

Literature Review: Parity and Age Are Associated with The Incidence of Anemia in Pregnant Women

Mirwana¹, Hasni², Linda Rustiyana³, Septa Puspitasari⁴, Nita Nurhandayani⁵, Eka Agusrini⁶, Herlina Liling⁷, Puspida⁸, Sepri Winda Sari⁹, Novitasari¹⁰, Luvi Dian Afriyani¹¹

¹Bachelor of Midwifery Program, Universitas Ngudi Waluyo, wanamirwana376@gmail.com
²Bachelor of Midwifery Program, Universitas Ngudi Waluyo, aisyah.zakiyyah8@gmail.com
³Bachelor of Midwifery Program, Universitas Ngudi Waluyo, lindarustiyana1989@gmail.com
⁴Bachelor of Midwifery Program, Universitas Ngudi Waluyo, septapuspita09@gmail.com
⁵Bachelor of Midwifery Program, Universitas Ngudi Waluyo, nitanurhandayani89@gmail.com
⁶Bachelor of Midwifery Program, Universitas Ngudi Waluyo, agusrinielsa@gmail.com
⁷Bachelor of Midwifery Program, Universitas Ngudi Waluyo, herlinaliling24@gmail.com
⁸Bachelor of Midwifery Program, Universitas Ngudi Waluyo, mupida87@gmail.com
⁹Bachelor of Midwifery Program, Universitas Ngudi Waluyo, windasari2509@gmail.com
¹⁰Bachelor of Midwifery Program, Universitas Ngudi Waluyo, vita.wirda@gmail.com
¹¹Bachelor of Midwifery Program, Universitas Ngudi Waluyo, luviqanaiz@gmail.com
Email Correspondence: aisyah.zakiyyah8@gmail.com

Article Info	Abstract
Article History Submitted, 2025-11-01 Accepted, 2025-11-30 Published, 2025-12-31 Keywords: Anemia, pregnant women, age, parity	Anemia in pregnant women is a serious health problem and can pose risks to both the mother and the fetus. Factors such as age and parity are often considered the main causes of anemia in pregnant women. The prevalence of anemia in Indonesia remains relatively high, and successful management depends heavily on understanding the factors that influence its occurrence. This literature review aims to describe the relationship between age, parity, and the incidence of anemia in pregnant women and to evaluate the effectiveness of interventions that can be implemented to prevent anemia. This literature review used a literature review method. A systematic search was conducted using a computerized search of articles published between 2020 and 2025 using Google Scholar. Only articles with a quantitative design and full text were included in this analysis. Keyword search using the PICO (Population Intervention Compare Outcome) technique. Of the 20 articles searched, 10 matched the topic of this literature review. Of these 10 articles, 9 showed a significant association between age and parity and the incidence of anemia in pregnant women, while the other 1 article found no such association. The study results indicate that pregnant women who are too young (under 20 years) or too old (over 35 years) are at higher risk of developing anemia. High parity (more than 4 pregnancies) was also found to be an important risk factor. Most studies show a significant association between age and parity, with the incidence of anemia in pregnant women. Although one study differs, anemia prevention in pregnant women can be achieved by increasing awareness of the importance of routine checkups and optimal pregnancy management. Therefore, efforts to prevent and manage anemia in pregnant women should prioritize age and parity as key risk indicators to ensure more targeted and effective interventions.

Introduction

According to the World Health Organization (2023), the global prevalence of anemia in pregnant women reaches 35.5%, and approximately half of these cases are caused by iron deficiency. The prevalence of anemia in pregnant women is 57.1% in Africa, 48.2% in Asia, 25.1% in Europe, and 24.1% in the Americas. A person is considered anemic if their hemoglobin (Hb) level is below 11 g/dL in the first and third trimesters or <10.5 g/dL in the

second trimester. The prevalence of anemia by age is known to be 84.6% in women aged 15-24 years (Kementerian Kesehatan Republik Indonesia, 2020).

Anemia in pregnant women is a major health problem that poses significant risks to both the mother and her fetus. This condition can not only cause minor complications but can also be life-threatening for both mother and baby. Anemia in pregnant women can increase the risk of premature delivery, low birth weight, and postpartum complications such as severe bleeding, infection, and organ failure, all of which can worsen the health of both mother and child. In more severe cases, anemia can even lead to maternal or perinatal death. Various factors influence the incidence of anemia in pregnant women, but two key factors that are often associated are age and parity. The ideal maternal age for pregnancy is 20-35 years, and this age group is considered to have a lower risk of pregnancy complications and a healthy reproductive system. This is related to the biological and psychological condition of pregnant women. Conversely, women under 20 years of age are at risk of anemia because their biological development, particularly reproductive health, is not yet optimal. Furthermore, pregnancy in the age group above 35 years is considered high-risk. Pregnant women over 35 years of age are also susceptible to anemia.

Research by Susanti et al (2025) shows that older maternal age (over 35 years) is associated with an increased incidence of anemia. The body's decreased ability to absorb iron is one of the main causes of iron deficiency in older pregnant women. Furthermore, older pregnant women are more likely to have a history of other health problems, such as hypertension, diabetes, or other complications, which can exacerbate anemia. These complex health conditions make anemia management more difficult and pose risks to the health of the mother and fetus.

Maternal parity is the frequency with which a mother has given birth, whether alive or dead, but not through abortion. The more frequently a woman experiences pregnancy and childbirth, the greater the iron loss and the greater the risk of anemia. Research by Adawiyah et al (Adawiyah & Wijayanti, 2021) suggests a significant correlation between parity and the incidence of anemia in pregnant women at the Samarinda Trauma Center Health Center. Pregnant women with multiparity experienced moderate anemia, with 1.7%. Based on the above background, the researcher is interested in compiling an article entitled "Literature Review: Parity and Age Are Associated with the Incidence of Anemia in Pregnant Women".

Methods

This literature study uses the Literature Review (LR) method, which is a systematic and clear literature study by collecting, identifying, and evaluating existing research data. The purpose of writing this literature is to determine the factors that influence the incidence of anemia in pregnant women, especially those related to age and parity. A systematic search was conducted through a computer search using the Google Scholar database. The search was limited to articles published between 2020 and 2025. The keywords used by the author were "anemia", and "pregnant women", and "parity", and "age". The inclusion criteria set in this literature review process were 1) articles focusing on factors that influence the incidence of anemia in pregnant women, especially those related to age and parity, 2) full-text articles published between 2021 and 2025, 3) articles using Indonesian or English, 4) research articles. Exclusion criteria: 1) articles in the form of undergraduate theses or dissertations, 2) articles that cannot be freely accessed.

Results and Discussion

Literature review was conducted on 10 articles. The publication years were between 2020 and 2025. The results of the journal analysis are shown in Table 1 as follows:

Table 1. Jurnal Analysis Result			
No	Researchers	Research Methods	Results
1.	The Relationship Between Age, Parity, and Iron Tablet Consumption Compliance and the Incidence of Anemia in Pregnant Women at the Batunadua Community Health Center in Padangsidempuan City in 2021 (Ramadhini & Dewi, 2021).	This quantitative research used a cross-sectional approach. The population was 229 pregnant women at the Batunadua Community Health Center in Padangsidempuan City, with a sample size of 70. Simple random sampling was used as the sampling technique. The Chi-Square test was used for analysis.	Age and parity were found to be associated with anemia in pregnant women. Pregnant women are advised to consider their age and number of children they have given birth to when planning a pregnancy. Once pregnant, they should have regular check-ups at the nearest health care

		facility to avoid anemia
2.	The Relationship Between Age and Parity with the Incidence of Anemia in Pregnant Women in the Seputih Banyak Community Health Center Work Area (Sari et al., 2022).	A quantitative analytical method with a cross-sectional approach was used. The population in the study was all pregnant women in the Seputih Banyak Community Health Center working area in 2020. A sample of 273 patients was selected using purposive sampling technique and data processing using chi-square analysis.
3.	The Relationship Between Age and Parity with the Incidence of Anemia in Pregnant Women in the Darul Azhar Community Health Center Work Area (Susanti et al., 2025).	There is a relationship between age (p-value = 0.012) and parity (p-value = 0.037) with the incidence of anemia in pregnant women in the work area of the Seputih Banyak Health Center in 2020, so that preventive efforts are needed with health promotion, especially for pregnant women with risky ages and parities.
4.	Relationship between Risk Factors and Anemia in Pregnant Women in the Third Trimester (Khatimah et al., 2022)	There is a significant relationship between age (p value of 0.000) and parity (p value of 0.003) with the incidence of anemia in pregnant women..
5.	The Relationship between Age and Parity with the Incidence of Anemia in Pregnant Women at PMB Linda Elisabet, Beji District, Depok City, West Java Province in 2024 (Situmorang et al., 2025)	The quantitative design used a cross-sectional approach. The population consisted of 252 respondents. The sample consisted of 72 pregnant women. Data analysis used the chi-square test..
6.	The Relationship Between Age and Parity with the Incidence of Anemia in Pregnant Women (Novita et al., 2025)	This descriptive analytical study used a cross-sectional approach using quantitative data. Sampling was conducted using a purposive sampling method with a sample size of 63 pregnant women in their third trimester. Data were processed and analyzed using the Chi-square test.
7.	Factors Associated with the Incidence of Anemia in Pregnant Women in the Cempaka Community Health Center Work Area, Banjarmasin (Rahmina et al., 2025).	There is a significant relationship between the age and parity of pregnant women with the incidence of anemia in BPM Linda Elisabet, Beji District, Depok City, West Java Province with a p value <0.05 (0.001)
8.	Factors Influencing the Incidence of Mild Anemia in Pregnant Women at the Kassi-Kassi Community Health Center in Makassar City (Marhaeni et al., 2023)	There is a significant relationship between Age (p-value 0.000) and Parity (p-value 0.003) with the incidence of Anemia in pregnant women.
9.	The Relationship between Maternal Age, Parity, and	This non-experimental, correlative quantitative study used a cross-sectional approach. The sample size for this study was 48 respondents, selected using accidental sampling. The statistical test used chi-square.
		Maternal age (p value = 0.006) and parity (p value = 0.0258) have a significant effect on the incidence of anemia in pregnant women.
		This study used an analytical survey, a cross-sectional study approach. The subjects were pregnant women with anemia taken using purposive sampling of 32 respondents
		There is a significant relationship (p<0.05)
		This study used an observational analytical design with a cross-sectional approach. The population

Antenatal Care Compliance and the Incidence of Anemia in Pregnant Women in the Ngoro Community Health Center Work Area, January - April 2024 (Yudistira et al., 2024)	was all pregnant women in the Ngoro Mojokerto Community Health Center (Puskesmas Ngoro Mojokerto) working area, totaling 159 pregnant women.	between maternal age and parity with the incidence of anemia in the Ngoro Community Health Center work area.
10. The Relationship Between Parity and Maternal Age and Pregnancy-Related Anemia at the Fishermen's Health Center in Gresik Regency (Arifah & Mudlikah, 2024).	The research method was observational analytic, cross-sectional approach. The population was 110 pregnant women in their first trimester. The sampling technique was purposive. The sample size was 40 pregnant women.	There is no correlation between parity and maternal age and anemia during pregnancy. Other factors that cause anemia include nutritional intake, parity, illness, and others. Therefore, treatment for anemia during pregnancy is recommended based on the cause.

In general, a normal Hb level in pregnant women is at least 11 mg/dl. If the Hb level is in the range of 10–11 mg/dl, the pregnant woman is categorized as having mild anemia. An Hb level of 8–10 mg/dl is considered moderate anemia, and a level below 8 mg/dl is considered severe anemia. Based on an analysis of 10 selected articles from 20 relevant journals, several factors were found to play a significant role in the incidence of anemia in pregnant women. These include parity (number of previous births) and maternal age. Both factors significantly impact the risk of anemia

Relationship between Age and the Incidence of Anemia in Pregnant Women

Maternal age is another important factor influencing the incidence of anemia in pregnant women. In general, pregnant women over 35 years of age are at higher risk of anemia compared to younger mothers. This occurs for several reasons, including decreased iron absorption with age and increased iron requirements during pregnancy. Research by Susanti et al (2025) shows that older maternal age (over 35 years) is associated with an increased incidence of anemia. Physiological processes occurring in older pregnant women, such as a decreased ability to absorb iron, contribute to iron deficiency. Furthermore, older pregnant women tend to have more health problems, such as hypertension or diabetes, which can exacerbate anemia.

Sari et al (2022) also found that younger pregnant women (under 20 years of age) are at risk of anemia. Young pregnant women may not have reached optimal physiological maturity to support fetal growth, resulting in iron deficiency. Furthermore, young mothers may also be less able to manage their health during pregnancy and may not receive sufficient nutrition.

The Relationship Between Parity and the Incidence of Anemia in Pregnant Women

Parity refers to the number of births a mother has had. This factor is a major determinant of anemia in pregnant women. Each time a mother gives birth, her body experiences significant blood loss, potentially depleting the iron stores needed to support healthy red blood cell production. Blood loss from childbirth, coupled with increased iron requirements during pregnancy, can lead to iron deficiency, which can lead to anemia. This is closely related to the number of births a mother has had; the more pregnancies, the greater the likelihood of decreased iron stores.

Research by Ramadhini & Dewi (2021) shows that mothers with high parity (more than two births) are at greater risk of anemia than mothers with low parity. Each pregnancy places an additional burden on the mother's nutritional needs, and multiple pregnancies can deplete already limited iron reserves. Furthermore, mothers with high parity tend to receive insufficient attention to meeting nutritional needs during pregnancy, which increases the risk of iron deficiency and anemia.

Meanwhile, research by Adawiyah & Wijayanti (2021) also revealed that parity has a significant influence on the incidence of anemia in pregnant women. This is supported by the finding that mothers with more than two children are at higher risk of anemia due to the effects of previous pregnancies, which can lead to decreased body iron stores. Therefore, it is important for mothers with high parity to receive more intensive medical attention and adequate education regarding the importance of a balanced nutritional intake and iron supplements. This suggests that although parity is associated with the incidence of anemia,

other factors such as nutritional status, access to health services, and adherence to iron supplements also play an important role in addressing the risk of anemia in pregnant women

Conclusion and Suggestion

From the discussion above, it can be concluded that maternal parity and age are significantly associated with the incidence of anemia in pregnant women. Mothers with high parity and age over 35 are at higher risk of anemia due to the loss of iron stores from previous pregnancies and decreased efficiency of iron absorption with age. Furthermore, young pregnant women are also at higher risk of anemia due to iron deficiency and limited understanding of nutritional needs during pregnancy. Therefore, greater attention to these factors, along with education about the importance of iron consumption and regular health check-ups, is crucial to prevent anemia in pregnant women and ensure the health of both mother and fetus during pregnancy. Recommendations for Further Research: Further research should focus on the interaction between age, parity, and other factors such as nutritional status and access to healthcare. Experimental studies on nutritional interventions or iron supplementation are also needed to develop more effective prevention strategies.

Acknowledgements

Thank you to all the lecturers at Ngudi Waluyo University and my classmates who helped in the preparation of this literature review.

References

- Adawiyah, R., & Wijayanti, T. (2021). Hubungan Paritas dengan Kejadian Anemia pada Ibu Hamil di Puskesmas Trauma Center Samarinda. *Borneo Student Research*, 2(3), 1553–1562.
- Arifah, D., & Mudlikah, S. (2024). PARITAS DAN USIA IBU DENGAN ANEMIA KEHAMILAN DI PUSKESMAS NELAYAN KABUPATEN GRESIK. *Jurnal Kebidanan*, 45–55. <https://doi.org/10.35872/jurkeb.v16i01.720>
- Kementerian Kesehatan Republik Indonesia. (2020). *Profil Kesehatan Indonesia Tahun 2020*.
- Khatimah, H., Setiawati, D., & Haruna, N. (2022). Hubungan Faktor Risiko Kejadian Anemia pada Ibu Hamil Trimester Ketiga. *UMI Medical Journal*, 7(1), 10–19.
- Marhaeni, Sonda, M., & Rahmawati, R. (2023). FAKTOR-FAKTOR YANG MEMPENGARUHI KEJADIAN ANEMIA RINGAN PADA IBU HAMIL DI PUSKESMAS KASSI-KASSIKOTA MAKASSAR. *Jurnal Kesehatan Luwu Raya*, 9(2).
- Novita, F., Situmorang, S., & Silalahi, E. M. (2025). Hubungan Usia dan Paritas dengan Kejadian Anemia pada Ibu Hamil di PMB Linda Elisabet Kecamatan Beji Kota Depok Provinsi Jawa Barat Tahun 2024. *Jurnal Anestesi: Jurnal Ilmu Kesehatan Dan Kedokteran*, 3(1).
- Rahmina, A., Dewi, V. K., Kirana, R., Kebidanan, J., Kebidanan, P. S., Terapan, P. S., Kemenkes, P. K., Banjarbaru, K., & Selatan, K. (2025). FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN ANEMIA PADA IBU HAMIL DI WILAYAH KERJA PUSKESMAS CEMPAKA BANJARMASIN. *Journal of Pharmaceutical Care and Sciences*, 5(2), 221–231. <https://doi.org/10.33859/jpcs.v5i2>
- Ramadhini, D., & Dewi, S. S. S. (2021). Hubungan Umur, Paritas dan Kepatuhan Konsumsi Tablet Tambah Darah Dengan Kejadian Anemia pada Ibu Hamil di Puskesmas Batunadua Kota Padangsidempuan Tahun 2021. *Jurnal Kesehatan Ilmiah Indonesia*, 6(2), 148–156.
- Sari, D. M., Hermawan, D., Sahara, N., & Nusri, T. M. (2022). HUBUNGAN ANTARA USIA DAN PARITAS DENGAN KEJADIAN ANEMIA PADA IBU HAMIL DI WILAYAH KERJA PUSKESMAS SEPUTIH BANYAK. *MALAHAYATI NURSING JOURNAL*, 4.
- Susanti, D. S., Dewi, V. K., & Yuliasuti, E. (2025). Hubungan Usia Dan Paritas Dengan Kejadian Anemia Ibu Hamil Di Wilayah Kerja Puskesmas Darul Azhar Tahun 2023. *Jurnal Penelitian Multidisiplin Bangsa*, 1(8), 1525–1531.
- UNICEF, & WHO. (2023). GLOBAL BREASTFEEDING SCORECARD 2023 RATES OF BREASTFEEDING INCREASE AROUND THE WORLD THROUGH Highlights for the 2023 Scorecard. In *Global Breastfeeding Scorecard*.
- Yudistira, I. K. A., I, I. G. A. B. G., Dwiari, N. M. M., W, D. N. M., & Sahadewa, S. (2024). HUBUNGAN USIA IBU, PARITAS, DAN KEPATUHAN ANTENATAL CARE TERHADAP KEJADIAN ANEMIA PADA IBU HAMIL DI WILAYAH KERJA PUSKESMAS NGORO PERIODE BULAN JANUARI -APRIL TAHUN 2024. *Jurnal Cahaya Mandalika*.