidence of stunting in toddlers in the Imogiri II Bantul Community Health Center working area with a p value of 0.000 < 0.05. This is influenced by several maternal factors that contribute to increasing the risk of stunting, namely poor nutritional status (55.4%), mothers being in the age range ≤25 years (47.3%), having a high school education (52.7%), and working as a housewife (75.7%). These factors also contribute to parenting patterns and fulfilling children's nutrition, which in turn can influence the incidence of stunting.
5	Baiq Reni, Pratiwi. Tahun 2024	This research design uses a case control sample.	The sampling technique used in this study was purposive sampling, with a total of 74 samples.	The results of the study showed a strong and significant relationship between maternal nutritional status during pregnancy and the incidence of stunting in 24-month-old toddlers in Kuta Village, Pujut District, Central Lombok Regency. The Chi-Square test showed a significance value of 0.000 and an OR of 51.6. This suggests a relationship between maternal nutritional status during pregnancy and the incidence of stunting.
6	Dwi Astuti, Atun Wigati, Ana Zumrotun Nisak, Noor Azizah, Irawati Indrianingrum Tahun 2024	Retrospectiv e correlational analysis	Sampling was conducted purposively at the Pecangaan Community Health Center, with a sample size of 33 mothers and stunted children aged 2 to 5 years.	Only 22 (66.7%) toddlers experienced stunting, a relatively low incidence. During pregnancy, most mothers (18/54.5%) had low birth weight babies. This was reflected in the findings of a bivariate study conducted at the Pecangaan Community Health Center on the incidence of stunting in toddlers and maternal nutritional status during pregnancy.
7	Fuji Khairani, Hasrun Ningsih. Tahun 2024	This study used a case-control design, which is a retrospective observational analysis research design.	The total population was 833 toddlers. The sampling technique used in this study was cluster random sampling.	The results of the Chisquare test with SPSS show that the significant value of Pearson Chisquare is 0.038, because the value <0.05 means there is a significant relationship between KEK during pregnancy and the incidence of stunting in toddlers aged 2-4 years. The Odds ratio value of 2.667 indicates a 2.667 times greater risk of stunting in pregnant women with KEK. There is a relationship between maternal nutritional status and the incidence of stunting at the Pringgarata Health Center with a p-value of 0.038 and an odds ratio value of 2.667.
8	Senny Pratiwi, Fernanda Ilham Zulkarnaen, Nanda Nur	Descriptive with cross sectional	The sample in this study consisted of 447 toddlers aged 13 to 36 months,	Based on the analysis results, it was found that nutritional status has a significant relationship with the

	Rizki Hamdani, Chica Istianie, Yuly Peristiowati. Tahun 2025	research design	who were selected using a purposive sampling technique.	incidence of stunting in toddlers in the region.
9	Indah Rahayu, Hutari Puji Astuti. Tahun 2023	This study uses a quantitative correlation with a cross- sectional approach.	The sample in the study was mothers who had stunted children, totaling 59.	The statistical test results showed a p- value of 0.013, meaning the p-value is <0.05. Therefore, it can be concluded that there is a relationship between maternal nutritional status during pregnancy and the incidence of child stunting at Masaran II Community Health Center.

Seven of the nine articles explained the relationship between maternal nutrition and stunting. One of the nine articles explained the causes of stunting. While adequate nutrition before pregnancy is crucial during pregnancy, adequate nutrition during pregnancy is also crucial. Maternal nutritional status during pregnancy can be manifested as the body's condition resulting from the consumption, absorption, and utilization of food, which can affect fetal growth and development. Maternal nutrition during pregnancy is crucial for the growth and development of the fetus. In general, pregnant women in good health who experience no nutritional disorders pre-pregnancy or during pregnancy will produce larger and healthier babies than those with nutritional disorders. Chronic energy deficiency can lead to the birth of children with stunted bodies (Khairani & Ningsih, 2024).

A good maternal nutritional status during pregnancy increases the likelihood of giving birth to a healthy baby. As is generally understood, maternal nutritional status is a physical condition resulting from the consumption, absorption, and utilization of various macro and micronutrients. Because pregnancy causes physiological changes, including hormonal changes and increased blood volume for fetal development, maternal nutrient intake must also be increased to meet these needs (Pratiwi et al., 2025). Chronically energy-deficient pregnant women in the final trimester lack adequate nutrient reserves to meet the physiological needs of pregnancy, including hormonal changes and increased blood volume for fetal growth. This reduces the supply of nutrients to the fetus, resulting in stunted fetal growth and development, leading to low birth weight, which is often associated with stunting.

Stunting is a linear growth disorder caused by long-term chronic malnutrition, particularly during the First 1,000 Days of Life (HPK), from conception to two years of age. Stunting is not only a health issue but also a national development issue that must be addressed seriously and sustainably (Rahayu & Astuti, 2023). Although various programs have been launched, such as Scaling Up Nutrition (SUN) and strengthening primary care, significant challenges remain, particularly in areas with limited access to nutrition, sanitation, and education. Efforts to reduce stunting require cross-sector synergy from health and education to social development, with a community-based approach and strict monitoring. Nutrition education, increased family awareness, and interventions from adolescent girls and pregnant women are key to success. If not addressed seriously, stunting can reinforce the intergenerational cycle of poverty and hinder human resource development in Indonesia.

Conclusion and Suggestion

Based on the research findings and the test results in the discussion, it can be concluded that there is a relationship between the nutritional status of pregnant women and the incidence of stunting. Stunting is a condition of growth failure in children under five years of age due to chronic malnutrition and repeated infections, characterized by shorter height than the average child their age. Pregnant women are advised to maintain and improve a balanced nutritional status to prevent stunting.

References

Astari, A., Merdikawati, A., & Agustin, H. (2022). Nutritional Status of Pregnant Women Aged Less Than 20 Years is a Risk Factor For The Incidence of Babies With Low Birth Weight (LBW). *Indonesian Journal of Human Nutrition*, 9, 61–69. <https://doi.org/10.21776/ub.ijhn.2022.009.01.6>

Astuti, D., Wigati, A., Nisak, A. Z., Azizah, N., & Indrianingrum, I. (2024). RIWAYAT STATUS GIZI IBU HAMIL DENGAN KEJADIAN STUNTING. *Jurnal Ilmu Keperawatan Dan Kebidanan*, 15(2), 246–252.

Fadhilatusafitri, W., & Kurniati, N. (2025). HUBUNGAN STATUS GIZI IBU HAMIL DENGAN KEJADIAN STUNTING DI WILAYAH KERJA PUSKESMAS IMOGIRI II BANTUL. *Journal of Innovation Research and Knowledge*, 4(11), 8635–8644.

- Khairani, F., & Ningsih, H. (2024). Hubungan kurang energi kronik (kek) dengan kejadian stunting pada balita 2- 4 tahun di wilayah kerja upgd puskesmas pringgarata. *Jurnal Cahaya Mandalika*, 5(1), 704–712.
- Ma'wa, A., Azizah, N., & Puspitasari, I. (2025). KORELASI STATUS GIZI BERDASARKAN LILA IBU HAMIL DENGAN KEJADIAN STUNTING PADA BALITA DI DESA LOKUS STUNTING PUSKESMAS JEPARA. *Jurnal Ilmu Keperawatan Dan Kebidanan*, 16, 221–229. <https://doi.org/10.26751/jikk.v16i2.2970>
- Pratiwi, S., Zulkarnaen, F. I., Hamdani, N. N. R., & Istianie, ChicaPeristiowati, Y. (2025). Hubungan Status Gizi dengan Kejadian Stunting di Wilayah Kerja Puskesmas Sebulu I. *Journal of Innovative Health Sciences*, 1(1), 33–39.
- Rahayu, I., & Astuti, H. P. (2023). *KEJADIAN STUNTING PADA ANAK DI PUSKESMAS MASARAN II*. 1–9.
- Ramadhaniati, Y., Subani, P., & Sari, Y. (2024). HUBUNGAN STATUS GIZI IBU SAAT HAMIL DENGAN KEJADIAN STUNTING PADA BALITA USIA 24-59 BULAN DI WILAYAH KERJA PUSKESMAS TANJUNG AUR. *Journal of Public Health Science*, 1(2), 141–146. <https://doi.org/10.59407/jophs.v1i2.1098>
- Rikayoni, & Rahmi, D. (2023). HUBUNGAN STATUS GIZI IBU SELAMA HAMIL DENGAN KEJADIAN STUNTING PADA BAYI USIA 0-36 BULAN DI WILAYAH KERJA PUSKESMAS SIJUNJUNG TAHUN 2022 RELATIONSHIP BETWEEN NUTRITIONAL STATUS OF MOTHERS DURING PREGNANCY WITH STUNTING INCIDENCE BABIES AGED 0-36 MONTH IN. *MENARA Ilmu*, XVII(01), 97–106.
- UNICEF, & WHO. (2023). GLOBAL BREASTFEEDING SCORECARD 2023 RATES OF BREASTFEEDING INCREASE AROUND THE WORLD THROUGH Highlights for the 2023 Scorecard. In *Global Breastfeeding Scorecard*.
- World Health Organization. (2023). *Maternal Mortality: Levels and trends 2023*. WHO Press.