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THE RELATIONSHIP BETWEEN WEIGHT INCREASES WITH UPPER ARM CIRCUMFERENCE AMONG THIRD TRIMESTER PREGNANT WOMEN IN YOGYAKARTA, INDONESIA

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ABSTRACT

Background: *The incidence of Indonesian pregnant women who suffer from Chronic Energy Deficiency (CED) reached 21.6%. In Yogyakarta, the presentation of CED reached 22.69%. Chronic Energy Shortage (CES) is mainly caused by nutrient intake imbalance that influences the weight gain in pregnant women.*
Aims: *This is to knowrelationships between body weights among third-trimester pregnant women with their upper arm circumference.*
Methods: *The study was a quantitative analytical study with cross-sectional approach. This research employed an accidental sampling method to select the 40 third-trimester pregnant women who visited health Centre in Yogyakarta. The data was then analysed using Chi Square test.*
Results: *There was a significant relationship between weight gain with upper arm circumference among third-trimester pregnant women (pvalue = 0.012). As a note that, the weight gain of the participated pregnant women and their size upper arm circumference were in the regular group.*
Conclusion: *The significant relationship between weight gain and higher arm circumference among third-trimester pregnant women alarm the needs to provide an advice for nutrition intake balance during pregnancy in Yogyakarta.*

Keywords: *Weight Loss, upper arm circumference, Third Trimester Pregnant women*

INTRODUCTION

The prevalence of women of childbearing age (WUS) suffering from Chronic Energy Deficiency(CED) in 2012 in Indonesia is 17.6%. Central Java province for the year 2012 based on reports from county or city CED pregnant women who have reached 18.45%. The prevalence of Chronic Energy Deficiency in Yogyakarta reached 22.69%. The prevalence of CED in Sleman regency reached 2.82% [1].

Nutritional problems play a significant role in pregnancy because the gestation period will determine the quality of human resources in the future because the development of the child is determined by the current condition of fetal life in the womb. In Indonesia, there are a variety of nutritional problems that Chronic Energy Deficiency (CED), Iodine deficiency disorders (IDD), Vitamin A Deficiency (VAD) and Iron Nutritional Anemia (AGB) [2].

The cause of malnutrition in some communities in Indonesia are caused by two things: directly, through the quality and quantity of food intake and infectious diseases as well as the

indirect object through families in meeting their food needs, parenting is not right, health care and environmental sanitation poor, The dominant factor that is causing widespread state of unbalanced nutrition is the weight gain is not healthy in the community [3].

Food in pregnant women is imperative because the food is a source of nutrients needed for the development of the fetus of pregnant women and their bodies. But the food consumed by a pregnant woman is not the only factor affecting the nutritional status of pregnant women. The factors that could influence the nutrition of pregnant women including the socio-economic factors, biological factors, factors consumption patterns and factor maternal behaviour [4].

Small LILA community in Indonesia can be seen from various nutritional problems that arise, such as malnutrition, iron deficiency anaemia, iodine deficiency disorders and lack of vitamin A. This is certainly an impact on the quality of human resources, because MUAC influence intelligence, endurance against disease, infant mortality, maternal mortality and productivity. The problem is a very complicated issue, because many factors that can cause, such as the level of food consumption, infectious diseases and other factors that relate to aspects of the production and supply of food, economics, education and culture [2].

Pregnancy poses some changes on women, one of which is the physical changes is an increase in weight. These changes often occur until after delivery. For women who are slim and very concerned about body shape, weight gain is a big problem. This research aims to mengidentifikiasi weight gain with upper arm circumference in pregnant women.

RESEARCH METHODS

This research forms an analytic research. In this study, researchers describe the study site and the characteristics of the respondent within a specified timeframe and analyse the relationship between weight gain and upper arm circumference at third-trimester pregnant women. This research is quantitative done by examining the data collected by Statistics. The approach used is cross-sectional measurement means where the independent variable is the weight gain in the third-trimester pregnant women and dependent is LILA in the third-trimester pregnant women do at the same time.

This research was conducted in Public Health Yogyakarta Indonesia from 18 to 25 July 2013. The study population was the whole third trimester pregnant women who checkups in Puskesmas Yogyakarta Indonesia are totaling 58 people.The sample in this study were pregnant women Trimester III checkups in Public Health Yogyakarta Indonesia is about 40 people who meet the inclusion and exclusion criteria using accidental sampling technique. The independent variables in this study were weight gain in pregnant women in the third trimester Public Health Yogyakarta Indonesia. The dependent variable in this study is LILA the third-trimester pregnant women in Public Health Yogyakarta Indonesia.

Type Data collected included primary data and secondary data. Primary data in this study using observation sheet that data on weight gain in pregnant women and LILA Trimester III obtained from direct measurement at the time of the survey. Secondary data in this study have been achieved from the register book visit Antenatal Care in Public Health Yogyakarta Indonesia. Data collection techniques weight gain collected with documentation technique to determine the patient KIA book records the respondent's prepregnancy weight, as well as the method of weighing to determine the final weight of respondents at the time of data collection. Furthermore, the data collected by LILA upper arm circumference measurement techniques using MUAC tape.The research instrument used to determine the weight of respondents are scales of departure,

while to know the upper arm circumference of respondents using MUAC tape. The measurement results are then inserted in the observation sheet.

The data in this study carried out by the steps: Editing the data, Coding, Data Entry, Tabulating. Analysis of the data in this study include the univariate analysis were used to explain or describe the characteristics of each of the variables considered, such as frequency distribution and percentage of the data of weight gain and the data LILA respondents, and bivariate analysis using Chi-square test with an error rate $\propto = 0\ 05$.

RESULTS

This research was conducted in Public Health Yogyakarta Indonesia is located in Jl. P. Diponegoro No. 9 Yogyakarta on 18 to 25 July 2013. The working area of Public Health Yogyakarta area of 156,000 hectares, with a population of 36 642 inhabitants spread across three villages namely region Bumijo Village, Village Cokrodiningratan, and Sub Gowongan. Type of health services in Public Health Yogyakarta Indonesia consists of six types of basic services, namely treatment, Prokes, environmental health, nutrition, communicable disease control and KIA which includes antenatal care, immunisation and family planning.The results of data processing and analysis can be seen in the tables below:

Table. 1 Frequency Distribution Characteristics of Respondents in Public Health Yogyakarta Indonesia June 2013

Characteristics of Respondents	Frequency	Percentage
Age		
a. < 20 year	4	10.0
b. 20-35 year	30	75.0
c. 35 year	6	15.0
Parity		
a. 1-3 person	37	92.5
b. > 3 person	3	7.5

Table.2 Distribution Frequency Weight Gain in Pregnancy Trimester III in Public Health Yogyakarta Indonesia June 2013

No	Variables		Frequency	Percentage
1	*Weight*			
	Abnormal		10	25.0
	Normal		30	75.0
		Total	40	100.0
2	*Upper arm circumference*			
	Abnormal		3	7.5
	Normal		37	92.5
		Total	40	100.0

Table.3 Relationship with Size Weight Gain Upper Arm Circumference in Pregnancy Trimester III in Public HealthYogyakarta Indonesia June 2013

Weight	Upper arms circumference				Total		cc	p-value	X^2
	Abnormal		Normal						
	F	%	F	%	f	%			
Abnormal	3	30.0	7	70.0	10	100			
Normal	0	0.0	30	100	30	100	0.442	0.012	9.730
Amount	**3**	**7.5**	**37**	**92.5**	**40**	**100**			

The results of the frequency distribution are known that the majority of maternal weight changes included in the category of standard as many as 30 people (75.0%), and strange banal ten people (25.0%). A pregnant woman of average weight gains from 12.5 to 17.5 kg during pregnancy.

DISCUSSION

Factors affecting maternal weight gain include the nutritional status of pregnant women, prenatal care, disease during pregnancy and socioeconomic. These four factors are factors that significantly affect maternal weight gain interrelated. The adequacy of nutrition of pregnant women are affected by the socio-economic status of the family in the fulfilment of basic needs, and regular pregnancy tests can detect morbidities during pregnancy and diet program that is appropriate for pregnant women.Based on the description above can be concluded that the weight gain in pregnant women is a common thing for their growing fetus, but more weight gain or excessive weight loss can be a complication of pregnancy and can be dangerous for mother and baby.

Results of unknown size frequency distribution LILA pregnant women in the standard category as many as 37 people (92.5%), and strange as many as 3 people (7.5%). LILA size is not average (7.5%) due to not experience healthy weight gain in pregnant women. MUAC measurements on a group of women of childbearing age (WUS) is one of the ways of early detection is easy and can be done by ordinary people, to know the risk group Chronic Energy Deficiency (CED).

Upper arm circumference is an indicator of nutritional status that is used primarily for the detection of protein-energy malnutrition in children and is an excellent tool for detecting women of childbearing age and pregnant women at risk of having a baby with low birth weight. MUAC measurements on a group of women of reproductive age (WUS) and pregnant women is one of the ways of early detection is easy and can be done by ordinary people, to know the risk group of chronic energy deficiency (CED). MUAC measurements can not be used to monitor changes in the nutritional status in the short term. MUAC measurement is used for analysis is very easy and fast.

In pregnant women, Upper Arm is used to predict the likelihood of babies born with low birth weight. Pregnant women are known to suffer KEK seen from MUAC measurements, with a threshold LILA WUS (pregnant women) have a risk of KEK in Indonesia is 23.5 cm. If the size of MUAC of less than 23.5 cm or in part LILA red tape, that the woman at risk of KEK and is expected to give birth to lower birth weight (LBW). LBW have a risk of death, malnutrition, impaired growth and impaired child development.Based on the above description can be concluded that MUAC measurements in pregnant women are one of the risk groups early detection of chronic energy shortages that can be prevented with proper nutrition and normal birth.

Based on the statistical test using chi-square known the value X2 = 9730 and p-value = 0.012, where the p-value <0.05 so that it can be concluded that there is a relationship between weight gain and the size LILA the third trimester pregnant women in Puskesmas Yogyakarta Indonesia with the value cc = 0.442, which means that the weight gain was followed by a change in the size of the upper arm circumference in pregnant women.Results of cross tabulation between weight by size LILA known that as many as 10 women experience weight gain is not normally consists of six people with less weight, two people experience weight loss and 2 are overweight.

Excessive weight gain can be harmful to pregnant women such as: risk babies during childbirth difficulties, in the third trimester of pregnancy is a possibility of danger signs of preeclampsia, can be a symptom of diabetes mellitus. While the risks of excessive weight loss can be harmful to the fetus does not develop, malnutrition, anaemia so that the difficulties in childbirth.

Weight gain in the first trimester is relatively small, does not rise or even decreases due to the physiological discomfort that often occurs. The increase in weight quite rapidly occurs in the second and third trimester, in this period that other monitoring is necessary to weight gain. Weight gain in the third-trimester pregnant women considered normal if the range> 1 and <2 kg per month.

Women with small category, increased their ideal weight while pregnant is 12.5 to 18 kg, while for women with a BMI (Body Mass Index) is normal, ideal body weight gain during pregnancy is 11.5 to 16 kg and for females with a BMI (Body Mass Index), increased weight between 7 to 11.5 kg. Maternal weight gain is recommended around 1-2.5 kg in the first trimester and then an average of 0.5 kg per week. Until the end of pregnancy, weight gain is recommended depending on the initial nutritional status of mothers (less than 14-20 kg Mrs BB, BB ordinary mothers and mothers from 12.5 to 17.5 kg more BB / obesity from 7.5 to 12.5 kg).

The results of the frequency distribution are known that most mothers have a lifespan of 20-35 years. Age 20-35 years old is the ideal age for a woman in the reproductive system because at that age the reproductive organs have matured when compared with pregnant women with age <20 years or> 35 years who are at risk of pregnancy. Age a person will experience changes in physical and psychological aspect (mental). This change occurred because of the maturation of organ function. In the aspect of moral or spiritual, the level of thinking has become increasingly mature and immature.

Based on the parity is known that most mothers have 1-3 children, as many as 37 people (92.5%). Parity (number of children) is the state of women relating to the number of children born. Parity is also one of the factors that affect the nutritional status of pregnant women. Parity is a factor that significantly affects the outcome of conception. Need to watch out because the mother had been pregnant or gave birth to children four times or more, then it is likely that many will encounter circumstances such as anaemia, malnutrition, sagging in the abdominal wall and uterus wall. Parity is also associated with the mother's ability to prepare first food intake during pregnancy that can affect weight gain is normal during pregnancy.

Excessive weight gain or weight loss disproportionate influence on fetal development and delivery process. When women experience weight loss is an indicator of malnutrition in pregnant women affect the mother, the birth and the fetus. Efforts to determine malnutrition in pregnant women can be detected by measuring LILA. The results are consistent with research Yuliati (2011) concluded that there is a relationship a relationship nutritional status of pregnant women with MUAC measurements and weight in The results are consistent with research Yuliati (2011)

concluded that there is a relationship a relationship nutritional status of pregnant women with MUAC measurements and weight in Hospital Panti Wilasa Citarum Semarang.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, the researchers gave some advice that is for health center staff especially nutritionists to provide counselling to pregnant mothers about balanced nutrition in pregnant women as well as explain the dangers of malnutrition during pregnancy in a community service program. The need for further research on this study by examining the relationship between economic, educations, employment with weight gain in pregnant women.

Limitations of this study include: (1) This study only examined the nutritional status is calculated based on anthropometric seen from the register book visit Antenatal Care and weight measurements and measurements of upper arm circumference directly at the time of the study, there are several other techniques related to nutritional status has not been considered as: calculate BMI (Body Mass Index) to determine the nutritional status of pregnant women. (2) The study involved a limited number of research subjects, as many as 58 people, so the results can not be generalized to the group of topics with a significant amount.

REFERENCES

[1] Baliwati. *Introduction Of Food And Nutrition*. Jakarta: Penebar Swadaya; 2006.
[2] Depkes RI. *Guidelines For Measuring Instrument Measurement Upper Arm Circumference In Women Of Childbearing Age*. Jakarta: Departemen Kesehatan; 2009.
[3] Irmayanti. *The Nutritional Needs Of Pregnant Women*. Yogyakarta: Khasanah Ilmu-Ilmu Terapan; 2007.
[4] Kristiyansari W. *Maternal Nutrition*. Yogyakarta: MedikaNuha; 2010.
[5] Manuaba IGB. *Obstetrics And Content Of Science Education And Family Planning For A Midwife*. Jakarta: EGC; 2009.
[6] Meiyenti S. *Nutrition in Socio-Cultural Perspective*. Padang: Andalas University Press; 2008.
[7] Notoatmodjo. *The Public Health Sciences*. Jakarta: Rineka Reserved; 2010.
[8] Nursalam. *Concept And Application Of Nursing Science Research Methodology Guidelines Thesis, And Nursing Research Instruments*. Jakarta: Salemba Medika; 2008.
[9] Prawirohardjo S. *Obstetrics*. Jakarta: Yayasan Bina Pustaka; 2007.
[10] Supariasa, Bakri, and Dawn. *Nutritional Status Assessment*. Jakarta: EGC; 2002.
[11] Soetjiningsih. *Growth of Youth and Its Problems*. Jakarta: SagungSeto; 2010.