JOURNAL MIDWIFERY (JM)
Jurnal Jurusan Kebidanan, Poltekkes Kemenkes Gorontalo
P-ISSN (2407-8506), E-ISSN (2808-523X)
http://jurnal.poltekkesgorontalo.ac.id/index.php/JM/index
DOI: http://dx.doi.org/10.52365/jm.v2i1.1161

Relationship Between Food Intake On Chronic Energy Deficiency Pregnant Women.

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ABSTRACT

Nutrition of pregnant women must be considered, there will be problems for the mother and fetus if the mother's nutrition is not given properly. The purpose of this study was to determine whether there is a relationship between food intake and the incidence of SEZ in pregnant women at the Sugio Lamongan health center. The research method used Cross Sectional design. Sampling using Purposive Sampling with the criteria of pregnant women who do not have a history of preeclampsia, positive HbsAg, and DM. The sample of this study was 100 pregnant women. This study was conducted from August 2023 to May 2024. Spearman Rank (Rho) test was used to analyze univariate and bivariate data. The results found a correlation between energy, protein, fat, and carbohydrate intake with a p value of 0.000. This study found that food intake (protein, fat, carbohydrate, and energy) of pregnant women at the Sugio Lamongan Health Center was associated with cases of Chronic Energy Deficiency (CHD).

Keywords: ***CED, Food Intake, Pregnancy***

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INTRODUCTIONS

Nutritional intake during pregnancy is an important thing to consider. Nutritional needs will have an impact on the mother and also the fetus she is carrying. In this case what is considered is not only the quantity of food, but the adequacy of the nutrients consumed by the pregnant woman. Nutritional intake that occurs in pregnant women will become a problem if it is not applied properly starting from the fetus in the womb. Chronic Energy Deficiency (CED) is a condition where the body does not get enough energy intake to meet its nutritional needs. CED is characterized by Upper Arm Circumference (UAC) measurements with results <23.5 cm and BMI before pregnancy <18.5 kg/m2. Food intake is an average picture of the nutritional consumption of pregnant women as a source of energy which will then be compared with the Nutritional Adequacy Rate (NAR). Poor food intake in pregnant women can affect fetal growth and can even cause death.

The SDGs have an achievement by 2030 of eradicating all malnutrition problems (Kementerian PPN/Bappenas, 2020). Data obtained from the Government Agency Performance Accountability Report (LAKIP) states that in Indonesia the overall number of CED risks experienced by pregnant women in 2018 is quite high at 17.3%, so it is desirable to decrease by 1.5% each year so as to achieve 10% by 2024. (Kemenkes RI, 2023). The coverage of pregnant women in Indonesia in 2021 with Chronic Energy Deficiency (CED) is 8.7% with a target of 14.50%. The percentage of pregnant women with CED is a negative parameter, the achievement of which is expected to be below the targeted figure (Kemenkes RI, 2021). According to the Central Bureau of Statistics (2022) in East Java shows that in 2019 there were pregnant women with CED (8.7%) out of 622,930, in 2020 there were pregnant women with CED (8.64%) out of 618,207 pregnant women, in 2021 there were pregnant women with CED (9.4%) out of 692,735. Meanwhile, according to the Health Profile of the East Java Health Office (2023) in 2022 there were pregnant women with SEVERE (8.07%) out of 590,205 pregnant women, in conclusion the incidence of SEVERE tends to fluctuate (Kemenkes RI, 2023).

In 2022, the data of pregnant women with CED in Lamongan Regency was 1,660 (10.2%) out of 16,132 pregnant women (Dinas Kesehatan Provinsi Jawa Timur, 2023). In 2022, there were 100 pregnant women with SEA at the Sugio Health Center, while in 2023 from July to

September, there were 18 pregnant women with CED.

CED can be caused by several factors, namely maternal food intake, food frequency, infection, gestational age, number of parities and pregnancy distance. While other factors include a) characteristic factors, namely height, weight, and age of the mother. b) socioeconomic factors, namely total income, education level, and average income. c) clean and healthy living behavior factors. d) ecological factors, namely accessibility to health services (Novitasari et al., 2019).

The impact of CED on pregnant women will affect the fetus, namely LBW, anemia, congenital abnormalities, intra uterine growth retaNARtions (IUGR) and others, while the disorders experienced by the mother include anemia, premature labor, and lack of energy during labor which will increase the risk of delivery by surgery (Yuliani et al., 2017). And according to some sources, women who are pregnant with CED have a 4.85 times higher risk of getting stunted babies. While similar research in Uruguay also stated the same results if CED is greater to cause stunting by 2 times and has a relationship where the p value = 0.03 c (Ruaida & Soumokil, 2018). According to research conducted by Naomi if stunting is found in women who have a history of CED with the results of analyzing the value of p = 0.004 has a conclusion that it has a relationship if the past with chronic energy deficiency and stunting is in the age range of 24-59 months (Sondang, 2021).

The Indonesian government makes efforts in the nutrition improvement program for mothers in pregnancy by providing additional food for recovery (PMT-P). The form of additional food has been regulated in Permenkes Number 51 of 2016 in the form of biscuits containing protein, linoleic acid, carbohydrates, 11 vitamins and 7 minerals (Kurniati & Mardiana, 2022). PMT for pregnant women who have nutritional problems is carried out for 90 days if there is no improvement then continue until 120 or according to the mother's BMI before pregnancy (Kemenkes RI, 2022). The Special Allocation Fund (DAK), which is administered by Public Health Center in the form of operational assistance for activities, may allow Public Health Center to utilize the budget to provide additional consumption for pregnant women with CED in the form of local food if additional food managed by the center is not available at the Public Health Center. (Kemenkes RI, 2019a). PMT-P in East Java are biscuits and milk (Kemenkes RI, 2019a). Based on preliminary studies at

the Sugio Community Health Center, pregnant women with SEVERITY were given additional food (PMT-P) in the form of biscuits.

This study was conducted to determine whether there is a relationship between food intake and the incidence of chronic energy deficiency in pregnant women at Sugio Health Center, Lamongan Regency

METOD

Quantitative research using cross sectional method. Conducted at the Sugio Lamongan Health Center in August 2023 to May 2024. The sample was determined based on the criteria and purposive sampling technique, with criteria including pregnant women in all trimesters, pregnant women in good health, pregnant women who are willing to be subjects, research by filling out inform consent, pregnant women who do not have a history of preeclampsia, positive HbsAg, Diabetus Mellitus, totaling 100 mothers.

Variables included food intake (Energy, Protein, Fat, Carbohydrate) and the incidence of Chronic Energy Deficiency (CED). Food intake data was obtained from the 24 Hour Recall Form, which is a form to determine the intake of food consumed during the last 1 day. Food intake categories include good if >110% of the NAR, sufficient if 80%-100% of the NAR, and deficient if <80% of the NAR. CED data was obtained from UAC measurement with Metlin and BMI calculation.

Data were managed using univarat analysis to determine the frequency distribution and bivarat analysis using Spearman Rank (Rho) to determine whether there is no relationship between the variables studied. The ethics of this research has been approved with Number EA/2351/KEPK-Poltekkes_Sby/V/2024.

RESULT DAN DISCUSS

Result

1. Univarat Analysis

Table.1
Frequency Distribution of Respondent Characteristics

Characteristics	Category	Frequency (f)	Percentage (%)
Age	17-35	92	92
	>35	8	8
	Total	**100**	**100**
Gestational age	TM 1	35	35
	TM2	41	41
	TM3	24	24
	Total	**100**	**100**
Education	SD	10	10
	SMP	21	21
	SMA	50	50
	PT	19	19
	Total	**100**	**100**
revenue	Rendah	53	53
	Tinggi	47	47
	Total	**100**	**100**
parity	Primipara	43	43
	Multipara	57	57
	Total	**100**	**100**
work	Bekerja	29	29
	Tidak Bekerja	71	71
	Total	**100**	**100**

Tablek. 2
Frequency Distribution of Food Intake

Food Intake	Category	Frequency (f)	Percentage (%)
Enery	Baik	46	46
	Cukup	39	39
	Kurang	15	15
	Total	**100**	**100**
Proteins	Baik	81	81
	Cukup	8	8
	Kurang	11	11
	Total	**100**	**100**
Fat	Baik	76	76
	Cukup	16	16
	Kurang	8	8
	Total	**100**	**100**
carbohydrates	Baik	13	13
	Cukup	58	58
	Kurang	29	29
	Total	**100**	**100**

Table. 3
Frequency Distribution of Occurrence of CED

CED	Frequency (f)	Percentage (%)
KEK	15	15%
Tidak KEK	85	85%
Jumlah	100	100%

2. Bivariat Analysis

Table. 3
Relationship between food intake and incidence of CED

Food Intake	CED		Not CED		Total		P *Value*
	f	%	f	%	f	%	
Energi							
Baik	0	0	46	100	46	100	**0.000**
Cukup	0	0	39	100	39	100	
Kurang	15	100	0	0	15	100	
Total	**15**		**85**		**100**		
Protein							
Baik	1	1,2	80	98,8	81	100	**0.000**
Cukup	4	50	4	50	8	100	
Kurang	10	90,9	1	9,1	11	100	
Total	**15**		**85**		**100**		
Lemak							
Baik	2	2,6	74	97,4	76	100	**0.000**
Cukup	5	31,3	11	68,8	16	100	
Kurang	8	100	0	0	8	100	
Total	**15**		**85**		**100**		
Karbohidrat							
Baik	0	0	13	100	13	100	**0.000**
Cukup	0	0	58	100	58	100	
Kurang	15	51,7	14	48,3	29	100	
Total	**15**		**85**		**100**		

According to table 1, almost all pregnant women are aged 17-35 years, namely 92%, for gestational age almost half are in trimester 2, namely 41%, for the last education half are in high school education, namely 50%, most of them become housewives (IRT), namely 71%. For UACmeasurements, almost all of them were measured ≥23.5, namely 85%. For IMT measurements, almost half were in the normal category, namely 45%. For income, most of them were in the low category, 53%. Most of the multiparous mothers were 57%

Table 2 states that almost half of pregnant women have a good level of energy intake category as many as 46 (46%), a good level of protein intake category as many as 81 (81%), a good level of fat intake category as many as 76 (76%), a level of carbohydrate intake with a sufficient category as many as 58 (58%)

Table 3 states that a small proportion of pregnant women experience CED, as many as 15 (15%).

Table 4 shows the significance value of food intake (protein, fat, carbohydrate, energy) which is a p value of 0.000 ($p < 0.005$) so that there is a significant relationship between food intake (energy, protein, fat, and carbohydrate) with the incidence of CED.

Discuss

Relationship between Food Intake and the Incidence of CED in Pregnant Women at Sugio Lamongan Health Center

With a p value of 0.000, the results of the Spearman Rank (Rho) test show that there is a significant relationship between CED in pregnant women at the Sugio Health Center and food intake. According to the data of 15 pregnant women suffering from CED, their energy intake decreased by 100% (15 people), their protein intake decreased by 90.9% (10 people), their fat intake decreased by 100% (8 people), and their carbohydrate intake decreased by 51.7% (15 people). From this data, it is clear that pregnant women who experience nutritional problems such as CED have inadequate food intake.

According to Kamila et al., (2024) stated that pregnant women with high family income conditions will find it easier to meet the needs of pregnancy and the nutrients needed by mothers and fetuses. while pregnant women with low family income conditions will have limitations in choosing foods with high nutritional value during pregnancy. (Kamila, 2024). According to the Ministry of Health (2019) Gestational age can affect maternal food intake, the greater the gestational age, the more nutritional needs increase (Kemenkes RI, 2019b). Half of the pregnant women at the Sugio health center had a high school education level. According to Molama et al (2022) a lower level of education will show how perceptions of newly introduced foods during pregnancy (Molama et al., 2022).

Poor nutritional intake will lead to deficiencies in other nutrients such as fat and protein. Lack of nutritional intake will lead to a lack of fat and protein which serve as energy sources. If energy intake is reduced, the body's fat reserves will be used for energy production (Dictara et al., 2020). According to the results of research conducted by Amin and Lestari (2017) stated that the protein intake of pregnant women is used for fetal life in the womb and maternal health. (Amin et al., 2017). Fat in pregnant women is used to build body tissues and functions, it is also a useful source of calories for women at risk of CED as it is important for hormone formation, cell membranes, brain development, and eye health especially during pregnancy (Gotri Marsedi S, Laksmi Widajanti, 2017). According to Bustan et al., (2021) states that carbohydrates function as a source of energy for fetal development and various changes that occur in the body. These changes include the provision of nutrients through the placenta, the formation of enzymes, the formation of new cells and

hormones that help fetal growth (Nurqadriyani Bustan et al., 2021).

Rahma et al. (2021) showed that energy expenditure and intake of nutrient fulfillment are not balanced, which can lead to chronic energy deficiency (CED) in pregnant women. Age, occupation, education, dietary intake, and parity are some of the other factors that contribute to CED (Ikhtirami et al., 2021). There are many causes of CED, including knowledge, education, income and dietary intake (Dafiu et al., 2017).

The results of the study most of the mother's age between 17-35 years, which is 92%. Fitri et al (2022) stated that maternal age can affect the incidence of CED in pregnancy. Mothers who have an age of 17 - 35 years of nutritional intake used to meet the needs of the body will be shared with the fetus (Fitri et al., 2022). The results of the study showed that most pregnant women had multiparous parity, which was 57%. According to Faozi (2022) in his research stated that most mothers who have never given birth or primipara found mothers who are KEK and BMI in the very thin category, but mothers who have given birth or multipara have a serious impact on maternal and infant health problems. Because pregnancy depletes a mother's reserves of energy, protein, and other nutrients, frequent pregnancy and childbirth increase her life needs, especially in terms of nutrition (Faozi et al., 2022).

Marsedi (2017) which states that there is a significant relationship between fat intake and CED with a p value of 0.000 (<0.05) (Gotri Marsedi S, Laksmi Widajanti, 2017). Anggoro (2020) which states that there is a significant relationship between diet (carbohydrates and protein) and Chronic Energy Deficiency (CED) with a p value of 0.000 (Anggoro, 2018). But this is not in line with research conducted by Dictara (2020) which states that there is no relationship between carbohydrate intake and the incidence of CED with a p value of 0.790 (Dictara et al., 2020). Usrina et al., (2021) stated that the need for food intake during pregnancy has increased where these needs are used by the mother and fetus. Insufficient food intake during pregnancy can cause a decrease in DNA and RNA nuclei and a decrease in fatty acid profiles. As a result, the transfer of nutrients from mother to fetus can be disrupted. This mechanism also leads to a decrease in brain size (Usrina et al., 2021)

It can be concluded that food intake is a major factor in assessing the nutrition of pregnant women. If the mother's food intake is lacking, the nutrients needed by the mother are not fulfilled, so that the supply of nutrients for the fetus is

hampered. The fetus needs nutrients to grow and develop. If the nutritional intake of the fetus is not met, the fetus will take nutrients that are in the mother's body. If the mother's supply is used continuously, nutrients such as protein, fat and carbohydrates found in the mother's muscles and liver will be converted into energy. If this happens, there will be muscle mass depletion which causes the UACmeasurement to be below 23.5. Weight gain during pregnancy is influenced by several factors, one of which is food intake, if the consumption of staple foods is reduced, the value of weight gain will decrease so that the BMI value will be low or below 18.5. If the value of UACand BMI is below normal, there will be CED in pregnant women. In addition, due to the increased demand during pregnancy, mothers with the same eating habits as before pregnancy have a higher risk of CED. SEVERITY that occurs in mothers during pregnancy has an impact on the fetus, mothers who experience SEVERITY during pregnancy are at risk of giving birth to stunted babies so that it will have an impact on the life of the fetus after birth, so it is necessary to prevent SEVERITY in pregnant women by applying good food intake even before pregnancy.

CONCLUSION

From the research that has been done, it can be concluded that most pregnant women have food intake in the good category, most of the pregnant women who are respondents do not experience CED, there is a relationship between food intake (Energy, Protein, Fat, Carbohydrates) with the incidence of CED in pregnant women at Sugio Lamongan Health Center.

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