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Description of Pregnant Women's Nutritional Status Based on The Mid-Upper Arm Circumference in Sundari Medan General Hospital In 2019

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Abstract. Introduction. Chronic energy deficieny (CED) is a condition of a body characterized by low body weight and low energy stores, possibly limited physical capacity due to deprivation of food over a long period time. Ministry of Health (Kemenkes) showed that in 2015, 305 out of 100.000 death of pregnant women is realated to malnutriotion and CED. **Objective**. The aim of this study is to determine the overview of pregnant women nutritional status based on mid-upper arm circumference (MUAC) in Sundari Medan General Hospital. **Method.** The study was an observational descriptive study with a cross sectional design. The samples of this study consists of pregnant women from Sundari Medan Genaral Hospital, who had fulilled the inclusion and esclusion criteria by total sampling. **Results.**. Among 60 samples, the prevalance of Non-CED woman (85%) was found higher than the mild malnutrition (15%). **Conclusion.** Prevalance of CED pregnant women was found higher in risky age, middle educated and high income family.

Keyword: *Age*, CED, *Education, Income*, MUAC, *Nutritional status, Pregnant woman*

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1 Introduction

In 2015, approximately 303.000 women died because of pregnancy and almost all the cause of death can be prevented with good ante-natal care.[1]. In 2015, 305 out of 100.000 death of pregnant women is related to malnutrition and Chronic energy deficieny (CED) [2]. The Indonesia Ministry of health stated all women during pregnancy must at least have 4 times ante-natal care based on Mother and Child Health Service Guideline [3].

In Indonesia, the cause of mortality mother and child is nutrition problem and can be prevented. Women during pregnancy with CED can cause anemia, low birth weight (LBW), Intrauterine growth restriction (IUGR) and many other health problem related to nutrition intake[4]. Low Birth

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Weight incidence most commonly happened in develop country [5]. Women with CED are 4,8 times more at risk of Low Birth Weight than women with good nutrition status[6].

Mid-Upper Arm Circumference (MUAC) is used to determine the risk of CED in pregnant women. Body-mass index cannot be used to be indicator to determine the risk of CED in pregnant women because of many factor affecting [7]. MUAC is more relative stable than IMT to measure the nutritional status and the risk of CED in pregnant women. [8].

2 Methodology

The study was an observartional descriptive study with cross sectional approach. This study was conducted at Sundari Genaral Hospital Medan in August 2019 to September 2019 with the target population all pregnant women visit for Ante-natal Care (ANC). Sampling method is consecutive sampling in accordance with the criteria of inclusion and exclusion, where the samples are taken in the order of coming to meet the minimum numbers of samples.

Determination of sample size in research use the formula:

$$\text{n} = \frac{Z\alpha^2 \times P \times Q}{d^2}$$

Information :

n = minimum number of samples that is required

$Z\alpha$ = research power with α (1,96)

P = Prevalence = 17,3% (Prevalance pregnant women with CED, RISKESDAS 2018)

Q = 1 – P = 1 – 0,173 = 0,827

D = fault tolerance (0,05)

The minimun number of samples from this study is 60 people. Sampling using consecutive samplng techniques. The research tool used was the Mid-Upper Arm Circumferance (MUAC) Measurment tape and the subject data were obtained using worksheet with data collection using cross sectional techniques and conducting interviews. Based on Kemeskes RI 2014, sample with MUAC below 23,5 cm is determine CED risk [2].

3 Result

Table 1 show that, Among 60 samples, the prevalance of non-CED woman (85%) was found higher than the mild malnutrition (20%). In tabel 2, The result of this study also shown the overview of non-CED pregnant women each one with the higher proportion in the group of less-risk age than the risky age. As Shown in tabel 3, Based on education, the prevalence of non-CED pregnant woman was found higher with secondary education (50%) than in pregnant woman with

primary education (10%) and higher education (25%). Tabel 4 show that, Non-CED pregnant women was found higher in high income family (63,3%) than low income family (21,7%).

Table 1. Nutritional Status Based on MUAC

Nutritional Status	Frequency (n)	Persentasi (%)
Non-CED	51	85,0
CED	9	15,0
Total	**60**	**100,0**

Table 2. Nutritional Status Distribution Based On Age

Nutritional Status	Age				Total	
	Less Risky Age		Risky Age			
	n	%	n	%	n	%
Non-CED	42	70%	9	15%	51	85%
CED	9	15%	0	0%	9	15%
Total	**51**	**85%**	**9**	**15%**	**60**	**100%**

Table 3. Nutritional Status Distribution Based On Education

Nutritional Status	Education						Total	
	Basic Education		Middle Education		High Education			
	n	%	n	%	n	%	n	%
Non-CED	6	10,0%	30	50,0%	15	25.0%	51	85,0%
CED	0	0,0%	7	11,7%	2	3,3%	9	15,0%
Total	**6**	**10,0%**	**37**	**61,7%**	**17**	**28,3%**	**60**	**100,0%**

Table 4. Nutritional Status Distribution Based On Family Income

Nutritional Status	Family Income				Total	
	Low-Income		High Income			
	n	%	n	%	n	%
Non-CED	13	21,7%	38	63,3%	51	85,5%
CED	2	3,3%	7	11,7%	9	15,0%
Total	**15**	**25,0%**	**45**	**75,0%**	**60**	**100,0%**

4. Discussions

In this study, there are 51 pregnant women with non-CED (85%) and 9 pregnant women with CED risk (15%). 42 patients with non-CED risk derive from low risk group of age. Based on the table 2, the finding on this study 9 women with CED risk is pregnant women with low risk age but based on study conducted in Gorontalo by Ismail, the best age for women to get pregnant is between 25-35 years old to decrease the risk of CED [9].

Table 3 shows that there are 9 pregnant women with CED risk, 2 of them with high education (3,3%) and 7 of them are middle education (11,7%). The result show that pregnant women with middle education is found higher CED risk tharn the women with High education. This result is similar to study conducted in Padang in which People with higher education attend to be more aware about nutritional status and able to understand the importance. [10] Mahirawati stated, pregnant women with high education but low family income could cause CED because of low ability to full fill the nutrtion in term of quantitiy and quality[11].

Based on family income, table 4 shows that there are 2 pregnant women with low family income (3,3%) and 7 of them are with high family income (11,7%) are risk with CED. Women and family with higher income should be able to fufill daily basic needs but based on Soraya, age, education, family income and information can affecting people knowledge. Local culture can also affecting people ability to accept and understand information.[10]

Limitations to this study were: (1) sample size of the study was not equal, (2) Many other factors affecting Nutritional status other than age, education and family income.

5. Conclusions

Based on the result of data analysis on this study, it could be concluded that CED pregnant woman were higher with low risk age, middle education and high income family.

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