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Original Research Paper

Characteristics of pregnant women with chronic energy deficiency (CED)

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Abstract
Chronic energy deficiency (CED) is a condition of imbalance of energy and protein intake that can lead to pregnancy disorders such as anemia, bleeding, abnormal weight gain, and infection. This study aims to determine the characteristics of pregnant women with CEDs at the Galur II Kulon Progo Health Center. The research design used quantitative descriptive. The sample of this study was all pregnant women with CEDs as many as 49 respondents. The results showed that pregnant women with CEDs had age characteristics of 20-35 years (91.8%); had never given birth (51%); high school education level (61.2%); worked as a housewife (67.3%); and did not have anemia (63.3%). This means that the risk of CED in pregnant women can be predicted based on the characteristics of young age, primipara, secondary education level, housewife's occupation, and anemia does not occur.

Keywords: characteristics; chronic; energy; pregnancy

1. Introduction

Chronic Energy Deficiency is a condition caused by an imbalance in nutritional intake between energy and protein so that the nutrients needed by the body are not fulfilled. Chronic Energy Deficiency (CED) can be long-lasting or chronic (Fakhriyah et al., 2021). Based on data from Indonesia's Health Profile in 2021 by Ministry of Health of the Republic of Indonesia (2022), the proportion of pregnant women with CED risk aged 15-19 years is 38.5%, 20-24 years old is 30.1%, 25-29 years old is 20.9, and at 30-34 years old is 21.4%. 770 pregnant women experienced CEDs in the Kulon Progo district in 2020 and 57 pregnant women with CEDs in the Galur District. Meanwhile, in 2021 in Kulon Regency, there were 686 pregnant women experiencing CEDs. The CED incidence rate was 29.69% as many as 49 pregnant women out of a total of 165 pregnant women on the K1 visit in Galur District, Kulon Progo Regency.

The government's approach to solve the problem of CEDs in pregnant women is to make a target for health workers to carry out a minimum of four ANC examinations. This is done so that health workers can detect early if a mother has CED. In addition, the application of continuous care or Continuity of Care (CoC) can improve the provision of nutritional support to pregnant women who experience CEDs and advise them on the importance of meeting their nutritional needs during pregnancy. (Husna, Andika, & Rahmi, 2020)

CED in pregnant women can lead to several risks and complications, namely anemia, bleeding during pregnancy, abnormal weight gain, and infectious diseases. In addition, you can also experience several risks of labor as a result of CEDs, some of which are difficult labor, premature labor or labor that is faster than it should be, long labor, postpartum bleeding, and the increased need for surgery to help labor (Kusumastuti et al., 2023). CED in pregnant women can also be an indirect cause of maternal death (Alwan et al., 2023). Pregnant women who experience CED can have a negative impact on the

baby such as fetal death (miscarriage), prematurity, birth defects, babies born with low weight, stunting, which is a condition of failure to grow in toddlers (babies under five years old), usually children who too short for age, brain and metabolism, causing non-communicable diseases in adulthood, namely obesity, heart and blood vessel disease, hypertension, stroke and diabetes (Handayani et al., 2021).

Several characteristics in pregnancy contribute to the incidence of CEDs. Research results Novitasari et al. (2019) states that maternal factors are associated with the incidence of CEDs. Factors related to the incidence of pregnant women with CED in Rowosari Semarang Health Center are pregnancy distance, economic status, PBHS, family support and nutritional intake. According to Sari (2022) and Rosita & Rusmimpong (2022), there is a relationship between CED and parity and maternal age. In addition, maternal education also has an influence on the incidence of CEDs. This is because the higher the level of education, someone will get more knowledge and vice versa the low education is felt to hinder one's development and attitude. But it may be because someone with low education does not necessarily guarantee that the mother has CED if the mother often searches for information about how to prevent CED (Syakur et al., 2020). However, there was no significant association between income, anemia status, adequate levels of fat and carbohydrates and the incidence of CEDs.(Harna, Rahmawati, Irawan, & Sa'Pang, 2024).

This study aims to determine the characteristics of pregnant women with Chronic Energy Deficiency (CED) in the Galur II Kulon Progo Community Health Center Working Area.

2. Research Methods

This research is a type of quantitative descriptive research. According to Yuliani &; Supriatna (2023), quantitative descriptive research intends to describe a condition precisely and accurately. The research variables used in this study were the age characteristics of pregnant women, birth spacing characteristics, parity characteristics of pregnant women, characteristics of the education level of pregnant women, characteristics of the type of work of pregnant women, and characteristics of anemia status of pregnant women

According to the population is the entire research subject while the sample is a portion or representative of the population studied. The population in this study was 49 pregnant women who had CED status, were checked at the Galur II Health Center, and were recorded in the Integrated Mother and ANC Cohort Register Book in 2022. The sampling technique in this study was total sampling so that the sample in this study was all 49 pregnant women with CED. The criteria in determining the sample in this study include inclusion criteria and exclusion criteria where research subjects can represent and qualify as samples. The inclusion criteria consist of pregnant women in the first trimester, II and III, pregnant women who are CED (LiLA <23.5) and mothers who check their pregnancies at the Galur II Kulon Progo Health Center. As for the exclusion criteria used, pregnant women who are not domiciled in the working area of the Galur II Kulon Progo Health Center.

The data used in this study is secondary data. Secondary data is data obtained from an existing source (Nurdin &; Hartati, 2019). The secondary data in this study is data on pregnant women with CEDs that are in accordance with the inclusion and exclusion criteria listed in the 2022 Integrated Mother and ANC Cohort Register Book. The Integrated Maternal and ANC Cohort Register Book is a source of data on services for pregnant women, postpartum mothers, neonatals, infants and toddlers compiled by the Ministry of Health. The aim is to identify maternal, neonatal, infant and toddler health problems detected in households identified from midwife data.

The analytical method used in this study is univariate analysis. The data used is the frequency distribution of independent variables which include the age of pregnant women, birth distance, parity of pregnant women, education level of pregnant women, type of work of pregnant women, and anemia status of pregnant women. The application used to process data is Microsoft Excel. This research has

been declared ethical by the Health Research Ethics Committee of Aisyiyah University Yogyakarta in accordance with the Certificate of Ethical Ethics number 1665/KEP-UNISA/VI/2023.

3. Results and Discussion

3.1.Age Characteristics of Pregnant Women

The frequency distribution of respondents by age level can be seen in Table 1.

Table 1. Characteristics of Pregnant Women

Age Group	Sum	Percentage (%)
< 20 tahun	2	4.1
20-35 tahun	45	91.8
>35 tahun	2	4.1
Total	**49**	**100**

Source: Secondary Data, 2022

The table above shows the characteristics of the respondents in this study, most of whom were not at risk (20-35 years), namely 45 people (91.8%). The results of this research are in line with research conducted by Hasibuan et al. (2023) which explains that the productive age (20-35 years) experiences the most CEDs. This is because most pregnancies occur at a productive age so that it can increase the possibility of CED if it is not supported by sufficient knowledge about CED in pregnant women.

According to Perwiraningtyas et al. (2020), the best age to get pregnant is over twenty years old and less than thirty-five years old. This is because with this age range the hope is that the nutrition of pregnant women will be better. Based on the book Maternal and Child Nutrition written by Paramashanti (2019), pregnant women whose age is less than 20 years old have a very high level of pregnancy risk. At the age of more than 35 years old, the risks are getting child defects, obstructed labor, and bleeding in pregnant women.

3.2.Characteristics of Pregnancy Spacing

The frequency distribution of respondents based on pregnancy distance are shown in Table 2.

Table 2. Characteristics of Pregnancy Spacing

Pregnancy Spacing	Sum	Percentage (%)
Never given birth	25	51
<2 tahun	1	2
≥2 tahun	23	47
Total	**49**	**100**

Source: Secondary data, 2022

Table 2 shows that the characteristics of pregnancy spacing are most prevalent in mothers who have never given birth, namely as many as 25 respondents (51%). It can be concluded that many pregnant women are new and have not prepared for pregnancy properly.

Research results by Nugraha et al. (2019) states that pregnancy spacing and Chronic Energy Deficiency (CED) have a significant relationship. Beside of the mother's health condition, a woman who has experienced pregnancy have to consider the distance of pregnancy. Pregnancy spacing is very important for a pregnant woman because a woman whose baby is less than 2 years old is certainly not ready to have the next pregnancy. For 2 years after the first pregnancy, a woman must restore her body's condition as a whole and improve her body's nutritional status (Paramashanti, 2019).

3.3.Parity Characteristics of Pregnant Women

The frequency distribution of respondents based on the parity of pregnant women is shown in Table 3.

Table 3. Parity Characteristics of Pregnant Women

Parity of Pregnant Women	Sum	Percentage (%)
Never given birth	25	51
1-3	24	49
>3	0	0
Total	**49**	**100**

Source: Secondary Data, 2022

Table 3 shows that the parity characteristics in CED pregnant women are most prevalent in mothers who have never given birth as many as 25 respondents (51%). This can occur due to the mother's lack of experience and knowledge in examination and lack of nutritional fulfillment it can cause CED (Country et al., 2022).

For parity, the best is 2 times. Birth spacing that is too close will result in low quality of the fetus/child and will also endanger the mother's health, the mother does not get the opportunity to repair her own body because the mother needs sufficient energy to recover after giving birth to her child. By getting pregnant again, it will cause nutritional problems for the mother and the fetus/baby she is carrying. The category of a mother having given birth to a baby (parity) is measured by the category of good if 2 times and bad if ≥ 3 times (Anggraeni, 2019).

A woman must always be alert, especially women who have given birth to four or more children. This precaution needs to be taken because the abdominal wall and uterine wall can stretch and loosen in pregnant women. This condition is disturbing the women so it needs to be something to be wary of (Paramashanti, 2019).

3.4.Characteristics of the Education Level of Pregnant Women

The frequency distribution of respondents based on the education level of pregnant women is shown in Table 4.

Table 4. Characteristics of the Education Level of Pregnant Women

Education Level	Jumlah	Percentage (%)
Elementary School	1	2
Junior High School	8	16.4
High School	30	61.2
College	10	20.4
Total	**49**	**100**

Source: Secondary data, 2022

Table 4 shows that the characteristics of pregnant women who experience the most CEDs are high school graduates as many as 30 respondents (61.2%). This is by research Husna et al. (2020) and Lestari et al. (2022) that low education is 13.2 times more likely to experience CED compared to those with higher education because lack of knowledge can influence maternal consumption behavior and moderate food intake in mothers who graduated from high school or college tend not to experience CED as much. Mothers can consume nutritious food intake by including formal education for mothers and babies from housewives which often has a positive relationship with the development of food consumption patterns in the family. Efforts to select food ingredients that have nutritional value are

increasing, housewives who have nutritional knowledge will choose food ingredients that are more nutritious compared to those that are less nutritious (Husna &; Arum, 2020).

The level of education affects knowledge because a person's ability to accept and understand something is determined by their level of education (Qomarasari &; Pratiwi, 2023). The education level of a pregnant woman will also be influential in taking every action to find out the cause of the problem and try to find a way out in her life. Mothers who have higher education are usually more rational in acting, for example mothers will regularly check their pregnancies with the aim of maintaining the health condition of themselves and the fetus (Chandra et al., 2019). Chronic lack of energy in pregnant women can also cause intrauterine growth retardation (IUGR) or even intrauterine fetal death (IUFD), congenital disorder, anemia and low birth weight (LBW). Low birth weight is a risk factor for stunting (Utami et al., 2020).

3.5. Characteristics of the type of work of pregnant women

The frequency distribution of respondents based on the type of work of pregnant women is shown in Table 5.

Table 5. Characteristics of the type of work of pregnant women

Type of work	Sum	Percentage (%)
Housewife	33	67,3
Civil Servant	3	6,2
Private	12	24,5
Farmer	0	0
Self-employed	1	2
Total	**49**	**100**

Source: Secondary data, 2022

Table 5 shows the characteristics of the type of work of mothers with the most CEDs being housewives as many as 33 respondents (67.3%). The results of this research are in line with the research of Halimah et al. (2022) and Hasanah et al. (2023) that there is a relationship between work and the incidence of CED in pregnancy. CED for pregnancy is closely related to work where working mothers will help finances in the household so that the purchasing power of food needs is met, pregnant women who work meet their nutritional needs from the intake of food consumed (Yunika &; Al, 2021). The type of work of a family will certainly greatly affect the fulfillment of the nutrients needed.

When pregnancy takes place, nutrients such as minerals, iron to vitamins are needed by pregnant women. Insufficient conditions, often pregnant women do not get these nutrients. However, in practice often babies are still born healthy or without birth defects with the naked eye. However, this can affect the baby's growth and development after birth. Especially if during the growth and development period of the newborn is also not supported by the nutrients needed.

3.6.Characteristics of Anemia Status of Pregnant Women

The frequency distribution of respondents based on the anemia status of pregnant women is shown in Table 6.

Table 6. Characteristics of Anemia Status of Pregnant Women

Anemia Status	Sum	Percentage (%)
Anemia	18	36,7
Not Anemic	31	63,3
Total	**49**	**100**

Source: Secondary data, 2022

Table 6 shows the characteristics of anemia status in pregnant women with CED, with the majority of mothers not being anemic, namely 31 respondents (63.3%). The results of this research are different from the results of research by Sirait et al. (2023) which states that there is a significant relationship between CED and the incidence of anemia in pregnant women, especially in the first trimester. Other studies also explain that pregnant women who experience anemia the majority experience CED, while pregnant women who are not anemic mostly do not experience CED.

However, CED does not always occur anemia because anemia can affect the incidence of CED, if Hb levels are below the threshold continuously, this will increase the chance of anemia (Fitriah et al., 2023). This condition is also likely caused by many factors that influence CED in pregnant women, such as the level of energy intake and family income level. (Dhewy, 2022).

4. Conclusion

Based on the results of the research and the discussion in this study, it can be concluded that pregnant women who experience the incidence of Chronic Energy Deficiency (CED) at the Galur II Health Center, Kulon Progo Regency are mostly at the age of 20-35 years, have never given birth, last high school education level, and do not experience anemia. However, further research is needed on the relationship and correlation of each characteristic with the incidence of CED in pregnant women.

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