Research Article

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The Effect of Education Intervention on Knowledge Levels and Consumption Pattern of Breastfeeding Mother with Baby 0-6 Months in Sidorejo Village, Ponjong, Gunungkidul

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ABSTRACT: Indonesia has 17.3% of pregnant Chronic Energy Deficiency (CED) women who are at risk of CED while breastfeeding because they have poor nutritional status. Therefore, it is necessary to take corrective action to increase their knowledge about breastfeeding patterns to optimize nutritional intake through educational interventions. A quasi-experiment with a pre-test post-test with a control group and food recall 24h interview was employed. The knowledge score of the intervention group increased after the education intervention, while the control group did not change, and there was no significant difference (p<0.05) in the final score of the intervention and control group. The results of consumption patterns showed that there were significant differences in protein consumption between the initial and final mean scores in the intervention group (p<0.05), while there was no significant difference in energy consumption, and in the control group, there was no significant difference (p<0.05). The final mean of protein and energy consumption had a significant difference between the intervention and control groups (p<0.05). The relation of knowledge scores with the patterns of protein and energy consumption is not related between them (counterclockwise) which means if the level of knowledge is good, an increased pattern of protein and energy consumption is not necessary.

Keywords: breastfeeding; consumption; intervention; knowledge

INTRODUCTION

The first thousand days of Life (1000 HPK) is a phase of life that begins from the formation of the fetus in the womb (280 days) until the age of 2 years (720 days). This period gained a nickname with a window of opportunity which means that in this period there is a huge opportunity to prevent stunting. Children's lives in this phase are critical times in support of the optimal child growth and development (the National Planning and Development Agency, 2018). According to the *Ministry of Health* of the Republic of *Indonesia* Data (2018), Indonesia still has 6.2% of children experiencing low birth baby weight (BBLR) (born less than 2500 g). Infants with BBLR status have a permanent stunting risk. Many efforts have been made to decrease the prevalence of stunting, in infants through the intervention of expectant mothers have been carried out and also through an improved nutritional growth process, to children aged 2 years, especially when the age of infants is 0-6 months. According to Dalimunthe (2015), babies who have exclusive breastfeeding until 6 months tend to have a prevalence of stunting lower than babies who do not get it. The best nutritional intake for infants aged 0-6 months is breast milk, through an exclusive breastfeeding program. Thus, increased nutritional status of infants aged 0-6 months can be achieved through the intervention of baby mothers who do the exclusive breastfeeding program.

The Indonesian condition of 2022 was around 72.04% of mothers who gave breast milk exclusively (Directorate of Public Welfare Statistics, 2023). This value is still lower than the target owned by the Ministry of Health of the Republic of Indonesia, which is 75% of breastfeeding mothers exclusively (Ministry of Health, 2018). According to Riskesdas (2018), the special region of Yogyakarta ranks all three regions that have the lowest percentage of nursing mothers compared to 34 other provinces. Gunungkidul area which has a percentage of infants gets exclusive breastfeeding only 69%. This figure is the lowest number compared to 4 other districts in the province of the special region of Yogyakarta (Ministry of Health, 2018). Other results of the data stated that Gunungkidul area has the highest percentage of stunting numbers compared to other districts in the special region of Yogyakarta, which is about 34%. The health office of Gunung Kidul District (2019) stated that a more specific area with the highest stunting rate in Gunungkidul is Sidorejo village, Ponjong District, Gunungkidul Regency (Yogyakarta Provincial Health Office, 2019). The existence of the data has made Sidorejo village, Ponjong subdistrict, Gunungkidul Regency must be given special

intervention to overcome the low incidence of the exclusive breast milk and the high stunting rate.

Data based on Riskesdas 2018 shows the prevalence of Chronic Energy Deficiency (CED) in Indonesian pregnant women is 17.3% (Indonesian Minister of Health, 2018). This condition will also lead to CED in breastfeeding mothers. The results of the research conducted by Irawati (2009) also show mothers who are breastfeeding in Indonesia have less nutritional status. Reviewing this problem requires corrective action in the form of increased knowledge of breastfeeding patterns to optimize their nutritional intake. This nutrient enhancement effort can be done through an educational intervention for nursing mothers. According to Agrina (2019), education interventions are positively correlated to the amount of breast milk production and the duration of breastfeeding mothers. Also, according to Basit (2012), a person's nutritional knowledge is supported by educational background, high or low education can influence the level of acceptance of information and handling nutrition problems. The previous research indicates that education intervention will affect the quality of breastfeeding of mothers and affect the nutritional status of the child. The study aims to evaluate the effects of nutritional education interventions to improve mothers' knowledge scores on exclusive and stunting breast milk, as well as protein and energy consumption diary patterns, and to determine the level of relationship of knowledge level with protein and energy consumption diary patterns.

MATERIALS AND METHODS

Design Research

This research uses a pseudo-experimental research method (Quasi experiment). The design used for this research is pre-test post-Test with a control group. The research subject is divided into 2 groups, namely the intervention group (through pre-test process, intervention treatment, and post-Test) and the control group (only through pre-test and post-test). Each respondent will get a post-test pre-test treatment to know the level of knowledge from the mother, and the Food recall 24h interview to find out the dietary pattern of protein consumption and energy. The education intervention is only for the intervention group which contains exclusive breastfeeding, Stunting, and a diet that is good for nursing mothers. This research was conducted in Sidorejo village, Ponjong District, Gunungkidul Regency, Special Region of Yogyakarta. This research Data uses surveys from 9 hamlets from 19 villages in the village.

Respondent Selection

This survey was conducted based on similar research requiring 29 respondents (Agrina, 2019). The selection of respondents was done through random sampling in each hamlet in the village for individuals who meet the research criteria. The number of respondents in this study was calculated using the Slovin formula. According to the data, there are 229 mothers who have a baduta child (infants under two years) throughout Sidorejo village. This study only took 30 nursing mothers out of 41 mothers who matched the research criteria. Of the 30 questionnaires that were distributed to obtain data, there is the incompleteness of the knowledge Commissioner, and food recall 24h of 2 people, so only 28 questionnaires can be analyzed.

The inclusion criteria for this study are breastfeeding mothers living in Sidorejo Village, breastfeeding mother with a baby aged 0-6 months, and willing to be interviewed, learn, and return for the required follow-up (posttest) interview. While the exclusion criteria for this study are, the respondent refuses to give informed consent and a breastfeeding mother who does not breastfeed exclusively.

Research instruments

The instruments used in this research include educational intervention, socialization modules, and questionnaire (basic knowledge of stunting, exclusive breastfeeding, and Food Recall 24h).

Data Collection and Management Process

Data used are two types, namely primary data (derived from direct surveys) and secondary data (derived from government devices). Before the data collection is done, the enumerator will explain the research objectives conducted and ask the willingness of prospective respondents to be interviewed. When willing, respondents are required to sign informed consent as a statement of willingness to be interviewed and involved in the research. Once the data collection is done, the editing process is done to ensure that no questions are missed or the answers are inconsistent. The next process of coding all the answers listed on the questionnaire. The entry of Data is done by researchers. The process of cleaning is further done for the data that has been submitted before the data is used for analysis.

Table 1. Distribution of respondents based on knowledge score

Group	Average results of ± SEM		Average difference	p-value
	Early	End		
Intervention (n = 15)	8.27 ± 0.38	9.40 ± 0.39	1.13	0.003
Control (n = 13)	9.08 ± 0.40	9.39 ± 0.31	0.31	0.502

Note: Test Paired T-Test, with a confidence level of 95%

Data Analysis

Data obtained from subsequent studies will be analyzed using SPSS version 23 software. Food consumption data is processed using the NutriSurvey 2007 program. The first analysis is a univariable analysis of descriptive research variables to determine the description of the subject's characteristics through frequency distribution, average value, and standard deviation in each individual. The second is bivariable analysis to identify differences in the initial and final conditions to nursing mothers to the level of knowledge and increased consumption of proteins and energies using statistical tests Paired Sample T-Test level of significance $p < 0.05$ and CI 95%. The analysis is also conducted to compare the results of control groups and interventions on the initial and final conditions. This analysis uses the statistic test of the Independent T-Test level of significance $p < 0.05$ and CI 95%. Thirdly, correlation analysis is used to determine the relationship between the level of knowledge of the protein consumption pattern and the respondent's energy. This analysis used the statistical method of Bivariate Pearson Test level of significance $p < 0.05$ and CI 95.

RESULTS AND DISCUSSION

The Level of Knowledge

This analysis comes from 28 data from breastfeeding mother respondents. The overall distribution of respondents based on individual and household characteristics is that most respondents are 21-25 years old, as many as 9 people (32.14%), and that is at least 15-20 years old and > 40 years each as much as 1 person (3.57%). In terms of education, the respondent involved in the study was in the high school level of 12 people (42.86%) and the smallest of which came from Associate's Degree graduates, as much as 1 person (3.57). By revenue, all respondents had revenues between Rp 0 and Rp 5 million. Most respondents had revenues between Rp500,000 and Rp3,500,000.

Based on the respondent's level of knowledge, it indicates that the absence of an educational intervention can make respondents in the intervention group have the final knowledge rate category both from 73.33% increased to 86.67% and knowledge level category less than 26.67% reduced to 13.33%. While the control group has an end-of-category knowledge rate of either 84.62% to 100%, this final condition signifies that all respondents of the control group at the final condition all have a level of good knowledge.

Differences in knowledge score group intervention and control group can be seen in Table 1. According to the table, it appears that there is a difference in the average knowledge score during a pre-test and a significant post-test ($p < 0.05$) in the intervention group, and there is no significant difference ($p > 0.05$) in the control group. The intervention group's knowledge score increased after an education intervention, while the control group had no change in knowledge scores on the initial and final conditions of the intervention. The results from the research conducted by Wonatorey *et al*. (2006) found that mothers who are given nutritional education in the form of counseling have a better level of knowledge compared to mothers who do not. This education intervention is an activity that is important and has a positive effect to improve mothers' knowledge and awareness of nutritious food (Safari *et al*., 2018).

The knowledge level relationship between the intervention group and the control group can be seen in

Table 2. Relationship score Knowledge Group intervention and control group

Group	Final average score ± SEM	Average difference	p-value
Intervention (n = 15)	9.40 ± 0.39	0.02	0.976
Control (n = 13)	9.9 ± 0.31		

Note: Test Independent T-Test, confidence level 95%

Table 3. Consumption of proteins and energies in groups of interventions and control groups

Group	Average results of ± SEM		Average difference	P-value
	Early	End		
Intervention (n = 15)				
Protein	60.45± 5.07	81.78 ± 6.84	21.33	0.016
(gram/capita/day)	1910.97 ±	2398.19 ±	487.22	0.052
Energy (kcal/capita/day)	198.05	190.66		
Control (n = 13)				
Protein	56.44 ± 4.22	47.97 ± 4.22	-9.36	0.111
(gram/capita/day)	1694.72 ±	1540.42 ±	-154.31	0.244
Energy (kcal/capita/day)	111.43	116.29		

Note: Test Paired T-Test, with a confidence level of 95%

Table 4. Relationship pattern consumption intervention groups and control groups

Consumption patterns	Group	Final average ± SEM	Average difference	p-value
Protein	Intervention (n = 15)	81.78 ± 6.84	33.81	0.000
(gram/capita/day)	Control (n = 13)	47.97 ± 4.22		
Energy	Intervention (n = 15)	2398.19 ± 190.66	857.77	0.001
(kcal/capita/day)	Control (n = 13)	1540.42 ± 116.29		

Note: Independent T-test test

Table 2. Based on Table 2 data, it is obtained that there is no significant difference (p > 0.05) between the intervention group's final score and the control group. These results can be due to the level of education between members of the intervention group and the control group. The intervention group consisted of Elementary School until Senior High School while the control group consisted of Elementary School until Associate's Degree, This initial condition makes the knowledge score different, but with the intervention being able to make scores between the intervention and control group is almost the same.

Protein and Energy Consumption Diary Patterns

Consumption patterns in this study indicate that the group being given an educational intervention was able to make respondents have a pattern of increased protein consumption as much as 80%, and the protein consumption pattern decreased by 20%. The control group has a protein consumption pattern that increases by 38.46% and decreases by 61.54%. Groups that were given educational interventions were able to make respondents have an increased energy consumption pattern of 60% and a pattern of energy consumption decreased by as much as 40%. The control group has an increased energy consumption pattern of 23.08% and decreased by 76.92%.

In detail, the intake of protein consumption and the energy of each group can be seen in Table 3. The results of the study noted that there was a significant difference in protein consumption between the initial and final average score in the intervention group (p < 0.05), while the energy consumption was no significant difference (p > 0.05). The presence of educational interventions can improve nutritional knowledge that will lead to better changes in consumption patterns (Grosso *et al*., 2013). The higher level of knowledge, being able to move someone to apply the knowledge, the application can make a person little by little customize the habit for the better. Therefore, groups that do not get an educational intervention (control group) tend to have the same consumption pattern between the beginning and end of the activity.

The results of comparisons between protein and energy consumption in the control group with the intervention

group are seen in Table 4. The final average consumption of protein and energy has a noticeable difference ($p < 0.05$) between the two groups. These results support that the educational intervention is successful in increasing the consumption of proteins and energy, especially for nursing mothers in need.

The Level of Relationship of Knowledge Level with Protein and Energy Consumption Diary Patterns

Knowledge level relationships with consumption patterns can be seen in Table 5. It is known that the signification value (2-tailed) between the knowledge level and the protein consumption pattern is 0.291 ($p > 0.05$) and also the Signification value (2-tailed) between the level of knowledge with the pattern of energy consumption is as much as 0.416 ($p > 0.05$). The results of this analysis state that there is no link between the knowledge score and the consumption of proteins and energy. Based on the value of the correlation coefficient (Pearson correlation) between the level of knowledge and the pattern of consumption of protein and energy is a negative value or opposing a meaningful direction if the level of knowledge is good then not necessarily have a pattern of protein consumption and increased energy. This means that a mother who has a good level of knowledge does not necessarily have a good pattern of consumption. The level of knowledge from mothers is a factor that plays an important role in the behavior of giving nutritious food to their families (Setyaningsih & Agustin, 2014). The difference in results was found because the pattern of consumption is not only influenced by the level of one's knowledge but also can be due to social and economic conditions, body conditions, tastes, and others. People with low economic levels tend to have fewer food needs, consumption patterns will be limited, and consuming the same food and repeated every day (Madanijah, 2004). So, it can be said that the level of knowledge is not the only factor that affects a person's consumption pattern and the procurement of education intervention alone is not enough to make the community consumption pattern increase according to the recommended AKG.

Table 5. Knowledge level relationships with energy consumption and protein patterns

		Knowledge level
Protein consumption pattern	*Correlation* Sig. (2-tailed) N	- 0.207 0.291 28
Energy consumption patterns	*Correlation* Sig. (2-tailed) N	- 0.160 0.416 28

Note: Bivariate Pearson Test with a confidence rate of 95%

CONCLUSION

The results of this study showed that there was an education intervention able to increase the knowledge score of nursing mothers 0-6 months and able to increase protein consumption but did not increase energy consumption in breastfeeding mothers 0-6 months. There is no link between the level of knowledge with the pattern of protein and energy consumption in nursing mothers 0-6 months. This research data can be continued into further research in the form of food provision to help people meet the nutritional adequacy rate (AKG), which has been recommended by the Ministry of Health of the Republic of Indonesia.

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