

## The Effect Of Pregnant Women Empowerment To Achieve The Nutrition Fulfillment Based On Balanced Nutrition Principles Towards The New Borns Nutrition Status

Zuraidah Nasution<sup>1</sup>, Ida Nurhayati<sup>2</sup>, Eva Fitriyaningsih<sup>3</sup>

<sup>1,2</sup>Nutrition Department, Politeknik Kesehatan Medan

<sup>3</sup>Nutrition Department Politeknik Kesehatan Aceh

### Abstract

*This study used the Quasi Experimental method and was designed with the Untreated Control Group Design with Pretest and Posttest. The intervention given to the sample was an empowerment through nutrition counseling about the food consumed based on balanced nutrition guidelines. This research was carried out through food recall before the intervention, then pregnant women were given thr interventions for 3 (three) months and then the food consumption was recalled before the delivery. After the baby was born, the data on the babies' birth weight were collected. This research was conducted in Deli Serdang District and Aceh Besar District with 127 pregnant women as samples, 63 pregnant women in Deli Serdang Regency and 64 in Aceh Besar District. Through the study it was found that pregnant women in the intervention group experienced an increase in nutritional knowledge 1.81 times and were able to fulfill their nutritional needs 2.06 times compared to groups that did not get the empowerment. Increased protein and carbohydrate intake and nutritional status of pregnant women could affect the nutritional status of the newborns, using the newborn weight as an indicator. The empowerment interventions increased the mothers' nutrition knowledge and encouraged pregnant women to improve the quality and quantity of their food consumption so that they can meet their nutritional needs which can eventually give birth to babies with normal weight or nutritional status.*

**Keywords**– Empowerment, Fulfillment of nutritional needs, Nutritional status of newborns

### 1. Introduction

The golden period and critical development of children starts from the conception, pregnancy period and fetal growth until the child reaches the age of 2 years. If malnutrition occurs in one of these phases, it will trigger the occurrence of stunting leading to permanent disruption of the child's intelligence development. Often, pregnant women do not realize how important it is to fulfill their nutrition during pregnancy period which causes babies born malnourished. For this reason, pregnant women need to be empowered through nutrition counseling programs to assess the fulfillment of nutritional needs during pregnancy. This study aimed to determine the effect of empowerment interventions in meeting the nutritional needs of pregnant women and the nutritional status of newborns. The process of being a stunted child, growth failure/faltering begins in the womb until the child reaches two years old. When the child reaches the age of more than 2 years, it is too late to repair the damage that occurred in the early years. Percentage of malnutrition in pregnant women is still relatively high, indicated by the number of pregnant women who suffer from anemia or lack of red blood cells reaching 37.1 percent (Ministry of Health, 2013). This condition results in the baby not getting the needed nutrients, malnutrition, which disrupts his growth and development which in turn results in low birth weight babies. On the other hand, the mother is not ready to apply the exclusive breastfeeding initiative and give the baby mother's breast milk, as indicated by the low number of mothers giving exclusive breastfeeding. The level of education and knowledge of nutrition, socio-economic and culture greatly influences this phenomenon, as well as the inability of the mother to choose adequate and balanced food for herself and her family. The provision of nutritional counseling for pregnant women is expected to increase mothers' understanding of nutrition so that their nutritional needs are met, so that it becomes one of the recommended programs included in the package of effective nutrition interventions (Ministry of Health, 2014).

Many times women are not aware of the importance of fulfilling their own nutrition which can lead to babies born malnourished, characterized by less birth weight. Birth weight is a direct reflection of mothers' health and nutrition status before and during pregnancy period, (James, 2006 and Fornaro et al., 2020). Based on Indonesian health profile data in 2016, the results of the assessment of nutritional status of infants under the age of 0-23 months were known, using the Body Height / Body Weight index, that 3, 1% infants were very thin (poor nutrition) and 8.0% were thin (under nutrition), while North Sumatra Province has 2.8% infants were in the very thin category and 8.6% in the thin category, whereas in Aceh province 2.1% infants were in very thin categories and 10.6% in the thin category. Although the percentage of malnutrition in the provinces of North Sumatra and Aceh is still above the national average, the high number of malnutrition status remains a major threat, it can shift to a poor nutritional status that triggers the incidence of stunting (Ministry of Health, 2017).

The results of Nasution's study (2016) concluded that 75% of pregnant women in Percut village, Deli Serdang Regency, North Sumatra Province suffered from anemia. On the other hand, based on data from the Aceh District Health Office report (2017), it is known that 7 villages from 12 villages in Aceh Besar District had the prevalence of anemia of pregnant women > 75% and in 2 villages with the prevalence of chronic energy deficiency > 10%. Therefore, mothers' health and nutrition status during pregnancy is an important determinant of stunting in children. Based on this, pregnant women need to be empowered through nutritional counseling on the principle of balanced nutrition to be able to assess the fulfillment of their nutritional needs in accordance with the food they consume daily.

## **2. Methods**

This study aimed to find out the effect of empowering the pregnant women through the counseling on fulfilling the nutritional needs of pregnant women based on the principle of balanced nutrition to meet the nutritional needs of pregnant women and the nutritional status of the newborns. This research was conducted in Quasi Experimental method and was designed with the Untreated Control Group Design with Pretest and Posttest (Madiono in Sudigdo, 2011; Habbe et al, 2019). The intervention given to the sample was the empowerment through counseling on the application of food consumption based on balanced nutrition guidelines. This study consisted of two stages, namely: collecting food consumption data through the recall of food consumption before the intervention for 2 days to determine the nutritional intake of pregnant women and empowerment interventions for pregnant women through counseling and counseling to meet nutritional needs based on balanced nutrition guidelines, carried out 3 times in the beginning of the month lasted for 3 (three) months, then the data of food consumption were taken before the mother gives birth. After the baby was born, the body weight data were collected through health personnel. This research was conducted in Deli Serdang District and Aceh Besar District with 127 samples, 63 mothers in Deli Serdang District and 64 in Aceh Besar District.

## **3. Result and Discussion**

### **3.1 Result**

The level of nutrition knowledge of pregnant women in Deli Serdang District and Aceh Besar District is thought to be one of the factors that influence the nutritional status of pregnant women. This is also feared to affect the nutritional status of babies born, for this reason, it is necessary to conduct empowerment interventions for pregnant women in the form of counseling and nutrition counseling to meet mothers' nutritional needs based on balanced nutrition guidelines. Before the intervention was carried out, the level of nutrition knowledge of pregnant women in both the intervention group and the control groups in Deliserdang and Aceh Besar Districts was first sought, i.e  $p > 0.05$ , not different, as shown in the following table:

**Table 1 Mean Value of Maternal Nutrition Knowledge in Intervention Groups and Control Groups Before Intervention**

District	Village	Mean	p-value
Deliserdang	Percut Saentis	54.76	0,293
		57.47	
Aceh Besar	Masjid Raya Baitussalam	56.63	0,111
		61.53	

Source : Data Tabulation (2018).

The results of the independent T-test analysis ( $p = 0.001$ ) indicated that increasing nutritional knowledge is significant after being given counseling and consultation on the fulfillment of nutritional needs based on balanced nutrition guidelines.

**Table 2 Effect of Empowerment through Counseling and Counseling on Increasing Nutrition Knowledge for Pregnant Women**

Group	Mothers' Nutrition Knowledge After the Intervention				p-value
	Insufficient		Good		
	f	%	f	%	
Intervention	0	0	65	51,18	0,001
Control	28	22,05	34	26,77	

Source : Data Tabulation (2018).

After being compared with the recommended Recommended Dietary Allowances (**RDA**), it can be seen that there is an increase in the number that can meet the nutritional needs of the intervention group. In general, the number of pregnant women who can meet nutritional needs in the intervention group is more than the control group as shown in Table 3 below:

**Table 3 Fulfillment of Nutrition Needs for Pregnant Women Based on Intake After Intervention**

No	Nutrition Intake	Nutrition Fulfillment Before the Empowerment							
		Intervention Group				Control Group			
		Not Fulfilled		Fulfilled		Not Fulfilled		Fulfilled	
		f	%	f	%	f	%	f	%
1	Energy	30	23.62	34	26.77	34	26.77	29	22.84
2	Carbohydrate	4	3.15	61	48.03	23	18.11	39	30.71
3	Protein	2	1.57	63	49.61	44	34.65	18	14.17
4	Fat	7	5.51	58	45.68	60	47.24	2	1.57
5	Fe mineral	3	2.36	62	48.82	15	11.81	47	37.01

Source: Data Tabulation (2018).

Based on the analysis of the Chi-Square Test, it was known that there was a significant effect of empowerment through the counseling on meeting the nutritional needs based on balanced nutrition guidelines for increasing nutritional intake of pregnant women as shown in Table 4 below:

**Table 4 Effects of Empowerment through the Counseling on Increasing Nutrition Intake of Pregnant Women**

Intake	Group	Fulfillment of Nutrition Need				p-Value
		Not Fulfilled		Fulfilled		
		f	%	f	%	
Energy	Control	34	54.84	28	45.16	0.328
	Intervension	30	45.15	35	53.16	
Protein	Control	34	54.84	18	45.16	0.001
	Intervension	33	50.77	32	49.23	
Fat	Control	60	96.77	2	3.23	0.236
	Intervension	65	100	0	0	
Carbohydrate	Control	23	37.10	39	62.90	0.001
	Intervension	4	6.45	61	93.55	
Fe	Control	15	25.59	47	75.41	0.002
	Intervension	3	4.62	62	95.38	

Source : Data Tabulation (2018).

After empowering pregnant women through counseling for 3 (three) months with 3 (three) meetings, the nutritional status of pregnant women (referring to the upper arm circumference) was as follows:

**Table 5 Mean Upper Arm Circles(MUAC) of Pregnant Women in the Intervention and Control Groups**

No	Group	Mean of Mid Upper Arm Circumference	P-value
1	Control	26.27	0.001
2	Intervension	27.69	

Source : Data Tabulation (2018).

The nutritional status of newborns based on birth weight can be seen in Table 6 below:

**Table 6 Distribution of Nutritional Status of Newborns Based on Body Weight in the Intervention and Control Groups**

No	Nutrition Status	Nutrition Status of Newborns Based on Body Weight			
		Intervension Group		Control Group	
		f	%	f	%
1	Insufficient	0	0	4	3.15
2	Good	65	51.18	58	45.67

Source : Data Tabulation (2018).

Based on statistical analysis with different tests, it was known that birth weight in the intervention group differed significantly from the baby's birth weight in the control group, as seen in Table 7 below:

**Table 7 Average Birth Weight of Babies in the Intervention and Control Groups**

No	Group	Mean of the Birth Weight (gr)	p-Value
1	Control	2,997	0.001
2	Intervension	3,196	

Source : *Data Tabulation (2018).*

Through the results of the analysis of multiple linear regression, it was known that those affecting the newborn nutritional status were maternal nutritional status, maternal protein intake and maternal carbohydrate intake as follows:

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
	(Constant)	0,772	0,309		2,499	0,014
	Protein intake	0,01 1	0,003	0,276	3,361	0,001
	Carbohydrate intake	0,002	0,001	0,242	2,878	0,005
	Mothers' MUAC	0,033	0,009	0,272	3,531	0,001

Source : *Data Tabulation (2018).*

### 3.2 Discussion

Through the results of univariate analysis, after the empowerment intervention through the counseling and consultation on nutrition fulfillment of balanced nutrition-based pregnant women for 3 (three) months with 4 meetings, it was found that in the intervention group there was a significant increase in nutritional knowledge in pregnant women with  $p = 0.001$ , it was also known that there was an increase in the number of mothers in the intervention group whose nutritional needs could be fulfilled which include nutrients: energy, carbohydrates, proteins, fats and minerals Fe. This condition occurred because the empowerment through counseling could increase the knowledge and understanding of pregnant women about the benefits and impacts of fulfilling nutritional needs during pregnancy, so that pregnant women were motivated to meet their nutritional needs through increasing the quantity and quality of food consumed. This was in line with the conclusions of the Ministry of Health which states that in the context of efforts to achieve health independence, community empowerment is an important element. Community empowerment in the health sector is the main target of health promotion. Community empowerment is one of the global strategies to promote health, therefore community empowerment is very important to implement so that the community as the primary target has the willingness and ability to maintain and improve their health (Ministry of Health, RI, 2010). The above results are also in accordance with the study conducted by Laverack, G. (2006) which concluded that community empowerment is a means for people to achieve the knowledge and abilities they need to overcome the problems they are facing. Furthermore, Halvorsen (2020) stated that empowerment is a process of making the powerless party powerful which one of its goals is to form authentic and integral human development from weak, vulnerable, poor, and marginal so that they can be more independent to meet their basic life needs, and also be able to participate in community development.

In the control group there was also an increase in the number of pregnant women who could meet their needs after the intervention was completed. This increase can occur as a result of increasing appetite for pregnant women, nausea is no longer felt which usually occurs early in pregnancy, and can adjust to the

condition of pregnancy based on information obtained from mothers selected in the control group.

Through the data on birth weight it was known that all the newborns, (100%), in the intervention group had good nutritional status, while in the control group there were 3.15% (4 people) babies born with poor nutritional status. Through the independent T test it was found that there were significant differences in newborn weight (nutritional status of newborns) between the intervention group and the control group, the intervention group was better than the control group ( $p = 0.001$ ). This showed an increase in nutrient intake in line with the increasing awareness of the importance of meeting the nutritional needs of pregnant women in the intervention group which significantly affects the birth weight of babies.

Based on the results of statistical analysis, it was known that empowerment applied to the intervention group significantly influences carbohydrate intake ( $p = 0.001$ ), protein intake ( $p = 0.001$ ) and Fe mineral intake ( $p = 0.002$ ), but empowerment did not have a significant effect on intake energy ( $p = 0.328$ ) and fat intake ( $p = 0.236$ ) caused by the dislike of pregnant women in the intervention group and the control group on fatty foods and tend to reduce fat intake assuming that fatty foods, such as milk, can cause difficulty in labor due to the excessive baby size when it is born later. This assumption is certainly not correct, as long as the fat intake is still in accordance with balanced nutrition guidelines will not cause problems in the baby born. Therefore, continuous improvement of knowledge in the future still needs to be conducted. This situation was supported by the results of the Asthana (1996) study in Visakhapatnam, India, which explained that real improvements in women's health would not be realized until the issue of women's empowerment could be achieved. If the empowerment approach given is considered to be beneficial to them, a positive spontaneous reaction will emerge that supports the program. In applying their understanding and knowledge, women are strongly influenced by the local culture adopted and are slowly influenced by the culture of the regional and national environment. This shows that the scope of empowerment strategies is very specific and should create positive reactions from pregnant women to improve the food consumed so they can give birth to babies with normal nutritional status.

Based on multiple linear regression analysis, it was known that only the following variables can affect the nutritional status of babies born based on theory and previous research: nutritional status of pregnant women (with indicators of Mid Upper Arm Circumference of pregnant women), protein intake, and carbohydrate intake, after the empowerment (Collings et al., 2020). This proves that the empowerment given influences the nutritional status of newborns along with the increased knowledge of pregnant women which causes mothers to be motivated to increase the amount and quality of their food which has an impact on increasing nutrient intake. In addition, it was also known that increasing protein intake will help the optimal development of the fetus in the mother's womb, while fulfilling carbohydrate intake will contribute to the fulfillment of energy that is needed to optimize fetal growth.

#### **4. Conclusion**

After being given an intervention through empowerment and counseling on nutritional fulfillment of balanced nutrition-based pregnant women, the following can be concluded:

1. Empowerment increases the nutritional intake of pregnant women and the ability of mothers to estimate fulfillment of nutritional needs, as indicated by the increased knowledge of mothers about nutrition by 1.81 times compared to the control group that was not given empowerment interventions.
2. Empowerment affects the ability of pregnant women 2.06 times to fulfill their nutritional needs during pregnancy according to the Recommended Dietary Allowances (RDA).
3. It was found that there was a significant effect of empowerment on the nutritional intake of pregnant women, in particular: carbohydrates, protein and Fe minerals.
4. Empowerment affects the nutritional status of newborns (infant birth weight), through protein

intake, nutritional status of pregnant women and carbohydrate intake.

## 5. Suggestion

A more active coordination needs to be done with policy makers at the village, district, provincial and ministerial levels in applying this program at the regional level so as to contribute to assisting the government in making health programs successful in overcoming some health problems for pregnant women and infants, reducing mother mortality rate and during labor and in overcoming the problem of the incidence of stunting.

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