RESEARCH ARTICLE
Article URL: https://ojs.poltekkes-malang.ac.id/index.php/HAJ/index

Maternity Care Management for Third Trimester Pregnant Women with Anemia: A Case Study

Aulia Salsavira Syifa [1(CA)], Ririn Indriani [2], Deffania Putri Ramadhani[3]
[1,2,3] Midwifery Professional Education, Malang Health Polytechnic, Indonesia
Correspondence author's email ([CA]): auliasalsaaa14@gmail.com

ABSTRACT

Anemia in pregnancy is a common complication, particularly in the third trimester, and may raise the risk of adverse outcomes for both mother and fetus. It is associated with physiological changes in pregnancy, maternal age, and adherence to nutritional intake. This case study aimed to provide continuous midwifery care for a third-trimester pregnant woman with anemia. The method used was a case study approach involving comprehensive care for Mrs. F, 38 years old, G2P1001, at 36–37 weeks of gestation, who reported weakness and dizziness. Data were collected through interviews, observation, physical examination, hemoglobin testing, and documentation review. Initial findings showed a hemoglobin level of 10.3 g/dL, indicating mild anemia, with pale conjunctiva. Care was delivered over three visits, including condition monitoring, nutritional counseling, encouragement of regular iron tablet intake, and complementary therapy using dates and pure honey. At the second visit, hemoglobin increased to 10.8 g/dL, although mild symptoms persisted. The study concludes that continuous midwifery care is essential for early detection, monitoring, and management of anemia, while improving maternal awareness and adherence to iron supplementation and adequate nutrition during pregnancy.
.

Keyword : Anemia; hemoglobin ; pregnant women; third trimester; midwifery care

.

INTRODUCTION

A common complication during pregnancy is anemia. Anemia during pregnancy cannot be separated from the physiological changes that occur during the pregnancy process, the age of the fetus, and the previous condition of the pregnant woman. During pregnancy, the body undergoes significant changes, with the amount of blood in the body increasing by about 20-30%, thus requiring an increase in iron and vitamin intake to produce hemoglobin (Hb) [1] .The main problem arises when increased iron requirements are not met, either due to inadequate

Submitted: 13 February 2026 Reviewed:19 February 2026 Accepted: 5 june 2026
Doi: https://doi.org/10.31290/haj.v3i2.6278

nutritional intake, low compliance with iron tablet consumption, or the mother's previous health condition. This situation can have serious consequences, such as severe fatigue, decreased immunity, risk of premature birth, bleeding, and low birth weight. Globally, the high prevalence of anemia in pregnant women makes it a significant public health issue as it contributes to increased maternal and infant morbidity and mortality [2].

Anemia is caused by various factors, including inadequate iron intake, absorption or transport disorders, physiological loss associated with pregnancy, menstruation, reproductive age, or chronic blood loss due to diseases such as gastrointestinal bleeding and chronic malnutrition. During pregnancy, hemodilution occurs in addition to other factors resulting from increased plasma volume in normal physiology during 20–24 weeks of pregnancy, and this physiological process produces relative hemodilution in blood viscosity, aiding blood circulation in the placenta. The decrease in Hb and increase in iron requirements due to iron deposition, placental requirements, and increased red blood cell mass in response to hypervolemia increase with gestational age from the first trimester to the third trimester [3].

Anemia is a condition in which there is a lack of red blood cells (erythrocytes) in the blood circulation or hemoglobin (Hb) mass, thereby preventing it from fulfilling its function of carrying oxygen to all tissues. Anemia during pregnancy is referred to as a “potential danger to mother and child,” therefore anemia requires serious attention from all parties involved in health care services. [4] . Antepartum anemia is associated with significant maternal and neonatal morbidities, including the need for maternal transfusions, hysterectomy, hypovolemic shock, cardiovascular disease, maternal mortality, preterm birth, small for gestational age, and neonatal mortality [5].

The most common cause of anemia in pregnancy is iron deficiency. It is important to check for anemia during the first visit of pregnancy. Even if you do not have anemia at the first visit, it is still possible to develop anemia later in pregnancy. Several factors that can cause pregnancy anemia include gravida, age, parity, education level, knowledge, economic status, and compliance with iron tablet consumption [6]. The causes of anemia are complex, multifactorial, and often overlapping, particularly in low and middle-income countries. Iron deficiency , primarily due to inadequate dietary intake, is thought to be the most common nutritional deficiency leading to anemia, responsible for approximately half of cases. Notably, however, the proportion of anemia due to ID differs according to factors such as population group, geographical setting, infectious disease burden, and prevalence of other anemia causes . In many contexts, other nutritional deficiencies, including folate and vitamin B12, are also

important causes due to their specific roles in the synthesis of Hb and/or erythrocyte production. Common non-nutritional causes include infection, inflammation, impaired absorption, blood loss, and genetic conditions such as sickle-cell [7].

Maternal anemia is associated with an increased risk of seven adverse pregnancy outcomes: postpartum hemorrhage, PROM, preterm delivery, LBW, cesarean section, gestational hypertension and neonatal asphyxia. Appropriate nutritional supplementation and screening for anemia before and during pregnancy are recommended to improve maternal health and manage adverse pregnancy outcomes [8].

According to the latest data from the World Health Organization (WHO) in 2025, the prevalence of anemia in pregnant women worldwide is estimated to reach around 35.5%. Based on data from the 2023 Indonesian Health Survey (SKI), the prevalence of anemia in pregnant women in Indonesia is 27.7% [9]

Based on the 2023 Indonesian Health Survey report, it is known that the prevalence of pregnant women aged 25-34 years is 31.4% and those aged 35-44 years is 39.6%. During pregnancy, anemia often occurs due to hemodilution, which is the dilution of blood, where the blood volume of pregnant women increases by about 30% to 40%. This process usually peaks at 32 to 34 weeks of pregnancy. The increase in blood volume is intended to support the oxygen and nutritional needs of the mother and fetus. However, even though blood volume increases, the number of red blood cells only increases by about 18% to 30%, while hemoglobin levels increase by about 19%.

This condition causes pregnant women to be more prone to anemia due to a more limited supply of oxygen despite having a greater volume of blood. Anemia in pregnant women is often found in the first and third trimesters. Although anemia can occur in both trimesters, most cases are found in the third trimester [10]. This case study is based on the theory that anemia in pregnant women is often found in the first and third trimesters. Although anemia can occur in both trimesters, most cases are found in the third trimester.

This study is in line with studies conducted by Eweis in Ethiopia. They found that the risk of anemia was higher in the first and third trimesters than in the second trimester, which was associated with physiological conditions and increased nutritional needs during pregnancy [11]. The study showed that pregnant women in the first trimester had a 2.07 times greater risk of anemia than in the second trimester, while in the third trimester the risk increased to 2.96 times. However, these results contradict previous research to Odhiambo in Kenya, it has been stated that anemia is more prevalent in the second trimester. This is likely due to differences in

social, economic, and cultural backgrounds, as well as dietary patterns that affect the nutritional status of pregnant women. In addition, differences in the standard of antenatal care may also contribute to these inconsistent results [12].

This case study is also based on the theory that mothers aged <20 years or >35 years are at risk of anemia. These findings show that although they are fewer in number, pregnant women of extreme ages (too young or too old) are still a group that needs special attention. Pregnant women under the age of 20 are often not biologically and psychologically ready for pregnancy, so they pay less attention to nutritional intake. On the other hand, women over the age of 35 are at risk of experiencing a decline in bodily functions that can affect the absorption of nutrients [13].

Anemia risk factors found in different types of interactions. This condition is mainly caused by lower amount of red blood cells or hemoglobin production and increasing loss of red blood cells or hemoglobin, results of nutrition intake, infectious diseases, and genetic causes. During pregnancy, anemia condition determined by hemoglobin level (Hb)<11gr/dl. Women need higher iron nutrition during pregnancy and labor [14].

Deficiencies in iron, folic acid, and other nutrients can occur in both age groups due to various factors. In young mothers, mental and economic unpreparedness are the main obstacles, while in older mothers, changes in the body's metabolism and the presence of comorbidities can complicate the fulfillment of nutritional needs during pregnancy [15].

The government's efforts to address and overcome anemia are through the management of nutrition for pregnant women by providing sufficient calories, protein, vitamins, minerals, and fluids to meet the nutritional needs of the mother, the fetus, and the placenta, as well as encouraging pregnant women to develop balanced eating habits and providing iron (Fe) supplements, which are highly recommended to be taken before and after the 12 th week of pregnancy 12 weeks of pregnancy. Research shows that pregnant women who do not consume iron experience a decrease in iron reserves starting from the 12 th week of pregnancy. Pregnant women are advised to take iron tablets once daily in the evening on a regular basis, with a minimum of 90 tablets during pregnancy as a preventive measure against anemia [16].

Non-pharmacological measures that pregnant women can take to combat anemia include ensuring adequate nutrition through vegetables and fruits, one of which is consuming dates, which contain 13.7 mg of iron (per 100 grams). Dates have medical benefits, namely reducing the risk of anemia because they contain iron, magnesium, and potassium, which function to increase hemoglobin levels in the blood [17].

In addition, other non-pharmacological efforts include the administration of pure honey, which was chosen as a complementary therapy because it contains important nutrients and antioxidants that can support hemoglobin increase. The administration of pure honey as an additional therapy showed significant positive effects, increasing hemoglobin levels even more. Midwifery care is a series of personalized midwifery processes to support women throughout their pregnancy, childbirth, postpartum period, and contraceptive selection [18]. This study is a case study to provide obstetric care to clients experiencing anemia in the third trimester of pregnancy and multigravida mothers aged >35 years.

According to COC-based midwifery services are implemented by accompanying mothers from the third trimester of pregnancy until birth and using contraception, so that COC based midwifery services aim to reduce maternal and infant mortality rates. The purpose of this case study is to provide Continuity of Care midwifery services as an effort to prevent anemia in pregnant women by providing comprehensive midwifery care through visits aimed at early detection and initial treatment that can be carried out together with the mother to reduce the rate of anemia in pregnant women [19].

METHODS

This case study is a study to explore midwifery care for pregnant women, focusing on the issue of early detection of pregnancy with anemia. The case study was conducted from October 2025 for approximately 20 weeks. The activities were carried out in the Ngadiluwih Community Health Center working area. The sample for this case study was pregnant women who began to be observed from 36-37 weeks of pregnancy. The data was written in the form of observation results and midwifery care reports carried out by the author.

Hemoglobin (Hb) examination was performed using the GCHb Metered Easy Touch, a digital point-of-care testing device that utilizes capillary blood samples. This device is practical for primary health care settings and has acceptable validity and reliability, with measurement results comparable to standard laboratory methods when used according to manufacturer instructions and proper calibration procedures.

The appropriate interval between Hb examinations in pregnant women with anemia is generally every 2–4 weeks, depending on the severity of anemia and the mother's clinical condition. In this case, follow-up Hb assessment was conducted within an appropriate time frame to monitor the effectiveness of iron supplementation and nutritional interventions.

RESULT

Comprehensive midwifery care during pregnancy for Mrs. F included three visits, beginning in the third trimester at 36 weeks of gestation with anemia. During the first visit on November 5, 2025, the author found that the patient's hemoglobin level was 11.1 g/dL, as recorded in the mother's health record book. This examination was conducted on November 3, 2025. After the researcher examined the mother's hemoglobin on November 5, 2025, the result showed a decrease to 10.3 g/dL. This was supported by the patient's subjective data, which included complaints of frequent nausea, weakness, and occasional dizziness. The author implemented management by providing counseling on nutritional needs, particularly iron requirements. The author also advised the patient to take Fe 1x1 tablets regularly every day.

In addition, personal factors also influence the occurrence of anemia in pregnant women. The mother's age, which is classified as advanced reproductive age (38 years), can affect the physiological condition of the body and iron absorption. Parity (G2P1001) can also contribute to iron reserves that may have been depleted in previous pregnancies. Compliance with iron tablet intake, daily dietary patterns, the habit of drinking tea or coffee after meals, and the mother's level of knowledge about the importance of nutrition during pregnancy also affect hemoglobin levels. Therefore, the care approach should not only focus on pharmacological therapy but also consider individual factors that may influence the success of anemia management.

According to the Ministry of Health (Kemenkes), anemia during pregnancy is classified into three categories: mild anemia with hemoglobin levels of 10-10.9 g/dl, moderate anemia with hemoglobin levels of 7-9.9 g/dl, and severe anemia with hemoglobin levels of less than 7.0 g/dl. Anemia can cause complications during pregnancy [20] .

On the second visit on November 12, 2025, the author conducted a physical examination and found that the patient's conjunctiva appeared pale and the sclera was not jaundiced, which is a sign that the patient still has anemia. The patient also complained of persistent weakness and dizziness. The hemoglobin test result was 10.8 g/dL. The author's treatment was to remind the patient to take iron tablets every day to increase their hemoglobin level and to advise them to eat vegetables regularly, not just leafy vegetables. Additionally, the author provided counseling on the nutritional needs that the patient must meet during pregnancy to ensure they are higher than before pregnancy. The author also provided information on non-pharmacological therapies to help increase hemoglobin levels, such as consuming dates or pure honey. Maternal anemia significantly affects the delivery and postpartum recovery if the hemoglobin level remains below the normal limit for pregnant women.

DISCUSSION

Anemia during pregnancy is a common condition due to physiological changes during pregnancy, especially in the third trimester. In the case of Mrs. F, a 38-year-old multigravida mother with a gestational age of 36–37 weeks, she experienced mild anemia with a hemoglobin level of 10.3 g/dL. This condition is consistent with the theory that in the third trimester, maximum hemodilution occurs, where the increase in blood plasma volume is not proportionally matched by an increase in red blood cells, causing hemoglobin levels to tend to decrease [1]

In addition Anemia in pregnancy is a condition where the body lacks sufficient healthy red blood cells or haemoglobin to deliver oxygen to the mother and baby. The World Health Organisation (WHO) defines it as haemoglobin levels below 11 g/dL, classified as mild (9.0–10.9 g/dL), moderate (7.0–8.9 g/dL), and severe (<7.0 g/dL) [21].

Mrs. F subjective complaints of weakness and dizziness are common symptoms of anemia during pregnancy. This is consistent with the theory that anemia causes a decrease in the blood's ability to transport oxygen to tissues, making mothers prone to fatigue, dizziness, and decreased immunity [20]. The finding of pale conjunctiva during physical examination further confirms the diagnosis of anemia in pregnant women.

The factor of maternal age >35 years in Mrs. F also played a role as a risk factor for anemia. According to Aulya it states that pregnant women of extreme age, including those over 35 years old, are at higher risk of anemia due to decreased metabolic function and impaired nutrient absorption [13]. In addition, Mrs. F's multigravida status increases her iron requirements because her body's iron reserves may be depleted due to previous pregnancies and deliveries [6]

The treatment given to Mrs. F consisted of nutritional education, recommendations to take iron tablets regularly, and non-pharmacological therapies such as consuming dates and pure honey. These measures are in accordance with the Indonesian Ministry of Health's recommendation to consume at least 90 iron tablets during pregnancy as a preventive measure and to combat anemia [20]. According to Sugita research that has been studied also states that consuming dates can help increase hemoglobin levels due to their iron and other essential mineral content [17]. Midwifery care for Mrs. F was provided comprehensively, enabling early detection, monitoring of the mother's condition, and continuous education. According to Rekiku which states that continuous midwifery care plays an important role in improving maternal

health outcomes and preventing complications during pregnancy [18]. However, limitations in family involvement and monitoring of factors that support and hinder compliance are challenges in optimizing care outcomes.

CONCLUSION

Comprehensive midwifery care was provided to Mrs. F (G2P1001) through three antenatal visits. At the first visit, her previous hemoglobin level was 11.1 g/dL, but follow-up testing showed a decrease to 10.3 g/dL. She complained of nausea, weakness, and dizziness. Education was given on regular iron tablet consumption and improving nutritional intake.

At the second visit, hemoglobin increased to 10.8 g/dL, although pale conjunctiva was still observed. During the third visit, because symptoms persisted, the patient was advised to seek further examination at a health facility. Ongoing education emphasized adherence to iron supplementation and adequate nutrition.

A limitation of this continuity of care was the lack of in-depth assessment of supporting and inhibiting factors, such as dietary patterns, iron tablet compliance, and family support. Therefore, midwives are encouraged to strengthen monitoring, provide continuous nutritional counseling, involve families, and collaborate with facilities that offer complete laboratory services to ensure comprehensive anemia management.

REFERENCES

[1] W. Alamsyah, "Faktor-Faktor Yang Berhubungan Dengan Kejadian Penyakit Anemia Pada Ibu Hamil Usia Kehamilan 1-3 Bulan Diwilayah Kerja Puskesmas Bontomarannu Kabupaten Gowa," *Jurnal Inovasi Penelitian*, vol. 1, pp. 1–4, 2020, doi: 10.47492/jip.v1i2.48.

[2] A. Amanollahi. ,Maryam Nikbina. ,Alireza A.-Moghaddam. ,Narjes A. Monireh Faghir-Ganji., "Prevalence and risk factors of anemia in first, second and third trimesters of pregnancy in Iran: A systematic review and meta-analysis," *Heliyon: Elsevier*, vol. 9, no. 3, 2023, doi: org/10.1016/j.heliyon.2023.e14197.

[3] D. Asmelash. ,Tadesse Duguma. ,Desalewu Wudineh. ,Ermiyas Alemayehu. ,Alemu Gedefie. ,Getachew M. Samuel Sahile Kebede., "Global prevalence of iron deficiency anemia and its variation with different gestational age systematic review and meta-analysis," *Clinical Nutrition Open Science: Elsevier*, vol. 59, pp. 68–86, Feb. 2025, doi: org/10.1016/j.nutos.2024.12.002.

[4] S. , D. R. K. , & P. M. A. Martini, *Anemia Kehamilan: Asuhan dan Pendokumentasian*. Penerbit NEM., 2023.

[5] L. S. Lundsberg. , J. F. Culhane. , C. P. & M. S. Martina S. Burn., "Intravenous iron for treatment of iron deficiency anemia during pregnancy and associated maternal outcomes," *The Journal of Maternal-Fetal & Neonatal Medicine* , vol. 36, no. 1, 2023, doi: org/10.1080/14767058.2023.2192855.

[6] N. ,NajmahFlora, R. ,Nurlaili, & S. S. Sulung, "Faktor-faktor yang berhubungan dengan kejadian anemia pada ibu hamil.," *Journal of Telenursing (JOTING)*, vol. 4, no. 1, pp. 28–35, 2022, doi: 10.31539/joting.v4i1.3253.

[7] S. Bhaise. ,Varsha Dhurde. ,Abigail Guge. , M. Shah. ,Patricia L. Hibberd. ,Archana Patel. ,Lindsey M. L. Jacqueline M Lauer., "Maternal Anemia during Pregnancy and Infant Birth Outcomes: A Prospective Cohort Study in Eastern Maharashtra, India," *Curr. Dev. Nutr.*, vol. 8, no. 11, 2024, doi: org/10.1016/j.cdnut.2024.104476.

[8] S. Xu. ,Xiaoyu Hao. ,Xingyi Jin. ,Da Pan. ,Hui Xia. ,Wang Liao. ,Ligang Yang. ,Shaokang W. Rui Wang., "Anemia during pregnancy and adverse pregnancy outcomes: a systematic review and meta-analysis of cohort studies," *Front Glob Womens Health* ., 2025, doi: org/10.3389/fgwh.2025.1502585.

[9] S. ,Metasari, D. ,&Azissah, D. Yuspita, "Faktor Yang Berhubungan Dengan Kejadian Anemia Pada Ibu Hamil Trimester Iii Di Wilayah Kerja Puskesmas Beringin Raya Kota Bengkulu Tahun 2024 Factors Associated With The Incidence Of Anemia In Pregnant Women In The Third Trimester In The Working Area Of T.," *Jurnal Multidisiplin Indonesia*, vol. 2, no. 1, pp. 61–72, 2025, doi: org/10.70963/jm.v2i1.330.

[10] S. P. I. T. Anorraga Parahita, "Asuhan Kebidanan Continuty Of Care (COC) Pada Ny. A G2P1A0H1 UK 27-28 Minggu Dengan Anemia Ringan DI PMB FK," *Jurnal Ilmiah Pamenang*, vol. 7, no. 2, 2025, doi: org/10.53599/jip.v7i2.386.

[11] M. , et. al. Eweis,
"Prevalence and Determinants of Anemia during the Third Trimester of Pregnan cy. ," *Clin. Nutr. ESPEN*, vol. 44, pp. 194–199, 2021, doi: org/10.1016/j.clnesp.2021.06.023.

[12] J. N. ,&Sartorius, B. Odhiambo, "Mapping of Anaemia Prevalence among Pregnant Women in Kenya (2016–2019).," *BMC Pregnancy Childbirth*, vol. 20, pp. 1–11, 2020, doi: org/10.1186/s12884-020-03380-2.

[13] Y. , S. V. , & S. W. Aulya, "Ibu Hamil pada Masa Pandemi Covid-19 di Puskesmas Sepatan Kabupaten Tangerang Tahun 2021.," *Jurnal Akademika Baiturrahim Jambi*, vol. 10, no. 2, pp. 375–384, 2021, doi: org/10.36565/jab.v10i2.387.

[14] A. R. Hasugian. ,Nurhayati. ,Aisyah D. Muthiah. ,Allisa N. P. A. P. Siti Rahayu Nadhiroh., "Model development for anemia prediction in pregnancy," *Clin. Epidemiol. Glob. Health*, 2024, doi: org/10.1016/j.cegh.2024.101654.

[15] L. ,Widiyanti, D. ,Maigoda, T. C. ,Yanniarti, S. ,& Y. N. Hartini, *Kehamilan Sehat untuk Cegah Stunting pada 1000 Hari Pertama Kehidupan (HPK).* . Penerbit Nem., 2023.

[16] R. P. Utama, "Status Gizi dengan Kejadian Anemia Pada Ibu Hamil.," *Jurnal Ilmiah Kesehatan Sandi Husada,* vol. 10, no. 2, pp. 689–694, 2021, doi: org/10.35816/jiskh.v10i2.680.

[17] S. Sugita, " Pengaruh Konsumsi Buah Kurma Terhadap Peningkatan Kadar Hemoglobin Pada Ibu Hamil Trimester III. ," *Jurnal Kebidanan Dan Kesehatan Tradisional*, vol. 5, no. 1, pp. 58–66, 2020, doi: org/10.37341/jkkt.v5i1.138.

[18] J. G. W. T. & S. G. Rekiku Fikre, "Effectiveness of midwifery-led care on pregnancy outcomes in low- and middle-income countries: a systematic review and meta-analysis," *BMC Pregnancy Childbirth*, vol. 23, no. 386, 2023, doi: org/10.1186/s12884-023-05664-9.

[19] I. G. D. ,Camalia, H. E. , &Wardita, Y. Pratiwi, "Peningkatan Kesehatan Ibu dan Anak Melalui Pelayanan Kebidanan Berbasis COC (Continuity of Care).," *Jurnal ABDIRAJA*, vol. 6, no. 1, pp. 27–32, 2023, doi: org/10.24929/adr.v6i1.1094.

[20] Kemenkes RI., *Buku Saku Pencegahan Anemia Pada Ibu Hamil dan Remaja Putri.* Jakarta: Kementerian Kesehatan RI, Direktorat Jendral Kesehatan Masyarakat, 2023.

[21] D. E. Charles. ,Regnal R. Kimaro. ,Abdul Basit. ,Grace Tavengana. ,Manas R. B. Magnus Michael Sichalwe., "Anaemia in pregnancy across Tanzania: A comprehensive review of prevalence, risk factors, and birth outcomes," *Clin. Epidemiol. Glob. Health*, vol. 36, 2025, doi: org/10.1016/j.cegh.2025.102219.