

Relationship Between Nutritional Status and Interpretation of Fetal Weight in the 3rd Trimester Pregnant Women

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ABSTRACT

Pregnant women who are malnourished will suffer from chronic energy deficiency (CED), resulting in physical weakness, anemia, bleeding, the mother's weight does not increase normally, diabetes in pregnancy, and the risk of giving birth to a baby with low birth weight is 2-3 times greater than mothers with good nutritional status, in addition to the possibility of the baby dying by 1.5 times. This study aims to determine the relationship between the nutritional status of third-trimester mothers and the interpretation of fetal weight. This study used a descriptive method with a cross-sectional approach. The nutritional status of pregnant women in the third trimester is mostly good as many as 28 people (80%). And the interpretation of normal fetal weight is 28 people (80%). Chi-square test results with a value of $p = 0.000 < \alpha (0.05)$. There is a relationship between nutritional status and the interpretation of fetal weight in third trimester pregnant women.

Keywords: Nutritional Status, Pregnant Women and Fetal Weight

INTRODUCTION

The gestation period is a period when the mother needs more nutritional elements than what is required from a non-pregnant state. These nutrients are not only needed to meet their own needs, they are also needed for the growth and development of the fetus in the womb (Moehji, 2013), care for the needs of pregnant women who are not fulfilled can have bad consequences for the mother and fetus. The fetus can experience defects or be born with low birth weight (LBW), anemia in infants, miscarriage, and neonatal death. Pregnant women who are malnourished will suffer from chronic energy deficiency (CED), resulting in physical weakness, anemia, bleeding, the mother's weight does not increase normally and diabetes in pregnancy which endangers the mother's

life. Pregnant women with poor nutritional status will be at risk of giving birth to babies with low birth weight 2-3 times greater than those with good nutritional status, besides the possibility of the baby dying by 1.5 times (Arisma, 2007 in Marlenywati 2010). The 99% maternal mortality rate (AKI) occurred in developing countries in 2013 per 10,000 live births compared to per 100,000 live births in developed countries. Mother died from complications during pregnancy and after pregnancy. More than 60,000 maternal deaths in 115 countries show that pregnant women already have a history of poor health (such as diabetes, malaria, HIV, obesity) which causes 28% of deaths. Other causes include severe bleeding 27%, high blood pressure 14%, infection 11%, childbirth and other direct causes 9%,

abortion complications 8% and blood clots (embolism) 3% (World Health Organization, 2014).

According to the 2012 Indonesian Demographic and Health Survey (SDKI) report, the MMR was 359 per 100,000 live births (RI Ministry of Health, 2014). The five biggest causes of maternal death are bleeding (32%), hypertension in pregnancy 25%, infection (5%), prolonged labor (5%), and abortion (1%). Bleeding, hypertension in pregnancy, and infection are the three main causes of maternal death in Indonesia based on the 2013 MOH report. The causes of death are closely related to nutritional intake, for example bleeding is a result of iron deficiency, eclampsia is caused by hypertension which is also related to intake nutrition (Nasir, 2013).

The 2013 basic health research (Riskesdes) nutritional status report reports the risk status of chronic energy deficiency (KEK) of pregnant women aged 15-49 years based on the national Upper arm circumference indicator (upper arm circumference) of 24.2. The prevalence of CED aged 45-49 years rose to 15.1% in 2007 and 2013. High-risk pregnant women are pregnant women with a height.

Estimation of fetal weight is considered important during pregnancy because the growth of the intrauterine fetus is not constant, that is, it takes place quickly at the beginning of pregnancy then slows down with increasing gestational age and is associated with an increased risk of complications during childbirth for the mother and baby such as low birth weight or birth weight. excess (yongki, judha, & sudarti, 2012).

The 2007 National Development Planning Agency (Bappenas) report targeted the 2015 Millennium Development Goals (MDGs) to reduce MMR by three-quarters from the 1990 figure with the assumption that the current ratio was around 450 to 110 (Stalker, 2007).

Government programs at the Community Health Center (Puskesmas) try to monitor the nutritional status of pregnant women

with at least 4 antenatal visits during pregnancy, filling out the Towards Health Card (KMS) for pregnant women and giving iron tablets (Nasir, 2013).

Antenatal services are carried out according to the Midwifery Service Standards (SPK) in its application covering 7T and increasing to 10T, namely weighing body weight and measuring TB, measuring blood pressure, measuring upper arm circumference (nutritional status value), measuring Uterine Fundal Height (Uteri Fundus), determining fetal presentation and Fetal Heart Rate (DJJ), screening for tetanus immunization status and administering Tetanus Toxoid (TT) immunization if needed, administering Fe tablets of at least 90 tablets during pregnancy, laboratory tests, case management, talk talk (counseling) including Birth Planning and Complication Prevention (P4K) and postpartum family planning (Ministry of Health RI, 2010 in Novita 2013).

Coverage of pregnant women visits in Indonesia in 2013 reached 95.25% K1 and 86.85% K4 and in 2015 increased to 97.86% K1 and 89.33% K4. While the coverage of visits of pregnant women in South Sulawesi Province in 2012 visits of pregnant women was as much as K1 104.02% and K4 95.43%, then in 2014 it increased with the percentage of K1 101.89% and K4 97.09%, while exceeded the 2015 MSS target for K1 was 98% and K4 was 95% (Ministry of Health RI, 2015).

Data from the Kassi-Kassi Health Center, in 2015 the number of pregnant women was 1,645 and some pregnant women with KEK (Upper arm circumference < 23.5 cm) 55 pregnant women (3.34%), in 2016 the number of pregnant women was 1,689 and some pregnant women with KEK (Upper arm circumference < 23.5 cm) 89 pregnant women (5.26%), in 2017 the number of pregnant women was 1,710 and some pregnant women with CED (Upper arm circumference < 23.5 cm) 137 pregnant women (8.01%) (Prov Health Profile Sulsel, 2018).

Data from the Kassi-Kassi Health Center, the coverage of K1 was 100% and the K4 was 96.98% in 2016. Meanwhile in 2017, the coverage of K1 at the Kassi-Kassi Health Center was 83.33% and the K4 coverage was 82.51%. The data shows that K4 coverage at the Kassi-Kassi Health Center has not reached the government's target of 95.0%. The aim of this study was to determine the relationship between nutritional status and TBJ in third trimester pregnant women at the Kassi-Kassi Health Center in Makassar City. (Prov Sulsel Health Profile, 2018).

METHODS

This research method uses descriptive analysis with a cross sectional approach. The population in this study were third trimester pregnant women who underwent antenatal care examinations at the Kassi-Kassi Health Center in March-May 2018. The sampling technique in this study used purposive sampling, namely 35 respondents.

RESULT

Table 1. Frequency Distribution of Respondents Based on Age, Gestation, Upper arm circumferences of Pregnant Women in Third Trimester

Characteristics	Frequency (n=35)	Percentage
Age (Years)		
20-29	24	68,6
30-35	11	31,4
Gestation		
36-38 Weeks	31	88,6
39-40 Weeks	4	11,4
Upper arm circumference		
Enough	29	82,9
Not enough	6	17,1
Interpretation of Fetal Weight		
Normal	29	82,9
Abnormal	6	17,1

Table 1 above shows that 24 respondents were aged 20-29 (68.6%) and 11 respondents were aged 30-35 (31.4%). 31 respondents had a gestational age of 36-38 weeks (88.6%) and 4 respondents had a gestational age of 39-40 weeks (11.4%). 29 respondents had Upper arm circumference \geq 23.5 cm (82.9%) and 6 respondents had Upper arm circumference $<$ 23.5 cm (17.1%). 29 respondents had TBJ \geq 2,500 grams (82.9%) and 6 respondents had TBJ $<$ 2,500. grams (17.1%).

Table 2. Distribution of Respondents Based on Relationship with Nutritional Status Interpretation of Fetal Weight in Mother Third Trimester Pregnant

Nutritional Status of Pregnant Women	Fetal Weight				Frequency		P Value
	Normal		Abnormal		n	%	
	n	%	n	%			
Enough	29	100	0	0.0	29	100.0	0.00
Not enough	0	0.0	6	100	6	100.0	
Total	29	82.9	6	17,1	35	100.0	

Based on table 2 above, the results of the analysis show that out of 29 respondents with good nutritional status and normal Interpretation of Fetal Weight there were 29 (100%) respondents, and there were no respondents with good nutritional status and abnormal Interpretation of Fetal Weight 0 (0.0%) respondents. Meanwhile, 0 (0.0%) of the 6 respondents did not have poor nutritional status and normal Interpretation of Fetal Weight, but there were mothers with poor nutritional status and abnormal Interpretation of Fetal Weight of 6 (17.1%) respondents

DISCUSSION

Upper arm circumference is a way to determine undernutrition in women of childbearing age aged 15-45 years consisting of adolescents, pregnant women, breastfeeding mothers and couples of childbearing age (PUS). upper arm circumference measurement cannot be used to monitor changes in nutritional status in the short term. upper arm circumference measurement is quite representative, where the upper arm circumference size of pregnant women is closely related to the BMI (body mass index) of pregnant women, namely the higher the upper arm circumference of pregnant women followed by the higher the BMI of the mother. The

use of upper arm circumference has been used in many developing countries including Indonesia (Hidayati, 2011). The nutritional status of pregnant women is importantly assessed by anthropometric measurements through the measurement of upper arm circumference (Suharto, 2012). The standard upper arm circumference < 23.5 cm indicates an indicator of undernutrition (Ministry of Health RI, 2008 in Qobadiyah, 2012).

Utami's research at RSD dr. Soegiri Lamongan (2010) showed that the majority of pregnant women in the third trimester suffered from mild anemia. Pregnant women who experience malnutrition have a greater risk, especially in the third trimester of pregnancy compared to normal pregnant women according to Istiarti (2008) in Ishaq, (2012). Pregnant women who suffer from malnutrition and anemia have a greater risk of illness, especially in the third trimester, as a result these pregnant women have a greater risk of giving birth to babies with LBW, death during childbirth, bleeding, difficult postpartum and easily experiencing health problems (Maryunani, 2013 in Simarmata 2014).

Other factors affecting birth weight, namely occupation, age, parity, birth spacing, blood pressure (systolic and diastolic) did not show a significant relationship with birth weight, this is because these factors are not directly related to the fulfillment of nutrition of pregnant women, where nutritional status is the main factor closely related to birth weight, while measuring Hb levels is to determine the condition of the mother in relation to nutritional anemia (Saeni et al., 2022). Rush (2001) from Tufts University, Boston USA, stated the results of his research on maternal nutrition and perinatal survival, that the possibility of a baby's life can simply be linked to the macronutrient status of the mother, with the assumption that an increase in macronutrient intake will increase the mother's weight, which in turn will increase fetal growth, so that the baby has a greater chance of being born alive (Mutalazimah, 2005). Mothers who

experience malnutrition mean that the mother has experienced malnutrition for a long time, when this happens the nutritional needs for the process of fetal growth and development are hampered so that the mother gives birth to a LBW baby (Mutalazimah, 2005 in Hanifah, 2009). Pregnancy determines the quality of the basic potential of human resources (HR).

The nutritional, health and emotional status as well as the mother's experience during pregnancy will determine the quality of the baby born and subsequent development (Widardo, 2013). Kemenkes RI (2010) states that a healthy mother will give birth to a healthy baby, maternal nutrition during pregnancy is one of the determining factors that affect the birth of a baby normally and a healthy baby. The fetus grows by taking nutrients from food consumed by the mother and from nutrient stores in the mother's body, therefore the mother must increase the amount and type of food to meet the needs of fetal growth, maternal needs and to produce breast milk. Mothers must have a good nutritional status before pregnancy and consume good food (Ministry of Health, 2014). The nutritional status of pregnant women based on the size of the upper arm circumference at the Kassi-Kassi health center in Makassar city was found 29 (82.9%) respondents had an upper arm circumference size ≥ 23.5 cm and 6 (17.1%) respondents had an upper arm circumference size < 23.5 cm. This illustrates that most of the pregnant women who checked their pregnancy at the Makassar kassi-kassi health center were in good nutritional status, but there were still pregnant women in poor nutritional status (20%).

From the results of data analysis obtained at the Kassi-Kassi Makassar Health Center using the chi-square statistical test between the nutritional status variables of third trimester pregnant women and the variable interpretation of fetal weight, the value of $p = 0.000 < (\alpha = 0.05)$ from the value of these results means that the alternative hypothesis is accepted, which means that there is a relationship between nutritional status and

interpretation of fetal weight in third trimester pregnant women.

By looking at previous research journals and this study, the researcher assumes that the above results show that measuring nutritional status is very important to determine the nutrition of pregnant women which will affect the development of the fetus because the nutrition obtained by the fetus is obtained from the mother herself through the placenta, From the observation of upper arm circumference and the interpretation of fetal weight that researchers have done, it can be concluded that the interpretation of fetal weight is closely related to the normal and abnormal size of the Lila of pregnant women, because the nutritional status of the mother is mostly measured by measuring her arm circumference. The nutritional status of the mother at the time of conception and during pregnancy can affect the growth of the fetus being conceived. In addition, the nutrition of pregnant women determines the weight of the baby who is born, so monitoring the nutrition of pregnant women is very important. Anthropometric measurements are one way to assess the nutritional status of pregnant women. The most commonly used anthropometric measures of pregnant women are weight gain and upper arm circumference during pregnancy. upper arm circumference is an anthropometry that can describe the nutritional status of pregnant women and to determine the risk of Caloric Energy Deficiency (CEC) or malnutrition. Mothers who have a measurement of Upper Arm Circumference below 23.5 cm are at risk of giving birth to LBW babies. upper arm circumference measurement is more practical to determine the nutritional status of pregnant women because the measuring instrument is simple and easy to carry anywhere, and can be used for mothers with extreme weight gain (Setianingrum, 2005).

CONCLUSION

Based on the results of research on the relationship between the nutritional status of pregnant women and the interpretation of

fetal weight in third trimester pregnant women, it can be concluded as follows:

1. The nutritional status of pregnant women in the third trimester at the Kassi-Kassi Health Center is the majority with good nutritional status (82.9%).
2. The majority of the status of fetal weight interpretation in third trimester pregnant women is normal (82.9%).
3. There is a relationship between the nutritional status of pregnant women and the interpretation of fetal weight with a value of $p = 0.000 < \alpha (0.05)$.

Declaration by Authors

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