

THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS (BODY MASS INDEX) OF THREE PREGNANT WOMEN WITH ESTIMATED FETAL WEIGHT

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ABSTRACT

Many third trimester pregnant women experience problems related to nutritional status that affect the growth and development of their fetus. This study aims to determine the relationship between Body Mass Index (BMI) and Estimated Fetal Weight (TBJ). This research method uses an analytical survey method. Population in this study were third trimester pregnant women. Amount Samples were 72 third trimester pregnant women selected by accidental sampling who met the inclusion criteria. Using the Chi-Square test, the results obtained were $p=0.004$ ($p<0.05$). This shows that there is a significant relationship between body mass index and estimated fetal weight at UPT Puskesmas Watampone. The final conclusion of the researchers is that mothers pay more attention to fulfilling nutrition during pregnancy to prevent births with abnormal baby weights.

Keywords: body mass index; estimated fetal weight; three pregnant women

INTRODUCTION

Nutrition is a very influential factor on the final outcome in pregnancy. There are several factors that affect the nutritional status of pregnant women such as poverty, lack of knowledge about good and necessary nutrition, an unclean environment, consuming unhealthy food, and poor health are also factors that affect the nutritional status of pregnant women as well as growth and fetal development (Fauziah and Sutejo, 2016). The policy of the Ministry of Health in an effort to accelerate the reduction of MMR is to approach mother and child services at the primary and referral levels which basically refers to the strategic intervention "four pillars of Safe Mother Hood" where the second pillar is antenatal care which aims to monitor pregnancy development and detect abnormalities or complications that accompany pregnancy early and handled properly (Saifudin, 2016).

Based on profile data from the South Sulawesi Provincial Health Office, it was stated that in 2016 the percentage of pregnant women who experienced chronic energy deficiency (KEK) with inappropriate weight gain (BMI) was 87.8% and mothers with weights that did not comply with 15% gestational age. Determination of nutritional status is calculated using the Body Mass Index (BMI). BMI is an easy, inexpensive and simple method used to assess the nutritional status of pregnant women, but BMI cannot measure body fat levels directly. Measurements and assessments using BMI are related to nutritional deficiencies and/or excess status (Sulistyoningsih, 2011).

Body Mass (BMI) is used as an indicator of the nutritional status of pregnant women and the basis for recommendations for increasing maternal weight in pregnancy. Maternal nutritional status before and during pregnancy can affect the growth of the fetus being conceived (Ministry of Health, 2019). The increase in body weight in the first and third trimesters is an important indicator of fetal development. The recommended increase in body weight in pregnant women who have a normal

BMI (19.8-26) is 1 to 2 kg in the first trimester and 0.4 kg per week. The need to increase the weight of all pregnant women is not the same but must see from the BMI or BMI before pregnancy the addition of the mother's weight and TB before pregnancy (BMI/IMT) (Tyastuti, 2016). Estimation of fetal weight is considered important during pregnancy because the growth of the intrauterine fetus is not constant, which is fast at the beginning of the period then slows down as the gestational age increases and is associated with an increased risk of complications during childbirth for the mother and baby such as excess birth weight (Yongki, 2012).

METHOD

The type of research that will be used is the analytical survey method. The design in this study was carried out in a cross-sectional way. The population and sample of this study were third trimester pregnant women (28-40 weeks) who came to check their pregnancy at UPT Puskesmas Watampone. Sampling technique by accidental sampling in accordance with the inclusion criteria. Data collection was carried out by measuring BMI examination data (BB and TB) of pregnant women and TBJ through measurement of TFU using the Mc Donald technique. In measuring the estimated fetal weight, the Johnson-Toschach formula is used, which measures the distance from the top of the pubic symphysis to the uterine fundus and descent of the lower part of the fetus. Data analysis was carried out using univariate and bivariate methods.

RESULTS

Table 1.

Distribution of Body Mass Index Frequency of Third Trimester Pregnant Women (n=72)

Body mass index	f	%
Low	3	4.2%
Normal	32	44.4%
Tall	18	25.0%
Obesity	19	26.4%

Table 1 shows that out of 72 respondents there were 3 (4.2%) pregnant women who had a low Body Mass Index, 32 (44.4%) pregnant women who had a normal Body Mass Index, 18 (25.0%) pregnant women who have a high body mass index, and 19 (26.4%) pregnant women who have a body mass index who are obese.

Table 2.

Frequency Distribution of Estimated Fetal Weight in Third Trimester Pregnant Women (n=72)

Estimated Fetal Weight	f	%
In accordance	39	54.2%
It is not in accordance with	33	45.8%

Table 2 shows that out of 72 respondents, there were 39 (54.2%) pregnant women who had appropriate estimated fetal weight and 33 (45.8%) pregnant women who had inappropriate estimated fetal weight.

Table 3.
 Frequency Distribution of Relationship between Body Mass Index and Estimated Fetal Weight

BMI No		Estimated Fetal Weight				Amount	%	Pvalue
		In accordance		It is not in accordance with				
		f	%	f	%			
1	Low	1	33.3%	2	66.6%	3	100%	0.004
2	Normal	25	78.1%	7	21.8%	32	100%	
3	Tall	7	38.8%	11	61.1%	18	100%	
4	Obesity	6	31.5%	13	68,4	19	100%	

Table 3, it was found that of the 72 respondents who had estimated fetal weight according to gestational age, there were 1 (33.3%) in mothers with low body mass index, 25 (78.1%) in mothers with normal body mass index, 7 (38.8%) in high body mass index mothers and 6 (31.5%) in obese body mass index mothers. Meanwhile, there were 2 (66.6%) mothers with low body mass index, 7 (21.8%) women with normal body mass index, 11 (61.1%) women with low body mass index. high body mass, and 13 (68.4%) in obese body mass index mothers. From the results of the Chi-Square statistical test at $P = 0.004$ (<0.005) which shows that there is a relationship between the Body Mass Index of third trimester pregnant women and Estimated Fetal Weight.

DISCUSSION

Based on data obtained from UPT Puskesmas Watampone where the variables between patients with weight gain according to the recommendations and those who did not comply with the recommendations through the Chi-Square test showed that there was a relationship between the nutritional status (body mass index) of third trimester pregnant women and the estimated fetal weight. where the p-value obtained is 0.004 ($p < 0.05$). The results of this study are in line with the results of a study by Nurhayati (2016) who examined "The Influence of BMI on Estimated Birth Weight" which showed that from the results of statistical tests using chi-square fisher's exact, it was seen that there was a significant relationship between pre-pregnancy BMI and birth weight with p-value -value = 0.006 with OR: 11.6 (95% CI: 0.29-38.0) meaning that mothers with low pre-pregnancy BMI have a 11.6 chance of giving birth to babies with low birth weight compared to mothers who have moderate BMI . Pre-pregnancy BMI is used to monitor weight gain during pregnancy because rationally thin pregnant women need more weight gain during pregnancy than normal women. Pre-pregnancy BMI can also be used as an indicator of good or bad nutritional status of pre-pregnant women.

This research is also supported by the research conducted Ningrum and Cahyaningrum (2018) which states that there is a very strong and significant relationship between BMI of pre-pregnant women and baby's birth weight. The results of the influence analysis obtained an r^2 value of 0.880, which means that the nutritional status of pre-pregnant women has an effect of 88% on the newborn's weight. The results of this study are in line with research that has been conducted by (Nur Aiun, Yanti and Laila, 2020) that there is a relationship between body mass index and maternal weight gain during pregnancy and birth weight. BMI and maternal weight gain during pregnancy affect the baby's birth weight.

This is in accordance with the theory put forward by (Firdaus et al, 2014). Where BMI is used as a guideline for the nutritional status of the mother before pregnancy and also determine weight gain optimal. Weight before pregnancy and weight change over time Pregnancy is an important clinical parameter for estimate the baby's weight, Mother with low body weight before pregnant or gaining weight low/weight gain no quite a lot during pregnancy more likely to give birth to LBW babies. Thus, measurement of the nutritional status of pregnant women based on pre-pregnancy BMI can be used as an anthropometric parameter to predict the birth weight of the baby so that the incidence of LBW and its long-term adverse effects can be prevented and resolved immediately. In addition, pre-pregnant women need to pay attention to nutritional status from the beginning of pregnancy because it will have an impact on the baby's birth weight(Kurdani, 2020).

CONCLUSION

There is a relationship between the body mass index of pregnant women and the estimated fetal weightit is expected that mothers pay attention to prepregnancy nutritional status by measuring BMI.

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