

FAMILY FOOD CONSUMPTION PATTERN WITH FETAL DEVELOPMENT: STUDY IN THE SECOND AND THIRD TRIMESTER OF PREGNANT

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FAMILY FOOD CONSUMPTION PATTERN WITH FETAL DEVELOPMENT:
STUDY IN THE SECOND AND THIRD TRIMESTER OF PREGNANT

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ABSTRACT

Introduction: pregnancy is a period that determines the quality of human resources in the future. During the pregnancies, a woman need quality nutritional care to support fetal development. The nutritional status of pregnant women plays an important role in the condition of pregnancy and the baby, so that malnutrition at the beginning and during pregnancy will affect the growth and development of the fetus. This study is conduct to analyse interrelationship between family food consumption with fetal development. **Method:** this study is conducted using correlational retrospective design involving the pregnant women of the second and third trimester taken by purposive sampling. Structured interview by using modified food frequent questionnaire is used to collect the data about family food consumption pattern. While midline is used to measure the uterine fundus to assess fetal development. **Result:** the result study show that family food consumption pattern is correlate with fetal development with p value of 0.010 and OR 3.000. Mean that pregnant women with inadequate nutrition have a 3.000 times higher chance of uterine fundus taht mismatches the gestasional age compared with woman who consume adequate nutrition. **Discussion:** education and motivation about nutrition during pregnancy is required for woman and her family. It is not only about food quantity but also food quality should be guaranteed as well.

Keywords: Food, Pregnancy, Development

Introduction

Pregnancy is a period that determine the quality of human resources in the future, since the grow and development of the child is depend on the condition of fetus in the mother's womb (Cunningham, et.all, 2005). Pregnant women nutritional status plays an important role in the condition of pregnancy and the baby to be born, so that malnutrition in the beginning and during pregnancy will affect the growth and development of the baby (Adriani, M dan Bambang W. 2012), (Arisman. 2007). Daily nutrition intake consumed by the mother is not only for the mother's needs but also to meet the nutritional of the fetus (Arisman. 2007). During pregnancy woman will experience many changes in her body to be ready to rise the fetus she is carrying and produce milk for the baby to be born (Sarah, et.al., 2013).

Until now the problem of malnutrition is still a big problem for the third world, including Indonesia (Aristiyani, Eni. 2006). Nutrition become a serious problems since it will have an impact on the weakening of the nation's competitiveness due to hugh morbidity and mortality and the emergence of children's intelligence and cognitive disorders (Chandradewi, AASP. 2015). The most vulnerable group to malnutrition are pregnant women, infants and toddlers. Chronic lack of energy in pregnant women can lead to sudden maternal death during the perinatal period or the risk of giving birth to a baby with low birth weight. Basic Health Research (Riskesdas) 2010 reported that 44.8% consume energy below the minimum requirement, which is less than 70% of Nutrition Adequacy Rate (RDA) which divided into 41.9% of pregnant women in urban areas and 48.0% in rural areas (DepKes, 2010). Poor maternal nutrition before and during pregnancy will risk giving birth to a baby low birth

weight (LBW), impaired growth and development of the baby's brain and the risk of morbidity and death.

Pregnancy causes an increase in energy metabolism, the source of energy derived from food can affect fetal growth. Nutrition has long been considered a determinant of maternal and fetal health. Woman's nutritional status plays an important role in the development of her baby. Lack of certain nutrients needed during pregnancy can lead to imperfect fetal growth.

The data about the etiologic of high maternal mortality rate in Indonesia among them are due to bleeding which reached 28% (WHO, 2010). The result of a study conducted in 2017 stated that anemia and chronic energy deficiency in pregnant women were the main causes of bleeding and infection which were the main etiologic factors of the maternal mortality factors (Apriliyanti, 2017). Chronic energy deficiency is a condition where the woman, especially the mothers, suffer from chronic food shortage that results in health problems for the women so that the needs of pregnant women so that her need to increase nutrition are not met (Ministry of Health, 2002). While the data of highest infant mortality rate in East Java 2010 came from Regency of Jember with the most common etiologic was low birth weight (LBW) babies cases by 3% in 2010, whereas in 2011 it increased to 3.56% and reached 4.28% in 2012 (Dinas Kesehatan kabupaten Jember, 2013).

If this condition continues, there will be many children in Regency of Jember who have potential to experience malnutrition. One of the efforts made by Jember District Health Office in reducing LBW rate is by providing supplementary food recovery (PMT recovery) to pregnant women who experience chronic lack of energy (KEK pregnant women). The result of a study conducted in 2006 about supplementary food recovery in malnourished children under five stated that supplementary food recovery could increase the toddler's weight (Aristyani, 2006).

Supplementary food recovery is given to the pregnant women with a calorie value of 150 – 200 kcal, so that with this calories addition is expected to increase the weight of pregnant women and indirectly increase the hemoglobin level (Kementerian Kesehatan, 2015). This study aims to analyze the relationship between family food consumption patterns with fetal development through high examination of the uterine fundus.

Method

This is a correlational study conducted with retrospective approach involving 100 pregnant women of trimester 2 and 3 in Jember. Respondents were taken by purposive sampling, which inclusion criteria was women with gestational age at second and third trimester who has no chronic disease or metabolic disorders. And the exclusion criteria was pregnant women at second and third trimester who has diabetes mellitus.

The data collected through structured interview and questionnaire using modified food frequency sheet to rate the family food consumption. Daily eating pattern are examined by looking at food consumption habits in the past 1 month. Meanwhile the fetal development was assessed using the length of uterine fundus compared with the gestational age. Demographic data consist of age, education, occupation and pregnancy status was collected through a questionnaire. Univariate analysis was performed on demographic data and to determine the correlation between daily family consumption patterns and fetal development was done through a correlation test with an α value of 0.05.

Results And Discussion

Table 1. General Characteristics of Respondents

Variable	Amount	Percentage (%)
Age		
Less than 20 years old	24	24
20 – 30 years old	57	57
More than 30 years old	19	19
Education		
Elementary school	17	17
Junior high school	47	47
Senior high school	23	23
College	3	3
Occupation		
Housewife	65	65
Entrepreneur	16	16
Laborer	19	19
Pregnancy Status		
Primi	49	49
Multi	51	51

According to the table 1 majority of respondents are aged between 20 to 30 years old, graduated in junior high school, and their education is housewife. And respondent's pregnancy status is almost in balanced between the primipara and multipara.

During pregnancy the needs for nutrients for pregnant women increases. This is needed to meet the needs of fetal growth, development of maternal health, and preparation of lactation for both mother and fetus (Thompson, 2013).. Nutritional deficiencies can cause anemia, abortion, prematurity parturition, uterine inertia, postpartum bleeding, puerperal sepsis and others. In addition, if women and her family consume excess daily food during pregnancy will also be very at risk of obesity, preeclampsia, and the possibility of giving birth to a large fetus (Vanessa, Villalpando S, Shamah T, 2018). Maternal weight before pregnancy can reflect the potential for nutritional savings for fetal growth and development so that it can be a reference to determine interventions that can be done (WHO, 2006).

Table 2. Analysis of Family Food Consumption Pattern with Fetal Development

VARIABLE	Age Matched	Age Mismatched	Total		OR (95 % CI)	P Value
			n	%		
Adequate	68,4	31,6	100	100	3,000	0.010
Inadequate	41,9	58,1	100	100		
Total	52	48	100	100		

According to the table above it can be seen that there is a significant correlation between family food consumption pattern and fetal development with p value of 0.010. OR value show 3.000 meaning that pregnant women with inadequate nutrition have a 3.000 times higher chance of uterine fundus that mismatches the gestational age compared with woman who consume adequate nutrition.

Discussion

During pregnancy, pregnant women need more nutrients. This is needed to meet the needs of fetal growth, development of maternal health, and supply of lactation for both mother and fetus. Nutritional deficiencies can cause anemia, abortion, prematurity parturition, uterine inertia, postpartum bleeding, puerperal sepsis, and others. In addition, if the mother and family consume excess daily food during pregnancy will also be very at risk of obesity, preeclampsia, and the possibility of giving birth to a fetus with more weight

The results of this study indicate that there is a relationship between the patterns of daily food consumption of mothers with fetal development with a P value of 0.01 and OR 3.00. meaning that pregnant women with inadequate nutrition have a 3.000 times higher chance of uterine fundus that mismatches the gestational age compared with woman who consume adequate nutrition. Maternal weight before pregnancy can reflect the potential for nutritional savings for fetal growth and development so that it can be a reference to determine interventions that can be done..

Many factors cause woman tend to consume food adequately. Level of knowledge about diet, social economy can also be a supporting factors (Karamelka, W, 2015). The results show that majority of respondents are graduated from secondary educational school which is equal to 47% and most of respondents has no occupation. It mean that women has activities that do not require much energy, so the food consumed can help the development of the fetus in their womb. While from the status of pregnancy, most of respondents are multipara. It will bring positive impact to her pregnancy since she has an experience in fulfill her nutritional needs during pregnancy (Kurnia Indriyanti Purnama Sari, 2017))

Fetal development is one indicators of women nutritional status during pregnancy (Godfrey K, Inskip H, and Hanson H, 2013). Increasing of body weight and uterine fundus shows that the fetus is well developed (Justine, et.al, 2014). The assessment of uterine fundus length is used to predict intrauterin fetal weight. This prediction has important meaning in the labor management. The accuracy of birth weight assessment will affect the accuracy of the management of labor and it results so that it is expected to reduce mortality and morbidity in labor.

Conclusion And Recommendation

The results of this study show that there is a significant correlation between family food consumption pattern and fetal development assessed by the length of uterine fundus.

From the results above it is recommend that health care provider and the family should working together so that the mother will get same understanding about nutritional needs during pregnancy. Fulfillment of family nutrition consumption is not only limited to how much food can be consumed by pregnant woman but also how quality food can be consumed in order to improve fetal well being.

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