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RELATIONSHIP BETWEEN FAMILY INCOME, HEALTH CHECK - UP AND NUTRITIONAL STATUS OF BADJAO PREGNANT MOTHERS IN SOUTHEAST SULAWESI, INDONESIA

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This is an open - access article distributed under the terms of the Creative Commons Attribution Non - Commercial License, which permits unrestricted non - commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. **ABSTRACT** Background: The nutritional status of pregnant women is strongly influenced by food intake and the presence of infectious diseases.

Other factors that also affect the nutritional status of pregnant women are family income and health services. **Objective:** This study aims to identify the relationships between family income, health check - up, and nutritional status of Badjao pregnant mothers in Southeast Sulawesi, Indonesia . **Methods:** This was a correlational cross - sectional study, which was conducted in October 2013 in Lagasa Village, Duruka district, Muna regency.

The population in this study is all pregnant women in Badjao tribe staying in the village of Lagasa, Duruka district, Muna regency, Southeast Sulawesi Province. There

were 35 samples in this study selected using total sampling. Results: Findings showed that there was statistically no significant relationship between income and nutritional status in pregnant mothers with p - value 0.259 (>0.05); and there was statistically significant relationship between health check - up and nutritional status in pregnant mothers with p - value 0.009 (<0.05).

Conclusion: There is significant relationship between maternal health check up and nutritional status of Badjao pregnant mothers. It is suggested that the Badjao pregnant mothers should have complete health check - up to ensure they are in good condition and early detection for disease. Key words: Family income, Health check - up, Nutritional status BACKGROUND Indonesia still faces a large malnutrition burden, especially in pregnant women.

1 The term 'maternal nutrition' focuses attention on women as mothers, on their nutritional status as it relates to the bearing and nurturing of children. However, the poor nutritional status of many women today compromises their capacity to meet the vigorous demands of their multiple roles as mothers and productive workers. 2 In Indonesia, the problem of malnutrition includes deficiency of chronic energy, which amounted to 21.6% based on the National Health Research in 2010.

While in Southeast Sulawesi, the prevalence of mothers with lack of chronic energy was 27.5%, and increased to 35.6% in 2012 particularly in Muna regency. 3 As literature said that mothers during pregnancy need such nutrients as calcium, vitamin A, thiamine, niacin, riboflavin, ascorbic acid, vitamin D, vitamin B, folate, iron, protein, and energy based on their healthy, maturity, who arrive at conception adequately nourished and who are only moderately active during their pregnancy.

2 However, when mothers are under nutrition, it will increase the risk of poor pregnancy outcomes including obstructed labour, premature babies and postpartum haemorrhage. 4 In addition, pregnant women who suffer from malnutrition will have an impact on the baby it contains such as fetal growth is less optimal and even cause death in infants.

Arisman 5 suggests that women suffering from malnutrition before pregnancy or during the first week of pregnancy tend to give birth to infants suffering from brain damage and bone marrow because the central nervous system is very sensitive in the first 2 - 5 weeks. Mothers with malnutrition throughout the last week of pregnancy will deliver low birth weight babies (<2500 gr).

5 The increase of the prevalence of lack of chronic energy is one of the impacts due to the prolonged economic crisis that caused the food crisis, both in the production and purchasing power, which cause a very worrisome nutrition problem namely the deterioration of the community's nutritional status, especially in high - risk groups such as pregnant women and breastfeeding mothers.

This condition is similar with the situation in Badjao (called a s " Bajo " in Indonesian term) tribe especially in Duruka district. Majority of the people in this community live as traditional fisherman with low economic status. Each family income ranges from Rp. 65.000 (4.89\$) to 90.000 (6.77 \$) per month to take care of 6 - 12 family members.

6 Therefore, under these conditions, they often have difficulty in access to healthcare services that become very worrying, where on the one hand they lack of food, while on the other side they are prone to less nutrient case. According to literature, nutritional status in pregnancy can be caused by income factor. 7 Muliawati 8 also reported that 79% of pregnant women who checked their health at Sambu Puskesmas Boyolali district suffered from malnutrition due to moderate income (Rp.450.000 - Rp.850.000). Low income is the cause of people unable to buy food in the required amount.

Conversely, if income is high then the number and type of food improves also, which affects the adequacy of nutrition. 9 Poverty and a lack of nutritious food supplies are important factors in nutrition. Another factor is the importance of regular medical check up in pregnant women. Tristiyanti 10 reported that pregnancy health examination is a factor that affects the nutritional status of pregnant women.

However, little is known about these factors in the ethnic group of Bajo in Southeast Sulawesi. Therefore, this study aimed to examine the relationships between family income, health check up, and nutritional status among pregnant mothers from the ethnic group of Bajo, Southeast Sulawesi, Indonesia.

METHODS Design and Sample This was a correlational cross - sectional study, which was conducted in October 2013 in Lagasa Village, Duruka district, Muna regency. The population in this study is all Badjao pregnant women who stayed in the village of Lagasa, Duruka district, Muna regency, Southeast Sulawesi Province, Indonesia. There were 35 samples in this study selected using total sampling.

62 68© Public Health of Indonesia – YCAB Publisher, Volume 3, Issue 2, April - June 2017 | ??? ??? ??? Instruments There were three parts of questionnaire used in this study to measure nutritional status of the mothers, family income, and health check - up. Nutritional Status. In this study, nutritional status of the mothers was measured

using anthropometric measurement.

Mothers are defined as Lack of Energy Chronic if upper arm circumference is < 23.5 cm with the criteria: a) weight before pregnant is < 42kg, height < 145 cm, BMI before pregnant < 17.00, and anemia (Hb < 11 gr%). Family income . The income level is calculated per month based on the standard level of income (UMR) in the Muna regency in 2013 with criteria: a) Enough (if earnings = Rp.

1,032,200), and Less (if earnings <Rp. 1,032,200). Health Check - up . It is categorized as Complete: check up according to the gestational age, and Incomplete: check up is not according to the gestational age. Data analysis Data were analyzed using chi - square test to see the relationship between independent and dependent variable.

It is considered significant relationship if the results of χ^2 count > χ^2 table with p - value < 0.05. Ethical Consideration Researchers ensured that all participants in this study have obtained appropriate informed consent. RESULTS Characteristics of the respondents As shown in the table 1, the majority of the respondents had less than 4 family members, low level of educational background (no education – elementary and junior high school), and worked as housewives, while their husbands mostly worked as fisherman. Table 1.

Characteristics of the respondents in Lagasa Village, Duruka district , Muna regency 2013 (n=35) Characteristics n % Family member = 4 persons 27 77.1 > 4 persons 8 22.9 Educational Level Father No education 4 11.4 Elementary school 8 22.9 Junior high school 16 45.7 Senior high school 7 20 Mother No education 8 22.9 Elementary school 17 48.6 Junior high school 8 22.9 Senior high school 2 5.7 Job Father Fisherman 30 85.7

Entrepreneur 5 14.3 Housewife 0 0 Mother Fisherman 0 0 Entrepreneur 0 0 Housewife 35 100 © Public Health of Indonesia – YCAB Publisher , Volume 3, Issue 2, April - June 2017 | ??? ??? ??? ??? Table 2.

Gestational age, income level, the completeness of health check - up, and nutritional status of Bajo pregnant mothers in Lagasa Village, Duruka district, Muna regency 2013 Variable n % Gestational Age Trimester I 12 34.3 Trimester II 15 42.9 Trimester III 8 22.9 Income Level Enough 12 34.3 Less 23 65.7 Health Check up Complete 15 42.9 Incomplete 20 57.1 Nutritional status Chronic energy deficiency 11 36.7 Normal 24 63.3

Table 2 shows that the majority of pregnant mothers were in the trimester 2 of their gestational age (42.9%). However, they have less income level (65.7%), incomplete health check up (20%), and lack of chronic energy (36.7%). Table 3. Relationships

between income level, health check up, and nutritional status of Bajo pregnant mothers in Lagasa Village, Duruka district, Muna regency 2013

Variable	N	%	N	%	n	%	P Value (Fisher test)
Income	29	16.7	39.1	10	14	83.3	0.259
Nutritional status	11	31.4	24	68.6	35	100	
Health check up	1	6.7	14	93.3	15	100	0.009
Complete	1	6.7	14	93.3	15	100	
Incomplete	10	50	10	50	20	100	
Total	11	31.4	24	68.6	35	100	

As shown in the table 3, from 12 pregnant mothers who had a good income, 83.3% of them had normal nutritional status, and 16.7% had chronic energy deficiency. On the other hand, of 23 mothers who has low income, 60.9% of them had normal nutritional status, and 39.1% had chronic energy deficiency. Chi square analysis showed p - value 0.259 (>0.05), which indicated that there was statistically no significant relationship between income and nutritional status in pregnant mothers.

Table 3 also shows that there was a difference of the nutritional status for those who had complete and incomplete check up. Those who had complete check up, 93.3% of them had normal nutritional status; while those who had incomplete check up, 50% of them had normal status and 50% of them had chronic energy deficiency. Chi square test showed p - value 0.009 (<0.05) which indicated that there was statistically significant relationship between health check up and nutritional status in pregnant mothers.

70© Public Health of Indonesia – YCAB Publisher , Volume 3, Issue 2, April - June 2017 | DISCUSSION This correlational cross - sectional study was conducted to examine the relationships between family income, health check up and nutritional status in pregnant mothers in Lagasa Village, Duruka district, Muna regency. The result of this study showed that that there was statistically no significant relationship between income and nutritional status in pregnant mothers.

This result is in contrast with the previous studies, which mentioned that income factor influences nutritional status of mothers in pregnancy. 7 Similar with Muliawati 8 reported that 79% of pregnant women who checked their health at Sambu Puskesmas Boyolali district suffered from malnutrition due to moderate income (Rp.450.000 - Rp.850.000). It is also said that low income is the cause of people unable to buy food in the required amount.

If income is high then the number and type of food improves also, which affects the adequacy of nutrition. 9 Poverty and a lack of nutritious food supplies are important factors in nutrition. Findings of this study also revealed that there was statistically significant relationship between health check up and nutritional status in pregnant

mothers.

This result is in line with the previous study mentioned that pregnancy health examination is a factor that affects the nutritional status of pregnant women. Every pregnant woman checks her pregnancy at least 4 times during pregnancy. Routine testing can make sure that mothers are in good health and that they do not have any illnesses or other conditions that could affect your pregnancy.

It also allows early detection of health problems that could arise during pregnancy, and their treatment, thus increasing the chance for a normal pregnancy and the birth of a healthy baby. LIMITATION OF THE STUDY This study only measure nutritional status based on anthropometry measurement, which might be considered a limitation of this study.

Further studies need to assess nutritional status based on intake - output of mothers, dietary behavior, health related belief, knowledge, and other factors. CONCLUSION In conclusion, there was statistically no significant relationship between income and nutritional status in Bajo pregnant mothers; and there was statistically significant relationship between health check - up and nutritional status in Bajo pregnant mothers in Lagasa Village, Duruka district, Muna regency.

Therefore, it is suggested that the pregnant mothers in Badja tribe should have complete health check - up to ensure they are in good condition and early detection for disease. REFERENCES 1. World Health O. Nutrition Landscape Information System (NLIS). Country profile indicators: interpretation guide. Nutr Landsc Inf Syst NLIS Geneva WHO. 2010. 2. University UN. Maternal malnutrition. <http://archive.unu.edu/unupress/food/8F043e/8F043E0a.htm> . Accessed May, 2017.

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