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Nutrition Education and Nutritional Status of Chronic Lack of Energy Pregnant Women in PUSKESMAS Work Areas Throughout Kupang City

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Abstract: One of the indirect causes of preventable maternal and child mortality is the health status of pregnant women. Pregnant women with SEZ conditions are at risk of experiencing decreased muscle strength, which is needed in the process of labor so that it can result in fetal death, premature birth, birth defects, low birth weight babies, short birth babies and even infant death. The design used is quantitative with a cross sectional approach with univariate and bivariate analysis using the Chi-Square test. The population of this study were all pregnant women who did pregnancy checks at the Puskesmas in Kupang City in 2022. Sample technique using purposive sampling technique. This study was conducted from January to December 2022. The results showed that of all pregnant women who were given nutrition education in the form of counseling and provision of additional food, most experienced weight gain. In contrast to the increase in LiLA, although there is a change in the size of LiLA after being given education, there are still pregnant women who do not experience changes in LiLA. The statistical test results obtained a p-value <0.005, which means that there is a relationship between the provision of nutrition education and the improvement of the nutritional status of pregnant women with SEZ. It is expected for health workers to carry out special monitoring of pregnant women at risk of SEZ in conducting health checks and consuming additional nutritionally balanced foods.

Keywords: Chronic lack; Education; Nutrition; Pregnant women

Introduction

The pregnancy period is a very important life cycle (Davis & Narayan, 2020; Marshall et al., 2022). During pregnancy food intake must be sufficient and nutritionally balanced. Unfulfilled food intake will affect nutritional status as reflected by weight gain during pregnancy and chronic energy deficiency (Moediarso et al., 2020; Sudaryati et al., 2021; Tebbani et al., 2021). Apart from food intake, many factors influence the nutritional status of chronic energy deficiency in pregnant women, including knowledge about nutrition and food availability at the household level (Fauziana & Fayasari, 2020; Marjan et al., 2021; Melinda et al., 2023). The short-term effects of malnutrition during pregnancy include low birth weight (LBW), defects, premature fetuses and a long labor process which risks pain for the baby and mother. Long-term effects include stunting and poor brain development and metabolism which have the potential to cause degenerative diseases in adulthood (Akbar et al., 2023). Efforts to improve the incidence of stunting include specific and sensitive

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nutritional interventions. The focus of specific nutritional intervention efforts is on pregnant women, breastfeeding mothers, and children 0-23 months, because stunting prevention is most effective in the golden period or critical period (Kemenkes RI, 2015). One of the curative efforts in the chronic lack of energy group of pregnant women is by providing Supplementary Food which aims to fulfill calories and protein, as well as menu variations in the form of food (Almatsier, 2009; Henny et al., 2022).

Chronic lack of energy for pregnant women is the focus of attention because it is the performance of the Ministry of Health's program (Sari et al., 2024; Sofiyanti et al., 2022). The indicator for CED pregnant women is planned to decrease by 1.5% every year with the hope that by the end of 2019 pregnant women with a risk of CED will be below 18.2%. The basis for determining the percentage of chronic lack of energy land refers to the results of the 2018 Riskesdas (Atmalia, 2020).

Pregnant women with poor nutritional status will affect the growth and development of the fetus, such as being at risk of babies with low birth weight or LBW (Apriani et al., 2021; WHO, 2016). The beginning of malnutrition is detected by the risk of CED which is caused by the main energy needs not being met for a long time, which is indicated by an upper arm circumference of less than 23.5 cm (Kemenkes R I, 2015).

A chronic or prolonged lack of energy can result in a decrease in muscle strength which is needed during the birthing process which can result in miscarriage or fetal death, babies born prematurely, birth defects, babies with low birth weight (Andayani, 2024; Nindita, 2020). The risk of CED in pregnant women also affects the growth and development of the fetus, including physical growth, namely babies with a birth length of less than 46 cm (short birth babies), brain development and a decrease in the metabolic system which influences the emergence of infectious diseases in adulthood (Khoiriyah & Ismarwati, 2023).

The nutritional education provided is in the form of nutritional counseling and the PMT provided is high protein food and milk. Additional food is given at lunch with a high protein content. Next, monitoring is carried out to see whether there is weight gain and lila in accordance with the standards for weight gain or lila in pregnant women (Nurhalinah & Athiutama, 2024; Srirahandayani et al., 2023).

The annual report of the Kupang City Health Service in 2021, there were 1282 chronic lack of energy pregnant women out of a total of 10,686 pregnant women, and 948 pregnant women with anemia out of 10,686 people. The prevalence of CED pregnant women in 2018 in Indonesia was 17.3%, East Nusa Tenggara (NTT) was 36.80%, and Kupang City was 40.24%. Chronic lack of energy pregnant women who received additional food in NTT was 40.44% and in Kupang City it was 40.24%. Blood Addition Tablets (TTD) for pregnant women was 75.27% and Kupang City was 79.87%. RISKESDAS data (2018) shows that the incidence of LBW (<2500 grams) (Nuraeni & Suharno, 2020), in Indonesia is 6.2%, NTT is 8.31%, short birth babies (<48 cm) is 22.7% and NTT is 25%. The nutritional status of toddlers with a BB/U index in the category of malnutrition and malnutrition is 17.7% and in NTT it is 37.2%. Short toddlers were 30.8% and in NTT it was 42.6%. Meanwhile, the percentage of exclusive breastfeeding for 0–6 months in 2013 was 54.3%. This figure is still far from the target of the 2012–2014 Exclusive Breastfeeding Acceleration Action Plan program launched by the government (Ministry of Health of the Republic of Indonesia, 2019). Based on the results of the Indonesian Nutritional Status Study (SSGI), in 2021, 24.4% of toddlers were stunted, 7.1% were wasted, 17.0% were underweight, while the highest prevalence of stunting in NTT was 37.8% (Kemenkes RI, 2021).

Based on the data above, by looking at the problems caused by maternal health during pregnancy which is quite high in the NTT area and the provision of additional food which is not optimal, the researchers are interested in researching the provision of additional food based on local food on changes in the nutritional status of chronic lack of energy pregnant women.

Method

Figure 1. Schema of research

This is an analytical descriptive study using a cross sectional design (Larsson, 2009). The research was carried out from January to December 2022. The research respondents were 120 pregnant women with chronic lack of energy trimesters I, II and III who were recorded in all Community Health Centers throughout Kupang City. Sampling was carried out by purposive sampling. The implementation process is in collaboration with nutritionists and midwives at each Community Health Center. Before education was carried out, respondents had their LiLA and body weight measured (Aldisurya et

al., 2023). Implementation of education consists of providing material for approximately 30 minutes using leaflets and providing additional food based on local food for ten consecutive days. Data analysis used the chi square test. The research ethics compliance number is no.L.B.02.03/1/0063/2022.

Result and Discussion

Table 1. Characteristics of Respondents

Parameter	Respondent	
	Amount	Percentage %
Mother's education		
Elementary school	14	11.7
Junior high school	21	17.5
Senior high school	70	58.3
PT	15	12.5
Total	120	100
Mother's Job		
IRT	98	81.6
Civil servants	2	1.7
Self-employed	2	1.7
Private employees	14	11.7
Student	4	3.3
Total	120	100
Husband's Job		
Entrepreneur (traveling vegetable seller)	63	52.5
Vegetable farmer	27	22.5
Construction workers	26	21.6
Private employees	2	1.7
Student	2	1.7
Total	120	100
Income		
> UMR	18	15
< Minimum wage	102	85
Total	120	100
Mother's Age		
<20 years	10	8.3
20-30 years	92	76.7
> 30 years	18	15
Total	120	100.0
Parity		
1st child	65	54.2
2nd child	28	23.3
Children ≥ 3	27	22.5
Total	120	100.0
Gestational age		
Trimester 1	23	19.2
Trimester 2	59	49.2
Trimester 3	38	31.6
Total	120	100.0

The respondents in this study were 120 pregnant women with chronic lack of energy. Based on the data in Table 1, it can be seen that the average age of chronic lack of energy pregnant women is 20-30 years old with a gestational age of 49.2% being in the second trimester of pregnancy. Most of them have completed high school education, 58.3% and work as housewives, 81.6 %. A total of 54.2% were pregnancies with their first child. Most of the husbands work as mobile vegetable sellers at 52.5% with incomes mostly below the minimum wage.

The results of the bivariate analysis in Table 2 can be seen that there were 100 (83.3%) chronic lack of energy pregnant women who received nutritional education and PMT who experienced weight gain, although there were still 20 mothers (16.7%) who did not experience any change in weight gain. The results of the bivariate analysis obtained a P value of 0.005 ($p < 0.05$), so it can be concluded that there is a relationship between providing nutritional education and providing food with weight gain (Jamila & Rahmawati, 2023; Khasanah, 2020; Roring et al., 2020). It's the same with body weight. In LiLA, chronic lack of energy pregnant women who were given nutritional education and supplementary food also experienced changes. Based on the results of bivariate analysis, 90% of pregnant women experienced an increase in LiLA, although there were still 10% who experienced no change. The statistical test results also obtained a P value of 0.005 (P<0.05), which means there is a relationship between providing nutritional education and additional food and increasing LiLA.

Tabel 2. Bivariate Analysis Results

Weight Parameters	Amount	Percentage%	P *value*
Go on	100	83.3	0.005
Not up	20	16.7	
Total	120	100	
LiLA			0.005
Go on	108	90	
Not up	12	10	
Total	120	100	

Nutrition education in the form of counseling is carried out as an effort to increase knowledge, attitudes and skills regarding balanced nutrition during pregnancy (Ginting et al., 2022; Nurvembrianti et al., 2021; Permatasari et al., 2021; Pratiwi, 2020). However, if it is not accompanied by efforts to improve the family's economy, eating will not be able to provide maximum benefits in increasing the mother's nutritional intake during pregnancy.

Based on the results of interviews before being given education about knowledge about balanced nutrition for pregnant women. Some pregnant women know about the nutrients needed during pregnancy, although quite a few pregnant women don't know about it. Insufficient intake during pregnancy is not only due to pregnant women's ignorance about nutrition during pregnancy, the husband's knowledge about nutrition

also influences food provision at the household level. The husband's profession, mostly as a mobile vegetable seller with an average income below the minimum wage, is also a contributing factor. The boredom factor of consuming the types of food available with monotonous food processing techniques is also a cause of inadequate maternal intake during pregnancy.

Several previous research results suggest that increasing knowledge, attitudes, practical behavior and nutritional intake of pregnant women is influenced by routine nutritional assistance and counseling activities. The results of research in 2019 reported that nutritional assistance can increase the knowledge, positive attitudes and practices of chronic lack of energy pregnant women in meeting nutritional needs (Rahmawati et al., 2023; Simbolon et al., 2019). This research is in line with research conducted in the city of Mataram with the respondents being anemic pregnant women, there was an increase in knowledge and energy and protein intake after assistance in the form of nutritional counseling (Putri et al., 2018).

In this study, the majority of pregnant women experienced weight gain while being given education in the form of nutritional counseling within 3 months. The average increase in body weight during the intervention was 4.5 kg. This is in line with research in 2021 where there was an increase in knowledge, protein energy consumption and body weight during nutritional counseling within 3 months (Hapsari et al., 2022; Wulandari et al., 2021). However, when compared with the normal weight gain of pregnant women in the 2nd and 3rd trimesters, the weight gain of pregnant women in this study is still relatively lower. This is directly proportional to the results of research which shows that energy and protein intake is still insufficient at several meal times, which is justified by family socio-economic factors which are also low based on interview results. Socioeconomic status influences the nutritional status of pregnant women (Auliana et al., 2016).

During pregnancy there will be an increase in nutritional needs, especially in the 2nd and 3rd trimester of pregnancy. If energy is not sufficient as a primary need, the body will automatically use energy reserves in muscle tissue. If the use of muscle tissue energy continues for a long time, eating will cause a decrease in tissue mass so that body composition decreases, one of which is the size of the upper arm circumference (Priyanti et al., 2020). If energy intake is inadequate, the body will also use body fat reserves. If this continues for a long time, the protein found in the liver and muscles will also be converted into energy. This will also cause depletion of muscle mass which is also indicated by measuring the circumference of the upper arm.

In this study, 83.3% of pregnant women with chronic lack of energy experienced weight gain after being provided with nutritional education assistance and providing PMT for 3 months. However, there are still 20 chronic lack of energy pregnant women who do not experience weight gain. Based on in-depth interviews, chronic lack of energy pregnant women do not experience weight gain because they still experience nausea and vomiting so they cannot consume food as needed. The upper arm circumference of pregnant women with CED changed after being given the intervention.

Conclusion

The average weight and LiLA of chronic lack of energy pregnant women has increased with the results of bivariate analysis P value < 0.05, meaning that there is a relationship between nutritional education and the nutritional status of chronic lack of energy pregnant women. High nutritional education has increased quite significantly, so it is very necessary to educate women before marriage, which will provide benefits to their children after marriage and giving birth to children.

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Conflicts of Interest
The authors declare no conflict of interest.

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