Factors Related to Chronic Energy Deficiency in Pregnant Mothers in the Konawe District, Indonesia

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Abstract
Background: Chronic energy deficiency (CED) can have serious health consequences in both the mother and the baby. The aim of this study was to determine factors associated with CED in pregnant women.

Methods: This cross-sectional study was done on 115 pregnant women referred to two health centers in the Konawe District (Indonesia) in 2021. After determining the prevalence of CED, data on different demographic and socioeconomic characteristics including family income, nutritional status, adherence to Fe tablet consumption and food availability were collected using questionnaires. Relationship between the variables and prevalence of CED was assessed using the Chi-square test at significance of 0.05.

Results: The prevalence of CED was 36.5% among pregnant women. The prevalence of CED was significantly associated with family income (P=0.001), nutritional status (P=0.001), adherence to Fe tablet consumption (P=0.007) and food availability (P=0.002). The logistic regression test showed that family income had the strongest association with the prevalence of CED (OR=2.197, 95% CI: 1.248-3.868).

Conclusion: The prevalence of CED is higher in pregnant women with low income, poor nutritional status, and limited access to food and poor adherence to Fe tablet consumption. We suggest increasing food security at the family level by providing information to women in preconception stage through counseling, flip charts and posters.

Highlights:

What is new here?
The study proved that the incidence of CED was significantly related to family income, nutritional status, adherence to Fe tablet consumption and family food availability.

What is new here?
The incidence of CED often occurs in pregnant women CED can have a negative impact on the fetus in the womb.

Introduction
Maternal mortality rate is one of the key indicators of public health status (1). It refers to the number of maternal deaths due pregnancy complications relative to the total number of births (2). Maternal mortality is a major health problem in many countries, including Indonesia. Chronic Energy Deficiency (CED) is one of the most common maternal health problems in Indonesia (1). It is common among pregnant women who suffer from chronic food shortages and various health problems (2). A large number of pregnant women are still suffering from nutritional disorders, especially malnutrition, CED and nutritional anemia (4).

Upper Arm Circumference (UAC) is a type of anthropometric measurement used to assess the risk of CED in women of childbearing age, which include adolescents, pregnant women, breastfeeding mothers and couples of reproductive age (EFA). While the UAC threshold in WUS with a risk of CED is 23.5 cm, and if it is less than 23.5 cm, the woman has CED (5).

Asian and African countries, especially the sub-Saharan Africa and Southeast Asia, are center of poverty and chronic malnutrition because most of their population lives in remote/rural areas. The rate of chronic malnutrition increased from 777 million in 2015 to 815 million in 2018. In addition, it has been estimated that at least 120 million women living in South and Southeast Asia have CED (6).
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