The Effect of Demonstration in Preparing a Nutritious Food Menu on Nutrition Consumption Patterns of Pregnant Women

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ARTICLE INFO

A B S T R A C T

Stunting in children has started since before birthing due to poor nutritional conditions of the mother during pregnancy. The nutrients that pregnant women need to maintain the health of their fetuses are protein, folic acid, calcium, vitamin A, vitamin D, and iron. The practice of consuming nutritious food is strongly influenced by the level of knowledge and behavior towards food. Lack of knowledge about nutrition can cause pregnant women to be unable to design and arrange nutritious meals that must be consumed. This research design is a quasi-experimental approach with a nonrandomized pretest-posttest control group design approach. The illustrations used are 50 pregnant women and will be divided into one control group and one treatment group. As the independent variable is the practice of compiling a nutritious meal menu, the dependent variable is the pattern of consuming nutrients, and the confounding variable is the age of the pregnant woman, the level of learning of the pregnant woman, the level of family income, and the gestational age. The information analysis used an independent t-test and a dependent t-test. The results of the research show that there is an increase in the average consumption of protein, Fe, folic acid, and zinc after being given treatment in the form of the practice of compiling a nutritious menu for pregnant women. After that, there is a significant comparison between the average nutritional consumption before and after being given leaflets and the practice of compiling menus. Next, there is a significant comparison between the average consumption of protein and zinc between the two groups and there is no significant comparison between the average consumption of Fe and Folic acid in both groups. The advice given is to increase knowledge, behavior, and expertise about nutritious food for pregnant women. So that demonstration procedures or practices need to collaborate with other counselling methods and to increase family income for pregnant women, it is necessary to raise family businesses carried out by pregnant women through the efforts to increase prosperous family income Program.

Pengaruh Praktek Menyusun Menu Makanan Bergizi Terhadap Pola Konsumsi Gizi Pada Perempuan Hamil

A B S T R A K

Stunting pada anak telah diawali semenjak saat sebelum kelahiran yang diakibatkan sebab kondisi gizi ibu yang kurang baik sepanjang kehamilan. Zat gizi yang sangat diperlukan ibu hamil buat melindungi kesehatan janinnya merupakan protein, asam folat, kalsium, vit A, vit D, serta zat besi. Konsumsi santapan bergizi sangat dipengaruhi oleh tingkatan pengetahuan serta perilakunya terhadap santapan. Pengetahuan yang kurang tentang gizi dapat menimbulkan ibu hamil tidak sanggup merancang serta menyusun santapan bergizi yang wajib dikonsumsinya. Rancangan riset ini merupakan quasi experiment dengan pendekatan nonrandomized pretest posttest control group

design. Ilustrasi yang digunakan berjumlah 50 orang ibu hamil serta hendak dipecah jadi 1 kelompok kontrol serta 1 kelompok perlakuan. Variable independen merupakan praktek menyusun menu santapan bergizi, variable dependen merupakan pola mengkonsumsi zat gizi, serta variable pengganggu merupakan usia ibu hamil, tingkatan pembelajaran ibu hamil, tingkatan pemasukan keluarga, serta umur kehamilan. Analisa informasi memakai uji independen t test serta dependent t test. Hasil riset menampilkan terdapat kenaikan rata- rata mengkonsumsi protein, Fe, asam folat, serta zinc sehabis diberikan perlakuan berbentuk praktek menyusun menu bergizi ibu hamil. Setelah itu terdapat perbandingan yang bermakna antara rata- rata mengkonsumsi gizi saat sebelum dengan setelah diberikan leaflet serta praktek menyusun menu. Berikutnya terdapat perbandingan yang bermakna antara rata- rata mengkonsumsi protein serta zinc antara kedua kelompok serta tidak terdapat perbandingan bermakna antara rata- rata mengkonsumsi Fe serta Asam folat pada kedua kelompok Saran yang diberikan merupakan buat tingkatkan pengetahuan, perilaku, serta keahlian tentang santapan bergizi ibu hamil hingga tata cara demonstrasi ataupun praktek perlu dikolaborasikan dengan tata cara penyuluhan yang lain, serta buat tingkatkan pemasukan keluarga ibu hamil butuh dibesarkan usaha keluarga yang dilakukan oleh ibu hamil lewat program UPPKS (Usaha Kenaikan Pemasukan Keluarga Sejahtera)

INTRODUCTION

Stunting is a state of failure to develop in toddlers caused by chronic malnutrition so that toddlers are very short for their age. The Ministry of Health defines stunting as toddlers with a z-score of less than -2 SD/ standard deviation (stunted) and less than -3 SD (severely stunted).

Toddlers who face stunting are not only stunted in their physical development (short stature/dwarf), but also want to stunt their brain growth, which of course greatly affects skills and achievement in school, productivity and creativity at productive ages. Recent research shows that children who experience stunting are associated with poorer performance in school, lower learning levels, and lower incomes as they age. Toddlers who suffer from stunting are more likely to develop into people of an unhealthy and poor age. Stunting in children is also associated with an increase in children's susceptibility to disease, both widespread and non-widespread disease, and an increased risk of being overweight and obese. Overweight and long-term obesity can increase the risk of degenerative diseases.

Stunting on toddlers has started since before birth due to poor nutritional conditions of the mother during pregnancy, poor diet, poor quality of food and seriousness of the frequency of getting sick more often (UNICEF 2010; Wiyogowati, 2012).

The poor nutritional condition of the mother during pregnancy indicates that before or during her pregnancy a mother does not consume nutritious food that is suitable for her needs. Adequate nutritional needs during pregnancy is one of the most important factors that affect the development of embryos and future children from an early age. So the quality of children under five who are born is very dependent on the nutritional condition of the mother before and during pregnancy (Cetin, et al., 2009).

To ensure the health of the children they have, a pregnant woman must consume adequate amounts of macronutrients and micronutrients. The American College of Obstetricians and Gynecologists (ACOG) reports that the nutrients that pregnant women need to maintain the health of their fetuses are protein, folic acid, calcium, vitamin A, vitamin D, and iron. Protein acts as a maker of red blood cells and organs for the future child. Folic acid is useful for the manufacture of spinal cord and brain for children. Not only that, folic acid is also useful for preventing toddlers from cleft lips, mental retardation or Down syndrome and toddlers born with physical disabilities. Calcium is useful for the formation and development of bones and teeth, muscle contraction and the nervous system in children.

Some of the survey results that were tried in Indonesia show that pregnant women actually do not consume enough nutrients according to their needs. The low consumption of nutrients during pregnancy can have an effect on the growth and development of the child, including the effect of stunting. The results of a cohort research on child development and growth in the city of Bogor conducted by the Bogor Nutrition Research Center in 2012 showed that of the 220 pregnant women studied, only 49.3% of pregnant women consumed protein in the first trimester of pregnancy and 47.9% in the second trimester of pregnancy. On the other hand, consuming folic acid is only 21.2% and consuming zinc is 15.9%. The results of the 2014 Indonesia Total Diet Survey also show that 88.3% of pregnant women consume less folic acid, 34.5% lack vitamin B consumption, and 46.9% lack vitamin C consumption. After that, the research results of Sri Prihatini, et al (2009) in 16, 111 pregnant women in Lombok showed that consuming protein in the first trimester of pregnancy was only 57.4% of the nutritional adequacy rate and in the second trimester 54.7% of the nutritional adequacy rate, consuming folic acid in the first trimester of 27.6% of the nutritional adequacy rate and 26.4% in the second trimester. consume calcium in the first trimester 27.1% nutritional adequacy rate and in the second trimester 25.9% nutritional adequacy rate. On the other hand, consuming iron in the first trimester is 34.1% of the

nutritional adequacy rate and 31.0% of the nutritional adequacy rate in the second trimester.

The attitude of pregnant women to consume nutritious food is strongly influenced by the level of knowledge and behavior towards food. Lack of knowledge about nutrition can cause pregnant women to be unable to design and arrange nutritious meals that must be consumed. For Marmi (2013) a significant aspect that affects the ability of pregnant women to design and prepare healthy and balanced meals for pregnant women is the expertise of mothers and families in buying food and knowledge about nutrition. The results of Tita Rosmawati's research (2017) show that 18.9% of 90 pregnant women in Yogyakarta studied in fact have a poor level of knowledge about pregnancy nutrition. After that, the research results of Nadiya Mawaddah and Hardinsyah (2008) reported that 26% of pregnant women in Kramat Jati and Ragunan DKI Jakarta had low levels of nutritional knowledge.

Health learning is essentially an activity or effort to deliver health messages to residents, groups or people in the hope that they will gain knowledge about better health (Notoatmodjo, 2011). The selection of appropriate learning procedures will affect the effectiveness of the results to be achieved. There are several types of learning procedures commonly used in the health sector, one of which is the demonstration procedure, through this method we can demonstrate the learning module visually by providing a clearer explanation (Machfoedz. 2009).

The results of the research show that demonstration procedures are effective in changing one's knowledge, behavior, and attitudes. Research conducted on students of SMA Futuhiyyah Mranggen, Demak Regency, showed that by using the demonstration method, there was an increase in knowledge (p value = 0.000) and skills (p value = 0.000) about breast cancer (Hidayati, et al, 2011).). Research conducted by Wibawa in 2011 also showed that the use of demonstration methods was successful in increasing knowledge and improving students' positive behavior towards dengue by 58.97% and 29.68%, respectively.

Considering that the problem of stunting in toddlers has started since the baby is still in its infancy, it becomes meaningful to try revising the nutrition of the mother during pregnancy by revising the consumption of food according to her needs. Revision of eating food can be tried if pregnant women have the skills to design and prepare nutritious meals. The demonstration of preparing a nutritious food menu for pregnant women is one of the efforts that can be tried to improve or improve the practice of consuming nutritious food for pregnant women.

The prevalence of stunting on toddlers in Pesawaran Regency reaches 50.8% or is located one level at the bottom of Central Lampung Regency which recorded the highest prevalence of stunting at 52.6% (Basic Health Research, 2013). On the other hand, the working area of the Gedong Tataan Health Center is the stunting focus in Pesawaran Regency.

Based on the background that has been described, the formulation of the research problem is: Is there any effect of demonstration in preparing a nutritious food menu on the nutrition consumption patterns of pregnant women at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency in 2020. There is also a research objective is to know the effect of the demonstration in preparing a nutritious food menu on the nutrition consumption patterns of pregnant women at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency in 2020.

METHOD

This research used a quasi-experimental design with a nonrandomized approach to pretest posttest control group design. In the nonrandomized pretest posttest control group design approach, samples were obtained from a number of populations which were then grouped into a treatment group and a control group. In this research, the two groups were first measured (pretest), which was to measure the level of nutrient consumption (protein, iron (Fe), folic acid, and zinc). To determine the initial condition, then the treatment group was given leaflets of nutritious food for pregnant women and the practice of compiling a nutritious diet for pregnant women, while in the control group only leaflets for nutritious food were given to pregnant women. The practice treatment of compiling a nutritious food menu for pregnant women is given once a week for six weeks. The food menu that is practiced is a complete meal menu including snacks. After being given the practical treatment of preparing the menu, then in both groups a post-test was taken to determine the changes in consumption that occurred. The research was carried out at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency, Lampung Province in April - September 2020.

The population in this research were all pregnant women who live at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency in 2019. The number of samples used was calculated using the Federer formula. In this research, the number of samples used was 25 people for each group. The sampling technique for each group was carried out using the accidental sampling method, namely pregnant women who came to visit the public health center, practice midwives, and health care center at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency.

The inclusion criteria used to determine the sample are pregnant women who live at the working area of Public Health Center in Gedong Tataan of Pesawaran Regency, and they are willing to be respondents. Meanwhile, as an exclusion criterion, pregnant women are not suffering from diseases that can affect them in consuming food. Data was collected by means of interviews and food recall for 1 x 24 hours. Bivariate analysis was carried out on two variables to determine the effect and differences. Before the test, the normality of the data was tested using the Shapiro-Wilk test. If the data from the measurement of nutrient consumption before and after the treatment was given turned out to be normally distributed, then to determine the difference in nutritional consumption in each group, a dependent t test was carried out, then To determine differences in nutritional consumption between groups, an independent t test was performed. If the data from the measurement of nutrient consumption were not normally distributed, the Wilcoxon test was used to determine the differences in each group, and the Mann Whitney test was used to determine the differences between groups.

RESULT AND DISCUSSION

The mean age in the treatment group was 26.7±6.2 years (range 18-38 years) and the average age in the control group was 29.4±5.1 years (range 23-40 years). The distribution of samples by age can be seen in the following table 1.

From the table 1 can be seen that most of the samples in the treatment group and control group were in the age

category 20-35 years, namely 20 people (80.0%) and 22 people (88.0%).

The mean gestational age in the treatment group was 5.7 ± 2.0 months (range 2-9 months) while in the control group it was 5.4 ± 2.1 months (range 2-9 months). Most of the samples of gestational age in the treatment group and control group were in the third trimester, namely 12 people (48.0%) and 11 people (44.0%).

Table1
Sample distribution based on Characteristics

Sample Characteristics	Treatment Group		Control Group	
	n	%	n	%
Age:				
<20 dan >35	5	20,0	3	12,0
20 - 35	20	80,0	22	88,0
Gestational Age				
TM I	3	12,0	6	24,0
TM II	10	40,0	8	32,0
TM III	12	48,0	11	44,0
Education Level:				
Low	9	36,0	4	16,0
Intermediate	16	64,0	21	84,0
High	0	0	0	0
Occupation Status:				
Not working	24	96,0	24	96,0
Working	1	4,0	1	4,0
Income Level:				
<district minimum wage	20	80,0	21	84,0
≥district minimum wage	5	20,0	4	16,0

Source: Primary Data, it processed 2020

The education level of the sample varies from low to intermediate level. Most of the samples, both in the treatment group and in the control group, had a secondary education level (junior high school and high school), as many as 16 people (64.0%) and 21 people (84.0%).

Most of the samples (96%) in the treatment group and control group were known to be unemployed or as housewives.

The average family income in the treatment group was Rp. 1,477,200,- ±.Rp.963,628,- (range Rp.300,000,- to Rp.4,000,000,-) while in the control group it was Rp.1,368,000,- ± Rp.1,011,484,- (range IDR 300,000 to IDR 4,200,000,-). Based on the Circular of the Minister of Manpower, the district minimum wage in Pesawaran Regency in 2020 is the same as the district minimum wage of Lampung Province, which is Rp. 2,432,000, -. The results of this research indicate that most of the samples in the treatment group and in the control group have a monthly family income that is below the district minimum wage in Pesawaran Regency.

Table 2.
Average consumption of nutrients before and after treatment/intervention in the treatment group

Consumption of Nutrients	Treatment Group	
	Before (Mean±SD)	After (Mean±SD)
Protein (gr)	37,3±11,8	62,3±20,8
Iron (Fe) (mg)	7,7±1,0	18,7±2,4
Folic Acid (mg)	123,3±24,1	133,6,0±20,0
Zinc (mg)	4,6±0,4	5,4±0,5

Source: Primary Data, it processed 2020

Consumption of Nutrients

Based on the recommended nutritional adequacy rate in 2019, the protein requirement for pregnant women is 90 g/day, then the Fe requirement is 27 mg per day, the folic acid requirement is 600 mg per day, and the zinc requirement is 12 mg per day.

From the table 2 can be seen that the average consumption of protein, iron (Fe), folic acid, and zinc in the treatment group after being given treatment increased when compared to before being given treatment. The average protein consumption increased by 25 g, then iron increased by 11.7 mg, folic acid increased by 9.7 mg, and zinc increased by 0.8 mg. However, if the average consumption is compared with the recommended nutritional adequacy rate, the average protein consumption after treatment is only 69.2%, the average Fe consumption is 69.3%, the average folic acid consumption is 22. .3%, and the average zinc consumption was only 45%.

Table 3.
The average consumption of nutrients from the pre-test and post-test results in the control group

Consumption of Nutrients	Control Group	
	Pre-Test (Mean±SD)	Post-Test (Mean±SD)
Protein (gr)	40,7±18,1	54,7±18,0
Iron (Fe) (mg)	7,2±5,5	11,1±5,7
Folic Acid (mg)	180,7±38,9	175,8±17,7
Zinc (mg)	4,8±0,1	5,4±0,5

Source: Primary Data, it processed 2020

From the table 3 can be seen that the average consumption of protein, iron (Fe), folic acid, and zinc in the control group increased compared to before being given treatment except for folic acid consumption. If the average consumption is compared with the recommended nutritional adequacy rate, the average protein consumption after treatment is only 60.8%, the average Fe consumption is 41.1%, the average folic acid consumption is 29.3%. , and the average zinc consumption was only 45%.

Table 4. The normality test of the average consumption of nutrients

	Stat	df	Sig	Distr
Treatment Group				
Protein before	.963	25	,549	Normal
Protein after	.947	25	.272	Normal
Fe before	.970	25	.721	Normal
Fe after	.938	25	.184	Normal
Folic Acid before	.944	25	.627	Normal
Folic Acid after	.916	25	.457	Normal
Zinc before	.972	25	.555	Normal
Zinc after	.940	25	.281	Normal
Control Group				
Protein before	.904	25	.081	Normal
Protein after	.906	25	.090	Normal
Fe before	.920	25	.063	Normal
Fe after	.923	25	.069	Normal
Folic Acid before	.911	25	.060	Normal
Folic Acid after	.914	25	.071	Normal
Zinc before	.925	25	.077	Normal
Zinc after	.929	25	.088	Normal

Source: Primary Data, it processed 2020

Normality of Nutrition Consumption Data

Determining the normality of the nutritional consumption data before and after treatment in each group, a normality test was carried out using the Shapiro Wilk test with computer software, and the results were as follows in table 4.

The results of the normality test of nutrient consumption data (protein, Fe, Folic Acid, and Zinc) before and after the practice of compiling menus in the treatment group and control group were normally distributed because p-value > 0.05, so that the analysis of differences in nutrient consumption in each group was carried out with a dependent t-test and the analysis of differences in nutrient consumption between groups was carried out by an independent t-test.

Differences in average nutritional consumption before and after practice in the treatment group and the control group

In table 5 it can be seen that in the treatment group, after being given leaflets and the practice of compiling menus, the average protein consumption increased by 25 g, the average Fe consumption increased by 11 mg, the average folic acid consumption increased 9.7 mg, and the average The average zinc consumption increased by 0.8 mg. The results of statistical tests showed that the p value for all nutritional consumption was below 0.05. So it can be concluded that there is a significant difference between the average nutritional consumption before and after being given leaflets and the practice of compiling menus.

The same thing was also shown in the control group that the p-value for all nutritional consumption was below 0.05, which means that there was a significant difference between the average nutritional consumption before and after being given nutritious food leaflets for pregnant women.

Table 5.
The distribution of the average nutritional consumption according to the treatment in the treatment and control group.

Consumptions of Nutrients	Treatment			Control		
	Mean±SD	t	p	Mean±SD	t	p
Protein						
Pre	37,3 ± 11,8	7,4	0,00	40,7 ± 18,1	5,4	0,00
Post	62,3 ± 20,8			54,7 ± 18,0		
Fe						
Pre	7,7 ± 1,0	11,0	0,00	7,2 ± 5,5	3,3	0,002
Post	18,7 ± 2,4			11,1 ± 5,7		
Folic Acid						
Pre	123,3 ± 24,1	8,8	0,00	180,7 ± 38,9	2,4	0,019
Post	133,6 ± 20,0			175,8 ± 17,7		
Zinc						
Pre	4,6 ± 0,4	8,6	0,00	4,8 ± 0,1	2,6	0,011
Post	5,4 ± 0,5			5,4 ± 0,5		

a: uji *dependen t-test*

Differences in the average nutritional consumption according to the treatment group and the control group before and after the practice of compiling menus.

In table 6 it can be seen that before and after the treatment, the average consumption of nutrients in the two groups is not much different. The statistical test results showed that the p-value for the average consumption of protein and zinc between the two groups was less than 0.05, so it can be concluded that there was a significant difference between the average consumption of protein and zinc between the two groups. While the results of statistical tests for the average consumption of Fe and folic acid showed a p value > 0.05 so that it can be concluded that there was no significant difference between the average consumption of Fe and folic acid in the two groups.

Table 6
Distribution of average nutritional consumption by treatment and control group

Consumptions of Nutrients	Before Treatment (Pre)			After Treatment (Post)		
	Mean±SD	t	p	Mean±SD	t	p
Protein						
Treatment	37,3 ± 11,8	1,1	0,11	62,3 ± 20,8	1,6	0,00
Control	40,7 ± 18,1			54,7 ± 18,0		
Fe						
Treatment	7,7 ± 1,0	7,5	0,01	18,7 ± 2,4	7,9	0,20
Control	7,2 ± 5,5			11,1 ± 5,7		
Folic Acid						
Treatment	123,3 ± 24,1	-27,0	0,00	133,6 ± 20,0	-23,4	0,29
Control	180,7 ± 38,9			175,8 ± 17,7		
Zinc						
Treatment	4,6 ± 0,4	1,0	0,33	5,4 ± 0,5	-0,9	0,01
Control	4,8 ± 0,1			5,4 ± 0,5		

a: uji *dependen t-test*

The effect of confounding variables on changes in the average consumption of protein and zinc before and after the practice of compiling a nutritious menu

From table 7 it can be seen that the variables of education level and family income have a probability value of <0.05, meaning that the variables of education and family income have a significant effect on changes in the average protein consumption, while the variables of age and gestational age are known to have no effect on changes in the average. The average protein consumption because the probability value is > 0.05.

Table 7.
The effect of confounding variables on changes in the average protein consumption

Variables	Changes in average protein consumption		
	Mean±SD	F	p
Age [**)			
<20	-4,44 ± 19,24	1,35	0,265
20 - 35	3,28 ± 11,45		
> 35	-3,33 ± 17,32		
Education[*)			
Low	-2,22 ± 9,62	1,31	0,027
Intermediate	2,64 ± 12,91		
Income [*)			
<district minimum wage	-3,33 ± 0,00	2,42	0,044
≥ district minimum wage	3,93 ±11,09		
Gestational Age[**)			
TM I	7,50 ± 7,39	1,54	0,200
TM II	6,94 ± 9,47		
TM III	-0,41 ± 12,87		

[*) independent t test, [**) Uji ANOVA

The same situation is also shown from the change in the average consumption of zinc. From table 14 it can be seen that the level of family income and education of pregnant women has a probability value of <0.05, meaning that these two variables have a significant effect on changes in the average consumption of zinc, while age and gestational age have no effect on changes in the average consumption of zinc, because the probability value is > 0.05.

Table 8
The effect of confounding variables on changes in the average consumption of Zinc

Variables	Changes in average zinc consumption		
	Mean±SD	F	p
Age [**)			
<20	-2,57 ± 17,33	2,10	0,175
20 - 35	4,29 ± 10,81		
> 35	-2,63 ± 18,06		
Education [*)			
Low	-3,32 ± 10,12	1,44	0,011
Intermediate	1,74 ± 10,41		
Income[*)			
< district minimum wage	-3,33 ± 9,14	1,06	0,014
≥ district minimum wage	3,83 ±12,79		
Gestational Age[**)			
TM I	6,40 ± 6,99	2,31	0,221
TM II	7,81 ± 8,35		
TM III	-1,48 ± 13,77		

[*) independent t test, [**) Uji ANOVA

Gestational age

The probability distribution for gestational age in the treatment group and the control group was relatively the same, which was in the second and third trimesters of pregnancy. The gestational age of the second trimester in the treatment group was 10 people (40%) and in the control group 8 people (32%). On the other hand, in the third trimester of pregnancy, there were 12 people (48%) in the treatment group and 11 people in the control group (44%).

Pregnancy is a natural incidence that occurs in a woman, starting from the process of fertilization (conception) to the birth of a toddler. The process of pregnancy causes the mother's body to face changes from its pre-pregnancy state (Darawati, 2016). Pregnancy is the development and growth of the fetus in the contents (intrauterine) starting from conception and ending until the onset of labor, the normal length of pregnancy is 280 days or 40 weeks (Padila, 2014).

Pregnancy is a physiological process that gives change to the mother or her environment. With the advent of pregnancy, the entire female genital system undergoes fundamental changes to support the growth and development of the fetus in the womb throughout the pregnancy process (Hutahaean, 2009).

Education Level

Learning is an effort to share knowledge so that there is an increase in positive attitude changes. The level of learning also ensures that it is easy for someone to absorb and master the knowledge and skills they have acquired. In general, the more a person learns, the better his knowledge and skills will be.

In this research, the learning levels of pregnant women in the treatment group and the control group were mostly at the intermediate level (junior high school to high school). In the treatment group, there were 16 people (64%) with secondary education, whereas in the control group the number reached 21 people (84%). The rest, the level of learning is likely to be at a low level.

A person's knowledge and skills are influenced by several things, one of which is learning. Continue to increase the level of learning so that it becomes easier to accept the concept of healthy living independently, creatively and sustainably. Learning can increase one's intellectual maturity. Continue to be great formal learning will continue to be good knowledge about health (Hastono, 2008).

Family Income

Most of the pregnant women in the treatment group or control group had a monthly family income level based on the District Minimum Wage in 2019, which was Rp. 2. 432,000,-. In the treatment group, pregnant women whose family income level was less than the District Minimum Wage were 20 people (80%), whereas in the control group the number reached 21 people (84%).

The level of family consumption is strongly influenced by the income that the family receives each month. The income received by the family will be used to buy food, pay for transportation services, pay for children's education, pay rent for houses and buy vehicles. Various research results show that the level of consumption of a person is directly proportional to his income. Continue to be a large income so that there will continue to be large expenditures to consume.

The low level of family income may occur because most pregnant women do not work, so that family income only comes from their husbands. Pregnant women who do not work or are housewives can actually function in helping their husbands to increase family income, including through activities carried out from their own homes. One of the programs that can be accompanied by pregnant women is the Effort to Increase Prosperous Family Income provided by the National Population and Family Planning Agency Through the efforts to increase prosperous family income Program, pregnant women can get business tutorials from family planning extension workers in the village.

The Practice of Preparing a Nutritious Meal for Pregnant Women

The practice of preparing a nutritious meal menu for pregnant women is a form of counseling intended to increase knowledge, behavior and skills through demonstration activities. The demonstration procedure is a method of presenting education by demonstrating a certain process or item being studied, either real or imitation, which is often accompanied by an oral description. The demonstration procedure has the expertise or ability to overcome the shortcomings of the extension workers, the demonstration procedure is able to deliver the material clearly and so that it is easy to understand. Thus, the use of demonstration procedures can channel messages that can trigger thoughts, feelings, and desires. From this, the learning process will be efficient and the skills of learning participants will increase.

The use of demonstration procedures for the educational process does have some drawbacks, including it takes quite a lot of time, requires media, and requires a fairly expensive fee, especially to buy the materials. Therefore, to obtain efficient learning outcomes, a combination of other methods is needed, for example the distribution of leaflets or booklets, lectures or group dialogues.

Consuming Nutrition for Pregnant Women

During pregnancy, a mother needs more nutrients than when she is not pregnant. Basically, all the nutritional needs will increase during pregnancy. This matter is related to the needs for the mother herself or for the needs of the fetus she has. If these needs are not met, in the long term it can have a negative impact on pregnant women or the fetus they have.

There are several very important nutrients that must be met during pregnancy, namely protein, iron, folic acid, and zinc. Protein is necessary for the development and growth of the fetus and protects the health of pregnant women. During pregnancy, mothers need a protein bonus of 30 grams per day from their pre-pregnancy needs of 60 grams (nutritional adequacy rate 2019). To meet the needs of protein consumption every day, mothers can choose regularly the consumption of fish, meat, nuts, tofu, tempeh, and milk.

Folic acid is a nutrient listed in the B vitamin group, which is needed for the manufacture of the nervous system and red blood cells. Adequacy of folic acid can prevent the formation of anemia and neural tube defects (NTD), such as spina bifida (open spinal cord). Pregnant women can get folic acid through consuming green vegetables, for example, spinach and beans, as well as meat, and eggs. Folic acid is a very meaningful consumption for pregnant women. The recommended daily intake of folic acid is 400 mcg for the first trimester and 600 mcg for the next until delivery.

Iron is very useful for making hemoglobin and making new cells and tissues. Iron deficiency can cause anemia which is at risk for LBW (Low Birth Weight Toddlers), bleeding, and death of pregnant women and toddlers. During pregnancy, it is also recommended to take blood-boosting tablets and consume a variety of iron-rich foods such as fish, liver, and tempeh. In the early trimester, the consumption of iron needed, the amount is the same as before pregnancy, is 18 milligrams per day. Starting from the second trimester, then the need increases, which is an increase of 9 milligrams / day in the second and third trimesters (nutritional adequacy rate, 2019).

Zinc is a micro mineral (trace element) which is very important after iron. Giving zinc supplementation during pregnancy will support the development of the fetus in the womb until infancy and childhood. Zinc is one of the essential minerals for humans, which is naturally present in some foods. Zinc functions as a metallo-enzyme in metabolic processes and is important for the manufacture of proteins and body genes. Consuming adequate zinc is important for accelerated development and intimate maturation. As with energy and protein deficiencies, zinc deficiency can limit sexual development and maturation. Zinc also has a significant function in the body's immunity. So from that, zinc is one of the minerals that is needed during pregnancy. Another role of zinc in pregnant women is to support the development of toddlers in the womb until they are born and develop into toddlerhood and childhood.

In this research, the average consumption of protein, Fe, Folic Acid, and Zinc increased after the subjects were given treatment. However, the amount is still lower than the recommended nutritional adequacy rate.

Average consumption of nutrients before and after being given treatment in the treatment group and the control group

Nutritional consumption during pregnancy is different from consumption before pregnancy to meet the needs of the mother and fetus. Based on the nutritional adequacy rate (nutritional adequacy rate) in 2019, pregnant women need a bonus of 30 grams of protein/day, 27 milligrams of Fe/day, 600 milligrams of Folic Acid/day, and 12 milligrams of Zinc/day. to help the process of fetal development in the womb. The development and growth of the fetus is strongly influenced by the nutritional consumption of the mother during pregnancy. If the health condition and nutritional status of pregnant women are good, then the health of the mother and the fetus she will have will also be good, on the contrary if the health conditions and nutritional status of pregnant women are not good (anemia) so that it can cause stillbirths or toddlers born with body weight less than reasonable / low birth weight.

Consumption of adequate nutrition is needed by pregnant women. These nutritional needs are needed by pregnant women to be able to provide good nutrition to the fetus for the development and growth of the fetus in the womb. The development of the fetus and the birth weight of this toddler is influenced by the nutritional consumption that the mother eats during pregnancy. Consumption of good nutrition in pregnant women will avoid the formation of malnutrition in the mother. Continuing malnutrition will result in poor fetal growth which can lead to low birth weight.

Education by demonstration method or practice is a process to improve one's skills by using various methods that match the skills provided and the equipment used. In addition, the practice method is an educational process that plays a role in guiding participants in a systematic and

planned way to be able to carry out a skill. With practice there is an effort to give someone the opportunity to gain hands-on experience. Learning that is based on experience will force someone to be able to reflect or look back on the experiences they have experienced. Providing education to pregnant women through the practice of preparing menus is expected to increase the expertise of pregnant women in preparing nutritious and varied menus, in sorting food ingredients and digesting them, so that in conclusion consuming the nutrients they need can be fulfilled.

The results of the research show that the group of pregnant women who were given leaflets and the practical treatment of preparing a menu, in fact there was an increase in the average consumption of all the nutrients measured. The highest increase occurred in the average consumption of iron (Fe) amounted to 142.8%, namely from 7.7 milligrams to 18.7 grams, then followed by an increase in the average consumption of protein by 67%, namely from 37.3 grams so 62.3 grams. On the other hand, in the control group who were only given leaflets, the increase in the average consumption of nutrients only occurred in protein, Fe, and Zinc. The increase in average consumption was mostly found in Fe, which was 54.2%, after that it was followed by an increase in the average consumption of protein by 34.4%. Universally, the increase in the average nutritional intake in the treatment group was greater than the control group.

After trying statistical tests, so that it can be known that both in the treatment group and in the control group, in fact there is a significant comparison between the average consumption of protein, Fe, folic acid, and zinc before and after being given treatment. However, the increase in the average consumption of nutrients was greater in the treatment group.

There was an increase in the average consumption of nutrients in the two groups because both groups were given leaflets about nutritious food for pregnant women. On the other hand, the aspect that is predicted to cause a greater increase in the average nutritional consumption in the treatment group compared to the control group is the provision of counseling with demonstration procedures in the form of the practice of compiling a nutritious menu for pregnant women. Practice is given once a week for 6 weeks. The results of this research are in line with research conducted by Robert and Posangi (2013) that counseling in the form of demonstrations has an effect on nutrient consumption. This matter is also supported by Rahmah's research (2019) which says that there is an effect of nutrition learning on the nutritional consumption of elementary school children.

The average nutritional consumption between the treatment group and the control group before and after being given treatment

Before and after being given treatment, in fact, the average consumption of nutrients in the two groups was not much different. Before being given treatment, the average consumption of nutrients in the control group was greater than that in the treatment group. However, after being given treatment, the average nutritional consumption in the treatment group was greater than the control group.

The statistical test results show that the p-value for the average consumption of protein and zinc between the two groups is less than 0.05, so it can be concluded that there is a significant comparison between the average consumption of protein and zinc between the two groups. On the other hand, the statistical test results for the average consumption of Fe

and folic acid showed a p value of 0.05 so that it could be concluded that there was no significant comparison between the average consumption of Fe and folic acid in the two groups.

The results of the analysis of confounding variables, namely age, level of learning, level of income, and gestational age on the average change in nutritional consumption so that it can be seen that only the level of learning and level of income have a significant influence because the probability value for the variable age and gestational age is greater of 0.05.

The absence of a comparison between the average consumption of folic acid and the average consumption of Fe could be due to the fact that all pregnant women have received blood supplement tablets from the public health center which also contain folic acid. On the other hand, the difference in the average consumption of protein and zinc can be caused by the influence of the confounding variables, namely the level of learning and the level of family income. Pregnant women with great education and large family incomes are very likely to be able to choose and obtain better and nutritious food ingredients.

CONCLUSION AND RECOMMENDATION

From this research, it can be concluded that there is an increase in the average consumption of nutrition after being given the practice of preparing menus, but the average amount of consumption is still lower than the nutritional adequacy rate; after that there is a significant comparison between the average nutritional consumption before and after being given leaflets and the practice of compiling menus; there is a significant comparison between the average consumption of protein and zinc between the two groups and there is no significant comparison between the average consumption of Fe and folic acid in the two groups; after that there is an effect of aspects of learning levels and levels of family income on the average change in consuming protein and zinc.

Some suggestions that can be given in relation to the results of this research are that the form of nutrition counseling by means of demonstrations or practices needs to be increased in number and frequency; to increase knowledge, behavior, and skills about nutritious food for pregnant women so that demonstration or practice procedures need to be collaborated with other counseling methods; if to increase the family income of pregnant women, it is necessary to raise a family business that is tried by pregnant women through the Efforts to Increase Prosperous Family Income Program.

Conflict of Interest statement

The authors have no conflicts of interest with the material presented in this manuscript. The authors declare

that no ethical issues may arise after the publication of this manuscript.

REFERENCES

Ahmad Watik. 2000. *Dasar Dasar Metodulogi Penelitian Kedokteran Dan Kesehatan*. Jakarta: Raja Grafindo Persada.

Almatsier, S. 2006. *Prinsip Dasar Ilmu Gizi*. Gramedia Pustaka Utama: Jakarta

American College Obstetricians and Gynecologysts (ACOG), 2013, *"Clasification Hypertensive Disorders"*, in: Hypertension inPregnancy, p: 13-14.

Aprilia Hidayati; Trixie Salawat; Siti Istiana. 2011 *Pengaruh Pendidikan Kesehatan Melalui Metode Ceramah dan Demonstrasi Dalam Meningkatkan Pengetahuan Tentang Kanker Payudara dan Keterampilan Praktik Sadari (Studi pada siswi SMA Futuhiyyah Mranggen Kabupaten Demak)*. http://jurnal unimus.ac.id

Arisman. 2003. *Gizi Dalam Daur Kehidupan*. Buku Kedokteran EGC: Jakarta

Badan Penelitian dan Pengembangan Kesehatan. (2014). *Survey Diet Total: Survey Konsumsi Makanan Individu Indonesia*. Jakarta: Pusat Data & Informasi

Cetin, P. et al. 2009. *Facilitating conceptual change in gases concepts. Journal Science Education Technology*. 18: 130-137.

Dinata, Arda., Pandji Wibawa Dhewantara. 2011. *Karakteristik Lingkungan Fisik, Biologi, dan Sosial di Daerah Endemis DBD Kota Banjar Tahun 2011. Jurnal Ekologi Kesehatan* Vol. 11 No 4, Desember 2012: 315 – 326.

Graner, Daryl K., Murray, Robert K. 2012. *Biokimia Harper Edisi 29*. Jakarta: Penerbit Buku Kedokteran EGC.

Indrawagita, Larasati. 2009. *Hubungan Status Gizi, Aktivitas Fisik, dan Asupan Gizi dengan Kebugaran pada Mahasiswi Program Studi Gizi FKM UI*. Skripsi. Ilmu Gizi Fakultas Kesehatan Masyarakat Universitas Indonesia

Kementerian Kesehatan RI. 2014. *Riset Kesehatan Dasar Tahun 2013*. Jakarta: Badan Litbangkes

Kementerian Kesehatan RI. 2019. *Riset Kesehatan Dasar Tahun 2018*. Jakarta: Badan Litbangkes

Machfoedz, Eko Suryani. 2009. *Pendidikan Kesehatan Bagian Dari Promosi Kesehatan*. Yogyakarta: Firamaya

Manuaba, Ida Bagus. 2009. Memahami *Kesehatan Reproduksi Wanita*. Jakarta: EGC

Marmi. 2013. *Gizi Dalam Kesehatan Reproduksi*. Yogyakarta: Pustaka Pelajar.

Mawaddah, Nadiya. 2008. *Pengetahuan, sikap, dan praktek gizi serta tingkat konsumsi ibu hamil di keluarahan kramat jati dan kelurahan ragunan propinsi DKI Jakarta*. Jurnal Gizi dan Pangan, Maret 2008 3 (1): 30-42.

Murray, R.K., Granner, D.K., Mayes, P.A., dan Rodwell, V.W. 2006. *Biokimia Harper. Edisi 25*. Jakarta: Penerbit Buku Kedokteran EGC.

Nadeak, R.J. 2011. *Hubungan dukungan keluarga dengan tingkat kecemasan pasien pre operasi di ruangan RB2N* RSUP HAM Medan.

Notoatmodjo S. 2010. *Ilmu Perilaku Kesehatan*. Jakarta: PT Rineka Cipta

Prastiono 2009. *Asi Eksklusif, Makanan Terbaik Dan Manfaat-Manfaatnya*. Diva Press: Yogyakarta.

Sri Prihatini, dkk 2012. *Gambaran konsumsi makanan dan status anemia ibu hamil sampel penelitian Summit*. Bogor: Puslitbang Gizi

Subejo, 2010. *Penyuluhan Pertanian Terjemahan dari Agriculture. Extention (Edisi 2)*. Jakarta

Suhardjo. (2008). *Perencanaan Pangan Dan Gizi*. Jakarta: Bumi Aksara.

Sulistyoningsih. 2011. *Gizi Untuk Kesehatan Ibu dan Anak*. Yogyakarta: Graha Ilmu.

Tita Rosmawati Dafiu. 2017. *Hubungan Pengetahuan Ibu Hamil Tentang Gizi Kehamilan Dengan Kejadian Kurang Energi Kronik (KEK) pada Kehamilan di Kota Yogyakarta Tahun 2017*. Skripsi. Jurusan Kebidanan Poltekkes Yogyakarta.

Trihono, Atmarita, Tjandrarini DH, Irawati A, Utami NH, Tejayanti T, 2015 Pendek *(stunting) di Indonesia, masalah dan solusinya*. Jakarta: Lembaga Penerbit Balitbangkes.

UNICEF. 2010. *Penuntun Hidup Sehat*. Jakarta: Pusat Promosi Kesehatan -Kementerian Kesehatan RI

Waryana. 2016. *Promosi Kesehatan, Penyuluhan dan Pemberdayaan Masyarakat*. Yogyakarta: Nuha Medika.

Wiyogowati, Citaningrum. 2012. *Kejadian stunting pada anak umur dibawah lima tahun (0-59 bulan) di Propinsi Papua Barat Tahun 2010 (Analisa Data Riskesdas 2010),* Skripsi pada Fakultas Kesehatan Masyarakat Universitas Indonesia