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Profile of Pregnant Women with Chronic Energy Deficiency (CED) Based on Age, Education, Pregnancy Interval, and Gravida in the Working Area of Kabila Public Health Center, Bone Bolango Regency, 2026

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ABSTRACT

Chronic Energy Deficiency (CED) among pregnant women is a nutritional problem that may increase the risk of pregnancy and childbirth complications and impaired fetal growth. This study aimed to describe pregnant women with CED based on age, education, pregnancy interval, and gravida in the working area of Kabila Public Health Center, Bone Bolango Regency, in 2026.

This descriptive quantitative study involved 60 pregnant women. Total sampling was used. Secondary data were collected from health service records and analyzed using univariate analysis presented as frequencies and percentages.

Based on the research tables, most respondents were aged 20–30 years, 42 (70.0%). The most common education level was senior high school, 26 (43.3%). A pregnancy interval of less than two years was recorded in 32 respondents (53.3%), while 28 (46.7%) had an interval of two years or more. Based on gravida, 49 respondents (81.7%) were recorded in the 2–3 pregnancy category.

The respondent profile was dominated by women aged 20–30 years, with senior high school education, a pregnancy interval of less than two years, and gravida 2–3. Strengthening nutrition education, nutritional monitoring, and counseling on pregnancy planning and spacing is recommended.

Keywords: Chronic Energy Deficiency, Pregnant women, Age, Education, Pregnancy interval, Gravida

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INTRODUCTION

Chronic Energy Deficiency (CED) among pregnant women remains a nutritional problem that requires attention. In the thesis, CED is described as a condition of chronic energy and protein deficiency characterized by a Mid-Upper Arm Circumference (MUAC) of less than 23.5 cm. This condition is associated with an increased risk of maternal and fetal health problems, including anemia, hemorrhage, and infants with low birth weight (Siauta et al., 2025).

CED is related not only to food intake but can also be influenced by maternal characteristics and pregnancy conditions. The factors discussed in the study include age, education, pregnancy interval, and gravida. Pregnancy at an age of less than 20 years can increase nutritional requirements because the mother is still growing, whereas an age of more than 35 years is associated with an increased risk of complications and changes in physiological function (Ariendha et al., 2025;

Handayani et al., 2021).

Education can influence a mother's ability to receive and understand health information, including information on balanced nutrition, antenatal examinations, and monitoring of nutritional status. However, formal education does not automatically guarantee that nutritional needs are met, because nutritional status is also influenced by knowledge, behavior, access to information, and socioeconomic conditions (Haryanti et al., 2020).

Pregnancy interval is also an important characteristic. A pregnancy interval of less than two years may mean that the mother has not had sufficient time to restore her energy and nutrient reserves after the previous pregnancy. Pregnancies that occur too close together can increase nutritional requirements simultaneously for maternal recovery and fetal growth (Nurhayati et al., 2020; Nainggolan et al., 2024).

Gravida describes the number of pregnancies a woman has experienced, including the current pregnancy. Repeated pregnancies can increase energy and nutrient requirements, especially when the interval between pregnancies is too short for nutritional reserves to recover optimally (Elsera et al., 2021; Prawirohardjo, 2022).

In Bone Bolango Regency, the data listed in the thesis show that the number of CED cases across 20 public health centers fluctuated, namely 192 cases in 2023, 134 cases in 2024, and 187 cases in 2025. In Kabila District, 25 cases were recorded in 2023, increasing to 32 cases in 2024 and 51 cases in 2025. The 2026 data listed in the thesis are 9 cases at the time of the initial data collection (Public Health Center, 2025).

Based on these conditions, this study aims to describe pregnant women with CED based on age, education, pregnancy interval, and gravida in the working area of Kabila Public Health Center, Bone Bolango Regency, in 2026.

METHODS

This is a descriptive quantitative study conducted in the working area of Kabila Public Health Center, Bone Bolango Regency, in May 2026. The study population was all pregnant women in the working area of Kabila Public Health Center, totaling 60 people. The sample was determined using total sampling, so the entire population was used as the sample.

The study variables included Chronic Energy Deficiency (CED), maternal age, education, pregnancy interval, and gravida. CED was defined as a condition of chronic energy and protein deficiency characterized by MUAC <23.5 cm based on the Kabila Public Health Center register. Age was the mother's age in years, education was the recorded level of formal education, pregnancy interval was the interval between the previous delivery and the current pregnancy, and gravida was the total number of pregnancies ever experienced, including the current pregnancy.

The study data were obtained from secondary data of the Gorontalo Provincial Health Office, the Bone Bolango Regency Health Office, and Kabila Public Health Center. The research instrument was a data collection sheet. Data processing was carried out through editing, coding, data entry using SPSS, and tabulation. The analysis used was univariate analysis to obtain the frequency

distribution and percentage of each variable.

RESULTS AND DISCUSSION

1. Univariate Analysis

The study involved 60 respondents. Based on address, most respondents came from Tosel, 33 people (55.0%), followed by Pauwo, 12 people (20.0%), Tanggilingo, 11 people (18.3%), and Tumbihe, 4 people (6.7%). Based on occupation, most respondents were housewives (IRT), namely 51 people (85.0%).

a. Age

Table 1. Distribution of Respondents by Age

Age	n	%
17–19 years	11	18.3
20–30 years	42	70.0
31–39 years	7	11.7
Total	**60**	**100.0**

The results show that the 20–30 year age group was the largest group, namely 42 respondents (70.0%). This finding indicates that the respondents were dominated by the healthy reproductive age. However, the healthy reproductive age group can still experience CED if energy and nutrient requirements during pregnancy are not met. Mothers younger than 20 years face nutritional needs that must be divided between the mother's own growth and the fetus, whereas at an age of more than 35 years there is an increased risk of physiological disorders. Thus, monitoring of nutritional status remains necessary in all age groups.

b. Education

Table 2. Distribution of Respondents by Education

Education	n	%
Elementary school (SD)	4	6.7
Junior high school (SMP)	16	26.7
Senior high school (SMA)	26	43.3
Vocational high school (SMK)	2	3.3
Diploma III (D3)	2	3.3
Bachelor's degree (S1)	10	16.7
Total	**60**	**100.0**

Most respondents had a senior high school education, 26 people (43.3%), followed by junior high school, 16 people (26.7%), and bachelor's degree (S1), 10 people (16.7%). Education can influence the ability to receive health information, but formal education does not directly determine nutritional status. Mothers with a senior high school education can still experience CED if nutritional intake, access to information, health behavior, and socioeconomic conditions do not yet support the fulfillment of nutritional needs.

c. Pregnancy Interval

Table 3. Distribution of Respondents by Pregnancy Interval

Pregnancy interval	n	%
< 2 years	32	53.3
≥ 2 years	28	46.7
Total	**60**	**100.0**

As many as 32 respondents (53.3%) had a pregnancy interval of less than two years. An interval that is too short can cause the mother's energy and nutrient reserves not to have recovered after the previous pregnancy and breastfeeding. This finding shows the importance of counseling on pregnancy planning and family planning, especially for mothers with a history of pregnancies at short intervals.

d. Gravida

Table 4. Distribution of Respondents by Gravida

Gravida category	n	%
Pregnancy 2–3 times	49	81.7
Other categories in the research output	11	18.3
Total	**60**	**100.0**

Source: Secondary data of Kabila Public Health Center, 2026.

The analysis output showed 60 valid data points with no missing data. For the CED category variable, all 60 respondents were recorded in the "high risk" category.

Most respondents were recorded in the 2–3 pregnancy category, namely 49 people (81.7%), based on the research results/output tables. Repeated pregnancies increase energy and nutrient requirements, but the number of gravida cannot be interpreted as a cause of CED in this study because the study design is descriptive. The findings only describe that this gravida category was the largest group in the study data.

2. Limitations of the Study

This study used a descriptive design, so it cannot determine causal relationships between age, education, pregnancy interval, and gravida with CED. The data used were also secondary data, so the completeness of the information depends on the records of the Public Health Center. Other variables such as energy intake, nutritional knowledge, family income, anemia status, infectious diseases, and antenatal care (ANC) compliance were not analyzed.

CONCLUSION

Based on the results of the study, the respondent profile was dominated by the 20–30 year age group, 42 people (70.0%), senior high school education, 26 people (43.3%), a pregnancy interval of less than two years, 32 people (53.3%), and gravida 2–3, 49 people (81.7%), based on the research results/output tables. All 60 respondents in the research output were recorded in the high-

risk CED category. These results are a description of the distribution of characteristics and cannot be used to conclude a causal relationship.

RECOMMENDATIONS

Health workers are expected to improve nutrition education, MUAC and nutritional status monitoring during ANC, and counseling on pregnancy planning and spacing. Pregnant women and their families are expected to pay more attention to meeting nutritional needs and to attend regular antenatal check-ups. Future research may use an analytic design with a larger sample and include variables of nutritional intake, knowledge, economic status, anemia, infectious diseases, and ANC.

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