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# FACTORS THAT INFLUENCE THE INCIDENCE OF CHRONIC ENERGY DEFICIENCY IN PREGNANT WOMEN

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**ABSTRAK : FAKTOR-FAKTOR YANG MEMPENGARUHI KEJADIAN KEKURANGAN ENERGI KRONIK PADA IBU HAMIL**

Latar Belakang: Kekurangan Energi Kronik (KEK) pada ibu hamil merupakan keadaan dimana ibu menderita kurangan makanan yang berlangsung menahun (kronis) sehingga menimbulkan gangguan kesehatan pada ibu hamil. Kondisi ini ditandai dengan Lingkar Lengan Atas (LILA) <23,5 cm. Berdasarkan data jumlah ibu hamil yang mengalami KEK di provinsi Nusa Tenggara Barat (NTB) sebanyak 12,9%. KEK pada ibu hamil perlu mendapatkan perhatian khusus karena dapat menyebabkan kematian ibu dan bayi.

Tujuan: Penelitian ini bertujuan untuk Mengetahui faktor-faktor yang memengaruhi terhadap kejadian kejadian CEDurangan energi kronik pada ibu hamil di Puskesmas Gunungsari Tahun 2023.

Metode: Jenis penelitian yang digunakan dalam peneitian ini adalah kuantitatif dengan rancangan penelitian deskriptif. Populasi dalam penelitian ini berjumlah 663 ibu hamil. Sampel dalam penelitian ini berjumlah 250 ibu hamil. Teknik pengambilan sampel menggunkan purposive sampling. Jenis data yang digunakan adalah data skunder. Analisis data dalam penelitian ini menggunakan analisis univariat dan bivariate.

Hasil: Tidak ada pengaruh usia terhadap kejadian KEK pada ibu hamil di Puskesmas Gunungsari dengan hasil uji statistik *ρ-value*=0,480. Ada pengaruh jarak kehamilan terhadap kejadian KEK pada ibu hamil di Puskesmas Gunungsari dengan hasil uji statistik *ρ-value*=0,041. Tidak ada hubungan paritas terhadap kejadian KEK pada ibu hamil di Puskesmas Gunungsari dengan hasil uji statistik *ρ-value*=0,168.

.Kesimpulan: Faktor Jarak Kehamilan berpengaruh terhadap kejadian KEK pada ibu hamil sedangkan faktor Umur, Paritas tidak berpengaruh terhadap kejadian KEK pada ibu hamil.

Saran : Diharapkan dapat mengetahui factor-faktor tentang keurangan energi kronik agar dapat mempersiapkan kehamilan dengan baik agar terhindar dari KEK.

Kata Kunci : Ibu Hamil, Jarak Kehamilan, Keurangan Energi Kronik, Paritas, Usia

**ABSTRACT**

Background: Chronic Energy Deficiency (CED) in pregnant women is a condition where the mother suffers from chronic food deficiency which causes health problems in pregnant women. This condition is characterized by Upper Arm Circumference (MUAC) <23.5 cm. Based on data on the number of pregnant women experiencing CED in the province of West Nusa Tenggara (NTB) as much as 12.9%. CED in pregnant women needs special attention because it can cause maternal and infant death.

Objective: This study aims to determine the factors that influence the incidence of CED chronic energy deficiency in pregnant women at the Gunungsari Health Center in 2023.

Method: The type of research used in this study is quantitative with a descriptive research design. The population in this study was 663 pregnant women. The sample in this study was 250 pregnant women. The sampling technique used purposive sampling. The type of data used is secondary data. Data analysis in this study used univariate and bivariate analysis.

Results: There is no effect of age on the incidence of CED in pregnant women at the Gunungsari Health Center with the results of the statistical test *ρ*-value = 0.480. There is an effect of pregnancy spacing on the incidence of KEK in pregnant women at the Gunungsari Health Center with the results of the statistical test *ρ*-value = 0.041. There is no relationship between parity and the incidence of CED in pregnant women at the Gunungsari Health Center with the results of the statistical test *ρ*-value = 0.168.

Conclusion: The Pregnancy Spacing factor affects the incidence of CED in pregnant women while the Age and Parity factors do not affect the incidence of CED in pregnant women

Suggestion : It is hoped that we can identify factors related to chronic energy deficiency so that we can prepare for pregnancy well to avoid CED.

Keywords: Age ; Chronic Energy Deficiency; Parity; Pregnant , Pregnancy Spacing.

## INTRODUCTION

Chronic Energy Deficiency (CED) in pregnant women is a condition where the mother suffers from chronic food deficiency which causes health problems in pregnant women. (Putri, A. A., Salsabila 2019). Chronic Energy Deficiency (CED) is one of the causes of the still high maternal and infant mortality rate. (Rahmi 2017b). The World Health Organization (WHO) notes that 40% of maternal deaths in developing countries are related to CED (Musaddik, Putri, L. A. R., & M 2022) Chronic Energy Deficiency can cause bleeding and can increase the risk of giving birth to a baby with low birth weight. (Niska Anita a, Sartini b 2020)

Pregnant women are one of the vulnerable population groups due to their higher nutritional needs. According to the World Health Organization (WHO) in 2010, the threshold for public health problems for pregnant women at risk of Chronic Energy Deficiency (CED) was <5%, while the results of the Nutritional Status Assessment in Indonesia (World Health Organization 2004) showed a figure of 14.8% for the prevalence of pregnant women with CED. This shows that Indonesia still has a moderate category of public health problems (10-19%) for the problem of pregnant women at risk of CED (Xiong et al. 2023). CED in pregnant women measured by the Upper Arm Circumference (LILA) was reported in the Indonesian Ministry of Healt (2014) hat there was an increase in the prevalence of CED between 2010 and 2013. Nearly one in four pregnant women (24.2%) had low LILA (<23.5 cm) in 2013 and remained almost unchanged in 2016, but then decreased in 2018 to 17.3 (Kementerian Kesehatan RI 2014). CED is a nutritional problem caused by a lack of food intake over a long period of time, years. Lack of energy intake from macronutrients (carbohydrates, proteins and fats) and micronutrients, especially vitamin A, vitamin D, folic acid, iron, zinc, calcium and iodine and other micronutrients.(Yan et al. 2020). According to the United Nations International Children's Emergency Fund (UNICEF), malnutrition is caused by direct and indirect causes.(Muliawati 2013) Direct causes include inadequate nutritional intake and infection. Indirect causes include lack of food availability at home and poor parenting and poor health services and environment. (Traore et al. 2023).

According to data from the Director General of Public Health in 2021, there were 12.9% of pregnant women in West Nusa Tenggara who experienced Chronic Energy Deficiency. (Kemenkes, 2022). This figure decreased by 8.6% from 2018. (Kemenkes, 2018). Although the incidence of Chronic Energy Deficiency in pregnant women in NTB has reached the expected target, it is still a public health problem that must be resolved. (Kemenkes 2022a).

Based on data from the West Lombok Health Service in 2022, around 1,866 pregnant women suffered from Chronic Energy Deficiency.. This figure has increased compared to the 2021 Lobar Health Office data, namely 1,785 pregnant women suffering from Chronic Energy Deficiency. There are 5 sub-districts in West Lombok with the highest percentage of pregnant women experiencing CED, namely Gunungsari Sub-district, where 273 pregnant women experienced CED, Gerung Sub-district 236 pregnant women, Narmada Sub-district 228 pregnant women, 3 Sekotong Sub-districts 213 pregnant women and Lembar Sub-district 205 pregnant women (Dinas Kesehatan Lombok Barat 2023)

Chronic Energy Deficiency is characterized by Upper Arm Circumference (LILA) < 23.5 cm. How to measure Upper Arm Circumference using LILA tape, namely the measurement is carried out on the left arm or inactive arm. LILA measurement is carried out in the middle between the base of the upper arm and the tip of the elbow in cm (centimeters) (Noor, M. S. 2021)

Chronic Energy Deficiency in pregnant women can be influenced by several direct and indirect factors (Mahirawati Vita Kartika, 2014). Direct factors causing CED are nutritional intake and disease / infection. While indirect factors causing CED are Age, Parity, Pregnancy Spacing, Education, Family Work and others. (Niska Anita a, Sartini b 2020)

Age influences the incidence of CED in pregnant women, where pregnant women aged 35 years have a 3.134 times greater risk of experiencing CED compared to pregnant women aged between 20-35 years. (Noor, M. S. 2021). Age is too young (< 20 years) requires large nutrition for the growth and development process. While age (> 35 years) requires 4 nutrients to support organs that

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are getting weaker so that pregnant women with that age will experience nutritional deficiencies during their pregnancy. (Fitri, N. L., Sari, S. A., Dewi, N. R., Ludiana, L., & Nurhayati 2022)

According to research, Pregnancy Spacing and Parity also affect the incidence of CED in pregnant women. Pregnant women with a pregnancy spacing of <2 years have a 5.357 times greater risk of CED compared to pregnant women with a pregnancy spacing of ≥2 years. Pregnant women with a previous pregnancy spacing of <2 years require great nutrition, in addition to the recovery of reproductive organs after delivery, also for the fetus in the womb, so they are at risk of experiencing Chronic Energy Deficiency in pregnant women. ((Antarsih, N. R., & Suwarni 2023)

Based on the results of research conducted by Rahmi, (2017) stated that mothers who have many children with less economy will have difficulty taking care of themselves, plus if the mother is pregnant, her nutritional needs may not be met because of the busyness of taking care of the household and having to share food with family members while pregnant mothers need more nutrition(Rahmi 2017a). In addition, the mother's education and work factors can also affect the CED of pregnant women. The level of education affects the incidence of CED in pregnant women because education will affect the eating patterns of pregnant women, the higher the level of education of the mother, the better she will be in receiving information about nutritional needs, so that she can meet her nutritional intake (Molama, R., Rofiah, K., Pribadi, H. A., Dianingtyas Ariyanti, E., Nikmatul, A., Saidah 2022)

Occupation factors also have an influence on the incidence of CED in pregnant women. According to research (Ernawati 2018a) t is said that pregnant women who do not work are at risk of experiencing CED by 9.286 times compared to pregnant women who work. Work can affect the mother's knowledge, attitudes, behavior, income, and diet, so that the mother can meet her nutritional needs properly.

Chronic Energy Deficiency during pregnancy can affect the mother and her fetus. In mothers, CED can cause risks during childbirth such as difficult labor, prolonged labor, premature labor, bleeding after childbirth, and increased risk with cesarean delivery ( (Kusumastuti, T., Putri, D. P., Eliza, C. P., & Hanifah 2023). While in the fetus it can affect fetal growth and contribute to the risk of miscarriage, abortion, stillbirth, neonatal death, congenital defects, anemia in infants, intrapartum asphyxia, Intrauterine Fetal Death (IUFD) and the birth of babies with Low Birth Weight (LBW). Babies born with LBW have a higher risk of death, malnutrition, growth disorders, and developmental disorders (Putri n.d.)

The government's efforts to overcome Chronic Energy Deficiency in pregnant women are through the Provision of Supplementary Food (PMT) made from local food. Presidential Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction stipulates that PMT made from local food is to support the achievement of indicators for pregnant women with Chronic Energy Deficiency (CED) and Undernourished Toddlers receiving additional nutritional intake. The purpose of PMT made from local food is to reduce Chronic Energy Deficiency in pregnant women. 6 In addition, the Ministry of Health has launched a new service called the Ayosehat Chatbot, which is the official health education information channel of the Ministry of Health that can be accessed via the WhatsApp application. This chatbot is the result of a digital collaboration between UNICEF and Meta Indonesia. (Kemenkes 2022b)

Based on the background above, the researcher is interested in conducting research with the title "Analysis of Factors Influencing the Incidence of Chronic Energy Deficiency in Pregnant Women at the Gunungsari Health Center".

## RESEARCH METHODS

The type of research used is quantitative with a descriptive research design. This study uses a secondary data analysis method, which is a research strategy that utilizes existing data to find new problems or test the results of previous studies (Ernawati 2018b).This study examines whether there is an influence between age, pregnancy spacing, parity, education, and maternal occupation on the incidence of Chronic Energy Deficiency in pregnant women at the Gunungsari Health Center. The population is the entire object of the study being studied. Population can be interpreted as all elements in the study including objects and subjects with certain characteristics and characteristics (Amin, N. F., Garancang, S., & Abunawas 2023). The population in this study amounted to 663 people, namely all pregnant women who made their first visit in the first trimester at the Gunungsari Health Center in 2023. The sample is a portion taken from the entire object studied and is considered to represent the entire population. The sample is a portion or representative of the population to be studied(Amin, N. F., Garancang, S., & Abunawas 2023). The sample in this study amounted to 250 people, namely pregnant women who made their first visit in the first trimester at the

Gunungsari Health Center in 2023. The sample size in the study was 250. This type of research uses Non-Propability Sampling with a purposive sampling technique. Non-Propability Sampling is a sampling technique that does not provide equal opportunities or opportunities to each member of the population when being selected as a sample. While the purposive sampling technique according to (Sugiyono 2019)is sampling using several specific considerations according to the desired criteria to be able to determine the number of samples to be studied. The inclusion and exclusion criteria in this study are as follows: Inclusion criteria are criteria or characteristics that need to be met by members of the population that can be taken as samples (Notoadmojo 2018) The inclusion criteria in this study are: Pregnant women who do K1 in the first trimester at the Gunungsari Health Center in 2023 Pregnant women who have complete data in the medical records and cohort books of the Gunungsari Health Center Exclusion criteria Exclusion criteria are characteristics of members of the population that cannot be taken as samples (Notoadmojo 2018). The exclusion criteria in this study are: Pregnant women with comorbidities such as HIV/AIDS, Tuberculosis, Infectious diseases such as worms whose data is in the medical records. The time of the study was conducted in March 2024 This study will be conducted at the Gunungsari Health Center, West Lombok.

## RESEARCH RESULTS

Bivariate analysis was conducted to determine the influence of each research variable of factors that influence the incidence of Chronic Energy Deficiency in pregnant women at the Gunungsari Health Center, tested using the chi square test which includes:

The influence of age on the incidence of Chronic Energy Deficiency in pregnant women at the Gunungsari Health Center

Based on table 1, it shows that 77 respondents experienced CED (30,8%) and 173 did not experience CED (69,2%).

**Table 1**
**Frequency Distribution of Chronic Energy Deficiency Incidence in Pregnant Women at Gunungsari Health Center**

| Variable | N | % |
|---|---|---|
| Chronic Energy Deficiency | | |
| CED | 77 | 30,8 |
| Non CED | 173 | 69,2 |

**Table 2**
**Effect of Age on the Incidence of CED in Pregnant Women at Gunungsari Health Center**

| Variable | CED | | | | Total | | *P-value* |
|---|---|---|---|---|---|---|---|
| | CED | | NON CED | | | | |
| | N | % | N | % | N | % | |
| Ages | | | | | | | |
| Risk | 21 | 8.4 | 40 | 16 | 61 | 24.4 | .480 |
| No Risk | 56 | 22.4 | 133 | 53.2 | 189 | 75.6 | |

Based on the results of table 2, it was found that in the age variable with the risk category, 21 people (8.4%) experienced CED and 40 people (16.0%) did not experience CED. Meanwhile, in the age variable with the non-risk category, 56 people (22.4%) experienced CED and 133 people (53.2%) did not experience CED.

The results of the chi square test obtained a p-value = 0.480> α 0.05, meaning there was no significant relationship between age factors and the incidence of CED in pregnant women at the Gunungsari Health Center

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**Table 3**
**The Effect of Pregnancy Spacing on the Incidence of CED in Pregnant Women at the Gunungsari Health Center**

| Variable | CED | | | | Total | | *P-value* |
|---|---|---|---|---|---|---|---|
| | CED | | NON CED | | | | |
| | N | % | N | % | N | % | |
| Pregnancy spacing | | | | | | | |
| Risk | 9 | 3.6 | 8 | 3.2 | 17 | 6.8 | .041 |
| No Risk | 68 | 27.2 | 16.5 | 66.0 | 233 | 93.2 | |

Based on the results of table 3, it was found that in the variable of pregnancy spacing with the risk category, 9 people (3.6%) experienced CED and 8 people (3.2%) did not experience CED. While in the variable of pregnancy spacing with the non-risk category, 68 people (27.2%) experienced CED and 165 people (66.0%) did not experience CED.

The results of the chi square test obtained a p-value = 0.041 <α 0.05, meaning that there is a significant relationship between the pregnancy spacing factor and the incidence of CED in pregnant women at the Gunungsari Health Center.

**Table 4**
**Effect of Parity on the Incidence of CED in Pregnant Women at the Gunungsari Health Center**

| Variable | CED | | | | Total | | *P-value* |
|---|---|---|---|---|---|---|---|
| | CED | | NON CED | | | | |
| | N | % | N | % | N | % | |
| Pregnancy spacing | | | | | | | |
| Risk | 2 | 0.8 | 12 | 4.8 | 17 | 5.6 | .168 |
| No Risk | 75 | 30.0 | 16.1 | 64.4 | 233 | 94.4 | |

Based on the results of table 4, it was found that in the parity variable with the risk category, 2 people (0.8%) experienced CED and 12 people (4.8%) did not experience CED. While in the parity variable with the non-risk category, 75 people (30.0%) experienced CED and 161 people (64.4%) did not experience CED. The results of the chi square test obtained $\rho$-value = 0.168> α 0.05, meaning that there was no significant relationship between the parity factor and the incidence of CED in pregnant women at the Gunungsari Health Center.

## DISCUSSION

Based on the results of table 2, it was found that in the age variable with the risk category, 21 people (8.4%) experienced CED and 40 people (16.0%) did not experience CED. Meanwhile, in the age variable with the non-risk category, 56 people (22.4%) experienced CED and 133 people (53.2%) did not experience CED. Age is the length of time a person has lived since birth until now. According to (Widatiningsih, 2017), high-risk ages in pregnancy include young primi (<20 years) and old primi (>35 years).

The first pregnant mother at the age of <20 years, the uterus and pelvis have not grown to adult size (Wijayanti, H., & Rosida 2016). Pregnancy in adolescence has a bad risk for the health of the mother and fetus. At that age, the condition of the uterus and pelvis often has not grown to adult size. As a result, pregnant women at that age may experience prolonged/obstructed labor or other disorders due to the mother's unpreparedness to accept her duties and responsibilities as a parent (Hazairin, A. M., Arsy, A. N., Indra, R. A., & Susanti 2021). At the age of 35 years or more, changes occur in the reproductive organs and the birth canal is no longer flexible. If you get pregnant at that age, the risk of pregnancy is high. In addition, the age of 35 years tends to have other diseases in the mother's body (Fitri, N. L., Sari, S. A., Dewi, N. R., Ludiana, L., & Nurhayati 2022).

Based on the results of table 1, it was found that in the variable of pregnancy spacing with the risk category, 9 people (3.6%) experienced CED and 8 people (3.2%) did not experience CED. Meanwhile, in the variable of pregnancy spacing with the non-risk category, 68 people (27.2%)

experienced CED and 165 people (66.0%) did not experience CED.

The chi square test results obtained p-value = 0.041 <α 0.05 meaning that there is a significant relationship between the pregnancy spacing factor and the incidence of CED in pregnant women at the Gunungsari Health Center.

Pregnancy spacing is defined as a consideration to determine the distance between the first pregnancy and the next pregnancy. Pregnancy spacing that is too close is the distance between one pregnancy and the next pregnancy of less than 2 years, or 24 months.(Setyaningrum, D., Netty, & Handayani 2020) The ideal pregnancy spacing is more than 2 years, thus giving the body the opportunity to repair its supplies and reproductive organs to be ready to conceive again (Susanti 2018). Based on the results of table 5.4, it was found that in the parity variable with the risk category, 2 people (0.8%) experienced CED and 12 people (4.8%) did not experience CED. While in the parity variable with the non-risk category, 75 people (30.0%) experienced CED and 161 people (64.4%) did not experience CED. The results of the chi square test obtained $\rho$-value = 0.168> α 0.05, meaning that there is no significant relationship between parity factors and the incidence of CED in pregnant women at the Gunungsari Health Center. Parity is the number of deliveries carried out by a mother, either live or dead, but does not include abortions(Maharrani, T., & Nugrahini 2017). According to (Bambang Eko Cahyono 2022), it is said that many children are those who have more than 3 children. Women who have given birth 108 often can result in damage to the blood vessels and vascularization of the uterine wall due to previous deliveries, so that blood flow to the placenta is inadequate, which can ultimately reduce its function and affect the circulation of nutrients to the fetus (Fatimah, S., & Fatmasanti 2019)

## CONCLUSION

From this study, the results showed that there was no effect of age on the incidence of CED in pregnant women at the Gunungsari Health Center with the results of the statistical test $\rho$-value = 0.480.There was an effect of pregnancy spacing on the incidence of CED in pregnant women at the Gunungsari Health Center with the results of the statistical test $\rho$-value = 0.041. There was no relationship between parity and the incidence of CED in pregnant women at the Gunungsari Health Center with the results of the statistical test $\rho$-value = 0.168.

## SUGESTION

Recommendations for pregnant women to check their nutritional status, to find out the status of CED or not. For pregnant women who experience CED, they can improve their nutritional quality by eating nutritious food, paying attention to the main causative factors that can cause CED..

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