

## ANALYSIS OF IRON TABLET CONSUMPTION ON CHRONIC ENERGY DEFICIENCY AND ANEMIA IN PREGNANT WOMEN IN THE WORKING AREA OF LABUHAN DELI PUBLIC HEALTH CENTER

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### ABSTRACT

Nutrition is a determining factor for the growth and development of pregnancy. Therefore during pregnancy, it is very important for the mother to fulfill nutritional intake. The main factor that causes Chronic Energy Deficiency (CED) in pregnant women is a lack of calories and protein for a long time (chronic), while the main cause of anemia is low intake of iron contained in food. The research design used is observational analytics with a cross sectional approach where the research location is in the working area of Labuhan Deli Public Health Center. The population in this study was 110 pregnant women recorded in the working area of Labuhan Deli Public Health Center, while the sample was 72 pregnant women whose gestational age was in the 2nd trimester, where the sampling technique was purposive sampling. After the data was collected, data analysis was carried out using the chi-square test. The results of data analysis of pregnant women in the working area of Labuhan Deli Public Health Center showed a significant relationship between regular consumption of iron tablets and the incidence of CED (p value = 0.003) and anemia (p value = 0.002). Pregnant women must regularly consume a balanced diet and iron tablets given by health workers since the second trimester.

**Keywords :** Iron tablets, CED, Anemia

## INTRODUCTION

Nutrition is a determining factor for the growth and development of pregnancy, if nutritional needs during pregnancy are not met, health problems will occur for the mother and fetus. One of the nutritional problems currently found in many pregnant women is Chronic Energy Deficiency (CED) and anemia (Purba, 2024). Chronic Energy Deficiency (CED) is characterized by LILA < 23.5 cm, thin physique, causing stunted fetal growth (IUGR), LBW and stunting (Vladimir, 2021; Adfar et al., 2022), while anemia is a condition in which red blood cells or hemoglobin (Hb) in the body decreases, which is characterized by Hb levels < 11 g/dl. This condition results in reduced oxygen transport throughout the mother's body and the fetus's vital organs (Dai, 2021; Farahdiba, 2021).

The main factor that causes CED is insufficient nutritional intake in pregnant for a long time (chronic), especially calories and protein (Simbolon & Batbual, 2019) and the main cause of anemia in pregnancy is low iron intake in daily food (Tampubolon et al., 2021). The results of research by Sandhi et al (2021) explain that there is a relationship between CED and the incidence of anemia in pregnant women ( $p=0.0002$ ), pregnant women with CED are 39 times more likely to suffer anemia when compared with pregnant women who not suffer CED. This is also supported by research by Hanum (2022) which explains that there is a relationship between the incidence of CED and anemia ( $p=0.005$ ).

Data on iron tablet coverage in North Sumatra province shows that pregnant women who received iron tablets in 2019 amounted to 242.787 (72.6%), in 2020 there were 254.608 (76.5%), in 2021 there were 254.261 (77.2%) and in 2022 there will be 238.392 (77.9%) (North Sumatra Provincial Health Service, 2023). Complications of CED and anemia also cause stunting in children. Based on SSGI (2021), the stunting

rate in Indonesia is 5.253.404 children under five (24.4%) and in 2022 there was 4.558.899 children under five (21.6%) (Munira, 2023). Based on a preliminary data survey conducted by researchers at the Labuhan Deli Health Center, in 2022 it was recorded that 41 of the 3941 toddlers were stunted (1.04%).

Basically, the North Sumatra Provincial government has implemented the supplementary food (PMT) in the form of biscuits for the pregnant women and iron tablets which are consumed from the second trimester of pregnancy, 90 tablets with a dose of 60 mg per day, given free of charge to prevent the occurrence of CED and anemia during pregnancy. This has been given to 11.487 CED pregnant women in North Sumatra, but only 11.357 (98.87%) consume PMT regularly and of the 332.810 pregnant women only 254.608 (76.5%) people receive iron tablets (North Sumatra Provincial Health Service, 2023).

Researchers conducted observations at the Labuhan Deli Community Health Center, there were still pregnant women who did not regularly consume iron tablets for various reasons, including: forgetting, feeling bored, not liking the taste and texture, and feeling nauseous after consuming them. Based on this phenomenon, researchers are interested in conducting "Analysis of Iron Tablet Consumption on Chronic Energy Deficiency and Anemia in Pregnant Women in the Working Area of Labuhan Deli Public Health Center".

## METHOD

The design used in this research is observational analytics with a cross sectional approach, where the independent variable is the administration of iron tablets and the dependent variables are CED and anemia. The research location is in the Working Area of Labuhan Deli Public Health Center. The population in this study was 110 pregnant women registered in the Labuhan Deli Community Health Center, while the sample was 72 pregnant women who in accordance with the inclusion criteria: 2nd trimester gestational age (13-27 weeks) with a purposive sampling technique. The validity test of the instruments used in this research

was carried out on pregnant women at the Batang Kuis Health Center. The r table value obtained = 0.632, while the reliability test is Cronbach's alpha = 0.980 (Ghozali, 2011). Before collecting data, researchers carried out ethical procedures and obtained an ethical certificate with number 2237/F/KEP/USM/VII/2023. After the researcher had finished collecting data, the variables were analyzed statistically using the chi-square test with a CI of 95%.

## RESULT AND DISCUSSION

After the data was obtained, statistical analysis was carried out and the following results were obtained:

**Table 1. Relationship Between Consumption of Iron Tablet Consumption and CED**

Consumption Iron Tablet	Status KEK				Total	<i>p</i>	
	CED		Not CED				
	n	%	n	%			
Reguler	6	8.3	5	6.9	11	15.3	0.003
Irreguler	7	9.7	54	75.0	61	84.7	
Total	13	18.1	59	81.9	72	100	

Based on table 1, data shows that of the 11 respondents who did not regularly consume iron tablets, 6 people (8.3%) had CED and 5 people (6.9%) did not have CED. Meanwhile, of the 61 respondents who regularly consumed iron tablets, 7 people (9.7%) had CED and 54 people (75.0%) did not have CED.

Based on the results of statistical tests using chi-square, the data showed that the p value = 0.003 < 0.005, which means there is a significant relationship between the consumption of iron tablets and the incidence of CED in the Working Area of Labuhan Deli Public Health Center.

**Table 2. Relationship Between Consumption of Iron Tablets and Anemia**

Consumption Iron Tablet	Status Anemia				Total	p	
	Anemia		Not Anemia				
	n	%	n	%			
Reguler	6	8.3	5	6.9	11	15.3	0.002
Irreguler	6	8.3	55	76.4	61	84.7	
Total	12	16.7	60	83.3	72	100	

Based on table 2, data shows that of the 11 respondents who did not regularly consume iron tablets, 6 people (8.3%) were anemic and 5 people (6.9%) were not anemic. Meanwhile, of the 61 respondents who regularly consumed iron tablets, 6 people (8.3%) were anemic and 55 people (76.4%) were not anemic. Based on the results of statistical tests using chi-square, data showed that the p value = 0.002 < 0.005, which means there is a significant relationship between consumption of iron tablets and the incidence of anemia at the Labuhan Deli Health Center.

Iron tablets are given to pregnant women as many as 90 tablets (for 3 months) during pregnancy at a dose of 60 mg per day. Pregnant women are advised to continue consuming iron tablets regularly to meet their iron needs during pregnancy. The mother's need for iron during pregnancy is around 800 mg, of which 300 mg will be obtained by the fetus through the mother and 500 mg to increase hemoglobin in the mother (Ministry of Health of the Republic of Indonesia, 2018b). If iron needs during pregnancy are not met, it will have a negative impact on the health of the mother and the fetus she is carrying. Therefore, iron tablets are given to pregnant women from the second trimester of pregnancy with the aim that pregnant women are not anemic (Purba, et, al 2023). The iron tablets given contain 200 mg ferrous sulfate or the equivalent of 60 mg elemental iron and 0.25

mg folic acid (Nuraisya et al., 2019).

However, this is different from the research results which showed that there were 61 respondents (84.7%) who regularly consumed iron tablets and 11 people (15.3%) who did not regularly consume iron tablets. The results of this research show that respondents in the Labuhan Deli Health Center have not complied with the consumption regulations from the Ministry of Health, where there are still pregnant women who do not regularly consume iron tablets.

From the results of the researchers' observations, the reasons why pregnant women routinely consume iron tablets are : after receiving information from health workers and other sources such as social media that iron tablets are very good for increasing blood, thus increasing Hb levels. Apart from that, pregnant women do not feel weak, tired, lethargic, have dizzy eyes, and their pregnancy remains healthy, avoiding anemia and various complications both during pregnancy, childbirth and the postpartum period.

Consuming iron tablets can prevent CED during pregnancy because 1 iron tablet contains 200 mg of ferrous fumarate (Fe 60 mg) and 0.25 mg of folic acid. Research conducted by Martha & Hayati (2020) shows that pregnant women with CED will have a 1.7 times greater risk of anemia compared to pregnant women who not have CED, meaning that if pregnant women

consume iron tablets regularly, their Hb levels will increase and have an impact also for CED. Lestari's research (2019) explains that giving iron tablets to pregnant women has been carried out by health workers in the Labuhan Deli Community Health Center, but there are still pregnant women who do not consume them regularly because pregnant women feel bored and don't like the taste of iron tablets, often forget because of the busy household, and there are also pregnant women who don't want to take iron tablets at all because of side effects such as nausea, dizziness and constipation.

Constipation occurs after consuming iron tablets because iron tablets contain cupric sulfate and manganese sulfate as biocatalysts or enzymes that play a role in the body's metabolic processes and stimulate the blood-forming tissue in the body. The process of stimulating the blood-forming tissue causes the hormone progesterone to increase. This increase in the hormone progesterone slows down the process of moving food in the digestive tract so that feces tend to be harder and difficult to pass (Yunita, 2018).

The condition that aggravates the situation of pregnant women at the Labuhan Deli Community Health Center is the KEK nutritional status, plus during pregnancy there are physiological changes in pregnancy which cause physiological anemia. Even though iron tablets are given, they cannot provide maximum improvement in nutritional status. Therefore, pregnant women from the first trimester should consume foods that contain balanced or varied nutrition to increase nutritional intake in the body, and to increase iron through consuming foods that contain sufficient calories, as well as increasing the availability of foods that contain iron. Apart from that, it is important to avoid foods that can inhibit the absorption of iron in the body (Kurniasih et al., 2020).

## CONCLUSION

In this research, it was concluded that giving iron tablets which were consumed regularly by pregnant women in the Labuhan Deli Health Center had a significant correlation with CED ( $p$  value = 0.003) and anemia ( $p$  value = 0.002). Therefore, it is important for pregnant women to fulfill their nutritional intake by consistently consuming foods with a balanced menu. Apart from that, pregnant women are advised to regularly consume iron tablets which have been given since the second trimester, one tablet per day and should not be consumed simultaneously with coffee and tea, and to consume them at night before bed so that side effects can be avoided.

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