

MIDWIFERY CARE FOR PREGNANT WOMEN WITH CHRONIC ENERGY DEFICIENCY (CED)

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A B S T R A C T

Background: Chronic Energy Deficiency (CED) is a condition of prolonged inadequate energy and nutrient intake in pregnant women, indicated by a Mid-Upper Arm Circumference (MUAC) of less than 23.5 cm. CED may increase the risk of anemia, preterm birth, low birth weight (LBW), and impaired fetal growth. **Objective:** This final assignment report aimed to provide midwifery care for a pregnant woman with CED at Wakambangura Community Health Center, Central Buton Regency, using Varney's seven-step midwifery management and SOAP documentation. **Subject:** The subject was Mrs. "V", aged 23 years, at 12 weeks of gestation with a MUAC of 21 cm. **Method:** A descriptive case study was used. Data were collected through interviews, observations, physical examinations, documentation, and supporting examinations. **Results:** The care provided included education on balanced nutrition, advice on iron tablet intake, supplemental feeding in the form of boiled eggs, monitoring of body weight and MUAC, and regular antenatal care (ANC) visits. After receiving midwifery care, the mother's condition showed positive improvement, characterized by increased appetite, increased MUAC, and vital signs within normal limits. **Conclusion:** Midwifery care for the pregnant woman with CED was implemented according to Varney's seven-step management and SOAP documentation and resulted in improved maternal health condition. Midwives are expected to strengthen nutritional status monitoring and provide nutritional education during ANC to prevent complications associated with CED

INTRODUCTION

Pregnancy is a crucial period that determines the mother's health and the growth and development of the fetus throughout life. Malnutrition during pregnancy can impair fetal brain development, increase the risk of a baby weighing less than 2,500 grams, and increase the risk of complications for the mother during labor (Adriati and Chloranyta, 2022).. One of the nutritional problems still frequently encountered in pregnant women is Chronic Energy Deficiency (CED), a condition of long-term energy and nutrient deficiency. CED in pregnant women is generally characterized by an upper arm circumference (MUAC) of less than 23.5 cm and reflects low body energy reserves, which can occur before pregnancy or during gestation. (Tirtasari *et al.*, 2025).

The occurrence of KEK in pregnant women is related to low energy intake and nutritional knowledge which can cause nutritional needs during pregnancy not to be met optimally (Mahendika *et al.*, 2023). In addition to dietary intake and knowledge, maternal characteristics such as age, height, and weight can also influence the incidence of CED, especially in adolescents, as nutritional needs are still needed for maternal and fetal growth. Pregnant women under 20 years of age are at higher risk of CED. CED can also be associated with an imbalance between energy intake and expenditure. In young women, a diet that is too small due to a desire to lose weight can increase the risk of energy and nutrient deficiencies.

The issue of CED in pregnant women remains a concern due to its relatively high prevalence both globally and nationally. The World Health Organization reports a global prevalence of CED in pregnant women of around 35–37%, with incidence tending to be higher in the third trimester. Indonesia, a developing country, remains a high prevalence country.(Who, 2021). In Indonesia, the prevalence of KEK in pregnant women was 17.3% based on the 2018 Riskesdas and decreased to 16.9% based on the 2023 Indonesian Health Survey, but this figure is still above the national target of 10%.(Rahayu and Purnomo, 2024). In Southeast Sulawesi Province, the number of pregnant women with CED continues to increase annually, with 10,031 cases in 2020, 2,119 cases in 2021, and 2,089 cases in 2022. Meanwhile, in Central Buton Regency, in 2024, 1,028 out of 9,234 pregnant women, or 11.1%, experienced CED, and 153 cases of Low Birth Weight (LBW), or 1.9%, were found.

Management of CED in pregnant women requires comprehensive midwifery care through nutritional monitoring, nutritional needs fulfillment, education, and continuous antenatal care (ANC) services. One government effort to address CED is the provision of supplementary feeding (PMT),

including the provision of boiled eggs to women of childbearing age and pregnant women with CED (Zahro, Widiyanto, and Isnani, 2022). Eggs are a readily available source of animal protein and contain important nutrients, such as protein, iron, vitamin B12, and essential amino acids, which can support the nutritional status of pregnant women. Consuming eggs as a nutritional intervention has also been reported to help improve hemoglobin levels and the nutritional status of pregnant women. (Kesehatan Masyarakat Seroja Husada and Kuswara, 2024).

Based on this description, appropriate management of chronic energy deficiency syndrome (CED) in pregnant women requires early detection, monitoring of maternal and fetal health (LiLA) and weight, ensuring adequate nutrition, providing supplementary feeding, providing education, and providing family support during routine antenatal care (ANC). A survey conducted from December 2, 2025, to January 23, 2026, at the Wakambangura Community Health Center in Central Buton Regency showed that of the 21 pregnant women whose LiLA was measured, three were diagnosed with CED. This situation indicates that CED remains a problem that requires comprehensive attention and midwifery care at the primary health care level. Therefore, this case study aims to provide an overview of midwifery care for pregnant women with CED using Varney's 7-step midwifery management approach and SOAP documentation at the Wakambangura Community Health Center in Central Buton Regency in 2026.

METHODS

The method used is a descriptive case study with a midwifery care approach using Varney's seven-step management and SOAP documentation. The case study aims to describe midwifery care for pregnant women with Chronic Energy Deficiency (CED) according to conditions found in the field. (Winarto, 2018). Care management includes assessment, diagnosis and problem identification, potential problem identification, immediate action needs, planning, implementation, and evaluation.

The case study was conducted in the Wakambangura Community Health Center, Central Buton Regency, from December 2, 2025, to January 23, 2026. The case study subject was a pregnant woman with CED who received midwifery care in the Wakambangura Community Health Center, Central Buton Regency. The research subject was an individual who served as a source of data and information related to the problem being studied. (Rudini, Moh & Melinda, 2020)

The data used consisted of primary and secondary data. Primary data was obtained directly from subjects through interviews, observations, and physical examinations, while secondary data was obtained from documentation and medical records at health care facilities (Arviyanda, Fernandito, and Landung, 2023). Data collection techniques were carried out through observation, interviews, physical examinations, and documentation to obtain information regarding the health condition and nutritional status of mothers (Yusra, Zulkarnain and Sofino, 2021)

Data analysis was carried out descriptively based on subjective and objective data using Varney's seven-step management, then the development of the mother's condition was documented in SOAP format. (Rijali, 2019). The results of the care are presented narratively and systematically, from assessment to evaluation. The case study adheres to research ethics through informed consent, anonymity, and confidentiality to safeguard the subjects' rights, identity, and confidentiality (Saidin and Jailani, 2023)

RESULTS & DISCUSSION

Subjective Data

The assessment of Mrs. "V" on December 13, 2025, at 9:50 a.m. WITA (Central Indonesian Time) at the Wakambangura Community Health Center revealed that she was a 23-year-old woman with a high school education, a housewife, and a fisherman. She stated that this was her second pregnancy and had never had a miscarriage. Her LMP was September 20, 2025, and she was 12 weeks pregnant. She complained of decreased appetite since the first trimester, fatigue for the past three days during household activities, and back pain. She had no history of heart disease, hypertension, hereditary diseases, or sexually transmitted infections, had never had surgery, and had no drug or food allergies. Before pregnancy, she ate three meals a day, but during pregnancy, she ate two meals a day, consisting of rice, fish, vegetables, milk, and fruit, and drank 7–8 glasses of water daily. She and her family were happy with this pregnancy and planned to give birth at the community health center.

Objective Data

The examination results showed the mother's general condition was good, with *compos mentis* consciousness, pre-pregnancy weight of 40.4 kg, weight at the time of examination of 49.8 kg, height of 148.8 cm, BMI of 22.3 kg/m², and MUAC of 21 cm. Vital signs showed blood pressure of 100/80 mmHg, pulse rate of 80 beats/minute, respiration rate of 22 breaths/minute, and temperature of 36.5°C. Physical examination revealed a face without edema or pallor, pink conjunctiva, no icterus on the sclera, moist lips, no enlarged neck glands, symmetrical breasts with hyperpigmented areolae and prominent nipples, no surgical scars on the abdomen, and visible linea nigra and striae alba. A Leopold's examination revealed a fetal heart rate (FFU) two fingers above the symphysis pubis, palpable fetal parts of Leopold II and III, convergent Leopold IV, and clear fetal heart rate (FHR). Symmetrical extremities without edema and varicose veins, no genital abnormalities, while laboratory examination results showed Hb 11.4 g/dL

Assessment

Based on the assessment results, Mrs. "V" was diagnosed as G2P1A0, 12 weeks gestation, intrauterine, singleton, viable, with an elongated site. The fetus was in good condition, and the mother was experiencing Chronic Energy Deficiency (CED). The diagnosis of CED was based on the MUAC measurement of 21 cm, which is below the normal limit of 23.5 cm, and complaints of decreased appetite and fatigue. Anticipated potential problems include the risk of low birth weight (LBW), requiring continuous monitoring of the mother's nutritional status. No emergencies were identified during the assessment, so no immediate action was required.

Management

Care was provided by explaining the examination results to the mother and family, administering iron tablets, and providing information and education (IEC) regarding the importance of adequate rest and a regular diet containing foods containing carbohydrates, protein, vitamins, and minerals. The mother was also explained the signs of pregnancy danger and advised to immediately seek medical attention if experiencing these symptoms. In addition, the mother is advised to undergo regular prenatal checkups to monitor the condition of both mother and fetus.

KEK management is carried out through collaboration with nutrition staff, providing supplementary food in the form of boiled eggs as a meal accompaniment. The mother is encouraged to consume eggs regularly as a source of protein and to continue taking iron tablets. During the visit on December 27, 2025, the mother reported regularly consuming boiled egg supplementary food, but still fatigues easily and has a slightly decreased appetite. The examination results showed her general condition was good, vital signs within normal limits, hemoglobin 11.4 g/dL, and the MUAC increased to 22.5 cm. The mother was further educated on nutritious eating patterns, rest, PMT, pregnancy danger signs, and regular ANC checkups.

During the visit on January 10, 2026, the mother reported continuing to consume boiled egg supplementary food and iron tablets, although she still fatigues easily and has a decreased appetite. The examination results showed her general condition was good, vital signs within normal limits, hemoglobin 11.4 g/dL, and the MUAC increased to 23.7 cm. Mothers are advised to continue consuming nutritious foods, taking boiled eggs and iron tablets, drinking plenty of fluids, getting enough rest, and undergoing regular prenatal checkups. Monitoring results showed an increase in the MUAC from 21 cm to 22.5 cm and then to 23.7 cm, indicating improvement in the KEK condition.

DISCUSSION

Subjective Data

The assessment of Mrs. "V" revealed that she tired easily, had a decreased appetite, and was experiencing back pain. She stated that this was her second pregnancy and that she still felt strong fetal movement. The assessment included the mother's identity, chief complaint, menstrual history, pregnancy and childbirth history, medical history, daily needs, and psychosocial and spiritual conditions as a basis for determining the diagnosis and providing midwifery care (Mahendika *et al.*, 2023).

Mrs. "V"'s complaints of fatigue and decreased appetite are related to her chronic energy deficiency (CED). CED is a prolonged period of food deprivation that leads to nutritional deficiencies and can lead to health problems for the mother. Malnutrition can also cause weakness and fatigue during pregnancy (Ningrum and Puspitasari, 2021)

The incidence of CED in pregnant women is influenced by food intake and nutritional knowledge. The lower the mother's energy intake and knowledge of nutritional needs during pregnancy, the greater the risk of CED. This is consistent with research by Mahendika *et al.* (2023), which showed a relationship between energy intake and nutritional knowledge and the incidence of CED in pregnant women (Mahendika *et al.*, 2023). Thus, Mrs. "V"'s complaints support the presence of problems meeting energy and nutritional needs during pregnancy.

Objective Data

Mrs. "V"'s examination revealed a weak general condition with *compos mentis* consciousness. Physical examination revealed a slightly pale face, pink conjunctivae, and white sclerae. Vital signs revealed a blood pressure of 100/80 mmHg, a pulse of 80 beats/minute, a temperature of 36.5°C, and a respiratory rate of 22 breaths/minute. Measurements revealed a fetal arm circumference of 21 cm and a hemoglobin level of 11.4 g/dL. Obstetric examination revealed an intrauterine pregnancy, a single, viable fetus, and good fetal well-being.

Mrs. "V"'s fetal arm circumference of 21 cm indicates that the measurement is below the normal limit of 23.5 cm, thus meeting the criteria for chronic energy-related disorders (CED). CED is a chronic imbalance between food intake and energy expenditure. The diagnosis of KEK in pregnant women can be confirmed based on the results of LILA measurements <23.5 cm (Alifka, 2020).

Chronic energy deficiency syndrome (CED) in pregnant women requires attention because it can affect both maternal health and fetal development. CED is a nutritional problem in pregnant women that can cause various health problems and increase the risk of complications during pregnancy and childbirth. (Simbolon, Rahmadi and Jumiyati, 2019). Based on the examination results, no discrepancies were found between Mrs. "V"'s condition and the theory regarding signs and criteria for CED.

Assessment

Based on subjective and objective data, the obstetric diagnosis for Mrs. "V" was G2P1A0, 12 weeks gestation, intrauterine, singleton, viable, elongated site, good fetal condition, and Chronic Energy Deficiency (CED). This diagnosis was supported by the mother's complaints of fatigue and decreased appetite, as well as objective examination results of general weakness and a MULA of 21 cm. Based on theory, a MULA <23.5 cm is one of the indicators used to determine the presence of CED in pregnant women. (Alifka, 2020).

A potential problem for Mrs. "V" is the risk of low birth weight (LBW) due to the KEK condition she experienced during pregnancy. Pregnant women with KEK have a greater risk of giving birth to a baby with a low birth weight. Research shows that pregnant women with KEK have a higher risk of LBW than mothers with normal nutritional status. (Suindri *et al.*, 2021). Apart from low birth weight, malnutrition during pregnancy is also associated with impaired fetal growth and the risk of stunting in children later in life (Justin *et al.*, 2026)

Based on the mother's condition and examination results, immediate action is required in the form of collaboration with a nutritionist to help meet the mother's nutritional needs. This collaboration involves providing supplementary food in the form of boiled eggs as an effort to meet the nutritional needs of pregnant women with CED. In providing care, midwives are also responsible for providing safe, standardized services, as well as conducting screening, treatment, and referrals if conditions requiring further intervention are identified. (Minarti, 2022)

Management

Midwifery care for Mrs. "V" was carried out with the aim of improving the mother's nutritional condition, preventing complications due to CED, and maintaining fetal health and growth. Care began with explaining the examination results to the mother and family, monitoring her general condition and vital signs, measuring weight and fetal heart rate, conducting obstetric examinations and assessing fetal heart rate, providing counseling on diet and rest patterns, explaining pregnancy danger signs, administering iron tablets, and encouraging the mother to have regular prenatal check-ups.

To meet nutritional needs, collaboration with nutrition staff was carried out to provide supplementary feeding (PMT) in the form of boiled eggs. Providing supplementary feeding to pregnant women with CED aims to help meet energy and nutrient needs during pregnancy, thereby supporting fetal growth and reducing the risk of low birth weight (LBW). (Rohmah, 2020).. Ibu juga It

is recommended to consume foods containing carbohydrates, protein, vitamins, and minerals and to increase the consumption of nutritious foods regularly.

Eggs are also recommended because egg yolks contain protein and iron, which can help meet a mother's nutritional needs during pregnancy. Egg consumption can be a nutritional intervention that has the potential to help improve hemoglobin levels and the nutritional status of pregnant women with CED. Mothers are given an explanation of how to consume eggs and are encouraged to consume PMT regularly as recommended by health workers.

Implementation of care is carried out for one day at the community health center and is followed by two home visits. During the first visit, general condition, consciousness, vital signs, weight, height, MULA (ligamentous fetal growth restriction), obstetric examination, and fetal heart rate are assessed. Mothers are educated about regular eating patterns, adequate rest, pregnancy danger signs, the use of iron tablets, and are encouraged to consume PMT boiled eggs and undergo regular prenatal checkups.

During the second home visit, mothers are explained about CED and its impact on pregnancy. Mothers are advised to improve their diet by consuming foods containing carbohydrates, protein, vitamins, and minerals, ensuring adequate fluid intake, and getting enough rest. They are also reminded to regularly consume boiled egg supplementation and iron tablets, and to continuously monitor their weight and maternal blood pressure (MUAC).

At the third follow-up visit, mothers are again given an explanation of the test results and advised to maintain their diet, drink plenty of water, take iron tablets, regularly consume boiled egg supplementation, get enough rest, and undergo regular pregnancy check-ups at a health facility. A follow-up visit was conducted to monitor the mother's condition and ensure that her nutritional and pregnancy health needs were met.

The evaluation results showed that the care provided to Mrs. "V" was well-implemented. She received education regarding KEK (Certainly Important Health Conditions), nutritional needs, rest, iron tablet consumption, boiled egg PMT (Food and Nutritional Supplement), and regular prenatal checkups. Her condition showed improvement after monitoring at the community health center and home visits. Evaluation is the final stage of midwifery management, aiming to assess the success of care based on established goals and criteria (Mohammadi et al., 2017).

Based on the entire care process, from subjective and objective data assessment, diagnosis, potential problem identification, immediate action, planning, implementation, and evaluation, no gaps were found between theory and practice. Midwifery care for Mrs. "V" with Chronic Energy Deficiency was tailored to the mother's needs through monitoring of the mother and fetus, providing education, improving dietary patterns, administering iron tablets, providing supplementary feeding in the form of boiled eggs, and continuous monitoring through home visits..



Figure 1. Physical examination and vital signs)

CONCLUSION

Midwifery care for Mrs. "V" with Chronic Energy Deficiency (CED) at the Wakambangura Community Health Center was implemented comprehensively using Varney's 7-Step approach, starting with baseline data assessment, data interpretation, diagnosis, identification of potential problems, immediate action, planning, implementation, and evaluation. Based on the assessment results, the mother complained of fatigue, decreased appetite, and low back pain. The examination results showed general weakness, vital signs within normal limits, a 21 cm MUAC, and a hemoglobin level of 11.4 g/dL. The diagnosis was made as Mrs. "V" G2P1A0, 12 weeks gestation, intrauterine, singleton, live, elongated site, and good fetal condition with Chronic Energy Deficiency. Potential problems that can arise from CED include low birth weight (LBW), fetal growth restriction, prolonged labor, bleeding, and other health risks. Immediate action was taken in collaboration with the nutrition officer by providing supplementary feeding (PMT) in the form of boiled eggs. Further care was provided through monitoring the condition of the mother and fetus, measuring weight and fetal weight (LILA), administering iron tablets, educating about nutritious diet and adequate rest, providing boiled egg PMT, and recommending regular pregnancy check-ups. Implementation took place over one day at the community health center, followed by two home visits. Evaluation results indicated that the care was well-implemented and the mother's condition improved. Thus, the objectives of the case study were achieved, and no significant gaps were found between theory and practice. Limitations of this case study were the relatively short monitoring period and the single-subject approach, which meant that the development of the mother's nutritional status, particularly changes in LILA and weight over the long term, could not be optimally monitored.

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