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Factors Influencing with Malnutrition Pregnant at Tigi District Deiyai Regency

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ABSTRACT

Background: Pregnant women health problems are one of the aspects that pay attention to and still occur in Indonesia are cases of chronic energy shortages which can have an impact on the health of pregnant women and babies caused by factor's including age, education, employment, family income, parity and knowledge of pregnant women, frequency of eating and resting patterns.
Research Objectives: Factors related to Chronic Energy Deficiency (CEL) in pregnant women in Tigi District, Deiyai District.
Research Method: Analytical with cross sectional study design. The population is all pregnant women who were registered in April 2018 in Waghete Health Center and Damabagata Health Center in Deiyai District with 291 people and a sample of 168 people randomly. Data obtained using questionnaires and analysis using chi square and logistic binary regression.
Results: Factors related to the incidence of CEL in pregnant women in Tigi District Deiyai District were education (p-value 0.019; RP = 2.255; CI95% (1,188-2,280), occupation (p-value 0,000; RP = 6,338; CI95% (3,019-13,303), knowledge (p-value 0,000; RP = 11,503; CI95% (5,404 - 24,485), frequency of eating (p-value 0,000; RP = 15,996; CI95% (7,336 - 34,881), rest pattern (p-value 0,000; RP = 6,061; CI95% (2,707 - 13,569). Whereas the factors not related to CEL events in pregnant women in Tigi District, Deiyai District are age (p-value 0,261; RP = 1,554; CI95% (0.797–3.029), family income (p-value 0.254; RP = 1.520; CI95% (0.808 - 2.861), parity (p-value 0.310; RP = 0.539; CI95% (0.202 - 1.442), birth distance (p-value 0,585; RP. 00,669; CI95% (0,245 - 1,826). The frequency of eating, knowledge, work and rest patterns is the dominant factor with the occurrence of chronic energy shortages.

Keywords: Malnutrition, Pregnant, Health Public Centre

1. INTRODUCTION

World Health Organization (WHO) (2015) Maternal Mortality Rate (MMR) of 99% occurs in developing countries; in 2013 it was 230 per 100,000 live births compared to 16 per 100,000 live births in developed countries. According to WHO in 2013, the maternal mortality rate (MMR) recorded in Indonesia was still around 190 per 100,000 births. Indonesia entered the ranks of the countries with the highest AKI, which was ranked 3rd in ASEAN member countries.

According to data from the Papua Provincial Health Office in 2015 there were 5340 cases of CEL and in 2016 it increased to 5734 cases. Based on the observations of researchers in Tigi District where there are 2 Waghete Health Centers and in Damabagata Health Center, Deiyai District, there are 50 pregnant women who have CEL. The condition of CEL in the mother, especially during pregnancy, affects the weight of the baby born. Mothers who experience problems with malnutrition during pregnancy will be at risk of giving birth to babies with low weight (LBW). The inhibition of intrauterine growth in pregnant women who experience CEL will cause the birth of babies with low weight. One study states that pregnant women who experience CEL have the opportunity to give birth to

short children 6.2 times greater than mothers who are not CELs (Najahah, 2014).

Nutrition is an element contained in food and can be used directly by the body such as carbohydrates, protein, fat, vitamins, minerals, and water. Nutrition is used by the body for growth and repair of body tissues (Devi, 2010). Fetal growth is strongly influenced by the nutritional status of pregnant women. A good nutritional status is related to the use of food absorbed by the body (Adriani, 2012) must meet nutritional intake so that chronic energy shortages (CEL) do not occur. Chronic energy deficiency (CEL) is a condition where a person suffers from an imbalance in nutritional intake (energy and protein) which lasts for years (Muliawati, 2013).

Based on WHO data in 2008 that 56% of the deaths of pregnant women in the world were due to chronic energy shortages (CEL). The 2009 National Socio-Economic Survey (SUSENAS) showed that nutritional status in pregnant women suffering from CEL with LILA <23.5 cm was as much as 35.6% where the conditions in the countryside are slightly worse than the cities, namely 25.9% in the countryside and 17.5% in the cities. The frequency of regular eating and balanced patterns is also a factor that affects the incidence of CEL in pregnant women with a good frequency and diet that will support the improvement of nutrition for pregnant women so that pregnant women do not experience nutritional problems during pregnancy especially the incidence of CEL.

Based on the description above, the researcher was interested in examining "factors related to chronic energy deficiency (CEL) in pregnant women in the District of Tigi, Deiyai District".

2. MATERIALS AND METHODS

A. Type of Research

This study is an observational analytic study. Observational analytic research is a study that aims to find relationships between variables by analyzing the data that has been collected. This study uses a Cross Sectional approach, namely by measuring the independent variables and the dependent variable only once at the same time (Notoatmodjo, 2012).

B. Time and Location of Research

This study was conducted at Waghete Health Center and at Deiyai District Damabagata Health Center in May 2018.

C. Population and sample

1. Population

The population in this study were all pregnant women who were registered in April 2018 at Waghete Health Center and Damabagata Health Center in Deiyai District with 291 people.

2. Samples

The sample is a portion of the population that is considered representative (Notoatmodjo, 2012).

a. Sample size

The sample size uses the formula according to Bungin (2010) as follows:

$$n = \frac{N}{1 + N\,(d)^2}$$

Information:

n: Sample size

N: Large population

d: Population deviations used, namely 5% = 0.05

Based on the entire population of pregnant women in April 2018 as many as 291 people, then the sample size is guided by the formula above as follows:

$$n = \frac{291}{1 + 291\,(0.05)\,2} = \frac{291}{1 + 0.7275} = \frac{291}{1.7275} = 168.45 = 168$$

then the total sample of 168 pregnant women.

3. RESULTS

1. Analysis Bivariate

a. Age Relationship with Chronic Energy Lack (CEL) Events

Table 1. Age relationship with the incidence of CEL in pregnant women in the District of Tigi Deiyai District in 2018

No	Age	Chronic Energy Lack (CEL)				n	%
		CEL		Not CEL			
		n	%	n	%		
1	< 20 year , > 35 year	23	43,4	30	56,6	53	100
2	20-35 year	38	33	77	67	115	100
Total		61	36,3	107	63,7	168	100
p-value = 0,261; RP = 1,554; CI95% (0,797– 3,029)							

Table 1 shows that mothers aged <20 years and >35 years experienced CEL as many as 23 people (43.4%) and not CELs as many as 30 people (56.6%), while pregnant women aged 20-35 years experienced CEL 38 people (33%) and not CELs were 77 people (67%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0.261 or p> α (0.05). This means that there is no significant age relationship with the incidence of CEL in pregnant women in Tigi District, Deiyai District. The results of RP = 1.554; CI95% (0.797– 3.029) with a lower value not including 1, so age is not significant with the occurrence of CEL.

b. Educational Relationship with Chronic Energy Lack Events

Table 2. Educational Relationships with the incidence of CEL in pregnant women in the Tigi District of Deiyai District in 2018

No	Education	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	Low	35	46,7	40	53,3	75	100
2	High	26	28	67	72	93	100
Total		61	36,3	107	63,7	168	100
p-value = 0,019; RP = 2,255; CI95% (1,188– 4,280)							

Table 2 shows that in mothers with low education there were 35 CELs (46.7%) and not CELs of 40 people (53.3%), while pregnant women with high education experienced CELs of 26 (28%) and not CEL as many as 67 people (72%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0.019 or p <α (0.05). This means that there is a significant educational relationship with the incidence of CEL in pregnant women in Tigi District, Deiyai District. The result of the value of RP = 2,255; CI95% (1,188– 4,280) interpreted that pregnant women with low education have a chance of occurrence of CEL 2,255 times higher compared to pregnant women who are highly educated.

c. Job Relationship with Chronic Energy Lack Events

Table 3. Employment Relationship with the incidence of CEL in pregnant women in the Tigi District of Deiyai District in 2018

No	Occupation	CEL				n	%
		CEL		Not CEL			
		n	%	N	%		
1	Work	31	67,4	15	32,6	46	100
2	Not work	30	24,6	92	75,4	122	100
Total		61	36,3	107	63,7	168	100
p-value = 0,000; RP = 6,338; CI95% (3,019– 13,303)							

Table 3 shows that for mothers who worked experiencing CEL as many as 31 people (67.4%) and not CEL as many as 15 people (32.6%), while pregnant women who did not work experienced CELs as many as 30 people (24.6%) and not CEL as many as 92 people (75.4%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0,000 or p <α (0.05). This means that there is a significant work relationship with the incidence of CEL in pregnant women in Tigi District, Deiyai District. The results of the value of RP = 6.338; CI95% (3,019– 13,303) which was interpreted to mean that pregnant women who worked were likely to have a CEC incidence of 6,338 times higher than pregnant women who did not work.

d. Relationship between Family Income and Chronic Energy Deficiency Events

Table 4. Relationship between Family Income and the incidence of CEL in pregnant women in the Tigi District of Deiyai District in 2018

No	Family income	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	Less	32	41,6	45	58,4	77	100
2	Enough	29	31,9	62	68,1	91	100
Total		61	36,3	107	63,7	168	100
p-value = 0,254; RP = 1,520; CI95% (0,808– 2,861)							

Table 4 shows that for mothers with family income experiencing CEL as many as 32 people (41.6%) and not CELs as many as 45 people (58.4%), while pregnant women with sufficient income experienced CELs of 29 people (31.9%) and not as many as 62 people (68.1%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0.254 or p> α (0.05). This means that there is a significant correlation between family income and the incidence of CEL in

pregnant women in Tigi District, Deiyai District. Results of the value of RP = 1,520; CI95% (0.808 - 2.861) with a lower value that does not include 1 which is interpreted that family income is not significant with the occurrence of CELs.

e. Relationship of Parity with Chronic Energy Lack Events

Table 5. Parity relationship with the incidence of CEL in pregnant women in the District of Tigi Deiyai District in 2018

No	Parity	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	> 4 children	6	25	18	75	24	100
2	< 4 children	55	38,2	89	61,8	144	100
Total		61	36,3	107	63,7	168	100
p-value = 0,310; RP = 0,539; CI95% (0,202 – 1,442)							

Table 5 shows that in mothers with parity> 4 children experienced CEL as many as 6 people (25%) and not CEL as many as 18 people (75%), while pregnant women with parity <4 children experienced CEL as many as 55 people (38.2%) and not CEL as many as 89 people (61.8%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0.310 or p> α (0.05). This means that there is a significant relationship of parity with the incidence of CEL in pregnant women in the District of Tigi, Deiyai District. The results of the value of RP = 0.539; CI95% (0.202 - 1,442) does not include 1 which is interpreted that parity is not significant with the incidence of CEL.

f. Relationship Distance Gives Birth with Chronic Energy Lack Events

Table 6. Distance Relationships Birth with the incidence of CEL in pregnant women in the District of Tigi Deiyai District in 2018

No	Birth interval	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	< 2 year	6	28,6	15	71,4	21	100
2	> 2 year	55	37,4	92	62,6	147	100
Total		61	36,3	107	63,7	168	100
p-value = 0,585; RP = 0,669; CI95% (0,245 – 1,826)							

Table 6 shows that mothers with a birth interval <2 years experienced CEL as many as 6 people (28.6%) and not CEL as many as 15 people (71.4%), while pregnant women with a birth distance> 2 years experienced CEL of 55 people. (37.4%) and not CEL 92 people (62.6%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0.585 or p> α (0.05). This means that there is a significant relationship between birth spacing and the incidence of CEL in pregnant women in Tigi District, Deiyai District. The result of the value of RP = 00,669; CI95% (0.245 - 1.826) does not include 1 which is interpreted that birth distance is not significant with the incidence of CEL.

g. Knowledge Relationship with Chronic Energy Lack Events

Table 7. Knowledge Relationship with the incidence of CEL in pregnant women in Tigi District, Deiyai District in 2018

No	Knowledge	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	Less	48	64,9	26	35,1	74	100
2	Good	13	13,8	81	86,2	94	100
Total		61	36,3	107	63,7	168	100
p-value = 0,000; RP = 11,503; CI95% (5,404 – 24,485)							

Table 7 shows that for mothers with less knowledge of CEL 48 people (64.9%) and not CEL were 26 people (35.1%), while pregnant women with good knowledge experienced CEL as many as 13 people (13.8%) and not CEL as many as 81 people (86.2%). The results of the chi square statistical test on the significance value of 95% (α = 0.05) obtained p-value 0,000 or p <α (0.05). This means that there is a significant relationship of knowledge with the incidence of CEL in pregnant women in Tigi District, Deiyai District. The result of the value of RP = 11.503; CI95% (5,404 - 24,485) interpreted by pregnant women with less knowledge of 1,503 times higher chance of occurrence of CEL compared to pregnant women who are well-informed.

h. Eating Frequency Relationship with Chronic Energy Lack Events

Table 8 shows that pregnant women with eating frequency experienced CEL as many as 45 people (73.8%) and not CEL as many as 16 people (26.2%), while pregnant women with a frequency of eating both

experienced CEL as many as 16 people (15%) and not CEL as many as 91 people (85%). The results of the chi square statistical test on the significance value of 95% ($\alpha = 0.05$) obtained p-value 0,000 or p <α (0.05). This means that there is a significant correlation between eating frequency and the incidence of CEL in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District. The result of the value of RP = 15,996; CI95% (7,336 - 34,881) interpreted by pregnant women whose frequency of eating is less than 15,996 times higher is likely to have the incidence of CEL compared to pregnant women who eat well.

Table 8. Eating Frequency Relationships with the incidence of CEL in pregnant women in the District of Tigi Deiyai District in 2018

No	Eating Frequemce	CEL				n	%
		CEL		Not CEL			
		n	%	n	%		
1	Less	45	73,8	16	26,2	61	100
2	Good	16	15	91	85	107	100
Total		61	36,3	107	63,7	168	100
p-value = 0,000; RP = 15,996; CI95% (7,336 – 34,881)							

4. DISCUSSION

4.1. Age Relationship with Chronic Energy Deficiency in Pregnant Women

The results of the study showed that there was a relationship between age which was not significant with the incidence of chronic energy deficiency in pregnant women in Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0.261). The results of this study are in line with the research conducted by Handayani (2012) in the Central Java Klaten Health Center stating that the age of the mother was not related to the incidence of CEL. There were 18% of pregnant women aged less than 20 years in the study area. Age less than 20 years is a pregnant woman who is at risk and is feared that the supply of nutrients, especially protein for the fetus, is lacking.

The results of the analysis showed that pregnant women aged <20 years and >35 years experienced 23 CELs (43.4%) while pregnant women aged 20-35 years experienced CELs of 38 people (33%). This shows the same risk at the age level with the incidence of CEL in pregnant women.

According to Manuaba (2013), the age that is safe and healthy in pregnancy is aged 20-35 years when compared to the age of less than 20 years and more than 35 years. The younger (less than 20 years) and the older (age >35 years) a mother who is pregnant, will affect the nutritional needs needed. Young people need a lot of extra nutrition because besides being used for their own growth and development they must also share with the fetus being conceived. Whereas for the elderly who need a lot of energy also because the organ function is getting weaker and is required to work optimally, it requires sufficient energy to support the ongoing pregnancy (Proverawati & Asfuah, 2011).

The absence of an age relationship is due to other factors in fulfilling nutrition with the level of education causing an increase in nutrition knowledge. In addition, the factors of co-morbidities experienced, so that it is more powerful to dominate the occurrence of chronic energy shortages from the age variable.

4.2. Educational Relationship with Events of Chronic Energy Deficiency in Pregnant Women

The results showed that there was an educational relationship with the incidence of chronic energy deficiency in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0.019). The results of this study are in line with Indriany (2014) in Sedayu District, revealing that there is an educational relationship to the incidence of chronic energy shortages in pregnant women. Education is the process of changing attitudes and behavior of a person or group of people in an effort to mature people through teaching and training efforts (Prayoto, 2014). The level of education of respondents in Waghete Health Center and Damabagata Health Center was mostly educated with 93 people (55.4%). The results of the analysis showed that respondents who experienced a low

education CEL were 46.7% and higher education was 28%. This is seen by the existence of different proportions, where mothers with a lower frequency education experience higher CELs. This is evidenced from the raison prevalence test, that respondents who were low educated had the opportunity to experience CEL 2,255 times higher than pregnant women who were highly educated.

Education means guidance given by someone to other people in order to understand something. It cannot be denied that the higher a person's education, the easier it is for them to receive information, and in the end the more knowledge they have. Conversely, if someone has a low level of education, it will hinder the development of the attitude of the person towards the acceptance of information and newly introduced values (Mubarak, 2011). Low education in pregnant women (44.6%) is due to geographical conditions and the range of education services in Deiyai Regency, where the location of education services is centered on the district / city area and district, thus affecting the interest of schools with a minimum high school equivalent The low education of mothers has risk factors for the occurrence of chronic energy shortages, namely pregnant women with high education will make it easier for pregnant women to receive information quickly, including everything related to the nutritional status of pregnant women. Higher education has knowledge of good nutritional status, thus influencing the mother's knowledge of nutrition and the benefits that the mother obtains in fulfilling nutrition in pregnancy. So that education directly affects knowledge as a strong variable in the event of chronic energy shortages.

4.3. Employment Relationships with Events of Chronic Energy Deficiency in Pregnant Women

The results showed that there was a significant work relationship with the incidence of CEL in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0,000). This research is in line with previous research conducted by Anggraini (2015), that work is related to the incidence of CEL in pregnant women. Today women have the opportunity to work openly. The basic reason for a woman to have a marriage is not the same as one another. The reason that is commonly found is because of financial needs to enrich personal experience and knowledge, achievement (Prayoto, 2014). Physical activity or workload is divided into 4 degrees, namely: light, moderate, heavy and very heavy activities. Light activities include housewives and moderate activities, heavy and very heavy consisting of working mothers (Arisman, 2007).

The results of the analysis show that 67.4% of mothers who worked in CEL, while 24.6% of pregnant women who did not work. This shows that pregnant women working during pregnancy increase the incidence of CELs and from the results of the prevalence ratio test that pregnant women who work are likely to have a CEC incidence of 6.338 times higher than pregnant women who do not work. According to Handayani (2012) who stated that statistically there was no significant relationship between the work of mothers and CELs. This is because work is one of the factors that have an indirect effect on CELs, and if several other factors are not controlled it will cause employment factors not to provide a significant relationship to CELs.

According to Prawirohardjo (2012), work is one of the possible factors for CELs because of an increase in workloads that require energy, so that energy expenditure is higher. Pregnant women may work, but not too heavy. In addition, pregnant women who work have a dual workload, namely as housewives and as working mothers. For mothers who work privately (factory workers) it will be easier to occur CELs because of the condition of mothers who are easily tired of not resting and not paying attention to their diet so that their nutrition is not sufficient compared to mothers who

do not work. Though the work of housewives can be said to be quite heavy because it includes washing, mopping, cooking, cleaning the home environment and so on and added work outside the home that requires the mother to work for a long time, this can cause the mother to be exhausted and interfere with the wrong pregnancy process one can cause anemia.

Researchers suggest that work related to the incidence of CELs in Waghete Health Center and Damabagata Health Center is caused by pregnant women who work mostly having a double burden other than working in the office also working at home and this is paid for by the type of work the trader produces, so the workload is higher and requires more energy than pregnant women who do not work. In addition, the family workload on the Mee tribe is mostly carried out by women who have a severe impact on the mother not paying attention to the intake of food consumed because it is caused by work. Therefore it is necessary to get attention from health officials, religious leaders and local community leaders in giving advice about the importance of women's health while pregnant, so husbands can help their wives who are pregnant in lightening their work.

4.4. Relationship between Family Income and Chronic Energy Deficiency in Pregnant Women

The results showed that there was no significant correlation between family income and chronic energy shortages in pregnant women at Waghete Public Health Center and Deiyai District Damabagata Health Center (p-value 0.254). The results of this study are in line with the research conducted by Handayni (2012), that family income has no effect on the incidence of chronic energy shortages.

Income is the yield or wage obtained from the results of working in the form of money or goods. Adequate income is income that is in accordance with the needs determined based on the prevailing minimum wage (Maryam, 2014). Socio-economic conditions affect physical, health and education factors. Women from low economic groups tend to surrender. Social status is the right and obligation that a person has in his community. People who have high social status will be placed higher (Prayoto, 2014). The results of the analysis show that pregnant women who experience CELs with less family income (58.4%) and sufficient family income (31.9%). This shows that the proportion is not much different, so income is not a risk factor. This is evidenced from the value of RP = 1,520; CI95% (0.808 - 2.861) with a lower value of less than 1, so it is not meaningful.

Yuliastuti's research (2014) in Banjarmasin found that family income had an effect on the family's purchasing power of food consumed daily. Income levels can determine food patterns. Revenue is the factor that most determines the quality and quantity of dishes. The more money you have means the better the food is obtained, in other words the higher the income, the greater the percentage of income to buy fruit, vegetables and other types of food. Income does not affect the incidence of chronic energy deficiency in pregnant women, because women who have less income, but can fulfil nutritional intake through agriculture or food crops grown in the surrounding environment, because most of the population works as farmers and the yard is used in planting material needs food and there are still many available food ingredients obtained by mother's husband by hunting in the forest, so as to meet food needs in the family.

4.5. Relationship of Parity with Events of Chronic Energy Deficiency in Pregnant Women

The results showed that there was a relationship of parity which was not significant with the incidence of chronic energy deficiency in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0.310). The results of this study are in line with the research of Handayani (2012) in the Wedi Klaten Health Center revealing

that there is no relationship between parity in the event of chronic energy shortages in pregnant women

Parity broadly includes the gravida or the number of pregnancies, premature or the number of births and abortions or the number of miscarriages. Being in a special sense, namely the number or number of children born (Tiran, 2009). According to the Indonesian Ministry of Health (2008) parity is said to be high if a mother or woman gives birth to a fourth or more child. A woman who has had three children and has a pregnancy again, her health will begin to decline, often experience anemia (anemia), bleeding through the birth canal and the location of the breech or transverse baby. The number of children >4 people needs to be aware of the possibility of prolonged labor, because the more children, the mother's womb is weaker.

The results of the analysis were obtained by pregnant women with CEL with high parity (25%) and low parity (38.2%). This shows that the unexposed factors exceed the exposure factors to the occurrence of CELs, so parity is not a risk factor. This is due to the fact that a mother who is a grandparent or has a child more than 4 has a normal nutritional status and has experiences that have given birth several times and the mother knows how to consume nutritious foods and maintain nutritional status during the first trimester. Primiparous mothers also have nutritional status normal is good, because the mother knows how to maintain the condition of the body's balance when consuming food that is used to maintain the body during pregnancy.

4.6. Relationship between Childbirth and Events of Chronic Energy Deficiency in Pregnant Women

The results showed that there was a relationship between pregnancy distance which was not significant with the incidence of chronic energy deficiency in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0.585). The results of this study are in line with Pratiwi (2012), revealing that there is no influence on the distance between pregnancy and the incidence of chronic energy shortages. According to the Ministry of Health of the Republic of Indonesia (2008) states that the pregnancy that needs to be watched out is the last delivery distance with the beginning of pregnancy is less than 2 years, if the distance is too close, the mother's uterus and health have not recovered properly. In this situation it is needed to be aware of the possibility of poor fetal growth, prolonged labor or bleeding. The results of the analysis showed that mothers with CELs with risk pregnancy distance / <2 years (28.6%) and non-risk pregnancy distance />2 years (32%). This is due to the difference in the percentage that does not differ much, so that the distance between births is not a direct risk factor with the CEL. This can be caused by other factors such as comorbidities and pathological conditions that can occur in women with a birth distance of less than two years.

This is in accordance with the opinion of Hoton (2012), that birth distance that is too close can affect maternal health conditions, because pregnant women who have a pregnancy distance of less than two years have a weak body condition, causing health problems so that maternal nutrition is inadequate. Childbirth is at risk of <2 years that occurs in the community, because the problem of affordability of facilities and infrastructure greatly influences participation in family planning, the difficulty of accessing service facilities due to transportation constraints and geographical conditions has a negative impact on the use of contraception as a regulator of pregnancy spacing. Information on family planning in couples of childbearing age in Deiyai District. Limitations are also seen in terms of services where facilities / services can accommodate family planning needs and male / husband reproductive health are still limited.

4.7. Relationship of Knowledge with Events of Chronic Energy Deficiency in Pregnant Women

The results showed that there was a correlation between knowledge with the incidence of chronic energy deficiency in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0,000). The results of this study are in line with the research of Indryani (2014) in Sedayu District, Bantul Regency, that there is an influence of nutritional knowledge on the lack of chronic energy in pregnant women. Knowledge is a result of knowing, and this happens after people have sensed certain objects. Sensing occurs through the five human senses, namely the senses of vision, hearing, smell, taste and touch. Most human knowledge is obtained through the eyes and ears. Knowledge or cognitive is dominant which is very important for one's actions (Prayoto, 2014).

The results of the analysis show that pregnant women who experience CEL with knowledge of good nutrition (13.8%) and knowledge of malnutrition as much as 64.9%). The results showed that knowledgeable mothers were more or less at risk with the incidence of CELs. This is evidenced from the prevalence ratio test, that mothers with insufficient knowledge are 11.503 times more likely to experience CEL than mothers with less knowledge of pregnant women. Likewise, the results of Erna Puspita Dewi (2009) 's study that knowledge affects the incidence of chronic energy deficiency, women who have knowledge of nutrition will choose foods that are more nutritious than those that are less nutritious (Joyomartono, 2014). Knowledge possessed by a mother will influence decision making and will also affect her behavior. A mother with good nutrition knowledge will likely provide nutrition that meets her and her baby's needs. This is even more so if a mother enters cravings, where the stomach does not want to be filled, nausea and feeling that is not known. Although in such conditions if someone has good knowledge, he will try to fulfil his nutritional needs.

4.8. Relationship between frequency of eating and the incidence of chronic energy deficiency in pregnant women

The results showed that there was a relationship between frequency of eating and the incidence of chronic energy deficiency in pregnant women at Waghete Health Center and Damabagata Health Center in Deiyai District (p-value 0,000). The results of this study are in line with Hidayati (2011), that there is an influence on the frequency of eating on less chronic energy in pregnant women.

A good diet for someone with a frequency of eating 3 times a day in meeting their needs (Sulityoningsih, 2011). The results of the analysis showed that mothers with CELs with less eating frequency (73.8%) and frequency of eating were either not CEL (15%). This shows that mothers who have a higher frequency of eating are more likely to experience CELs.

Tribal influences are influenced by the fulfilment of nutritional intake and the culture of the tribe of pregnant women. Socio-cultural factors that influence eating habits in society, households and individuals. This is in accordance with the opinion according to Koentjaraningrat in Mapandin (2006) which covers what is thought, known and felt to be people's perceptions of food and what is done, people practice about food. Eating habits are also influenced by the environment (ecology, population, economy) and the availability of food ingredients. The pattern of eating consumption that is influenced by eating habits has a close relationship with nutritional status. Deiyai Regency, whose dominant population is eating food, is very rarely found in plantations, which many residents seek to plant tubers, maize, peanuts, and green beans. However, the area of this plant is still very small. The production is not much. Giving additional food to pregnant women is expected to be able to suppress sufferers with less chronic energy in Deiyai District.

Additional feeding for pregnant women is carried out by Community Health Centers (Puskesmas), kelurahan / desa and Integrated Service Posts (Posyandu) which are spread in the Deiyai Regency area. Data from the Deiyai District Health Office causes chronic energy shortages due to various factors, among others due to the crush of poverty so that mothers do not receive good nutrition. Mother's knowledge of low nutrition and minimal food supply, nurturing, poor maternal and child health conditions also causes chronic energy shortages in pregnant women. In addition, the Health Office continues to provide counseling for mothers related to malnutrition and an understanding of nutritional intake and good food supply (District Health Office of Deiyai, 2016).

Often found food abstinence for pregnant women in the Mee tribe for certain types of food which, when viewed from nutritional value, may be needed by the mother. In general, there is no food abstinence for pregnant women as long as the mother does not experience complications or experience other diseases. Pregnant women may consume the desired amount of food. Such abstinence will hinder the fulfilment of maternal nutritional needs which ultimately are harmful to maternal health and fetal growth and development, so it is necessary to explain to the mother about the benefits of food and the danger of abstinence (Sulistyoningsih, 2011).

5. CONCLUSION

Based on the results of research and discussion, it is concluded as follows:

1. There is an age relationship that is not significant with the incidence of CEL in pregnant women in the District of Tigi Deiyai District (p-value 0.261; RP = 1,554; CI95% (0.797– 3,029)
2. There is a significant educational relationship with the incidence of CEL in pregnant women in the District of Tigi Deiyai District (p-value 0.019; RP = 2.255; CI95% (1,188– 4,280).
3. There is a significant work relationship with the incidence of CEL in pregnant women in the District of Tigi Deiyai District (p-value 0,000; RP = 6,338; CI95% (3,019–13,303).
4. There is a relationship between family income which is not significant with the incidence of CEL in pregnant women in Tigi District, Deiyai District (p-value 0.254; RP = 1.520; CI95% (0.808 - 2.861).
5. There is a significant relationship between parity and the incidence of CEL in pregnant women in the District of Tigi, Deiyai District (p-value 0.310; RP = 0.539; CI95% (0.202 - 1.442).
6. There is a relationship between birth distance that is not significant with the incidence of CEL in pregnant women in the District of Tigi Deiyai District (p-value 0.585; RP. 00.666; CI95% (0.245 - 1.826).
7. There is a significant relationship of knowledge with the incidence of CEL in pregnant women in the District of Tigi Deiyai District (p-value 0,000; RP = 11,503; CI95% (5,404 - 24,485).
8. There is a significant correlation between eating frequency with the incidence of CEL in pregnant women in Tigi District, Deiyai District (p-value 0,000; RP = 15,996; CI95% (7,336 - 34,881).

REFERENCES

- AL Rantetampang, A Mallongi, 2014. Environmental Risks Assessment Of Total Mercury Accumulation At Sentani Lake Papua, Indonesia. Int J Sci Tech Res 3 (3), 157-163
- Anggraini T (2015). Hubungan Antara Pekerjaan Dan Pendidikan Dengan Kejadian Anemia Pada Ibu Hamil di Puskesmas Basuki Rahmat Palembang Tahun 2015. http://jurnal.budimulia.ac.id. diakses 2 November 2018.
- Achadi, E. L. (2007). *Gizi dan Kesehatan Masyarakat*, dalam Departemen Gizi dan Kesehatan Masyarakat, FKM UI. Jakarta: PT. Raja Grafindo Persada.

- Adlina E.P (2014). Hubungan Antara Pengetahuan Tentang Gizi Ibu Hamil Dengan Sikap Ibu Hamil Terhadap Pemenuhan Gizi Pada Saat Kehamilan di Desa Wedomartani, Ngemplak, Leman, Yogyakarta 2014. http://www.unriyo.co.id. diakses 20 Maret 2017.
- Andammori, F (2014). Hubungan Tekanan Darah Ibu Hamil Aterm dengan Berat Badan Lahir di RSUP Dr. M. Djamil Padang.Jurnal Kesehatan Andalas. 2013; 2(2).
- A Mallongi, R La Ane, AB Birawida, 2017. Spatial Lead Pollution in Aquatic Habitats and the Potential Risks in Makassar Coastal Area of South Sulawesi, Indonesia, Jurnal Kesehatan Lingkungan Indonesia
- Arikunto S (2010). *Prosedur Penelitian, Teori dan Aplikasi*. Rineka Cipta, Jakarta.
- Asih, Y (2006). Hubungan Antara Pre*eklampsia* pada Primigravida dengan BBLR di RSUD Cilacap Januari-Desember 2005. Jurnal Keperawatan Soedirman (The Soedirman Journal of Nursing), Vol. 1, No.2
- Badan Koordinasi dan Keluarga Berencana (BKKBN). 2012. *Program Kependudukan dan Keluarga Berencana Nasional. Direktorat Bina Ketahanan Keluarga dan Lansia Rentan*: Jakarta.
- Bener, A B (2012). *The Impact of The Interpregnancy Interval on Birth Weight and Other Pregnancy Outcomes.* Rev. Bras. Saúde Maternal Infant 2012, 12 (3): 233-241
- Bertha Kamo, Yermia Msen, A.L. Rantetampang, Anwar Mallongi, 2018, The Factors affecting with Four Visited at Public Health Centre Sub Province Mimika Papuan Province. International Journal of Science and Healthcare Research, Vol.3; Issue: 2; April-June 2018
- Chaput Jean Philippe (2008). The Association Between Sleep Duration And Weight Gain In Adults: A6-Year Prospective Study From The Quebec Family Study. SLEEP, Vol. 31, No. 4, 2008
- Departemen Gizi dan Kesehatan Masyarakat, 2013. *Gizi dan Kesehatan Masyarakat*. Edisi Revisi. PT. Rajagrafindo Persada, Jakarta.
- Dewi., E. P, (2009). *Hubungan antara Pengetahuan ibu hamil Tentang CELerangan energy kronik dengan kejadian CELurangan energi Kronik pada ibu hamil di puskesmas kajoran II magelang*; 2009. Program DIV Kebidanan, STIKES Muhammadiyah Magelang. http://www.stikesmuhammadiyah.co.id. diakses 20 Maret 2017
- Deki Ogetai, A.L. Rantetampang, Agus Zainuri, Anwar mallongi, 2018. The Affecting Productivity of Work Staff at Sub Health Ministry Sub, Province Mimika, International Journal of Science and Healthcare Research, Vol.3; Issue: 2; April-June 2018
- Eka Setyaning Suci , A. L. Rantetampang, Bernard Sandjaja, Anwar Mallongi. 2018. Influential Factors against Exclusive Breast Feeding In Working Area of Wania District Health Center of Mimika Regency. International Journal of Science and Healthcare Research 3 (2), 206-211
- Ernawatik (2017). *Faktor-Faktor Yang Mempengaruhi Kejadian Anemia Di Puskesmas Karanganyar*. Fakultas Ilmu Kesehatan Universitas 'Aisyiyah Yogyakarta.
- Fanghoy M. F (2014). *Faktor - Faktor yang Berhubungan dengan Status Gizi Ibu Hamil Trimester I di RSIA Pertiwi Makassar*. http:///www.unhas.co.id. diakses 20 maret 2017.
- Goni A.P.G (2013). *Hubungan Pengetahuan Dan Sikap Ibu Hamil Dengan Status Gizi Selama Kehamilan di Puskesmas Bahu Kota Manado*. Ejurnal Keperawatan (e-Kp) Volume1. Nomor 1. Agustus 2013. http://www.unsrat. co.id. diakses 20 Maret 2017.
- Handayani S (2012). *Analisis Faktor Yang Mempengaruhi CELurangan Energi kronik Pada Ibu Hamil Di Wilayah Puskesmas Wedi Klaten*. http://www.stikes.aisyah.co.id. diakses 20 Maret 2017.
- Harti L. B, (2015) *Hubungan Status Gizi dan Pola Makan terhadap Penambahan Berat Badan Ibu Hamil*. Indonesian Journal of Human Nutrition P-ISSN 2442-6636.www.ijhn.ub.ac.id. diakses 10 Juni 2017.
- Hasmi (2016). Metode Penelitian Kesehatan. Jakarta: In Media.
- Kemenkes RI (2010). *Pedoman Pemantauan Wilayah Setempat Kesehatan Ibu dan Anak.* Direktorat Bina Kesehatan Ibu, Jakarta

- kemenkes RI, (2013). *Data Riset Kesehatan Dasar Nasional*. www.kemenkes.go.id. diakses 10 Januari 2017.
- Lefaan Margareta M.K , Rantetampang A.L, Sandjaja B, Anwar Mallongi. 2018. Factors Affecting of Pregnancy Women to K4 Visits in Timika Public Health Center, District of Mimika, Papua. International Journal of Science and Healthcare Research 3 (2), 212-220
- Lockhart dan Saputra (2014). *Asuhan Kebidanan, Kehamilan Fisiologis dan Patologis*. Binarupa Aksara Publisher, Tangerang Selatan.
- Marmi M (2012). *Gizi Dalam Kesehatan Reproduksi*. Pustaka pelajar, Yogyakarta.
- Maryam S, (2014). *Promosi Kesehatan*. EGC, Jakarta.
- Maurice, (2005). *Modern Nutrition in Health and Disease (Tenth Edition).* Lippincot Williams and Wilkins
- Moehji, Sjahmien (2003). *Ilmu Gizi 2 Penanggulangan Gizi Buruk*. Jakarta:Papas Sinar Sinanti.
- Mubarak W (2011). *Promosi Kesehatan Untuk Kebidanan*. Salemba Medika, Jakarta
- Notoatmodjo S (2011). *Metode Penelitian Kesehatan*. Rineka Cipta, Jakarta.
- Notoatmodjo S (2012). *Metode Penelitian Kesehatan*. Rineka Cipta, Jakarta.
- Proverawati A., Wati E.K (2011). *Ilmu Gizi Untuk Keperawatan dan Gizi Keperawatan*. Nuha Medika, Yogyarakta.
- Riskesdas (2013). *Riset Kesehatan Dasar Nasional*. www.kemenkesri.go.id. diakses 20 Januari 204.
- Romauli (2011). *Asuhan Kebinanan I ; Kehamilan. Konsep Dasar Kehamilan*. Nuha Medika, Yogyakarta.
- Schaible *(2007). Malnutrition and Infection: Complex Mechanisms and Global Impacts*.
- Sediaoetama, A.D (2009). *Ilmu Gizi Menurut Pandangan Islam*. Jakarta: Dian Rakyat.
- Sugiyono (2013) *Metode Penelitian Manajemen*. Bina Pustaka, Bandung
- Tresnawati (2013). *Asuhan Kebidanan. Panduan Lengkap Menjadi Bidan Profesional*. Jilid 2. Prestasi Pustaka Publisher, Jakarta.
- Manuaba I.B.G (2013), Ilmu Kebidanan, Kandungan dan Keluarga Berencana. Jakarta; EGC.
- Marlenywati (2010). *Risiko CEL pada Ibu Hamil Remaja di Kota Pontianak Tahun 2010*. Tesis. FKM UI. Depok.
- Pratiwi (2012). *Pengaruh CELurangan Energi kronik (CEL) dan Anemia Saat Kehamilan Terhadap Berat Badan Lahir Rendah (BBLR) Dan Nilai Apgar (Studi di Wilayah Kerja Puskesmas Kalisat Kabupaten Jember)*. http://www.ujem.co.id. diakses 20 Maret 2017.
- Syukur N. A (2014) *Faktor – Faktor Yang Menyebabkan Kurang Energi kronik (CEL) Pada Ibu Hamil Di Puskesmas Sidomulyo Kota Samarinda*. Mahakam Midwifery Journal, Vol 1, No. 1, Mei 2016, hal.38-45.
- U Salmah, A Mallongi, A Wahyu, 2013. Potential Risks Of Manganese Through Shallow Well Water Consumption Due To The Landfill Leachate Among Community In Tamangapa Disposal Site, Makassar, International Journal of Engineering 2 (8)
- Yuliarta Mararu, Bernard Sandjaja, A. L. Rantetampang, Anwar Mallongi. 2018. Determinant Factors Affecting Malaria Occurrence among Pregnant Woman in the Wania Puskesmas, District of Mimika. International Journal of Science and Healthcare Research 3 (2), 195-205

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