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# The Risk Factors of Obesity in Children Ages 24-59 Months in The Working Area of Pelaihari Public Health Center 2018

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### Abstract

**Background:** Prevalences of overweight in the infant (0-59 month) According to Riskesdas 2013 in Indonesia is 11.9%. Overweight prevalences based on index W/H 2016 in Kalimantan Selatan reach 4.5% this exceeds national prevalence (4.6%). Health department data of Kalimantan Selatan Province, Tanah Laut District, is first place overweight prevalence that is 18.5% higher than national prevalence (6.3%).

**Aim:** To analyze the relationship of father's education, mother's education, mother's work, parent's income, number of energy consumption, level of protein consumption and heredity factor in children working ages 24-59 months in the working area Pelaihari Public Health Centers.

**Methods:** Quantitative research with a case-control designation in Pelaihari Community Health Centers in October-December 2018 with the population as many as 312 children ages 24-59 months. Samples are 33 respondents for the control group and 33 respondent for case group (children ages 24-59 month Z-score > 2SD). The sample used for simple random sampling.

**Research results:** Chi-square test indicates a significant relationship between father's education ( $p=0.026$ ; OR=3.5), mother's education ( $p=0.011$ ; OR=4.4), mother's job ( $p=0.025$ ; OR=3.6), parent's income ( $p=0.014$ ; OR=4.0), level of protein consumption ( $p=0.024$ ; OR=4.7), heredity factor ( $p=0.000$ ; OR=8.6) and there is no significant relationship between the number of children ( $p=0.708$ ; OR=0.5) and level of energy consumption ( $p=0.121$ ; OR=2.6) against

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overweight. Regression Logistic Test indicates that the most related variable is the heredity factor and mother's job, Conclusion: Father's education, mother's education, mother's job, parent's income, level of protein consumption, and heredity factors have a risk cause of overweight in children ages 24-59 months.

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*Keywords:* Obesity, children ages 24-59 month

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## 1. Introduction

Obesity is a problem that is often found throughout the world. Obesity is a condition of comparison of body weight and height exceeding the specified standard (Ranggadwipa, 2014). In 2015 there were 42 million children who were overweight, that number rose 31 million from 2000. The trend shows that this number will continue to increase. If this trend continues, the number of children who are overweight will increase to 70 million by 2025 (WHO, 2013).

The prevalence of overnutrition in Indonesia is increasing year by year. Nutrition is more due to an imbalance between the energy consumed and the energy released. More nutrition needs serious attention because it deals with various complications of health problems in adulthood, including diabetes and heart disease (Rosyidah and Andrias, 2015). The problem of obesity and obesity in Indonesia occurs in all age groups and in all socio-economic strata. In children, the incidence of obesity or obesity is a serious problem because it will continue to adulthood and is a risk factor for various metabolic and degenerative diseases (Ministry of Health, 2010).

According to the Basic Health Research (Riskesdas) In 2013, the prevalence of fat in infants (0-59 months) in Indonesia is 11, 9%. Nutritional Status Monitoring Data shows the prevalence of fat based on Body Weight Index based on Body Height (W/H) in 2016 in South Kalimantan reaching 4.5%, this exceeds national prevalence reaching 4.3%. In 2017 there was an increase of 6.3% exceeding the national figure of 4.6% (South Sumatra Provincial Health Office, 2018). Data from the South Kalimantan Provincial Health Office, Tanah Laut Regency ranks first in the prevalence of obesity status. Fat Category based on Body Weight index based on Body Height (W/H). In 2016 Obesity in the 0-59 month age group reached 7.6%, exceeding the national figure of 4.5% in 2017, which experienced a very significant increase of 18.5% higher than the national figure of 6.3%. Data from the Tanah Laut District Health Office in 2017 based on the Nutrition Status Assessment (PSG) survey conducted in 2017 showed that from 18 health centers, the highest prevalence of overweight based on indicators of BB / TB was in Pelaihari Community Health Center, namely 34 toddlers (10.9 %) of a total of 320 toddlers. Pelaihari Public health center as an urban area has 12 villages assisted with a total of posyandu reaching 32 posyandu.

Obesity caused by environmental factors mainly occurs through an imbalance between diets. Diet plays an important role in the process of fulfilling nutrition. Poor diet is the originator of obesity (Sudargo et al, 2013). Protein Adequacy Rate (PPA) in obese toddlers in Indonesia is 100- <120% (11.5%) and 20120% (54.3%) While the level of toddler energy adequacy exceeds the Nutrition Adequacy Rate (RDA) of 17, 1 % (30130% AKE) (Indonesian Ministry of Health, 2014). A high level of education is related to the work of parents, the more diverse the work of parents triggers the diversity of family income. Secondary data of the District Health Office of Tanah Laut District mentioned the average level of parental education in the higher education category ( $\geq$ SMA). The results of research conducted by Faridah (2017), Astuti and Sulistyowati (2013) state that there is a significant relationship between father's education and the nutritional status of children in the

incidence of overweight and obesity. Higher education triggers a good type of work. The job type is related to one's income level. Children who have high-income families have 3 times the risk of being obese compared to children who have low-income families, with OR=3.8 (Parengkuan, 2013). Yaqin's research (2014) states from interviews with children who are overweight on average that their parents belong to the upper middle class so that the fulfillment of nutrition can be fulfilled and even excessive.

Another factor is the cause of obesity and obesity is of heredity, obesity is more likely to be lowered or people who are obese tend to occur because of heredity in a large family (Mahyuni, 2016). Research by Fachrunnisa et al (2016) also stated that children who have parents have an effect on the incidence of obesity with a risk of 6 times compared to children who do not have obese parents. The research results of Fatkhudin (2015) also mention 66.6% of all children who are obese are children whose parents are obese.

Based on the description above, until now no research has been conducted to determine the risk factors for obesity occurring in children aged 24-59 months in the Pelaihari Public Health Center area so that researchers are interested in conducting research "Risk Factors for Obesity in Children aged 24-59 month in the Pelaihari Health Center work area".

## 2. Methods

The method used in this study is quantitative research with a case-control design. Data from the South Kalimantan Provincial Health Office, Tanah Laut Regency ranks first in the prevalence of obesity status. Fat Category based on Body Weight index based on Body Height (BB / TB). Then as a research location based on the Secondary Data of the Tanah Laut District Health Office, Pelaihari Health Center ranks first in the prevalence of obesity. Time of Research starting from October to December 2018.

The population in this study were all toddlers who were recorded in the Pelaihari Public health center register book in January-July 2018 which amounted to 320 toddlers. The samples in this study were case groups and control groups determined by purposive sampling with a comparison of 1: 1 totaling 33 samples for the control group and 33 samples for the case group.

The dependent variable in this study is obesity, while the independent variables in this study are father's education, mother's education, mother's work, parental income, number of children, energy consumption level, protein consumption level, and heredity.

## 3. Results and Discussion

**Table 1. Frequency Distribution of Parent Characteristics Based on Father's Education, Mother's Education, Mother's Occupation, Parent Income, Number of Children, Energy Consumption Levels, Parent Protein and BMI Levels in Pelaihari Community Health Center Working Area in 2018**

Characteristics	Z score				Total	%
	Normal		Obesity			
	n	%	n	%		
<b>Father's Education</b>						
No school	1	50	1	50	2	100
Elementary school	4	57.1	3	42.9	7	100
Junior high school	18	66.7	9	33.3	27	100
High school	7	35.0	13	65.0	20	100
Diploma/Bachelor	3	30	7	70	10	100
<b>Mother's Education</b>						
No school	0	0	0	0	0	0
Elementary school	2	33.3	4	66.7	6	100

Junior high school	16	84.2	3	15.8	19	100
High school	13	37.1	22	62.9	35	100
Diploma/Bachelor	2	33.3	4	66.7	6	100
<b>Mother's job</b>						
IRT	21	60	14	40	35	100
Honorary	1	50	1	50	2	100
Civil servants	1	50	1	50	2	100
entrepreneur	8	34.8	15	65.2	23	100
Farmer	2	50	2	50	4	100
<b>Parent Income</b>						
Low (<RMW)	21	67.7	10	32.3	31	100
High (>RMW)	12	34.3	23	65.7	35	100
<b>Number of children</b>						
Little (1-2)	28	48.3	30	51.7	58	100
Many ( $\geq 3$ )	5	37.5	3	37.5	8	100
<b>Energy consumption</b>						
Enough (70-120%)	25	58.1	18	49.1	43	100
More (> 120%)	8	34.8	15	65.2	23	100
<b>Protein consumption</b>						
Enough (70-120%)	12	75.0	4	25.0	16	100
More (> 120%)	21	42.0	29	58.0	50	100
<b>Parent's BMI</b>						
Obesity in father and mother	5	27.8	13	72.2	18	100
Obesity is just one	8	34.8	15	65.2	23	100
Not obesity in father and mother	20	80	5	20	25	100

**Table 2. Cross Tabulation between Father's Education, Mother's Education, Mother's Occupation, Parent's Income, Number of Children, Energy Consumption Level, Protein Consumption Level and Heredity Factors with Fever Incidence of Children 24-59 Months in Pelaihari Health Center Work Area in 2018**

Variable	Z score				$\Sigma$	%	p-value	OR
	Normal		Obesity					
	n	%	n	%				
<b>Father's Education</b>								
Low (Junior High School)	23	63.9	13	36.1	36	100	0.026	3,538
Height ( $\geq$ High School)	10	33.3	20	66.7	30	100		
<b>Mother's Education</b>								
Low (Junior High School)	18	72.0	7	28.0	25	100	0.011	4,457
Height ( $\geq$ High School)	15	36.6	26	63.4	41	100		
<b>Mother's job</b>								
Does not work	24	63.2	14	36.8	38	100	0.025	3,619
Work	9	32.1	19	67.9	28	100		
<b>Parent Income</b>								
Low (<RMW= IDR 2,454,671)	21	67.7	10	32.3	31	100	0.014	4,025
High (>RMW= IDR	12	34.3	23	65.7	35	100		

2,454,671)								
<b>Number of children</b>								
Little (1-2)	28	48.3	30	51.7	58	100	0.708	
Many ( $\geq 3$ )	5	62.5	3	37.5	8	100		
<b>Energy Consumption Level</b>								
Enough (70-120%)	25	58.1	18	41.9	43	100	0.121	
More (> 120%)	8	34.8	15	65.2	23	100		
<b>Protein Consumption Level</b>								
Enough (70-120%)	12	75.0	4	25.0	16	100	0.044	
More (> 120%)	21	42.0	29	58.0	50	100		
<b>Heredity Factor</b>								
No Obesity (BMI <25kg / m <sup>2</sup> )	20	80	5	20	25	100	0,000	
Obesity (Obesity one and Obesity both parents) (BMI> 25kg / m <sup>2</sup> )	13	31.7	28	68.3	41	100		8,615

**Table 3. Results of Modeling Selection of Binary Logistic Regression Analysis of Obesity Risk Factors in Children aged 24-59 Months in Pelaihari Health Center Work Area 2018**

No.	Variable	B	SE	Wald	df	Sign	Exp (B)
1	Father's Education	1.264	0.520	5.906	1	0.015	3.538
2	Mother's Education	1.495	0.551	7.358	1	0.007	4.457
3	Mother's job	1.445	0.538	7.222	1	0.007	4.241
4	Parent income	1.393	1.393	7.066	1	0.008	4.025
5	Number of children	-.580	0.776	0.558	1	0.455	0.560
6	Level of energy consumption	0.957	0.536	3.189	1	0.074	2.604
7	Level of protein consumption	1.421	0.645	4.863	1	0.016	4.143
8	Heredity factor (Parent BMI)	2.154	0.602	12.789	1	0.000	8.615

**Table 4. Results of Modeling Selection of Binary Logistic Regression Analysis of Obesity Risk Factors in Children aged 24-59 Months in Pelaihari Health Center Work Area 2018**

		Variables in the Equation					
		B	SE	Wald	df	Sig.	Exp (B)
Step 6 <sup>a</sup>	KP employment	1.496	.616	5.896	1	.15	4.464
	KK BMI	2.192	.644	11.583	1	.001	8.950
	Constant	-5.698	1.528	13.901	1	.000	.003

#### 4. Discussion

##### a. Relation of Father's Education to Obesity Events in Children aged 24-59 Months in Pelaihari Health Center Work Area in 2018

The statistical descriptive test results listed in Table 1 show that the most father education in the control group is junior high school education (66.7%) while in the case education group the father is high school education (65%). The results of cross-tabulation shown in Table 2 show that in the control group there were 63.9% of respondents with a low education father category, while in the case group there were 66.7% of respondents with a father in the higher education category. The results of the Chi-Square test with a value of  $p = 0.025$  ( $p < 0.05$ ) indicate that there is a relationship between parental education and obesity in children aged 24-59 months with an Odd Ratio of 3.538, which means that father's education is 3,538 times greater risk of causing children to experience obesity.

Increased prosperity in the community followed by an increase in education can change the lifestyle and traditional diet to a practical and ready-to-eat diet that can lead to unbalanced nutritional quality. The practical and ready-to-eat diet if consumed irrationally will lead to excess calorie input which will cause obesity (Fachrunnisa et al., 2016). P Education father with regard to the level of the economic status of the family, because of parental education related to the income level of parents (Faridah, 2017), educational level of parents affects the purchasing power of food either quantity or quality of food consumed by children (Department of Nutrition and Health community 2012). The results of this study are also consistent with the results of research Faridah (2017), with  $p=0.027$  ie there is a significant relationship between father's education with the incidence of overweight and obesity in preschoolers. This research was also reinforced by Widyawa ti research (2014) with a value of  $p=0.018$ , there was a significant relationship between father's education and the incidence of obesity.

##### b. Relationship between Maternal Education and Obesity in Children 24-59 Months in the Pelaihari Health Center Working Area in 2018

Table 1 states that maternal education in the control group is as high as 84.2% junior high school and in the case group the mother's education is as high as 62.9%. The results of cross-tabulation in Table 2 can be seen in the control group, there are 72% of respondents having mothers with low education categories, in the case group it can be seen that 63.4% of respondents have mothers with higher education. The results of the Chi-Square test showed that the value of  $p=0.011$  ( $p < 0.05$ ) showed that there was a significant relationship between maternal education and obesity in children aged 24-59 months with an Odd Ratio of 4.457 which means that mothers who have higher education have 4.457 times greater risk of causing children to become overweight.

The level of education of mothers influences the level of knowledge of mothers about child nutrition, including the selection and provision of food types. Higher educated mothers have a tendency to have extensive knowledge and easily capture information from both formal education taken and from the mass media (print and electronic) to maintain children's health in achieving good nutritional status so that their children's development becomes more optimal (Kristianti, 2013). Generally, high education will shape good behavior, but in this study high maternal education actually has children with overweight nutritional status. The results of this study are in line with the Prassadianratry (2015) study with a  $p$ -value = 0.043 which means that the last education of mothers has a relationship with more nutritional status in children under five and Putri's research results (2015) with  $p = 0.022$  stating that there is a significant relationship between education level mothers with nutritional status of children under five.

**c. Relationship between Mother's Work with Obesity Events in Children aged 24-59 Months in Pelaihari Health Center Work Area in 2018**

Table 1 shows that the work of mothers in the control group is as a housewife as much as 60% and in case group is the mother's occupation as self-employed by 65.2%. The results of cross-tabulation in table 2 show that in the control group there were 63.2 % of the maternal categories did not work. In the case group there were 67.9 % of the categories of mothers working with the results of the Chi-Square test showed a value of  $p = 0.025$  ( $p < 0.05$ ) which means there is a relationship between the work of mothers and obesity in children aged 24-59 months. Odd Ratio value of 3.619 which means that children with working mothers categories of potentially 3,619 times greater than the obesity risk mother does not work.

Working mothers will spend time at work approximately 8 hours a day so that they have limited time in preparing their own processed food whose nutritional content will not be the same as food purchased or obtained at the store (Darmayasa and Sidhiarta (2017). Nutritional state consumed which is not balanced and tends to be excessive every day without control can cause over nutrition in children (Prassadianraty, 2015).

The results of this study are in line with Kusumaningrum's research (2012) which states that the proportion of working mothers who have obese children is 13.9%, higher than the proportion of mothers who do not work who have obese children 11.9%. The statistical test results showed a significant relationship between maternal employment status and obesity incidence in children aged 24–59 months ( $p = 0.004$ ), children who had working mothers had a chance of 1,192 times greater obesity than those who did not work. This is confirmed by the Darmayasa and Sidhiarta (2017) study which states that the prevalence of obesity in children with working mothers is greater than for children with mothers who do not work. The prevalence of obesity in children with working mothers and not working in a row is 32.9% and 32%.

**d. Relationship between Parent Income and Obesity in Children 24-59 Months in Pelaihari Health Center Working Area in 2018**

The results of the cross-tabulation study listed in 2 show that in the control group the parents' income was in a low category as much as 67.7% while in the case group it was in the high-income category as much as 65.7%. Chi-square test results state the value of  $p = 0.014$  ( $p < 0.05$ ) which indicates that there is a significant relationship between parental income and the incidence of fatigue in children aged 24-59 months with an Odd Ratio of 4.025 which means that children with high parental income 4,025 times greater chance of experiencing fatigue than children with parents who have low incomes.

Economic level of the family is the financial ability of the family to be produced to meet the needs of everyday life, the higher a family's economic the level of food consumption will be even better. Likewise, if the family has limited income, it tends to pay less attention to its food needs, especially nutritional needs (Apriadji, 1986).

The results of this study are reinforced by the theory of Sulistyoningsih (2011) which states that the high income that is not balanced with adequate nutrition knowledge, will cause a person to become very consumptive in his daily diet so that the selection of food is based on tastes compared to nutritional aspects . This is in line with the results Parengkuan (2013) with the results of statistical test,  $p = 0.000$ , which means there is a significant relationship between family income with the incidence of obesity and the influence of high income on obesity of children the value of OR = 3.8, meaning that children who have high income families have a risk of 3.8 times being obese compared to children who have low income families.

**e. Relation of the Number of Children with Obesity in Children aged 24-59 Months in Pelaihari Health Center Working Area in 2018**

The results of Tabulation Table 2 can be seen that from the variable number of children in the control group with the category of the number of children a little as 48.3% of respondents. The case group with a small number of children was 51.7 % of respondents. Based on the results of the Chi-Square test showed  $p$ -

value = 0.708 ( $p > 0.05$ ) which means there is no significant relationship between the number of children with the incidence of fatigue in children aged 24-59 months. The absence of a relationship to the results of this study is due to the average number of children in the research conducted by the researchers in the Pelaihari Community Health Center work area of two children, then in the control group and the number of children in the small category, 1-2 children.

The results of this study are in line with research conducted by Musadat (2010) which shows that in obese or not children, the proportion of small and large family members is not much different. So the results of  $p = 0.711$  which states that there is no real correlation between the number of family members with obesity (Musadat, 2010) and Gunawan's research (2011) with a value of  $p = 0.583$  ( $p > 0, 05$ ) which means there is no relationship between the number of children with nutritional status and development of children aged 1-2 years.

#### **f. Relationship between Energy Consumption Level and Obesity Event in Children aged 24-59 Months in Pelaihari Health Center Work Area in 2018**

The results of the research shown in table 2 can be seen that from the variable level of energy consumption in the control group with sufficient energy category as many as 58, 1%, in the case group with enough energy category as much as 41.9%. Based on the results of the Chi-Square test  $p$ -value = 0.121 ( $p > 0, 05$ ) which means there is no significant relationship between the level of energy consumption to the incidence of fatigue in children aged 24-59 months. The absence of a relationship in this study is due to the results of the analysis of the level of energy consumption in the case group and the majority control both in the adequate category (70-120%) and the metabolism of each individual individual is different. There might also be influenced by other indirect factors such as the level of protein intake and heredity or Yag facto not examined in this study such as physical activity.

The results of this study are in line with the research of Pusungula (2013) with the results of  $p = 1,000$  there is no relationship between energy intake and nutritional status based on BB / TB. This lack of relationship in the Pusungula study (2013) was caused by external factors from nutritional status such as school factors and social environmental factors. The results of this study are reinforced by Kusumaningrum's research (2012),  $p$ -value = 0.286, there is no significant relationship between energy intake and obesity in children aged 24–59 months ( $p$ -value  $> 0.05$ ). The absence of a meaningful relationship in Kusumaningrum's study was due to the need for energy for children in the formation of new networks. In addition, although obese children are likely to have enough physical activity even more as we get older so that total energy intake is not too influential on obesity.

#### **g. Relationship between Protein Consumption Levels and Obesity in Children aged 24-59 Months in Pelaihari Health Center Work Area in 2018**

Based on Table 2, it can be seen that from the variable level of protein consumption in the control group with more categories 42.0% and the case group with more categories 58.0%. Based on the results of the Chi-Square test  $p$ -value = 0.044 ( $p < 0.05$ ) which means there is a significant relationship between protein adequacy and the incidence of fatigue in children aged 24-59 months with an Odd Ratio (OR) of 4.143 which means that the level of protein consumption has a risk of 4.143 times greater cause of fatigue.

Protein is one of the important macronutrients for the body besides carbohydrates and fats, besides being useful as an energy source, protein can also function to maintain cells in the body during growth. Foods that are high in protein usually have high fat so they can cause obesity (Sjarif, 2014). Protein will contribute energy for 4 calories in food. Excess protein intake can also be converted into body fat. Consumption of proteins that exceed the needs of the body, amino acids will release their nitrogen bonds and be converted through a series of reactions to triglycerides (Kharismawati, 2010).



High protein intake exceeds the need to cause protein to be stored in adipocyte tissue which requires a high energy process. Excessive protein intake also increases the adipocyte mass. Evidenced from previous research in China in 2002, obtained higher protein intake results in children with more nutrition than children with normal nutrition (Li, 2007). This is reinforced by the Purwaningrum (2012) study using the Chi-square statistical test with a significant relationship between food intake (energy and protein) and nutritional status  $p=0.000$  and Primashanti's research (2015)  $p\text{-value} = 0.001$ .

#### **h. Relation of Heredity Factors to Obesity in Children aged 24-59 Months in Pelaihari Health Center Work Area in 2018**

Based on Table 1 it can be seen that from the parent BMI variable the frequency of parental BMI distribution in the control group with the obesity category in the father and mother were 27.8%, obesity in one alone was 34.8% and not obese in both parents as much as 80%. Whereas in the case group in the obesity category in the father and mother were 72.2 %, obesity in one parent was as much as 65.2% and not obese in the two parents as much as 20%. The results of cross-tabulation shown in Table 2 show the results of the control group with the category of not obese as much as 80% and the case group with the obesity category as much as 68.3% with the Chi-Square test the value of  $p = 0,000$  ( $p < 0.05$ ) which indicates that there is a relationship significant among heredity factors to the incidence of fatigue in children aged 24-59 months with a value of OR 8.615 which means children with obese parents have a risk of 8,615 times more likely to experience fatigue.

Obesity is a condition that tends to be lowered, this is because family members not only share genes but also food and lifestyle that encourage obesity. Obese parents are closely related to the incidence of obesity in children and are a risk factor for childhood obesity which can also state that family members who are obese are very common causes of obesity in children. Because obese family members are predictors of obesity in children (Listiyana et al., 2013).

The results of this study are in line with the research of Jannah and Utami (2018) probability value (0.016), genetic factors have a significant relationship with obesity and Faridah's study (2017) has a relationship between genetics and the incidence of overweight and obesity in children with  $p = 0.000$  and research results Herawati (2015)  $p$  value = 0.0005 ( $p < 0.05$ ) then statistically there is a significant relationship between hereditary factors and over nutrition in children under five.

#### **i. Relationship between Father's Education, Mother's Education, Mother's Occupation, Parent's Income, Number of Children, Energy Consumption Level, Protein Consumption Level and Heredity Factors for Obesity in Children 24-59 Months in Pelaihari Health Center Work Area in 2018**

Based on the SPSS modeling results, the Binary Logistic Regression Test shown in Table 3 shows the variables included in fulfilling the modeling requirements are significant values  $< 0.25$  namely father's education, maternal education, maternal employment, parental income, energy consumption level, protein consumption and heredity. Then the results were tested again, namely the Logistic Regression Test shown in Table 4 shows the results of the most significant variables related to the incidence of obesity in a row with the value of Exp (B) is heredity (8,950) and maternal work (4,464).

Heredity or parental fatness are genetic factors that play a major role in obese children. Obese children usually come from obese families, if parents are one or both obese, their children will obese by 50-60% (Damayanti, 2008). Genes can play a role in obesity by causing one or more abnormalities that regulate eating centers, abnormalities in energy expenditure and fat storage. The three causes of monogenic obesity are MCR-4 mutations which are the most common monogenic causes, congenital leptin deficiencies, and leptin receptor mutations (Guyton, 2007). If the child's parents are not obese or overweight, the possibility of an obese gene can be obtained from grandparents because obesity can be reduced (Utami, 2010).

The economic conditions are important factors that determine the amount and type of food available in the household. Many women who work both belong to skilled and unskilled jobs. Current conditions, in one family of working mothers is a necessity to support the family economy. There are many reasons that cause mothers to work for their daily needs, for children's school fees, etc. Workplaces now generally prefer women who are employed in their offices because women have a more patient, conscientious and loyal nature to their work. These things make children in the family cared for or supervised by household assistants, relatives or grandparents (Suriani, 2019).

The results of multivariate logistic regression analysis showed that hereditary factors were in the first order and the work of mothers in second place had a risk of obesity in children aged 24-59 months. Epidemiologically, if both parents are obese, 80% of their children become obese, if one parent is obese the incidence of obesity becomes 40% and if both parents are not obese, the prevalence becomes 14% (Hidayati, 2006). Children whose parents are obese, find it may be 40% obese, the tendency of increasing obesity rates in children generally due to poor eating habits that occur in their living environment, especially in terms of eating arrangements made by their parents (Permatasari, 2013) Children are often passive and only consume food provided by their parents. Therefore the role of parents is very important in shaping the habits and eating patterns of their children (Wahyu, 2009).

The work of the mother is the second factor most associated with the incidence of fatigue. Mothers who work in families can influence the nutritional intake of children because mothers act as carers and regulators of food consumption of family members. Working mothers spend time at work approximately 8 hours a day. Working mothers have limited time in preparing their own processed foods whose nutritional content will not be the same as food purchased outside, thus causing over nutrition to children if the nutritional conditions consumed are not balanced and take place every day without control (Prassadianratry, 2015). Putri et al (2017) mention working mothers will have less time to pay attention to and care for their children, including in terms of supervision of eating and drinking children.

## 5. Conclusion

There is a significant relationship between father's education, ibi education, maternal occupation, parental support, protein consumption and heredity with the incidence of fatigue in children aged 24-59 months in the 2018 Pelaihari Public Health Center Work Area. There is no significant relationship between the number of children and the level of energy consumption with the incidence of fatigue in children aged 24-59 months in the 2018 Pelaihari Public Health Center Work Area

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