

Application of Midwifery Care for Mrs. “M” G2P1A0 with Chronic Energy Deficiency (CED) through Complementary Consumption of Mung Bean Porridge

Ridawan 1*, Wa Ode Nesya Jeni Samrida*² Asriadi*³

¹ Politeknik baubau, Indonesia

² Politeknik baubau, Indonesia

³ politeknik baubau, Indonesia

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CORRESPONDING AUTHOR

Nama : Ridawan

Address: Wacuala

E-mail : durimawar732@gmail.com

A B S T R A C T

ABSTRACT

Background: Chronic Energy Deficiency (CED) is a condition where a person's nutritional status is poor due to insufficient intake of energy sources containing macronutrients that the body needs in large amounts, while macronutrients that are needed in small amounts. In mothers with an upper arm circumference of less than 23.5 cm, it can be said they have chronic malnutrition. Pregnant women with Chronic Energy Deficiency (CED) are at risk of experiencing decreased muscle strength, which plays an important role in the birthing process. **Objective:** To be able to provide antenatal midwifery care for woman 'M', 18 years old, G2P1A0, with Chronic Energy Deficiency (CED). **Subject:** focused only on woman 'M' with Chronic Energy Deficiency (CED). **Method:** The method used is Descriptive with a case study on midwifery care management using Varney's 7-step approach and SOAP. **Results:** Midwifery care was provided to Mrs. 'M' three times, on December 6 and January 21. The results showed that the mother's upper arm circumference (MUAC) increased from 21 cm to 22 cm, and the pregnancy was not yet normal. This indicates that the midwifery care provided was effective in improving the nutritional status of the pregnant mother, Mrs. 'M'. **Conclusion:** There was an increase in upper arm circumference by 1 cm, but the mother still has chronic energy deficiency. Therefore, she continues to consume supplementary foods to improve her nutritional status and reduce the risk of complications.

Keywords: Keywords: Midwifery; Pregnancy; Chronic Energy Deficiency (CED); Supplementary Feeding Program

INTRODUCTION

Pregnancy is a natural process that begins when an egg is fertilized by sperm, develops into an embryo, and subsequently grows into a fetus. Pregnancy lasts approximately nine months and is divided into three trimesters. The first trimester extends from conception to the end of the third month, the second trimester begins in the fourth month and continues through the sixth month, while the third trimester lasts from the seventh month until delivery. During pregnancy, the mother's body undergoes various physiological changes, including increased metabolism and nutritional requirements. An increase in blood volume is necessary to meet the oxygen, nutrient, and energy needs of both the mother and fetus. If these requirements are not adequately met, pregnant women may be at risk of developing anemia, which can also affect fetal health. One non-pharmacological approach that may help increase hemoglobin levels is the consumption of beetroot juice combined with dates (Lomongga, 2024)

Pregnancy in mothers with Chronic Energy Deficiency (CED) carries the risk of causing health problems for the mother and fetal growth due to a lack of energy and nutrient intake. Therefore, it's important to ensure adequate nutrition, balanced diet education, and regular pregnancy monitoring to help improve the mother's nutritional status and support optimal fetal growth (Samrida, 2023)

Chronic Energy Deficiency (CED) is one of the nutritional problems that remains prevalent among pregnant women. CED can increase the risk of various complications during pregnancy and childbirth, including prolonged labor, preterm birth, postpartum hemorrhage, and anemia.

This study aimed to determine the relationship between demographic characteristics, knowledge, dietary intake patterns, and the incidence of CED among pregnant women. The study was conducted at Sleman Public Health Center, Yogyakarta, in February–March 2025, involving 106 pregnant women as respondents. Respondents were selected using a random sampling technique based on odd registration numbers. The results of this study are expected to increase pregnant women's awareness of the importance of paying attention to and meeting their nutritional needs during pregnancy to prevent the occurrence of CED (shofiatul azizah 2025, 2025)

Chronic Energy Deficiency (CED) in pregnant women can be influenced by various factors, including family economic conditions, a short interval between pregnancies, maternal age at risk, inadequate energy and protein intake, parity, and the mother's level of knowledge regarding nutritional requirements during pregnancy. CED can have negative effects on maternal health and fetal growth. Potential consequences include an increased risk of Low Birth Weight (LBW), stunting in children, and anemia in both mothers and infants (Heryunanto, 2022)

Chronic Energy Deficiency (CED) is a condition that occurs due to a prolonged imbalance between energy intake and the body's energy requirements. This condition can be influenced by various problems related to food availability at the household level, whether temporary or long-term, as well as unequal food distribution among family members. In addition, high levels of physical activity and workload during pregnancy, when not accompanied by adequate nutritional intake, may increase the risk of CED. Maternal nutritional status is also influenced by several other factors, such as pregnancy before the age of 20, a short interval between pregnancies, a high number of pregnancies, and pregnancy at the age of over 35 years. These various factors may increase the likelihood of pregnant women experiencing Chronic Energy Deficiency (CED) (Galuh, 2021)

According to the World Health Organization (WHO), the global maternal mortality rate in 2025 was estimated to reach approximately 260,000 cases. The majority of maternal deaths occurred in Sub-Saharan Africa and South Asia, which together accounted for approximately 87% of total maternal deaths worldwide, or around 225,000 cases. Sub-Saharan Africa had the highest contribution, accounting for approximately 70%, equivalent to around 182,000 maternal deaths. Meanwhile, South Asia ranked second, contributing approximately 17%, or approximately 43,000 maternal deaths (Nishimura & Kataoka, 2024)

Chronic Energy Deficiency (CED) in pregnant women is influenced by various interrelated factors, both directly and indirectly. Direct factors can include inadequate energy and nutrient intake due to diets that don't meet needs, as well as certain health conditions that can affect the mother's health status. Meanwhile, indirect factors include socioeconomic conditions, education level, and access to healthcare services. These factors can affect a mother's ability to meet her nutritional needs during pregnancy. Therefore, preventing CED needs to be done comprehensively by paying attention to nutrition, health, education, socioeconomic conditions, and access to healthcare services (Ode et al., 2023)

METHODS

This study uses a case study method with a descriptive approach in providing midwifery care to a pregnant mother, Mrs. 'M' G2P1A0, with Chronic Energy Deficiency (CED) at the Mawasangka Tengah Health Center, Central Buton Regency. The midwifery care is carried out systematically using Varney's 7-step approach, which includes collecting baseline data, identifying actual diagnoses or problems, identifying potential diagnoses or problems, determining urgent action needs and collaboration, preparing a care plan, implementing care, and evaluating it.

The method used in this research is a case study with a descriptive approach, which is a method carried out through observation and in-depth, systematic study of a particular case.

RESULTS & DISCUSSION

Subjective Data

The examination of Mrs. "M" was carried out on December 23, 2025. Mrs. "M", who is 18 years old, said that this is her second pregnancy and she has never had a miscarriage before (G2P1A0). She mentioned that her last menstrual period was on June 10, 2025, so her pregnancy was about 28 weeks at the time of the check-up. She said she has been feeling the baby move

actively and strongly. She has never taken any medication without a doctor's prescription and has no history of allergies to food, drinks, or medications.

During her pregnancy, the mother said her appetite decreased and she eats only twice a day with a menu of rice, tempeh, and vegetables. She drinks about 4–5 glasses of water per day. The mother also said she often feels easily tired when doing household chores. She has no history of heart disease, asthma, hypertension, diabetes, kidney disease, TB, or sexually transmitted infections. She has also never been hospitalized and has never experienced bleeding during her pregnancy.

Objective Data

The mother's general condition is good, fully conscious. Vital signs: BP 99/69 mmHg, pulse 80 beats/min, temperature 36.5°C, respiration 22 breaths/min. Weight 40 kg, height 145 cm, MUAC 21 cm, BMI 19.04 kg/m². General physical examination is within normal limits, no edema or varicose veins. Abdominal exam: Fundal height 22 cm, abdominal circumference 84 cm, estimated fetal weight $\pm$ 1,840 grams, fetal back on the right (ROA), head presentation, and the head has not engaged yet. Fetal heart sounds are clear and strong at 132 beats/min. Hemoglobin 11.6 g/dL. Ultrasound results normal, fetal head down, intact amniotic fluid, and head not engaged yet.

Based on the assessment, Mrs. “M” has a decreased appetite, eating only twice a day, and often feels easily tired. This shows that her energy and nutritional needs aren't being met properly, putting her at risk for chronic energy deficiency. To help, she can try eating more balanced nutritious foods, having smaller but more frequent meals, staying well hydrated, and getting education on meeting nutritional needs during pregnancy.

Analysis

Based on the assessment, Mrs. 'M' has experienced a decrease in appetite, eating only twice a day, and complains of getting tired easily, so her energy and nutrient intake during pregnancy is not yet optimal. Providing Supplementary Food (PMT) can be one way to help meet the mother's energy and nutritional needs during pregnancy. The PMT given is expected to increase nutrient intake, helping to maintain and improve the mother's nutritional status and support the growth and development of the fetus.

Providing PMT to Mrs. “M” needs to be done continuously while paying attention to her condition and response to the intervention. Regular monitoring of her weight, diet, and health condition is necessary to assess the success of meeting her nutritional needs. In this way, providing PMT along with nutrition education and monitoring can be an effective effort to help prevent maternal undernutrition and support the health of both the mother and the baby. (Shintia, 2024)

Management

Providing education to Mrs. “M” about the importance of meeting nutritional needs during pregnancy by recommending the consumption of balanced nutritious meals in small portions but more frequently. Providing additional food (PMT) to help increase the mother's intake of energy and nutrients as well as support the growth and development of the fetus. The mother is also advised to increase fluid intake and get enough rest to help reduce complaints of feeling easily tired.

Regularly monitor the mother's eating habits, weight, health condition, and fetal development to see how she responds to the nutritional supplement. Encourage the mother to take the supplement regularly and follow the given recommendations. If there are any complaints or if the condition doesn't improve, the mother is advised to get a check-up for further care.

DISCUSSION

Subjective Data

Based on the assessment results, a mother's nutritional status during pregnancy is one of the important factors that affect both her health and the growth and development of the fetus. Mrs. 'M' has been experiencing a loss of appetite, only eating twice a day, and often feeling easily tired, which means her energy and nutrient intake are not yet optimal. If this condition continues, it could increase the risk of Chronic Energy Deficiency (CED) and affect both the mother's health

and fetal growth. Therefore, getting enough and balanced nutrition during pregnancy needs attention to support the mother's health and the baby's development optimally (Yunawati et al., 2025)

Based on the assessment, Mrs. "M" has experienced a decrease in appetite, eats only twice a day, drinks about 4–5 glasses of fluid per day, and often feels easily tired. This condition needs attention through regular pregnancy check-ups at a healthcare facility to monitor the mother's condition, nutritional status, and fetal development. Meeting nutritional needs through a balanced diet and providing supplementary food (PMT) can help increase energy and nutrient intake and prevent Chronic Energy Deficiency (CED) (Manurung et al., 2024)

This study uses a qualitative approach with a case study design on Mrs. L, 33 years old, G2P1A0, 18 weeks and 6 days pregnant, who is experiencing Chronic Energy Deficiency (CED). The intervention given was 200 ml of mung bean porridge twice a day, in the morning and afternoon, for 10 days. Data were collected through interviews, physical examinations, observations, and literature studies. Mid-upper arm circumference (MUAC) was measured every five days to track changes after the intervention. The provision of mung bean porridge was analyzed as a complementary effort to increase nutritional intake and support MUAC improvement in pregnant women with CED (Putri et al., 2025)

Supplementary Feeding (PMT) for pregnant women with Chronic Energy Deficiency (CED) is one way to meet nutritional needs during pregnancy. Pregnant women with MUAC <23.5 cm need extra energy and nutrients, which are provided integrated with Antenatal Care (ANC) services. PMT, containing around 300–500 kcal, is given once a day for 90 days, along with weight monitoring to assess the mother's nutritional status progress. Once the weight reaches the recommended standard, PMT continues alongside a balanced, nutritious diet. This shows that PMT serves as an intervention to help improve the nutritional status of pregnant women and prevent the effects of CED on the health of both mother and baby (Novianti et al., 2022)

Objective Data

Based on observations, Chronic Energy Deficiency (CED) in pregnant women is a nutrition problem that needs attention because it can affect both the mother and the baby. CED is marked by a MUAC <23.5 cm, indicating that energy and nutrient needs are not being fully met. This condition can increase the risk of complications for the mother, such as anemia and bleeding, and also raise the chance of the baby being born with Low Birth Weight (LBW). Therefore, continuous efforts in handling and monitoring nutritional status are needed to prevent the impact of CED on the health of both mother and baby (Liana et al., 2025)

From the observation results, it was found that nutrition problems in pregnant women are a condition that needs attention because they can affect the health of both the mother and the fetus. One of the issues found is Chronic Energy Deficiency (CED), marked by an Upper Arm Circumference (UAC) of less than 23.5 cm. CED indicates that the mother's energy and nutrient needs are not being met optimally. Pregnant women with CED have a higher risk of complications, such as anemia and bleeding, and are at risk of giving birth to babies with Low Birth Weight (LBW), which can increase the likelihood of stunting and other health problems in infants (Aniarti, 2025)

Mung beans are one of the foods that have quite complete nutritional content, especially protein, which reaches around 22%. Protein plays a role in the formation and growth of cells, which can help support weight gain in pregnant women. Besides protein, mung beans also contain fat, calcium, phosphorus, and vitamin B1, which help support the growth and development of the fetus. Based on this content, mung beans can be one of the alternative complementary foods to help meet nutritional needs and support the management of Chronic Energy Deficiency (CED) in pregnant women (Amelia et al., 2025)

Analysis

Based on the assessment results of Mrs. "M", a decrease in appetite was found, with her eating only twice a day, along with complaints of getting tired easily while doing household activities. This condition indicates that her energy and nutrient intake during pregnancy is not yet optimal, which can increase the risk of Chronic Energy Deficiency (CED). Therefore, regular monitoring of nutritional status through weight and MUAC checks is needed, along with education on the importance of meeting nutritional needs during pregnancy. The mother's knowledge about

nutrition also needs to be improved so she can choose foods that meet her needs during pregnancy (Agustina et al., 2025)

Management

Educating Mrs. “M” about the importance of meeting energy and nutrient needs during pregnancy. She is encouraged to increase her meal frequency from twice a day to more often with small but balanced portions, and to drink more fluids. Providing additional food (PMT) in the form of mung bean dishes as a source of protein and nutrients to help meet her nutritional needs during pregnancy (Jombang, 2026)

Encourage mothers to regularly consume supplementary nutritious food and to monitor their eating patterns, weight, arm circumference, as well as their own condition and the baby's development regularly. Provide education on choosing nutritious foods that are easy to get and suitable for the mother's needs. If complaints of fatigue continue or the mother's condition doesn't improve, it's recommended to have a follow-up check at a health facility to get further care (Janah, 2023)

Table 1. Monitoring Maternal Weight Gain in Pregnant Women with Chronic Energy Deficiency (CED)

Pre-Pregnancy BMI	First Trimester	Second–Third Trimesters	Total Body Weight (BW)
Underweight (≤ 18,5)	1–3 kg	0,5 kg/week	12,5–18 kg
Normal (18,5–24,9)	1–3 kg	0,4 kg/week	11,5–16 kg
Overweight (25–29,9)	1–3 kg	0,3 kg/week	7–11,5 kg
Obesity (≥ 30)	0,2–2 kg	0,2 kg/week	5–9 kg

Source: Modified from the 2021 Maternal and Child Health (MCH) Handbook, 3rd Edition, and the Institute of Medicine (IOM), 2022.



Figure 1. Mid-Upper Arm Circumference (MUAC) Measurement



Figure 2. Provision of Mung Bean Porridge

CLOSING

Conclusion

Based on the implementation and discussion of midwifery care provided to Mrs. “M,” G2P1A0, with Chronic Energy Deficiency (CED) at Mawasangka Tengah Public Health Center, Central Buton Regency, using the seven-step Varney approach from assessment to evaluation, it can be concluded that midwifery care was provided systematically and comprehensively.

The care process began with the collection of basic data and assessment of Mrs. “M’s” condition, followed by the establishment of an actual diagnosis or problem and identification of potential problems that might arise. Based on the assessment findings, immediate interventions and collaboration were carried out according to the mother’s needs, and an appropriate midwifery care plan was developed. Subsequently, midwifery care was implemented comprehensively in accordance with the established plan. The final stage involved evaluation to assess the mother’s progress and determine the effectiveness of the care provided. Thus, the application of the seven-

step Varney approach to Mrs. “M” with CED was carried out appropriately, systematically, and continuously according to the mother’s needs throughout pregnancy.

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