



THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS OF WOMEN BEFORE PREGNANCY WITH THE INCIDENCE OF CHRONIC ENERGY LACK IN PREGNANT WOMEN

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ABSTRACT

If a pregnant woman goes without enough nutrition (namely, carbs and fats), she may suffer from KEK. Objective: The purpose of this research was to examine the possible association between pre-pregnancy maternal nutritional health and the incidence of chronic energy deficiency (KEK). Method: A total of 38 participants were surveyed and studied utilizing a retrospective cohort design for this quantitative correlation study. The Sperman rank test is used for analysis of both bivariate and univariate data. Results: Study findings indicate a possible association between pregnant women's nutritional status and the prevalence of KEK in the Kademangan status Center's service area ($p = 0.026$, $p 0.05$). Conclusions: The findings of this study suggest that pregnant women should think about their nutritional condition before becoming pregnant in order to protect the health of themselves and their unborn children.

Keywords: chronic energy deficiency; mother's nutritional status; women before pregnancy

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INTRODUCTION

Pregnancy is a natural stage in life, where fertilization of the egg by sperm occurs during ovulation, becomes a fetus, and during pregnancy the mother must be properly intervened. KEK in pregnancy refers to a condition when a pregnant woman does not consume enough energy (carbohydrates and lipids) to sustain life for a long period. A World Health Organization (WHO) survey states that 35-75% of pregnant women worldwide report eating cake, which is much higher than in the first and second trimesters. According to WHO, SEZ is the cause of 40% of maternal deaths in underdeveloped countries. The Maternal Mortality Rate increases every year in Indonesia. In 2020 there will be 1,110 cases of maternal death due to pregnancy-related hypertension, 1,330 cases due to bleeding, and 230 cases due to disorders of the circulatory system. According to these data, bleeding is the main cause of maternal death. For pregnant women, separate bleeding can be caused by various diseases such as anemia or KEK. According to research conducted by Arika Indah Setiarini and Ira Titisari with the title Risk of (HPP) for pregnant women with lack of chronic energy 2010 explaining that chronic energy deficiency (KEK) is a risk factor for HPP with an OR of 4.8 meaning that pregnant women with more KEK many are at risk of experiencing HPP by 4.8 times higher than pregnant women who do not experience chronic energy deficiency (KEK).

KEK during pregnancy can have an impact on the mother and fetus. Anemia, bleeding, unusual weight gain, and infectious infections are some of the main problems that pregnant women with KEK are prone to face. According to KEK Waryana, pregnancy can affect the fetus and result in miscarriage, stillbirth, neonatal death, birth defects, infant anemia, and low birth weight newborns. In addition, bleeding and preterm labor occur as the labor phase becomes longer and more challenging. To prevent KEK during pregnancy, mothers need to improve nutrition from the time they are planning a pregnancy even during their fertile period. There are several attempts to overcome this condition such as giving supplementary food (PMT) to pregnant women. The PMT Technical Guidelines (Toddlers-Pregnant Women-School Children), which were issued by the Indonesian Ministry of Health in 2017 and 2019, contain regulations for the use of PMT in pregnant women. Another effort that can prevent KEK is the application of the correct diet and nutritional intake which is important for pregnant women. The need for counseling about the importance of nutritional status before pregnancy can also be an effort to reduce the number of KEK in Indonesia.

From the Blitar Regency Nutrition annual report data 2021, the Kedemangan Health Center ranks 8th in the number of pregnant women with KEK out of 24 health centers spread across the Blitar district, namely Sutojayan Health Center for KEK 85 pregnant women, Gandusari Health Center for KEK 85 pregnant women, Garum Health Center for KEK 85 pregnant women people, Bacem Health Center for KEK pregnant women 84 people, Kasamben Health Center 76 people, Gandusari Health Center for KEK pregnant women 70 people, Doko Health Center for KEK pregnant women 68 people and Kademangan Health Center for KEK pregnant women 66 people. Every year the cases of pregnant women with CED at the Kademangan Health Center are increasing. According to statistics from the Nutrition Polyclinic at the Kademangan Health Center, out of 854 pregnant women who underwent KI in 2019, 29 were diagnosed with KEK. Of the 863 pregnant women who are undergoing KI in 2020, there will be 41 pregnant women who will experience KEK. Another increase will occur in 2021, with 62 out of 831 pregnant women using KI that year suffering from CED. According to the research shown above, a significant percentage of pregnant women experience KEK (Chronic Energy Deficiency). The purpose of this study was to dig deeper into whether nutritional status before pregnancy would be related to chronic energy deficiency in pregnant women in Blitar Regency. According to the data above, I am interested in raising the title "The Relationship between Maternal Nutritional Status Before Pregnancy and the Incidence of Chronic Energy Deficiency at the Kademangan Health Center, Blitar Regency".

METHOD

To quantitatively investigate the relationship between variables, this study used a retrospective cohort design. Sixty pregnant women from the Kademangan Health Center in Blitar Regency were selected as the research sample because all of them suffer from chronic energy deficiency. The sample size for this study was 37 people. Researchers often use probability sampling, especially simple random sampling, which selects sample members at random from a population without taking into account demographic stratification. The investigation was carried out in April and May 2023. Log observations and questionnaires were used for data collection. Chronic energy insufficiency related to pregnancy is the dependent variable, while the mother's preconception nutritional status is the independent variable. Data were analyzed using the rho Sperm Quality Index.

RESULTS

Midwives in each location collaborated with research to help gather participants in the hall from April 2 to April 29 2023. Participants in this study were pregnant women with an upper

arm circumference of less than 23.5 cm or who had been given Chronic Energy. Deficiency diagnosis at the Kademangan Health Center, Blitar Regency. In January 2023, KEK was determined to be the cause of 60 pregnancies. By using univariate analysis, the frequency distribution and descriptive statistical values of each of the variables studied were calculated. The prevalence of CED in pregnant women and the nutritional state of the mother before pregnancy were investigated.

Maternal nutritional status before pregnancy BMI calculation results are used to determine the nutritional state of the mother before pregnancy. Table 1 below shows the frequency distribution depending on the nutritional state of the mother before conception:

Table 1
Distribution of the frequency of nutritional status of mothers before pregnancy (n=38)

Nutritional Status of Mothers Before Pregnancy based on Body Mass Index Calculations	f	%
Less	38	100
Normal	0	0
Excess	0	0
Obesity	0	0

Table 1 it can be seen that the majority of mothers experience malnutrition with IMT calculation values of 17.3, 18.2, and 18.3, which is 11% for the Nutritional State of Mothers Before Pregnancy.

Events of Chronic Energy Deficiency

Frequency distribution based on Chronic Energy Shortage Events (KEK) is shown in Table 2 below:

Table 2
Frequency Distribution of Chronic Energy Deficiency Events (n=38)

Incidence of Chronic Energy Deficiency	f	%
Less	29	76
Bad	9	24

Table 2 shows that 76% of respondents, or almost all of them, experience chronic energy deficiency.

DISCUSSION

Knowing the Nutritional Status of Mothers Before Pregnancy

Based on table 1, all 38 respondents were undernourished and had the highest BMI values, namely 17.3, 18.2 and 18.3 to 11%. Underweight was defined as having a BMI of less than 18.5; normal weight is defined as having a BMI of 18.5 to 22.9; overweight was defined as having a BMI of 24 to 24.9; and obesity I was defined as having a BMI of 25 to 29.9; and obesity II is defined as having a BMI of more than 30. According to research by Irawati A in 2014, the nutritional state of pregnant women, especially before pregnancy, affects the course of pregnancy. The early development of the fetus and the growth of the newborn are both influenced by the nutritional state of the mother before and during pregnancy. The nutritional status of a person or population is the degree to which they get the nutrients they need from the food they eat. A person's nutritional status can be measured. The nutritional status of a person or a population can be assessed to see if it falls within the "normal" range. Age, weight, upper arm circumference, and height (or length) are common measurements. Because they can be used to evaluate the nutritional state of adults and the development of children, height and weight are the most frequently used metrics. Body mass index (BMI) is a number often used to determine

whether someone has a dietary problem. According to Lia Aprilia Budiman's research from 2021, which said that anthropometry, nutritional status can be evaluated in several ways, including by biochemical tests, clinical examinations, and biophysical assessments. Evaluation of nutritional status mostly relies on anthropometry. Body mass index (BMI) and two-dimensional measuring tape (DTM) are used in this method. Several variables including mother's age, career, and diet before pregnancy are hypothesized to contribute to the nutritional needs of mothers during pregnancy in the study area around the Kademangan Health Center, Blitar Regency. Due to her weakened nutritional status before pregnancy, an elderly pregnant woman is at risk of stunting, Chronic Energy Deficiency and other complications

Identifying the incidence of Chronic Energy Deficiency in pregnant women

The findings show that there are still cases of chronic energy deficiency pregnant women in the operational area of the Kademangan Health Center. 29 (76%) of the 38 respondents who were mothers reported poor % LILA findings, while 9 (24%) of respondents who were pregnant reported poor % ALL results. Of the 28 prospective mothers, one LILA pregnant woman measuring 21 cm, eleven LILA pregnant women measuring 22 cm, three LILA pregnant women measuring 22.5 cm, thirteen LILA pregnant women measuring 23 cm, and one LILA pregnant woman measuring 23.5 cm. There were 9 (nine) pregnant women with unfavorable outcomes, 8 of whom were 20 cm in size, and 1 (one) of them had 20.5 cm LILA. lasts for years (chronic), causing health problems in the mother and preventing the mother from getting the nutrients she needs to meet her increased nutritional needs during pregnancy. Both the mother and the baby will experience problems if the woman is malnourished during pregnancy. For example, anemia, bleeding, infections, difficult and long labor, premature birth, abortion, low birth weight babies, and even neonatal death are dangers and difficulties for the mother.

Because measurements of arm circumference tend to be reliable, LILA can be used by pregnant women to evaluate nutritional status and find out potential risks, as shown by a study by Anna Rofiatun Muslimah (2017). Meanwhile, the fetal weight factor prevents pregnant women from completing BMI calculations, which can lead to erroneous findings when BMI is used to evaluate maternal nutrition. Based on the data obtained, the majority of 38 pregnant respondents with Chronic Energy Deficiency (KEK) in the service area of the Kademangan Health Center, Blitar Regency, are 35 years old, with 8 of them being pregnant (22%). Thirty housewives (or 81%) are also pregnant. This is in accordance with the findings of a 2018 study by Aeda Ernawati in Pati Regency which linked the age of pregnant women and their occupation to the prevalence of CED. KEK is worrying for women who are pregnant over the age of 35. In addition, pregnant women who do not do second jobs are at a higher risk of CED. Women over the age of 35 who are pregnant tend to experience a decrease in organ function. The effects of growing old are also only now becoming apparent. The placenta cannot provide nutrition to the baby if the mother has symptoms such as hypertension and diabetes mellitus. Pregnant women over the age of 35 need a lot of energy, according to research by Kristiyanasari, Yana et al. (2016). Working women are able to identify family health problems. Working women read books, magazines, newspapers, listen to the radio, and watch television to study health problems. Working women have the capacity to make choices about their health matters. As a result, women who also work outside the home often have better health.

The study showed that of the 38 pregnant respondents who reported KEK at the Kademangan Health Center in Blitar Regency, 19 (51%) graduated from high school. Three (8%) mothers had an undergraduate degree, five (5%) elementary school mothers, and thirteen (35%) mothers had junior high school education. Table 4.7 of the frequency data shows that in the working area of the Kademangan Health Center, Blitar Regency, 24 (65%) of the 38 pregnant respondents suffer

from Chronic Energy Deficiency (KEK). Nine individuals (24% of the total) and four individuals (11% of the total) reported a monthly income of IDR 1,000,000 to IDR 2,000,000. Income, family size, number of children, access to maternity care, parity, and understanding of complementary medicine for infectious diseases and malnutrition all have a role to play in SEZs, as determined by research conducted in 2021 by Chori Elsera. In contrast, the level of KEK in pregnant women is rarely influenced by the mother's educational level or other demographic factors. Khadijah's research (2018) focused on pregnant women in the catchment area of the Puuwatu Health Center, Kendari City, Southeast Sulawesi Province, and the correlation of mother's education with household income with the incidence of Chronic Energy Deficiency (KEK). The results showed that there was no relationship between mother's education and the prevalence of chronic energy deficiency (CED) in pregnancy. However, there is a correlation between household income and SEZ rates for pregnant women.

Analyzing the relationship between the nutritional status of mothers before pregnancy and the incidence of chronic energy deficiency

Based on research results from 38 (thirty seven) respondents overall have poor nutritional status. Of the 38 (thirty eight) respondents who had poor nutritional status, 29 (twenty eight) 76% had less % LILA results and 9 respondents had % bad LILA results. According to the findings of the sperm ranking statistical test, the P value = 0.039 was below the 0.05 significance threshold. The investigation also revealed that r count (0.36995) has a higher value than r table (0.321). The results of this study provide evidence that contradicts the null hypothesis (H0) and supports the alternative (H1) that preconceptional maternal nutrition is associated with a lower rate of congenital developmental anomalies (CED) in the fetus. Mothers at the Kademangan Health Center in Blitar Regency showed that poor maternal nutrition before pregnancy was associated with an increased incidence of congenital developmental anomalies (KEK). The r-count value of 0.36995 indicates a significant relationship between the prevalence of CED in pregnant women at the Kademangan Status Center and the nutritional status of mothers before pregnancy, indicating that this relationship is sufficient to explain the observed pattern. Because the correlation is considered satisfactory if the results of the calculation of the correlation coefficient are between 0.26 and 0.50. (Enterprise, 2018)

This is in accordance with Anna Rofiatun Muslimah's 2017 study which found a positive relationship between BMI before pregnancy and LILA, which shows that women with larger LILA sizes will also have a large BMI. Intake, use, and storage of various macro and micronutrients determine the nutritional status of a pregnant woman, a physiological condition. The growth of the baby can be affected by the mother's diet both before and during pregnancy. Healthy term babies of normal weight are more likely to be delivered if the mother's nutritional condition was normal before and during pregnancy. This means that the mother's diet, both before and during pregnancy, has a major impact on the child's development. The researchers found that because many mothers underestimate the importance of a woman's nutritional status before becoming pregnant, this can have an impact on pregnancy. In addition, the majority of mothers who experience KEK in the working area of the Kademangan Health Center are housewives with an average age of 35 years (22%) and a breakdown of sex 30 (81%) (tables 4.1 and 4.5). A number of studies have shown an association between the prevalence of chronic energy deficiency in pregnant women and the age and position of the woman's work. Dietary requirements for pregnant women will vary depending on their age.

CONCLUSION

To help pregnant women who experience a constant lack of energy, researchers at the Kademangan Health Center in Blitar Regency conducted a study from 1-30 April 2023 in the

working area of the clinic. Based on the results of the study, it was obtained from 38 pregnant women respondents who had LILA size <23.5 cm, all of them had an undernutrition status, namely <18.5 kg/m². From the results of % LILA it was found that out of 38 respondents 29 pregnant women 76% had poor results and 9 respondents 24% had bad results. In the work environment of the Kademangan Health Center there is a relationship between the nutritional status of the mother before pregnancy and the prevalence of chronic energy deficiency in pregnant women.

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