

The Effect Of Nutritional Maternal Mentoring Intervention On The Quality Complementary Feeding (Dietary Diversity) In Infants Aged 6-11 Months In Batui Selatan, Banggai Regency, Central Sulawesi Province

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Abstract

The provision of complementary foods for breastfeeding in terms of the variety of food types for children aged 6-23 months in Indonesia is still low (46.6%) and lower in Central Sulawesi (34.6%). This study was to assess the effect of nutritional assistance interventions on mothers on dietary diversity from complementary feeding. This type of research is quasi-experimental, in which the intervention group receives nutritional assistance. Both groups received the program in general, namely counselling. The research subjects were mothers who had babies 6-11 months old, which consisted of the intervention group (n=30) and the control group (n=30). The intervention was carried out for 2 months by visiting the house once a week. Measurement of dietary diversity was carried out before and after the intervention. The analysis of pre post differences used the Wilcoxon test and the differences between the two groups used the Mann Whitney test. Results of the research is Subjects generally come from families with a mother's education level of junior high school and below 58.3%, housewives 81.7%, family income level <2 million/month 81.7%. There was no significant difference between the two groups in the baseline data ($p>0.05$) except for the rate ($p=0.001$). In the baseline data, there was no difference in dietary diversity between the two groups (3.07 ± 1.23 VS 4.77 ± 1.13). After the treatment, there was a significant difference between the two groups with a difference (2.03 ± 1.18 VS 0.05 ± 1.43) with a p-value = 0.001. There was an increase in dietary diversity in both groups after the treatment, both nutritional assistance and counseling as a general program.

Keywords: Nutritional Maternal Mentoring, Dietary Diversity, Complementary Feeding.

Introduction

The provision of complementary feeding in terms of variations in the type of food for children aged 6-23 months in Indonesia is still low, the provision of inappropriate food in

sufficient quantities both in terms of quantity and quality will result in impaired growth and malnutrition. Therefore, to overcome the problem of malnutrition, it is necessary to improve the quantity and quality of complementary feeding.

The proportion of children's food consumption varies at the age of 6-23 months in Indonesia 46.6%, the highest proportion is in the Yogyakarta Region 69.2% and the lowest is in the North Maluku Region 16.7%. According to Basic Health Research Central Sulawesi (2018), only 34.6%, where in children aged 6-11 months 20.3%, 12-15 months 39.4%, 16-19 months 46.8%, 20-23 months 39, 6% [1].

Literature study conducted by [2] A literature study conducted on research into the practice of giving complementary feeding in Indonesia shows that the practice of giving complementary feeding to children aged six months and over is not optimal, which makes it difficult to reduce stunting and wasting rates. Factors indicated to influence this condition include dietary diversity, active feeding practices (responsive feeding), consumption of foods high in iron and hygienic practices in food preparation and administration [2].

The nutritional problems of children at an early age, especially the age when they are given complementary foods, are strongly influenced by the mother's feeding practices. The practice of giving complementary foods includes aspects of quantity and quality. The factor that has not received much attention and intervention is the diversity in preparing complementary foods which will have an impact on the mother's ability to provide optimally suitable complementary foods and also stimulate active feeding practices. The research that will be conducted aims to determine the effect of mentoring on the quality of complementary feeding for infants aged 6-11 months.

Methods

This research was conducted in Batui Selatan District, Banggai Regency, where three intervention locus villages have been determined by the Banggai Regency Government in 2021. The three villages are Sinorang Village, Respective Village, and Sukamaju Village 1. The control village is Gori-gori Village, Bone Balantak, Sukamaju.

The type of research used is an experiment with a quasi-experimental design. There are 2 groups, namely the intervention group and the control group. The population in this study

were all baduta in Batui Selatan District, 60 samples were taken. The intervention group was given counseling and nutrition assistance, while the control group was given counseling. Analysis data used non-parametric test, wilcoxon test was used for pre-post and for both groups, mann whitney test was used.

Research respondents are mothers of children aged 6-11 months. Total number of mothers who became respondents was 60 people. Respondents taken are respondents who have met the inclusion criteria to be respondents in this study. The inclusion criteria set were children at term according to their category, children not suffering from chronic diseases and mothers willing to be respondents. Meanwhile, the exclusion criteria were children with poor nutritional status.

Data collection for this study used questionnaire interviews for primary data collection. Meanwhile, secondary data were obtained from health workers in the nutrition division who had made visits to homes and integrated health center activities. The questionnaire contains questions about family characteristics, household characteristics, mother's practice in giving complementary feeding, exposure to information about giving complementary feeding, and the influence received by mothers in the practice of giving complementary feeding. The data were analyzed using statistical software, namely Statistical Package for Social Sciences (SPSS) and the relationship between variables was tested using the Chi-square test.

Results and Discussion

The results of the study based on the baseline of parents of children under five can be seen in Table 1 generally the age of the mother is <30 years 60%, the mother's education level is low 58.33%, the father's education is low at 48.3% most of the mothers do not work 81.7%, the majority of fathers work as farmers 63.3%, Islam is 55% Bugis ethnicity 45%, low family income < 2 million / month 49%.

The results of the analysis show that there is a significant difference in the ethnic variable with p value = 0.001. While the other variables did not have a significant or homogeneous difference ($p > 0.05$). The baseline data for the

two groups are relatively the same, meaning that the initial conditions before the intervention can be said to be no different except for the ethnic variable.

The results of the study based on the children's baseline can be seen in Table 2 based on the age group of most children under the age of 6-8 months, namely 70%, the dominant sex is male 56.7%, infant who are still breastfeeding 63.3%, infant who are not drinking breast milk since the age of 0 months is 78.3%, children are not given prelacteal food 68.3% % The initial age is given complementary foods for breastfeeding at exactly 6 months that is 68.3% and the dominant child is not born as the first child (multipara) 63.3% .

The results of the analysis show that the baseline data for children is homogeneous, where there is no difference in age, gender, whether the mother is still breastfeeding, whether the child is given prelacteal food (food before breastfeeding is smooth?) and parity in the intervention group and the control group, each of which has a p value of 0.260. , p=0.297,

Table 1. Frequency distribution of maternal age, Education, occupation, Religion, Ethnicity, Parental income in the intervention group and control group

Variable	Intervention		Control		Total		p-value*
	n	%	n	%	n	%	
Mother's Age							
<30 Years	20	66.7	16	53.3	36	60	0.292
30-45 Years	10	33.3	14	46.7	24	40	
Maternal Education							
Low (Junior School Down)	18	60	17	56.7	35	58.3	0.793
High School (High School and Above)	12	40	13	43.3	25	41.7	
Father's Education							
Low (Junior School Down)	12	40	17	56.7	29	48.3	0.196
High School (High School and Above)	18	60	13	43.3	31	51.7	
Dad's Job							
Day Laborer	3	10.0	2	6.7	5	8.3	0.293
Private Employees	0	0.0	1	1.7	1	2	
State Civil Apparatus	1	3.3	0	0.0	1	1	
Farmer	17	56.7	21	70.0	38	63.3	
Doesn't work	1	3.3	0	0.0	1	3	
Fisherman	2	6.7	0	0.0	2	2	
Driver	0	0.0	1	3.3	1	1	
Self employed	4	13.3	4	13.3	8	8	
Do moms work							
Yes	4	13.3	7	23.3	11	11	0.317
Not	26	86.7	23	76.7	49	81.7	
Religion							
Islam	26	86.7	29	96.7	55	55	0.160
Hindu	3	10.0	0	0.0	3	3	

p=1,000, p=0.288, p=0.291, and p=0.839, p=0.405 (p>0.05).

The results of the test of different types of children's food based on age in Table 3 show that the intervention group before counselling and mentoring had an average value and standard deviation of 3.07 ± 1.23 , after the intervention the results were 5.10 ± 1.47 with a change value of 2.03 ± 1.18 . The results of the analysis showed that there were significant changes before and after counselling and mentoring was carried out with p value of 0.001.

The control group before counselling and mentoring had an average value and standard deviation of 4.77 ± 1.13 , after the intervention the results were 5.55 ± 1.51 with a change value of 0.05 ± 1.43 . The results of the analysis showed that there was a significant change before and after the extension with a value of p = 0.011. There was a significant difference in the two groups where the p value = 0.001 (p <0.05).

Christian	1	3.3	1	3.3	1	2.7	
Tribe							
Bajo	2	6.7	0	0	2	3.3	0.001
Bali	3	13.3	0	0	3	5.0	
Banggai	1	3.3	1	3.3	2	3.3	
Bugis	7	23.3	20	66.7	27	45.0	
Gorontalo	1	3.3	1	3.3	2	3.3	
Javanese	7	23.3	7	23.3	14	23.3	
Lombok	2	6.7	0	0	2	3.3	
Ta	7	20.0	1	3.3	8	13.3	0.739
Family Income							
<2 million	25	83.3	24	80.0	49	49	
≥2 million	5	16.7	6	20.0	11	11	

Source: Primary Data, 2021 *Chi Square Test

Table 2. Frequency distribution of Children's Age, Child Sex, History of Breastfeeding and Complementary Food

Variable	Intervention		Control		Total		<i>p-value*</i>
	n	%	n	%	n	%	
Age							
6-8 Months	19	80	23	76.7	42	70.0	0.260
9-11 Months	11	36.7	7	23.3	18	30.0	
Gender							
Man	19	63.3	15	50.0	34	56.7	0.297
Woman	11	36.7	15	50.0	26	43.3	
Is the mother's child still breastfeeding at this time?							
Not	11	36.7	11	36.7	22	36.7	1.000
Yes	19	63.3	19	63.3	38	63.3	
If it has stopped at what age does the mother's child stop drinking breast milk?							
0 Months	22	73.3	25	83.3	47	78.3	0.288
1 Month	3	10.0	1	3.3	4	6.7	
2 Months	3	10.0	0	0.0	3	5.0	
3 Months	2	6.7	2	6.7	4	6.7	
6 Months	0	0.0	1	3.3	1	1.7	
8 Months	0	0.0	1	3.3	1	1.7	
Is the child given pre lacteal food (food before breast milk is smooth?)							
Not	20	66.7	21	70.0	41	68.3	0.781
Yes	10	33.3	9	30.0	19	31.7	
What age the first time the mother's child gets food other than breast milk (months)							
3 months	0	0.0	1	3.3	1	1.7	0.839
4 months	2	6.7	3	10.0	5	8.3	
5 months	2	6.7	3	10.0	5	8.3	
6 months	21	70.0	20	66.7	41	68.3	
7 months	2	6.7	1	3.3	3	5.0	
8 months	2	6.7	2	6.7	4	6.7	
10 months	1	3.3	0	0.0	1	1.7	
Parity							
Primipara	11	36.7	8	26.7	19	31.7	0.405
Multipara	19	63.3	22	73.3	41	68.3	

Source: Primary Data, 2021 *Chi Square Test

Table 3. Test Results of Different Types of Children's Food According to Their Age in the Intervention and Control Groups Before and After the Intervention

Group	Pre	Post	<i>p</i> -value ^a	Difference	<i>p</i> -value ^b
	Average ± Standard Interchange	Average ± Standard Interchange		Average ± Standard Interchange	
Intervention (n=30)	3.07 ± 1.23	5.10 ± 1.47 pm	0.001	2.03 ± 1.18	0.001
Control (n=30)	4.77 ± 1.13	5.33 ± 1.51	0.011	0.05 ± 1.43	

Source: Primary Data, 2022.

a Wilcoxon Signed Test (To see the difference between baseline data and post-test)

b Mann Whitney test (To see the differences in both groups)

The results of this study indicate a change from before and after counseling and mentoring was carried out in the intervention group with a change value of 2.03 ± 1.18 where the *p* value = 0.000 was obtained. In the control group, there was also a change after counseling with a change value of 0.05 ± 1.43 and a *p* value of 0.011 was obtained. There was a significant difference in the two groups where the *p* value = 0.000 (*p* < 0.05).

Infant in the study area in the control group mostly consumed more than four groups of food, which was able to meet the nutritional needs of children. However, the mother did not adjust the variety of complementary feeding according to the child's age. This is because the mother assumes that the more types of food the child consumes, the healthier the child will be.

In the intervention group, the mothers of under-fives did not understand the importance of various types of food, because according to the mothers, as long as the child was full and not fussy, the mother had calmed down. Mothers also do not understand about variations according to the age of the child. Mothers in the intervention group gave only animal side dishes in the form of fish, if the child did not want to eat then the mother would not force and instead replace it with other animal side dishes but only gave rice porridge and vegetables that were easily digested by the child.

Complementary feeding messages conveyed through home visits for several mothers were effective in changing the behavior of mothers in the intervention group. For consumption of animal protein such as fish, mothers stated that their children did not like it because of the fishy smell, but after being told to replace it with

chicken liver, many mothers in the intervention group were willing to give chicken liver to their children.

Study conducted by [3] in Myanmar also found that there is a belief that chicken liver can cause worms so mothers should be given counseling so that the promotion of chicken liver can be successful [3]. Consumption of food sources of animal protein is still very low at the age of 6-23 months and that domesticated animals are generally sold as a source of income [4]. Children who are given a good diet in quality and quantity are not easy to experience a disease. In a state of malnutrition, the quality and quantity of food is very important because growth is influenced by food intake [5].

Children must eat at least 4 food groups consisting of staple foods, side dishes, vegetables and fruit so that the nutritional needs of children including carbohydrates, proteins, fats, minerals and vitamins can be met [6]. Food diversity should have been introduced before the age of five because each food group contains essential nutrients that can meet the nutritional needs of toddlers.

A study conducted by Dafursa and Gebremedhin showed that as many as 50% of mothers received messages about infant and child feeding practices from the mass media and those who did so would provide their children with more diverse foods [7]. This can happen with the increasing number of people who can access the internet which has now become a source of information that can be trusted by the public and can influence health behavior [7].

Research result by [8] showed different results of dietary diversity between the intervention

group and the control group. Food diversity is related to the adequacy of nutrients needed both macro and micro nutrients and food variety which shows two components of food quality. [9] in his research analysis reinforces the idea that increasing the variety of foods reflects a greater likelihood of meeting daily energy and nutrient requirements which will result in improved nutritional status among children.

Conclusion

The provision of counseling and nutritional assistance can increase knowledge and practice of giving various complementary foods that are better than just providing counseling.

References

- [1] Riskesdas. (2018). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI
- [2] Blaney, S., Februhartanty, J., & Sukotjo, S. (2015). Feeding practices among Indonesian children above six months of age: A literature review on their magnitude and quality (part 1). *Asia Pacific Journal of Clinical Nutrition*, 24(1), 16–27. <https://doi.org/10.6133/apjcn.2015.24.1.13>
- [3] Hlaing, L. M. (2015). Local food-based complementary feeding recommendations developed by the linear programming approach. <https://doi.org/10.1017/S000711451500481X>.
- [4] Haileselassie, M., Redae, G., Berhe, G., Henry, C. J., Nickerson, M. T., Tyler, B., & Mulugeta, A. (2020). Why are animal source foods rarely consumed by 6-23 months old children in rural communities of Northern Ethiopia? A qualitative study. *PLoS ONE*, 15(1).
- [5] Qu, P., Mi, B., Wang, D., Zhang, R., Yang, J., Liu, D., Dang, S., & Yan, H. (2017). Association between the Infant and Child Feeding Index (ICFI) and nutritional status of 6- to 35-month-old children in rural western China. *PLoS ONE*, 12(2), 1–14. <https://doi.org/10.1371/journal.pone.0171984>.
- [6] Wantina, M., Rahayu, L. S., & Yuliana, I. (2017). Keragaman konsumsi pangan sebagai faktor risiko stunting pada balita usia 6-24 bulan. *Journal UHAMKA*, 2(2), 89–96.
- [7] Dafursa, K., & Gebremedhin, S. (2019). 'Dietary Diversity among Children Aged 6 – 23 Months in Aleta Wondo District, Southern Ethiopia. <https://doi.org/10.1155/2019/2869424>.
- [8] Reinbott, A., Schelling, A., Kuchenbecker, J., Jeremias, T., Russell, I., Kevanna, O., Krawinkel, B., M., Jordan, & Irmgard. (2016). Nutrition education linked to agricultural interventions improved child dietary diversity in rural Cambodia. *British Journal of Nutrition*, 116(8), 1457–1468. <https://doi.org/10.1017/s0007114516003433>
- [9] Rah, J., Akhter, N., Semba, R., Pee, S. de, Bloem, M., Campbell, A., Moench-Pfanner, R., Sun, K., Badham, J., & Kraemer, K. (2010). Low dietary diversity is a predictor of child stunting in rural Bangladesh. *European Journal of Clinical Nutrition*, 64(12), 1393–1398. <https://doi.org/doi:10.1038/ejcn.2010.171>.