PARADIGM: Journal Of Multidisciplinary Research and Innovation

http://azramedia-indonesia.azramediaindonesia.com/index.php/paradigm/index

DOI: https://doi.org/10.62668/paradigm.v4i01.2386

Email: info@azramediaindonesia.com

Open Access

OVERVIEW OF THE SEVERITY LEVEL AND RISK FACTORS FOR ANEMIA IN WOMEN IN INDONESIA

Elvia Gusti*[1], Ummi Kalsum[2], Silvia Mawarti Perdana[3]

[1,2,3] Universitas Jambi, Kota Jambi, Indonesia

*Corresponding Author: elviagusti0808@gmail.com

Info Article

Received :
04 Desember 2025
Revised :
02 Januari 2026
Accepted :
01 Februari 2026
Publication :
28 Februari 2026

Keywords:
Anemia, Women Of Reproductive Age, Severity Level, Risk Factors

Kata Kunci:
Anemia, Wanita Usia Subur, Tingkat Keparahan, Faktor Risiko

Abstract: *Anemia remains a significant public health problem, especially among women of reproductive age (WRA), as it affects maternal and infant health and increases the risk of pregnancy complications. The prevalence of anemia among WRA in Indonesia is still relatively high. Objective: This study aimed to describe the severity of anemia and its risk factors among WRA in Indonesia in 2023. This study used a descriptive quantitative approach with a cross-sectional design based on secondary data from the 2023 Indonesian Health Survey (SKI). The population included all WRA (15–49 years) in the biomedical sample. Data were analyzed using univariate analysis to obtain frequency and percentage distributions. Anemia among WRA was still observed with varying levels of severity. Most respondents were aged 20–35 years, had completed senior high school, were unemployed, had parity <2, no history of abortion or infectious disease, were not chronically energy deficient, had good access to health services, and were in the upper-middle socioeconomic group. Conclusion: Anemia among WRA in Indonesia remains a concern, requiring targeted prevention and intervention efforts.*

Abstrak: Anemia masih menjadi masalah kesehatan masyarakat, khususnya pada wanita usia subur (WUS), karena berdampak pada kesehatan ibu dan bayi serta meningkatkan risiko komplikasi kehamilan. Prevalensinya di Indonesia masih cukup tinggi. Penelitian ini bertujuan untuk menggambarkan tingkat keparahan anemia dan faktor risikonya pada WUS di Indonesia tahun 2023. Penelitian menggunakan pendekatan kuantitatif deskriptif dengan desain cross sectional berbasis data sekunder dari Survei Kesehatan Indonesia (SKI) 2023. Populasi adalah seluruh WUS (15–49 tahun) dalam sampel biomedis. Analisis dilakukan secara univariat untuk melihat distribusi frekuensi dan persentase. Anemia masih ditemukan dengan variasi tingkat keparahan. Mayoritas responden berusia 20–35 tahun, berpendidikan SLTA, tidak bekerja, paritas <2, tanpa riwayat aborsi dan penyakit infeksi, tidak KEK, memiliki akses kesehatan mudah, serta berada pada status sosial ekonomi menengah atas. Kesimpulan: Anemia pada WUS masih menjadi masalah sehingga diperlukan upaya pencegahan dan intervensi yang lebih terarah.

INTRODUCTION

Anemia remains a significant public health problem that is still widely found across various population groups and leads to serious impacts. Anemia is a disorder when the blood's hemoglobin level is below normal. Hemoglobin plays an important role in transporting oxygen and distributing it throughout body tissues (Kementrian Kesehatan RI, 2023a). This condition contributes to decreased physical capacity, limitations in daily activities, and an increased risk of other health problems.

According to the World Health Organization (WHO) 2023 report, approximately 30.7% of women aged 15–49 years worldwide experienced anemia, among pregnant women aged 15–49 years was 35.5%, and among non-pregnant women aged 15–49 years was 30.5% (World Health Organization, 2025). Globally, Africa shows the greatest prevalence of anemia at 43%, while Southeast Asia ranks second at 42.1%. Data from the 2023 Indonesian Health Survey (SKI) showed that anemia affected 27.7% of pregnant women, peaking at 39.6% in the 35–44 age group and reaching a low of 2.4% (age group 45–49 years) (Kementrian Kesehatan RI, 2023b).

Women of reproductive age (WRA) are a group vulnerable to anemia due to their high risk of malnutrition and iron deficiency. In general, this condition is influenced by various factors such as number of children and pregnancy history, age, education level, knowledge, and socioeconomic conditions. In addition, WRA experience menstruation every month, which leads to regular blood loss. Therefore, this condition needs to be balanced with adequate nutritious food intake to meet iron requirements and prevent anemia (Ariwati et al., 2024). The impact of anemia in WRA can continue into pregnancy; anemia in pregnant women may lead to bleeding during pregnancy, childbirth, and the postpartum period (Handayani, 2022). Iron deficiency anemia in pregnant women can cause various problems, such as decreased physical capacity, shortness of breath, fatigue, palpitations, sleep disturbances, impaired cognitive and behavioral functions, and risk of postpartum depression. Its impacts are also reflected in increased maternal morbidity and mortality, higher risk of fetal complications including fetal death, and a greater likelihood of low birth weight babies (Pusdiklat PKU Muhammadiyah, 2023). If not properly managed, it can increase the risk of dangerous complications such as preterm labor, postpartum depression, and maternal death after delivery (Sitepu et al., 2021).

The impact of anemia during pregnancy is not only experienced by the mother but also affects the baby. Anemia can influence fetal growth and development, as well

as the formation of the neural sheath and body cells. This condition can lead to miscarriage, prolonged labor due to weak uterine contractions, increased risk of bleeding, and greater susceptibility to infection. Hypoxia experienced by pregnant women with anemia can result in shock and even death during childbirth, as well as increase the risk of stillbirth, early neonatal death, congenital abnormalities, and anemia in newborns (Qomarasari, 2023). In addition, anemia during pregnancy may also affect the child's cognitive development in the future (Handayani, 2022).

The target for reducing the national prevalence of anemia refers to the goals set by global health organizations. The World Health Organization (WHO) has set a target to reduce anemia by 50% by 2030 (World Health Organization, 2025). The government has designed various policies and intervention programs to reduce anemia rates, as outlined in Presidential Regulation No. 72 of 2021 on the National Strategy for Accelerating Stunting Reduction. This program includes strengthening iron supplementation (TTD), promoting balanced nutrition, and improving the quality of antenatal care (ANC). However, there has been no national-scale analysis following the implementation of these policies. Therefore, the researcher is interested in examining the severity of anemia among women of reproductive age in Indonesia in 2023. This study is expected to complement epidemiological information on anemia in WRA and provide input for appropriate health intervention policies.

METHOD

This research adopted a secondary data approach, making use of previously collected data rather than obtaining primary data firsthand, with data derived using data from the 2023 Indonesian Health Survey (SKI). The study used a cross-sectional design aimed at analyzing the relationship between risk factors and a particular outcome or health condition, in which all variables were observed simultaneously at a specific point in time. The study covered all regions of Indonesia, consisting of 514 districts/cities, with the SKI data collection process beginning in 2022 and conducted in 2023Women of reproductive age (15–49 years) in Indonesia formed the study population, with the sample drawn from households where WRA were part of the SKI 2023 biomedical sample. The required minimum sample size was estimated using the Lemeshow formula (23.708) ; however, this study used all samples meeting the predefined inclusion and exclusion criteria, with a total population of 306.642 respondents, 12.198

respondents undergoing hemoglobin testing which were included as the final study sample.

The research instruments consisted of SKI 2023 questionnaires (SKI23.RT, SKI23.IND) and biomedical examination data on hemoglobin (Hb). Data collection was conducted by census officers under technical supervision by Technical Supervisors (PJT) and administrative supervision by Operational Supervisors (PJO), beginning with household data updating using the Household Updating List (DPRT) from BPS, followed by interviews, measurements, and examinations. The study utilized univariate statistical analysis to process the data, summarizing anemia severity and its risk factors through frequency distribution, percentages, mean, and standard deviation, with results displayed in tabular and graphical formats and interpreted accordingly.

RESULT AND DISCUSSION

Results

Overview of Anemia Severity Levels

The distribution of anemia severity among women within the reproductive age group (15–49 years) in Indonesia in 2023 is illustrated in the following diagram:

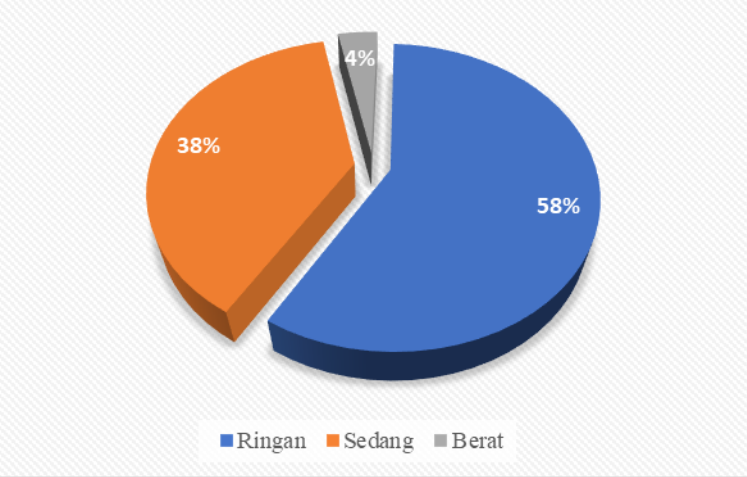

Figure 1 Anemia Severity in Women of Childbearing Age in 2023
(*Source: Processed SKI Secondary Data, 2023*)

The diagram in Figure 1 shows that the majority of women of childbearing age (WUS) in Indonesia in 2023 experienced mild anemia, at 58%. Furthermore, moderate anemia accounted for 38%, while severe anemia was the least common, at 4%. This indicates that the majority of anemia cases among WUS were mild. Anemia occurs when there is a decline in erythrocyte count or hemoglobin mass, leading to decreased oxygen distribution to body tissues (Chasanah et al., 2019). reported by the WHO

(2011), Anemia occurs when the concentration of hemoglobin in the blood is lower than normal.. The severity of anemia in women of childbearing age (WUS), especially women aged ≥15 years and pregnant women, is classified based on hemoglobin levels according to WHO standards. In non-pregnant women aged ≥15 years, mild anemia is characterized by hemoglobin levels of 11.0–11.9 g/dL, moderate anemia 8.0–10.9 g/dL, and severe anemia <8.0 g/dL. The classification of anemia in pregnant women uses reduced hemoglobin thresholds, consisting of mild (10.0–10.9 g/dL), moderate (7.0–9.9 g/dL), and severe anemia (<7.0 g/dL). This difference in limits is due to physiological hemodilution during pregnancy, which naturally decreases hemoglobin concentration (Chasanah et al., 2019).

Figure 1, a diagram of anemia severity in women of childbearing age (WUS) in Indonesia in 2023, shows that the incidence of anemia was more mild than moderate and severe. A total of 1,171 cases (58%) were mild, 771 cases (38%) were moderate, and 75 cases (3.7%) were severe. These findings align with research (Shi et al., 2022) research examining anemia severity during pregnancy and related maternal and fetal outcomes reported that 17.78% of 8,948,443 pregnant women experienced anemia.. The distribution of severity was dominated by mild anemia at 9.04%, followed by moderate anemia at 2.62%, severe anemia at 0.21%, and 5.90% of unknown severity.

Respondent Characteristics

Table 1 Frequency Distribution of Anemia among Women of Reproductive Age (15–49 Years) in Indonesia (n=12,198)

Variable	Frequency (n)	Percentage (%)
Anemia		
Yes	2017	16,5
No	10181	83,5
Age		
< 20	1316	10,8
>35	5175	42,4
20 - 35	5707	46,8
Education		
No/never attended school	235	1,9
Did not complete primary school (SD/MI)	616	5.1
Completed primary school (SD/MI)	2786	22,8
Completed junior high school (SLTP/MTs)	3172	26,0
Completed senior high school (SLTA/MA)	4345	35,6
Completed diploma (D1/D2/D3)	440	3,6
Completed higher education	604	5.0
Occupation		
Student	1123	9,2
Civil servant/Military/Police/State-owned enterprises	201	1,7
Private employee	929	7,6

Entrepreneur	1206	9.9
Farmer	780	6,4
Fisherman	12	0.1
Laborer / driver / domestic worker	398	3,3
Others	848	6.9
Not working	6701	54,9
Place of Residence		
Rural	5127	42
Urban	7071	58
Parity		
> 2	2843	23,3
< 2	9355	75,7
History of Abortion		
Yes	1692	13,9
No	10505	86,1
History of Infectious Disease		
Yes	790	6,5
No	11408	93,5
Chronic Energy Deficiency (CED) (n=11,912)		
Yes	1546	16.6
No	10366	83.4
Access to Health Services		
Difficult	472	3,9
Easy	11726	96,1
Socioeconomic Status		
Lowest	1614	13,2
Lower-middle	2767	22,7
Middle	2427	19,9
Upper-middle	2992	24,5
Highest	2398	19,7

Source: Processed Secondary Data from SKI, 2023

Based on the research results in Table 1, the majority of anemia cases occurred in the 20–35 age group, with 908 cases (45.0%), followed by those aged >35 years with 833 cases (41.3%), and those aged <20 years with 276 cases (13.7%). These findings align with a study conducted at the Way Kandis Inpatient Community Health Center in January 2024. Of the 56 respondents, 48 (85.71%) were in the low-risk age group (20–35), while 8 (14.29%) were in the high-risk age group (<20 and >35). The results of this study indicate that women of childbearing age who experienced anemia at the Way Kandis Community Health Center in January 2024 were predominantly in the low-risk age group (20–35).

Women of childbearing age experience a monthly menstrual cycle, which results in a certain amount of blood loss. Furthermore, women also experience pregnancy, childbirth, breastfeeding, and the postpartum period. In theory, women of childbearing age who experience anemia are generally those aged <20 or >35, as the risk of

pregnancy complications tends to be higher in these age ranges. The ideal age for pregnancy is 20–35Pregnancy at a young age (<20 years) is often associated with emotional instability, which can reduce awareness of proper nutrition and increase the likelihood of anemia. Meanwhile, women older than 35 tend to experience decreased reproductive function and quality, as well as the possibility of various diseases, increasing the risks during pregnancy and childbirth (Amirudin, 2014).

According to the Kamus Besar Bahasa Indonesia (KBBI), education is a process that changes the way of thinking and attitudes of a group of people in their efforts to grow and develop into maturity through various teaching and training efforts. The Law of the Republic of Indonesia No. 23 of 2003 states that a person's educational attainment plays an important role in shaping their knowledge (Sasono et al., 2021). Pregnant women with higher education levels tend to have a better understanding of anemia and are more capable of selecting iron-rich diets. On the other hand, pregnant women with lower levels of education tend to have limitations in receiving and understanding information related to anemia. As a result, iron intake becomes suboptimal and increases the risk of iron deficiency anemia (Oktaviana et al., 2022). As indicated by the results in Table 1, the highest number of anemia cases occurred among those who completed senior high school (SLTA/MA), with 744 cases (36.9%), followed by individuals with a junior high school background (SLTP/MTS) graduates with 518 cases (25.7%) and primary school (SD/MI) graduates with 442 cases (21.9%), while the lowest was among those who never attended school, with 26 cases (1.3%). Education level influences knowledge and health behavior, including nutritional fulfillment, which plays a role in anemia prevention

Based on the results in Table 1, anemia cases were dominated by those who were not working, with 1,086 cases (53.8%), followed by those still in school with 220 cases (10.9%), and other occupations in smaller numbers. Unemployment may be associated with economic limitations that can affect the quality of nutritional intake, resulting in an increased risk of anemia. However, those who do not work may have increased time to explore information about pregnancy health, enabling them to better maintain their health condition and understand anemia prevention measures during pregnancy (Musni, 2019).

Parity refers to the number of fetuses weighing at least 500 grams that have been delivered, whether alive or deceased, excluding abortion cases. Parity is an important factor influencing anemia during pregnancy. Mothers who have given birth more than

twice or too frequently may experience negative physical and mental effects (Asnaini et al., 2024). In mothers with high parity, the likelihood of anemia increases in subsequent pregnancies. This is because, during pregnancy, maternal nutrition must be shared with the fetus, increasing nutritional requirements. Additionally, higher plasma volume expansion in high-parity pregnancies can lead to greater hemodilution. Raudathul (2021) explains that mothers with high parity (more than two births) have a greater risk of anemia and other complications such as diabetes mellitus (DM), hypertension, malpresentation, placenta previa, uterine rupture, low birth weight (LBW), premature delivery, and even mortality among infants. Based on Table 1, most anemia cases occurred in women with parity <2 (1,527 cases; 75.7%), while parity ≥2 accounted for 489 cases (24.3%). High parity can increase anemia risk due to depletion of iron reserves from repeated pregnancies and deliveries.

A history of abortion may be associated with blood loss, which can reduce hemoglobin levels. In this reseach majority of anemia cases had no history of abortion, with 1,763 cases (87.4%), while 254 cases (12.6%) had a history of abortion. most anemia cases had no history of infectious diseases, with 1,865 cases (92.5%), while 152 cases (7.5%) had such a history. Infectious diseases can interfere with iron absorption and contribute to anemia. majority anemia cases had easy access to health services, with 1,933 cases (95.8%), while 84 cases (4.2%) had difficult access. Good access enables early detection and more optimal management of anemia.

Based on research results, the highest prevalence of anemia was identified in the upper-middle socioeconomic group, with 503 cases (25.0%), followed by the lower-middle group with 420 cases (20.8%), while other categories had relatively similar proportions. Socioeconomic status influences the ability to meet nutritional needs and access healthcare services, which are related to anemia incidence. Socioeconomic status reflects an individual's position within society, determined by factors such as occupation, income, education level, age, type of residence, organizational role, and other factors. According to Abdulsyani (2007), socioeconomic status is a person's position in society classified based on occupation, income level, asset ownership, and educational attainment.

CONCLUSION

The study findings indicate that the majority of respondents were in the productive age group (20–35 years), had completed senior high school (SLTA/MA),

were unemployed, had parity <2, had no history of abortion, had no history of infectious diseases, were not classified as having chronic energy deficiency (CED), had easy access to health facilities, and belonged to an upper-middle socioeconomic status. Overall, the characteristics of the respondents indicate relatively good sociodemographic and health conditions. It is recommended that healthcare providers continue to enhance education related to nutrition and reproductive health among women of reproductive age, particularly in the prevention of anemia. In addition, sustained promotive and preventive efforts are necessary, even though access to healthcare services is already considered adequate. Further research is needed to examine how respondent characteristics relate to anemia and other health problems in order to generate more in-depth findings

REFERENCES

Ariwati, V. D., Nufus, H., Martina, Y. I., & Kurniasari, F. (2024). PROMOSI KESEHATAN TENTANG PENCEGAHAN ANEMIA PADA WANITA USIA SUBUR (WUS) DI RT 012 RW 008, KELURAHAN NANGGEWER, KECAMATAN CIBINONG, KABUPATEN BOGOR. *5*(1), 1–12.

Asnaini, Pastuty, R., & Francisca, Y. (2024). DETERMINANT FACTORS IN THE INCIDENT OF ANEMIA IN PREGNANT WOMEN. *JIKESI, 2*.

Chasanah, S. U., Basuki, P. P., & Dewi, I. M. (2019). ANEMIA: PENYEBAB, STRATEGI PENCEGAHAN DAN PENANGGULANGANNYA BAGI REMAJA. *2*.

Handayani, H. (2022). HUBUNGAN LUARAN KEHAMILAN TERHADAP ANGKA KEJADIAN ANEMIA TRIMESTER III. *Journal of Nursing and Midwifery Sciences, 1*(2), 1–9. https://doi.org/10.54771/jnms.v1i2.640

Kementerian Kesehatan RI. (2023a). BUKU SAKU PENCEGAHAN ANEMIA PADA IBU HAMIL DAN REMAJA PUTRI.

Kementerian Kesehatan RI. (2023b). SURVEI KESEHATAN INDONESIA TAHUN 2023.

Musni, M. (2019). FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN ANEMIA PADA IBU HAMIL DI PUSKESMAS WATAMPONE. *Nursing Inside Community, 1*(1), 1–6. https://doi.org/10.35892/nic.v1i1.3

Oktaviana, P., Yanuarini, T. A., & Asiyah, S. (2022). FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN KEJADIAN ANEMIA DALAM

KEHAMILAN: LITERATURE REVIEW. *Al-Insyirah Midwifery: Jurnal Ilmu Kebidanan (Journal of Midwifery Sciences), 11*(1), 1–12. https://doi.org/10.35328/kebidanan.v11i1.2100

Pusdiklat PKU Muhammadiyah. (2023). WEBINAR BAHAYA ANEMIA PADA KEHAMILAN. Kementerian Kesehatan RI. https://lms.kemkes.go.id/courses/409a6168-c132-4c45-9b8a-ad43ac58ef60

Qomarasari, D. (2023). MONOGRAF KEJADIAN ANEMIA PADA KEHAMILAN. NEM.

Sasono, H. A., Husna, I., Zulfian, Z., & Mulyani, W. (2021). HUBUNGAN TINGKAT PENDIDIKAN DENGAN KEJADIAN ANEMIA PADA IBU HAMIL DI BEBERAPA WILAYAH INDONESIA. *Jurnal Medika Malahayati, 5*(1), 59–66. https://doi.org/10.33024/jmm.v5i1.3891

Shi, H., Chen, L., Wang, Y., Sun, M., Guo, Y., Ma, S., Wang, X., Jiang, H., Wang, X., Lu, J., Ge, L., Dong, S., Zhuang, Y., Zhao, Y., Wei, Y., Ma, X., & Qiao, J. (2022). SEVERITY OF ANEMIA DURING PREGNANCY AND ADVERSE MATERNAL AND FETAL OUTCOMES. *JAMA Network Open*. https://doi.org/10.1001/jamanetworkopen.2021.47046

Sitepu, S. A., Purba, T. J., Sari, N. M., Sitepu, M. S., & Hayati, E. (2021). DAMPAK ANEMIA PADA IBU HAMIL DAN PERSALINAN. *Jurnal Pengabdian Masyarakat Putri Hijau, 1*(4), 47–53. https://doi.org/10.36656/jpmph.v1i4.728

World Health Organization. (2025). ANAEMIA IN WOMEN AND CHILDREN.