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### Factors Associated with The Incidence of Chronic Energy Deficiency (CED) n Third Trimester Pregnant Women In The Working Area of The Lubuk Begalung Health Center, Padang City

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#### ABSTRACT

**Background**: The World Health Organization (WHO) reports a global prevalence of Chronic Energy Deficiency (CED) in pregnancy ranging from 35-75%. In Padang City's Lubuk Begalung Region, the 2022 health profile indicated a 12.9% incidence of CED among 1,268 pregnant women. Several factors influence CED incidence, including age, economic status, education, pregnancy spacing, parity, employment, and antenatal care (ANC) visits.

**Purpose**: To identify factors associated with CED among third-trimester pregnant women in the Lubuk Begalung Health Center Working Area.

**Methods**: This cross-sectional analytical study involved 57 respondents selected through simple random sampling. Inclusion criteria were third-trimester pregnant women aged 24-40 weeks who could communicate effectively, excluding those who could not be contacted after three attempts. Data collection involved interviews using a structured questionnaire, and analyses were performed using chi-square and logistic regression with a 95% confidence interval.

**Results**: CED was observed in 21 respondents (36.8%). Key factors included age <20 or >35 years (59.3%), low economic status (55.0%), low education level (53.8%), unemployment (51.5%), and  $\leq$ 3 ANC visits (56.5%). Age was the dominant factor (p = 0.005, b = 6.623).

**Conclusion**: Age, education, occupation, and ANC visits were significantly associated with CED, while economic status, pregnancy spacing, and parity were not. Future studies should explore additional factors influencing CED.

Keywords: Chronic Energy Deficiency; Pregnant Women; Factor; Health Center

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#### BACKGROUND

One of the goals of the 2025 international SDGs is to eliminate hunger and malnutrition. Achieving this goal involves addressing undernutrition among adolescent girls, pregnant and lactating women, and the elderly. In the SDG goals for 2015-2030, the national target for women with CED is 5%, so the target for women without CED is 95% (WHO 2016).

Chronic Energy Deficiency (CED) is a nutritional problem in pregnant women caused by prolonged lack of nutritious food. Pregnant women with this risk are pregnant women who have an upper arm circumference  $\leq 23.5$  cm (Suranny and Maharani 2021).

The World Health Organization (WHO), reports that the prevalence of Chronic Energy Deficiency (CED) in pregnancy globally ranges from 35-75%. WHO also notes that 40% of maternal deaths in developing countries are related to chronic energy deficiency (Mlotshwa, Manderson, and Merten 2017). Based on the results of the Basic Health Research in 2018, the prevalence of CED among pregnant women aged 15 - 49 years was 17.3%. This result shows that the prevalence of CED risk in pregnant women is still quite high (World Health Organisation 2015). Based on data obtained from the results of the Basic Health Research of West Sumatra Province in 2018, it was found that the incidence of chronic energy deficiency in pregnant women in the West Sumatra region was 16.67% (Allahdadian et al. 2015).

Data from the health profile of Padang City in 2022, states that of the 23 health centers in Padang City, there are three health center working areas that have the highest number of pregnant women with CED, namely Puskesmas Belimbing as much as 12.5% of 1,339 pregnant women, Puskesmas Lubuk Begalung as much as 12.9% of 1,268 pregnant women and Puskesmas Lubuk Kilangan as much as 9.8% of 1,099 pregnant women (Novelia, Shinta, and Annisa 2021).

There are several factors that can cause a mother to experience CED during her pregnancy, namely the age of the pregnant woman, economic status, education level of the pregnant woman, pregnancy distance, parity, history of infectious diseases, nutrient intake and others (Sari and Rahmawati 2021).

Chronic energy deficiency in pregnant women can affect the mother during labor, which can lead to prolonged and uneventful labor, imminent prematurity, postpartum hemorrhage, and increased cesarean section. Chronic energy deficiency pregnant women can also experience congenital abnormalities, low birth weight (LBW), anemia, intrauterine fetal death (IUFD), or even intrauterine growth retardation (IUGR) (Dormian Sinaga, Purwarini, and Dewi Anggraeni 2020).

Based on the description above, the authors are interested in conducting research on factors associated with the incidence of Chronic Energy Deficiency in pregnant women in the Lubuk Begalung Health Center area in Padang City.

#### **OBJECTIVE**

The study aims to determine the factors associated with the incidence of CED in third trimester pregnant women in Lubuk Begalung Health Center Working Area.

#### **METHODS**

This type of research is analytic research, which is research that aims to determine the relationship between one variable and another, using a cross sectional approach. This research was conducted at Lubuk Begalung Health Center, Padang City, West Sumatra. The population of this study were all third trimester pregnant women in the Lubuk Begalung Health Center working area from January 2023 - March 2024, totaling 807 people. This study used the minimum sample size with the Lemeshow formula so that the sample in this study was 57 people with the sampling technique used in this study was the Simple Random Sampling technique, namely all pregnant women in trimester 3 had the same opportunity to become a research sample. Inclusion criteria : Pregnant women who are eligible for responden, Pregnant women who are trimester 3 with a gestational age of 24 - 40 weeks, and Pregnant women who are able to communicate properly. Exclusion criteria : Pregnant women who cannot be contacted 3 times. In this study, the instruments used were primary data obtained from questionnaires to determine the identity of respondents and secondary data obtained from maternal cohort books in the Lubuk Begalung Health Center Working Area of Padang City. After the questionnaire is filled in, the researcher will begin to process the data using SPSS.

Univariate analysis was used to see the frequency distribution of age, economic status, education level, pregnancy spacing, parity, employment, ANC visits and chronic energy deficiency. Bivariate analysis was used to see the relationship between the independent variables and the dependent variable. Multivariate analysis was used to see which independent variable had the most dominant influence on the dependent variable.

#### RESULTS

Table 1. Frequency Distribution of Age, Economic Status, Education Level, PregnancySpacing, Parity, Occupation, ANC Visits and Incidence of CED.

Variables	f	Percentage (%)
Age		
Risky	27	47,4
Not Risky	30	52,6
Economic Status		
Low	20	35,1
High	37	64,9
Education Level		
Low	26	45,6
High	31	54,4
Pregnancy Spacing		
Risky	24	42,1
Not Risky	33	57,9
Parity		
Risky	22	38,6
Not Risky	35	61,4

Occupation		
Not Working	33	57,9
Working	24	42,1
ANC Visits		
$\leq$ 3 times	23	40,4
> 3 times	34	59,6
Incidence of CED		
Yes	21	36,8
No	36	63,2

Based on table 1 above shows that of the 57 respondents sampled, there were 30 people (52.6%) with an age category that was not at risk, there were 37 people (64.9%) with high economic status, 31 people (54.4%) with a high level of education, 33 people (57, 9%) with a category of pregnancy spacing that is not at risk, 35 people (61.4%) with parity that is at risk, 33 people (57.9%) who do not work, 34 people (59.6%) with ANC visits that are> 3 times, and 21 people (36.8%) who experience CED, and 36 people (63.2%) who do not experience CED.

Tabel 2. Relationship between age and the incidence of CED among third trimester pregnant women in the working area of Puskesmas Lubuk Begalung Padang City

Incidence of CED								
	Yes		No		Total		P-value	
Age	f	%	f	%	f	%		
Risky	16	59,3	11	40,7	27	100		
Not Risky	5	16,7	25	83,3	30	100	0,002	
Total	21	36,8	36	63,2	57	100		

Based on table 2, the incidence of CED in pregnant women was greater in pregnant women with an at-risk age, namely 16 respondents (59.3%) compared to pregnant women with an age that was not at risk, namely 5 respondents (16.7%). Based on the statistical test results of the chi-square test, the p-value =  $0.002 (\leq 0.05)$ , so there is a significant relationship between age and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City. Table 3. Relationship between Economic Status and the incidence of CED in third trimester pregnant women in the working area of Puskesmas Lubuk Begalung Padang City.

Incidence of CED							
Economic Status	Yes		No		Total		Dunkus
	f	%	f	%	f	%	P-value
Low	11	55,0	9	45,0	20	100	
High	10	27,0	27	73,0	37	100	0,072
Total	21	36,8	36	63,2	57	100	

Based on table 3, the incidence of CED in pregnant women was greater in pregnant women with low economic status, namely 11 respondents (55.0%) compared to pregnant women with high economic status, namely 10 respondents (27.0%). Based on the statistical test results of the chi-square test, the p-value = 0.072 (> 0.05), so there is no significant relationship between economic status and the incidence of CED in third

trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City.

Table 4. Relationship between education level and the incidence of CED among third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

Incidence of CED							
Education Long	Yes No		Total		P-value		
Education Level	f	%	f	%	f	%	
Low	14	53,8	12	46,2	26	100	
High	7	22,6	24	87,4	31	100	0,031
Total	21	36,8	36	63,2	57	100	

Based on table 4, the incidence of CED in pregnant women is greater in pregnant women with low education levels, namely 14 respondents (53.8%) compared to pregnant women with high education levels, namely 7 respondents (22.6%). Based on the statistical test results of the chi-square test, the p-value = 0.031 ( $\leq 0.05$ ), so there is a significant relationship between the level of education and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City.

Table 5. Relationship between the distance of pregnancy and the incidence of CED among third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City

Incidence of CED							
Drognon or Spacing	Yes No		No	Total		Develope	
Pregnancy Spacing	f	%	f	%	f	%	P-value
Risky	9	37,5	15	62,5	24	100	
Not Risky	12	36,4	21	63,6	33	100	1,000
Total	21	36,8	36	63,2	57	100	

Based on table 5, the incidence of CED in pregnant women was greater in pregnant women with non-risky pregnancy spacing, namely 12 respondents (36.4%) compared to pregnant women with risky pregnancy spacing, namely 9 respondents (37.5%). Based on the statistical test results of the chi-square test, the p-value = 1.000 (> 0.05), so there is no significant relationship between pregnancy distance and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

Table 6. Relationship between parity and the incidence of CED among third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City.

Incidence of CED							
Parity	Yes			No		otal	Durlare
	f	%	f	%	f	%	P-value
Risky	12	54,5	10	45,5	22	100	
Not Risky	9	25,7	26	74,3	35	100	0,056
Total	21	36,8	36	63,2	57	100	

Based on table 6, the incidence of CED in pregnant women was greater in pregnant women with at-risk parity, namely 12 respondents (54.5%) compared to pregnant women with non-risk parity, namely 9 respondents (25.7%). Based on the statistical test results of the chi-square test, the p-value = 0.056 (> 0.05), so there is no significant relationship between parity and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City.

Table 7. Relationship between occupation and the incidence of CED among third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City

Incidence of CED							
0	Yes		No		Total		P-value
Occupation	f	%	f	%	$\mathbf{F}$	%	
Not Working	17	51,5	16	48,5,0	33	100	
Working	4	16,7	20	83,3	24	100	0,016
Total	21	36,8	36	63,2	57	100	

Based on table 7, the incidence of CED in pregnant women is greater in the percentage of pregnant women who do not work, namely 17 respondents (51.5%) compared to pregnant women who work, namely 4 respondents (16.7%). Based on the statistical test results of the chi-square test, the p-value =  $0.016 (\leq 0.05)$ , so there is a significant relationship between work and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

Table 8. Relationship between ANC visits and the incidence of CED among third trimester pregnant women in the working area of the Lubuk Begalung Community Health Center, Padang City.

Incidence of CED							
	Yes			No		otal	P-value
ANC VISITS	f	%	f	%	f	%	
$\leq$ 3 times	13	56,5	10	43,5	23	100	
> 3 times	8	23,5	26	76,5	34	100	0,024
Total	21	36,8	36	63,2	57	100	

Based on table 8, the incidence of CED in pregnant women was greater in pregnant women with ANC visits  $\leq 3$  times, namely 13 respondents (56.5%) compared to pregnant women with ANC visits > 3 times, namely 8 respondents (23.5%). Based on the statistical test results of the chi-square test, the p-value = 0.024 ( $\leq 0.05$ ), so there is a

significant relationship between ANC visits and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

Step	Variable	р	<b>(B)</b>	CI (95%)
Step 1	Age	0,050	4,350	0,998-18,958
	Economic status	0,547	1,564	0,365-6,690
	Education level	0,546	1,581	0,357-6,991
	Parity	0,315	2,067	0,501-8,518
	Occupation	0,265	2,380	0,518-10,923
	ANC visits	0,264	2,166	0,557-8,419
Step 2	Age	0,044	4,533	1,044-19,686
	Education level	0,436	1,767	0,422-7,397
	Parity	0,296	2,121	0,518-8,685
	Occupation	0,200	2,650	0,598-11,741
	ANC visits	0,300	2,043	0,529-7,892
Step 3	Age	0,010	5,864	1,537-22,376
	Parity	0,291	2,145	0,521-8,832
	Occupation	0,175	2,793	0,632-12,340
	ANC visits	0,329	1,960	0,508-7,568
Step 4	Age	0,005	6,535	1,751-24,394
	Parity	0,195	2,469	0,629-9,694
	Occupation	0,121	3,151	0,737-13,467
Step 5	Usia	0,005	6,263	1,736-22,600
	Occupation	0,035	4,367	1,112-17,140

Table 9. Logistic Regression Test Results Factors associated with the incidence of CED in third trimester pregnant women in the Lubuk Begalung Health Center working area.

After statistical testing of multivariate analysis in table 9, the most dominant variable on the incidence of CED in third trimester pregnant women is age with p value =  $0.005 (\leq 0.05)$  and coefficients (b) 6.623.

#### DISCUSSION

Based on the results of research from 57 respondents who were sampled, there were (36.8%) pregnant women who experienced the incidence of CED and there were (63.2%) pregnant women who did not experience the incidence of CED. This shows that the incidence of CED in the Lubuk Begalung Health Center working area, which is 36.8%, still has a fairly high percentage compared to the incidence of CED in the West Sumatra region of 16.67% and compared to the national target of pregnant women with CED in SDG goals which is 5%.

# The relationship between age and the incidence of CED in third trimester pregnant women

In this study, the incidence of CED in pregnant women was greater in respondents with age at risk (59.3%) compared to respondents with age who were not at risk (16.7%) with a p-value = 0.002 ( $\leq 0.05$ ), so it can be interpreted that there is a significant

relationship between age and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Elvi Sulastri (2023) on factors associated with the incidence of chronic energy deficiency (CED) in pregnant women at the Keramasan Health Center in 2022 which explained that of the 35 respondents who experienced the incidence of CED, there were 24 respondents (57.1%) with high risk age, namely age <20 years and >35 years, and there were 11 respondents (30.6%) with low risk age, namely age 20-35 years. Based on the results of the chi-square test obtained a p-value of 0.034 (Novelia and Annisa 2021).

A pregnant woman can be considered too young to be pregnant if she is < 20 years old and too old to be pregnant if she is > 35 years old. A healthy maternal age for pregnancy is between 20 and 35 years old. Pregnant mothers with too young an age can affect hormonal factors that are not yet optimal and unprepared to face pregnancy, so getting pregnant at too young an age can have an impact on the mental health of pregnant women. Older pregnant women experience decreased reproductive organ function due to decreased levels of the hormone estrogen, which can have an impact on pregnancy, one of which can cause chronic energy deficiency in the mother during her pregnancy (Suranny and Maharani 2021).

According to researcher's analysis, pregnancy in mothers who are still <20 years old can be at risk of experiencing the incidence of CED during their pregnancy, this is because the mother's reproductive system is still immature so that if the mother experiences pregnancy, the nutrients that should only be for the mother will also be divided into the fetus she is carrying. Likewise with mothers whose age is> 35 years, in general, mothers with age> 35 years have begun to experience a decline in health, one of which is nutritional problems so that at this age the mother also needs good nutrition in order to meet the nutritional needs for the health of her body, therefore this can be a trigger for a pregnant woman with a young or older age to experience the incidence of CED during her pregnancy.

# Relationship between economic status and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was greater in respondents with low economic status (55.0%) compared to respondents with high economic status (27.0%) with a p-value = 0.072 (> 0.05), so it can be interpreted that there is no significant relationship between economic status and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Rostania (2022) on the Relationship between Diet and Socioeconomic Status with the Incidence of Chronic Energy Deficiency which explains that of the 18 respondents who experienced the incidence of CED in their pregnancy, there were 17 respondents (59%%) with less economic status who experienced the incidence of CED compared to 1 respondent (3%) with sufficient economic status who experienced the incidence of CED. Based on the results of the chi-square test, the p-value was 0.621 (Chowdhury, Islam, and Biswas 2022; Sinaga, Purwarini, and Anggraeni 2020).

Pregnant women with high economic status will most likely be able to conduct prenatal check-ups to monitor the nutrition of pregnant women and meet the nutritional needs and hygiene of the food consumed by mothers during their pregnancy, while pregnant women with low economic status usually do not pay much attention to the nutritional needs and hygiene of the food consumed by pregnant women, so pregnant women can be at risk of diseases and other problems in their pregnancy (Shitie, Zewde, and Molla 2018).

According to researcher's analysis, health needs such as the fulfillment of health facilities and nutritional needs of mothers during pregnancy can be fulfilled if the family has good economic capabilities and the higher the economic status of the family, the more the fulfillment of needs in the family for food. Based on the results of the study, there is no significant relationship between economic status and the incidence of CED in pregnant women, this is because in addition to economic status there are also other factors that can affect the incidence of CED in pregnant women, such as age, education level, occupation or ANC visits during pregnancy.

# Relationship between education level and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was greater in respondents with low education levels (53.8%) compared to respondents with high education levels (22.6%) with a p-value = 0.031 ( $\leq$  0.05), so it can be interpreted that there is a significant relationship between education level and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Community Health Center, Padang City.

In line with research by Temu Herawati (2024) on Factors Associated with the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women who explained that of the 31 respondents who experienced the incidence of CED in their pregnancy, there were 18 respondents (78.30%) with low education and there were 13 respondents (39.40%) with higher education. Based on the results of the chi-square test obtained a p-value of 0.009 (Suranny and Maharani 2021).

Education can also affect the incidence of CED in pregnant women because a higher level of education will make it easier to absorb information about health and nutrition to be applied in daily behavior and lifestyle.

According to researcher's analysis, the level of education of a mother can affect the success of a mother in her pregnancy. Mothers with low levels of education usually lack information and knowledge related to nutrition during pregnancy and the lower the level of education of a mother, the mother's ability to absorb information will also be low. However, the higher the mother's education level, the easier it will be for the mother to get information and be able to implement it in daily life.

# Relationship between pregnancy spacing and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was found that respondents with pregnancy spacing were not at risk (36.4%) compared to respondents with risky pregnancy spacing (37.5%) with a p-value = 1.000 (> 0.05), so it can be interpreted that there is no significant relationship between pregnancy spacing and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Deah Oktavia (2023) on Risk Factors for Chronic Energy Deficiency (CED) in Pregnant Women at the Gunung Anyar Surabaya Health Center which explains that of the 28 respondents studied there were 19 respondents who experienced the incidence of CED during their pregnancy. And of the 19 respondents who experienced the incidence of CED, there were 18 respondents (64.3%) with non-risky pregnancy spacing and 1 respondent (50%) with risky pregnancy spacing. Based on the results of the chi-square test obtained a p-value of 1.000 (>0.05) (Ban Ki-moon and Organization 2016).

The purpose of spacing pregnancies is to give the mother's body enough time to recover from the previous pregnancy. The mother's health will decline if the pregnancies are too close together because the body does not have the opportunity to return to its original condition. Because the body's nutrient reserves have been depleted, the mother also does not have enough energy to speed up the recovery process (Hall and Jolly 2014).

According to researcher's analysis, in the results of this study, the distance of pregnancy did not have a significant relationship with the incidence of CED in pregnant women. This is not in line with several theories that say that pregnancy spacing is one of the factors causing the incidence of CED in pregnant women. Pregnant women with a pregnancy spacing of < 2 years can cause CED because with a pregnancy spacing of < 2 years the mother's womb has not fully returned to normal. However, this pregnancy spacing factor does not affect mothers with their first pregnancy / primigravida, mothers who are pregnant for the first time indicate that the mother has never been pregnant before so there is no distance between the current pregnancy and the previous pregnancy, therefore the pregnancy spacing factor cannot be one of the causes of primigravida mothers experiencing the incidence of CED in their pregnancy.

# Relationship between parity and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was higher in respondents with at-risk parity (54.5%) than respondents with non-risk parity (25.7%) with a p-value = 0.056 (> 0.05), so it can be interpreted that there is no significant relationship between parity and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Rahmat Nurwan Nugraha (2019) on the Relationship between Pregnancy Distance and Number of Parities with the Incidence of Chronic Energy Deficiency (CED) which explains that of the 34 respondents, there were 19 respondents (55.9%) with parity who were at risk of experiencing the incidence of CED, there were 15 respondents (44.9%) with parity who were at risk of experiencing the incidence of cED. Based on the results of the chi-square test, the p-value is 0.968 (>0.05).

Pregnancies that are too frequent can cause malnutrition because the body's nutrient reserves have been depleted and the reproductive organs have not returned to their ideal condition as before pregnancy. When someone gives birth too many times, their body organs, especially their reproductive organs, will not be optimal. The body in this condition desperately needs energy to repair it or even to maintain its body condition. However, when the body needs a lot of energy, pregnant women have to share that energy with the fetus, so this will cause chronic energy deficiency in pregnant women (Darulis, Kundaryanti, and Novelia 2021).

According to researcher's analysis, mothers who have given birth with a large number of children will also have more needs, especially in terms of nutritional needs. Mothers who have many children with low economic conditions will have difficulty paying attention to themselves because mothers will prioritize meeting the needs of their children first (Boelig et al. 2017). In this study, nulliparous mothers are also at risk of experiencing the incidence of CED during their pregnancy, this is because this is the first pregnancy for a nulliparous mother so that the mother does not have much experience related to pregnancy. However, based on the results of the study, there is no significant relationship between parity and the incidence of CED in pregnant women, this is because there are pregnant women who experience CED as a result of being influenced by other

### Relationship between occupation and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was greater in percentage in respondents who did not work (51.5%) compared to respondents who worked (16.7%) with a p-value = 0.016 ( $\leq 0.05$ ), so it can be interpreted that there is a significant relationship between work and the incidence of CED in third trimester pregnant women in the working area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Uswatun Hasanah (2023) on the Relationship between Education and Employment with the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women at the Putri Ayu Health Center in Jambi City which explains that of the 27 respondents who experienced the incidence of CED during their pregnancy, there were 15 respondents (24.6%) who did not work and there were 12 respondents (19.7%) who worked. Based on the results of the chi-square test, the p-value is 0.046.

When compared to housewives, working women have a better understanding of how to manage the workload they receive and can do so more easily than housewives because they have access to information through the media so that mothers can learn more, and mothers can earn money from their work, which allows them to better meet their needs.

According to researcher's analysis, not only working mothers but non-working mothers also have a large workload, taking care of family members and doing all the housework is something that is always taken care of by a non-working mother. Working women also actually have the same tasks as housewives, but the difference is that working mothers have a better understanding of how to manage their workload and their ability to save time so that they can do their work more easily than housewives. Working mothers can usually improve their knowledge related to pregnancy due to experience and association and have extensive connections, making it easier for mothers to get information related to pregnancy. As well as working mothers, having their own income makes it easier for mothers to meet their own needs without depending on the income generated by their husbands.

# Relationship between ANC visits and the incidence of CED in third trimester pregnant women

Based on the results of the study, it was found that the incidence of CED in pregnant women was greater in percentage in respondents with ANC visits  $\leq 3$  times (56.5%) compared to respondents with ANC visits > 3 times (23.5%) with a p-value =

 $0.024 (\leq 0.05)$ , so it can be interpreted that there is a significant relationship between ANC visits and the incidence of CED in third trimester pregnant women in the work area of Lubuk Begalung Health Center, Padang City.

In line with research conducted by Wenny Mandella (2022) on Factors Associated with Chronic Energy Deficiency (CED) in Pregnant Women in the Seginim Health Center Work Area, South Bengkulu Regency which explains that of the 24 respondents who experienced the incidence of CED during pregnancy, there were 22 respondents (91.7%) with irregular ANC visits and there were 2 respondents (8.3%) with regular ANC visits. Based on the results of the chi-square test, a p-value of 0.000 was obtained (Dewi, Dary, and Tampubolon 2021).

At least six times during pregnancy, pregnant women should be in contact with a health worker who has clinical and obstetric competence to provide integrated and comprehensive antenatal services according to standards, with examinations carried out twice in the first trimester, which is between 0 to 12 weeks, once in the second trimester, which is between 13 to 24 weeks, and 3 times in the third trimester, which is if the gestational age is more than 24 weeks.

According to researcher's analysis, if a pregnant woman routinely conducts pregnancy checks in accordance with the recommendations of health workers during her pregnancy, the mother will get additional information related to the condition of her pregnancy by health workers. Pregnant women who diligently conduct ANC will increase the knowledge of pregnant women, so that mothers can change their perceptions and behavior during pregnancy in accordance with the recommendations of health workers to avoid problems during a mother's pregnancy, one of which is the incidence of CED.

From the results of multivariate analysis, it was found that age had the highest beta value compared to occupation at 6.623 and a p-value of 0.005 (<0.05). This means that the age of pregnant women is the most dominant variable related to the incidence of CED in pregnant women (Juarez et al. 2021). So it is concluded that age affects the incidence of CED in pregnant women compared to other variables.

In line with research conducted by Nen Sastri (2020) on Maternal Factors Associated with the Incidence of Chronic Energy Deficiency (CED) in Pregnant Women in Urban Areas with multivariate tests and found that the age variable obtained a p-value of 0.000 ( $\leq 0.05$ ) (Kumar and Lakhtakia 2021; Nahar et al. 2020).

#### CONCLUSION

Based on the results of the study, there is a significant relationship between age which is the most dominant factor, education level, occupation and ANC visits with the incidence of CED in third trimester pregnant women in the Lubuk Begalung Health Center working area. There was no significant relationship between economic status, pregnancy distance, and parity with the incidence of CED in third trimester pregnant women in the Lubuk Begalung Health Center working area.

The results of this study are expected to be used are reference material for further research, can be used as reading material to add insight, and further researchers can expand the scope of research by conducting further research on other factors related to the incidence of CED in third trimester pregnant women.

#### REFERENCES

- Allahdadian, Irajpour, Kazemi, and Kheirabadi. 2015. "Social Support: An Approach to Maintaining the Health of Women Who Have Experienced Stillbirth." *Journal for Quality in Women's Health* 20(4): 465–470. https://doi.org/10.4103/1735-9066.160998.
- Ban Ki-moon, United Nations Secretary-General, and World Health Organization. 2016. "WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience." *Who*.
- Boelig, Rupsa C. et al. 2017. "Interventions for Treating Hyperemesis Gravidarum: A Cochrane Systematic Review and Meta-Analysis." *Journal of Maternal-Fetal and Neonatal Medicine* 31(18): 2492–2505.
- Chowdhury, Islam, and Biswas. 2022. "A Study on the Bangladeshi Mothers' Experiences with Intrauterine Fetal Death (IUFD)." 34(23): 343–349. https://doi.org/10.9734/JAMMR/2022/v34i234870.
- Darulis, Nursupma Oktavia, Rini Kundaryanti, and Shinta Novelia. 2021. "The Effect of Betel Leaf Water Decoction on Perineal Wound Healing among Post Partum Women." *Nursing and Health Sciences Journal (NHSJ)* 1(2): 130–35.
- Dewi, Ambar Kusuma, Dary Dary, and Rifatolistia Tampubolon. 2021. "Maternal Nutritional Status and Eating Behavior during the First Trimester of Pregnancy." *Jurnal Epidemiologi Kesehatan Komunitas* 6(1): 135–44.
- Dormian Sinaga, Alma, Justina Purwarini, and Lina Dewi Anggraeni. 2020. "The Experiences of Mothers with Intrauterine Fetal Death/Demise (IUFD) in Indonesia."
- Hall, and Jolly. 2014. "Women's Use of Complementary and Alternative Medicines during Pregnancy: A Cross-Sectional Study." *Midwifery* 30(5): 499–505.
- Juarez, Michel et al. 2021. "Community-Based Interventions to Reduce Child Stunting in Rural Guatemala: A Quality Improvement Model."
- Kumar, Rishi, and Supriya Lakhtakia. 2021. "Women' Empowerment and Child Stunting in India: An Investigation." *Journal of Population and Social Studies* 29: 47–66.
- Mlotshwa, Langelihle, Lenore Manderson, and Sonja Merten. 2017. "Personal Support and Expressions of Care for Pregnant Women in Soweto, South Africa." *Global Health Action* 10(1).
- Nahar et al. 2020. "Early Childhood Development and Stunting: Findings from the MAL-ED Birth Cohort Study in Bangladesh." *Maternal & Child Nutrition* 16(1).
- Novelia, Shinta, and Ema Annisa. 2021. "Factors Related to Chronic Energy Deficiency among Pregnant Women." *Nursing and Helath Sciences Journal* 1(3): 237–241.
- Novelia, Shinta, and Ema Annisa. 2021. "Factors Related to Chronic Energy Deficiency among Pregnant Women." *Nursing and Helath Sciences Journal* 1(3): 237–41.
- Sari, Nurul Indah, and Ros Rahmawati. 2021. "Analysis of Factors Affect the Incidence of Chronic Energy in Pregnant Women in Puskesmas Samata Gowa." *The 3rd International Conference on Urban Health, The Covid-19 Pandemic and Urban Health Issues* 3(1): 230–37.
- Shitie, Zewde, and Molla. 2018. "Anemia And Other Hematological Profiles Of Pregnant Women Attending Antenatal Care In Debre Berhan Referral Hospital, North Shoa,

Ethiopia." Bmc Research Notes 11(1): 704. https://doi.org/10.1186/S13104-018-3805-8.

- Sinaga, Alma Dormian, Justina Purwarini, and Lina Dewi Anggraeni. 2020. "The Experiences of Mothers with Intrauterine Fetal Death / Demise ( IUFD ) in Indonesia." 10(1): 86–95.
- Suranny, Lilyk Eka, and Fitriana Christi Maharani. 2021. "Mapping of Community Empowerment in Prevention Stunting in Kabupaten Wonogiri through 'Sego Sak Ceting."" *IOP Conference Series: Earth and Environmental Science* 887(1).
- WHO. 2016. WHO / Health Systems. http://www.who.int/topics/health\_systems/en.
- World Health Organisation. 2015. *Mean Body Mass Index ( BMI )*. http://www.who.int/Gho/Ncd/Risk\_Factors/Bmi\_Text/En/#, 1–2.