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THE RELATIONSHIP OF PROVIDING EDUCATION ON APPROPRIATE COMPLEMENTARY FEEDING WITH THE NUTRITIONAL STATUS OF INFANTS 6-12 MONTHS OF AGE

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ABSTRACT
Infants aged 6–12 months are in a critical stage of growth and development, where proper complementary feeding alongside exclusive breastfeeding plays a key role in supporting normal weight gain. Educating mothers on the correct patterns and selection of complementary foods can improve their knowledge and behavior in meeting their babies' nutritional needs. Objective: To determine whether there is a relationship between providing education and maternal knowledge about patterns and selection of complementary foods with nutritional status in infants aged 6-12 months. Methods: This study used quantitative research with a quasi-experimental design involving a pre-test group and a post-test group without a control group. The population includes all mothers who have babies aged 6-12 months totaling 70 respondents. The sampling method uses Non Probability Sampling with Purposive Sampling type. Data collection applied in this study included pretest and postest stages, namely measuring anthropometry in infants (Height and Weight) and providing education to mothers in the form of counseling using leaflets. Data were analyzed using univariate and bivariate. Results: Based on the Wilcoxon test, the obtained p-value is 0.001, which is less than 0.005. This indicates that the null hypothesis (H0) is rejected. Therefore, it can be concluded that providing education on appropriate complementary feeding has a significant effect on infants aged 6-12 months.

Keywords: complementary food; education; infant nutritional status

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INTRODUCTION

The age of infants 6-12 months is an important period for their growth and development. In addition to providing exclusive breastfeeding, giving additional food properly can help increase the baby's weight normally (Suantari et al., 2022). Complementary Feeding or MP-ASI is an intake in the form of drinks and food received by infants with an age exceeding 6 months as a nutritional complement to milk. Complementary feeding serves as a transitional step from breast milk to family meals that contain essential nutrients (Zona et al., 2021). Appropriate presentation of complementary foods is very important to support optimal health and growth of infants (Nurmadiyah et al., 2024).

However, some mothers may have a misconception about the types of food that should be given to their babies, such as thinking that only expensive foods like salmon or tuna should be given. It is important to give complementary foods that are appropriate, safe, and exactly what the baby needs. These ingredients can actually be replaced with local ingredients that have similar content, such as mackerel. Mackerel is an affordable and nutrient-rich source of nutrition. Its nutritional content includes protein (21 g), energy (125 cal), water (71 g), calcium 136 mg), carbohydrate (2.2 g), fat (3.4 g), sodium (214 mg), iron (0.8 mg), phosphorus (69 mg), zinc (1.1 mg), and copper (0.20 mg) (Andira et al., 2022).

Serving complementary foods optimally has a direct impact on children's nutritional status (Sitorus et al., 2023). Nutritional status can be determined by measuring a child's height and weight to assess whether their nutritional needs are being met (Patty, 2023). Overall, nutritional problems continue to increase every year, and malnutrition is the main cause of infant mortality in developing countries, including Indonesia (Andayani & Afnuhazi, 2022). By 2030, it is estimated that there will still be around 500 million malnourished children. To overcome this problem, efforts are needed to increase the provision of complementary foods. Based on a UNICEF report, about 40% of children under five years old in the Philippines, Indonesia and Malaysia suffer from malnutrition (Sitorus et al., 2023).

In Indonesia, the low quality of complementary foods is one of the factors that cause stunting in infants and children aged 6-24 months, which is influenced by inappropriate parenting (Lubis & Tioman Deliana, 2024). The World Health Organization (WHO) revealed that globally, around 20-40% of infants aged 0-2 years suffer from developmental delays. The prevalence of child development disorders in various countries, both developing and developed, reached 23% in Hong Kong, 12-16% in the United States, and 22% in Argentina. In 2018, the prevalence of child development disorders in Indonesia was estimated to range from 12.3% to 25.4% (Jayanti et al., 2023).

Based on the results of the Indonesian Nutrition Status Study (SSGI) in 2022 by the Ministry of Health's Health Development Policy Agency (BKPK), 17.1% of children under five are underweight. Based on growth monitoring in 2022 through e-PPBGM, it was found that 1.1% of infants under two months old were severely underweight and 5.6% of infants were underweight. North Sumatra Province has 0.5% of the population who are severely underweight and 2.2% who are underweight. Then, the nutritional condition of children under five in North Sumatra according to the index of height or body length by age (TB /U or PU /U) includes a very short group of 1.5% and short as much as 3.8%. Nutritional problems in the province of North Sumatra in children under five according to the index of body weight according to body length (BB / PB) or (BB / TB) include malnutrition as much as 0.5% and undernutrition as much as 2.2% (Ministry of Health, 2023).

It is important for mothers to prepare themselves to provide complementary foods that are still based on breast milk for the baby. One of the ways that can be done is by education on the appropriate method of complementary feeding. Through this education, it is hoped that it can improve the behavior and understanding of mothers when giving complementary foods (Sriasih & Rahyanti, 2021). The provision of appropriate complementary feeding must meet the requirements, namely given in a timely manner, in adequate amounts, safely and using the correct method (Ministry of Health of the Republic of Indonesia and JICA, 2020). Previous research at Klinik Pratama Hadijah revealed a link between proper complementary feeding and the nutritional condition of infants aged 6-12 months (Meiliana et al., 2024). In a preliminary study conducted at Klinik Pratama Hadijah, researchers directly interviewed 15 mothers of infants aged 6-24 months. From the interviews, it was found that 3 mothers thought that complementary foods should be expensive because expensive foods are considered more nutritious. addition, some mothers admitted that they were not brave enough to give complementary foods to their 6-month-old babies because they were worried about their babies' digestive problems. Based on this information and preliminary findings, the researcher wanted to explore whether there is a link between education on the proper serving of complementary foods and the nutritional condition of infants aged 6-12 months at Hadijah Primary Clinic.

METHOD

This study used quantitative research with a quasi-experimental design involving pre-test and post-test groups without a control group. The population includes all mothers who have

babies aged 6-12 months, totaling 70 people. The sampling method uses Non Probability Sampling with Purposive Sampling type. The sample used was in accordance with the researcher's consideration based on the inclusion and exclusion criteria totaling 40 respondents. Data collection applied in this study included pretest and postest stages, namely measuring anthropometry in infants (Height and Weight) and providing education to mothers in the form of counseling using leaflets. Data were analyzed using univariate and bivariate analysis. This study has been declared ethically feasible according to WHO 2011 standard.

RESULT

Table 1
Distribution of Characteristics of Mothers with 6-12 Months Old Infants by Age, Education, Occupation

Respondent Characteristics	f	%
Mother's Age		
20-25 years old	17	42,5
26-35 years old	19	47,5
36-45 years old	4	10,0
Mother's Education		
Elementary School	2	5,0
Junior High School	6	15,0
Senior High School	27	67,5
Higher Education	5	12,5
Mother's Occupation		
Work	25	62,5
Not Working	15	37,5

Table 1, it can be concluded that the majority of mothers are aged 26-35 years with 19 people (47.5%). The majority of mothers' education was high school graduates with 27 people (67.5%). The majority level of maternal employment was Working, totaling 25 people (62.5%).

Table 2
Distribution of Infant Characteristics by Sex and Age

Respondent Characteristics	f	%
Gender		
Baby Boy	22	55,0
Baby Girl	18	45,0
Age (Month)		
6	7	17,5
7	9	22,5
8	4	10,0
9	6	15,0
10	6	15,0
11	7	17,5
12	1	2,5

Table 3
Frequency Distribution of Nutritional Status of 6-12 Months Old Infants before Education on Proper Complementary Feeding

Respondent Characteristics	f	%
Nutrition Status		
Malnutrition	5	12,5
Undernutrition	14	35,0
Good Nutrition	17	42,5
At Risk of Overnutrition	1	2,5
Overnutrition	2	5,0
Obesity	1	2,5

Table 2, it can be concluded that the majority of babies have the highest Sex Type, namely Male Sex, totaling 22 babies (55.0%). The age of the majority of babies is at the age of 7

months with 9 babies (22.5%)**.** Table 3, it was found that the height and weight of infants before the provision of education on proper complementary feeding there were 5 infants (12.5%) with malnutritional conditions. Infants with undernutrition conditions amounted to 14 people (35.0%). Infants with Good Nutrition Condition were 17 individuals (42.5%).

Table 4

Frequency Distribution of Nutritional Status of 6-12 Months Old Infants after Education on Proper Complementary Feeding

Respondent Characteristics	f	%
Status Gizi		
At Risk of Overnutrition	1	2,5
Good Nutrition	31	77,5
Undernutrition	5	12,5
Overnutrition	2	5,0
Obesity	1	2,5

From the calculations in Table 3.4, it was found that there was an increase in infant weight and height after providing education on appropriate complementary foods for infants. Infants with good nutritional condition increased to 31 people (77.5%), and infants with Undernutritional condition also decreased to 5 people (12.5%).

Table 5

Relationship between the Provision of Education on Appropriate Complementary Feeding and the Nutritional Status of Infants 6-12 Months of Age at Hadijah Primary Clinic

Education on Complementary Feeding	Nutrition Status													
	Malnutrition		Under nutrition		Good nutrition		At Risk Of Overnutrition		Over nutrition		Obesity		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Before Education	5	12,5	14	35,0	17	42,5	1	2,5	2	5,0	1	2,5	40	100,0
After Provided Education	0	0	5	12,5	31	77,5	1	2,5	2	5,0	1	2,5	40	100,0

Table 5 shows that there were significant changes in the nutritional status of infants at Hadijah Primary Clinic. Changes in infant weight and height were highlighted after training on proper complementary feeding. Out of a total of 40 respondents, 5 (12.5%) infants were identified as malnutrition, 14 (35.0%) of them were undernutrition, and only 17 (42.5%) infants had good nutritional status before the proper complementary feeding education was provided. While after the provision of education on appropriate complementary food, there was a drastic increase in the nutritional status of infants. The number of infants with good nutritional status increased to 31 (77.5%), and there were no infants with malnutritional status. Meanwhile, there were 5 (12.5%) infants who were undernutrition.

Table 6

Wilcoxon test results before (pretest) and after (posttest) education on proper complementary feeding

Variables	Mean Rank	Sum Of Rank	N	Z	P Value
Negative Ranks	0,00	0,00	0		0,001
Positive Ranks	7,50	105,00	14	-3.416	

Based on the information provided in table 3.6, there were differences in the nutritional levels of 6-12 month old infants after as well as before receiving education on proper complementary feeding. A total of 14 infants showed an improvement in their nutritional status with a Mean Rank score of 7.50, while the remaining 26 infants showed a fixed value or no change (ties) between before and after the intervention. Analysis conducted with the Wilcoxon test resulted in a p-value of 0.001, which indicates that $p<0.005$. From these results, it can be concluded that (H0) is rejected while (Ha) is approved, proving that there is an effect of the Wilcoxon test. Significant effect of proper complementary feeding education on infant nutritional status.

DISCUSSION

Based on the research findings, it can be concluded that there is an increase in the height and weight of infants observed using scales and height measuring instruments. Before the education, the number of infants with Good Nutrition Status was 17 individuals (42.5%). After education, the number of infants with Good Nutrition Status increased to 31 individuals (77.5%). Providing education on the level of knowledge of mothers in fulfilling baby nutrition is very important. Because the beginning of baby's growth and development is influenced by nutrition. From birth to twelve months old, infancy is the first period of a child's life. During this time, the mother's role in monitoring the child's growth is considered very important. Providing food inappropriately can have adverse consequences if done continuously. As a result, babies will suffer from nutritional deficiencies because the nutritional adequacy rate is not met according to their age, which can lead to malnutrition or stunting (Rismayani et al., 2023).

This research is also in line with a study conducted by Werdaningtyas, et al. (2024) entitled "The Effect of Balanced Nutrition Education and Moringa Leaf Utilization as Stunting Prevention". The results of the analysis using the Kolmogorov- Smirnov (K- S) test showed that the significant value of the Saphiro-Wilk test in both data groups>0.050. According to the results of normality test, it can be concluded that balanced nutrition education and the use of moringa leaves significantly increase mothers' knowledge about balanced nutrition as a way to prevent stunting (Werdaningtyas, 2024).This is also in line with the research of Hapsari and Widiastuti (2024) in a study entitled "Balanced Nutrition Education as an Effort to Prevent Stunting in Toddlers in Pulang Pisau Regency, Central Kalimantan". Based on the results of the Wilcoxon Signed Rank Test from the results of the pre-test and post-test questionnaires obtained $p < 0.001$ which proves a significant difference between before and after getting education in the form of balanced nutrition counseling (Hapsari & Widiastuti, 2024).This finding is in line with the research of Oktavia, et al. (2023) whose title is "The Effectiveness of Nutrition Education on Mothers' Knowledge and Behavior regarding Nutritious Feeding for Toddlers at Posyandu Kenanga, Cempaka Putih Village, Jambi City Simpang Kawat Health Center Working Area". The research proves the results with a p-value of 0.000 or $p <0.05$ which indicates that there are significant differences in maternal behavior before and after receiving nutrition education (Oktavia et al., 2023).

CONCLUSION

Based on the results of research conducted on The relationship between the provision of proper complementary feeding education with the nutritional status of infants aged 6-12 months at Hadijah Primary Clinic using the Wilcoxon test shows a p-value of 0.001 which means $p< 0.005$. Based on these results, it can be concluded that (Ho) is rejected and (Ha) is accepted, indicating a significant effect of proper complementary feeding education on the nutritional status of infants aged 6-12 months.

REFERENCES

Andayani, R. P., & Afnuhazi, R. (2022). Faktor-Faktor Yang Berhubungan Dengan Status Gizi Pada Balita. Jurnal Kesehatan Mercusuar, 5(2), 41–48. https://doi.org/10.36984/jkm.v5i2.309

Andira, A., Sumartini, Hutapea, J., Soleha, S. P., & Amalia, A. R. (2022). Fortifikasi Ikan Kembung (Rastrelliger sp) Terhadap Karakteristik dan Nutrisi Mie Basah. Seminar Nasional Teknologi, Sains Dan Humaniora, 8(2), 94–103.

Hapsari, R. A., & Widiastuti, E. N. (2024). Edukasi Gizi Seimbang Sebagai Upaya Pencegahan Stunting Pada Balita Di Kabupaten Pulang Pisau , Kalimantan Tengah Education of Balanced Nutrition As An Effort To Prevent Stunting in Toddler in The Pulang Pisau Regency , Central Kalimantan. 11.

Jayanti, P., Jayatmi, I., & Novita, A. (2023). Hubungan Pengetahuan, Status Ekonomi dan

Frekuensi Baby Spa (Solus Per Aqua) terhadap Perkembangan Motorik Kasar Pada Bayi Usia 3-6 Bulan di Klinik Putri Toboali Tahun 2022. Jurnal Ilmiah Kebidanan Indonesia, 13(04), 136–142. https://doi.org/10.33221/jiki.v13i04.2638

Kemenkes. (2023). Profil Kesehatan Indonesia. Kementerian Kesehatan Republik Indonesia, Jakarta.

Kementerian Kesehatan RI dan JICA. (2020). Buku KIA Revisi 2020 Lengkap.pdf. In Kementrian Kesehatan Republik Indonesia (p. 53).

Lubis, B., & Tioman Deliana. (2024). The Relationship of Mother's Knowledge Level And Mp-Asi Feeding Patterns and Baby's Nutritional Status Age 6-12 Months at Rantang Health Center. Jurnal Kebidanan Kestra (Jkk), 6(2), 205–211. https://doi.org/10.35451/jkk.v6i2.2088

Meiliana, M., Siregar, D. N., Wati, M. M., Hidayat, M., Simanjuntak, L. T., & Sinulingga, E. L. B. (2024). Pengaruh Penerapan Feeding Rules Terhadap Status Gizi Bayi Usia 6-12 Bulan di Klinik Pratama Hadijah. MAHESA : Malahayati Health Student Journal, 4(3), 1079–1091. https://doi.org/10.33024/mahesa.v4i3.14020

Nurmadiyah, N., Permanasari, I., & Efliani, D. (2024). Faktor Yang Berhubungan Dengan Perilaku Ibu Dalam Pemberian MP-ASI Pada Bayi Usia 6-12 Bulan. REAL in Nursing Journal (RNJ), 7(2), 127–138.

Oktavia, C., Ekawaty, F., & Aryanty, N. (2023). Efektivitas Edukasi Gizi Terhadap Pengetahuan dan Perilaku Ibu Tentang Pemberian Makanan Bergizi Pada Balita di Posyandu Kenanga Kelurahan Cempaka Putih Wilayah Kerja Puskesmas Simpang Kawat Kota Jambi. Jurnal Ners, 7(2), 1561–1566. https://doi.org/10.31004/jn.v7i2.16795

Patty, S. Y. (2023). Hubungan Asi Eksklusif, Dan Pemberian Mp-Asi Dan Penyakit Infeksi Dengan Status Gizi Balita Umur 12-24 Bulan Di Puskesmas Siko Kota Ternate Tahun 2022. SIMFISIS: Jurnal Kebidanan Indonesia, 3(2), 607–614. https://doi.org/10.53801/sjki.v3i2.183

Rismayani, R., Sari, F., Rismawati, R., Hermawati, D., & Lety Arlenti. (2023). Edukasi Makanan Pendamping Air Susu Ibu (MP-ASI) Sebagai Upaya Peningkatan Daya Tahan Tubuh Balita Di Posyandu Desa Pematang Balam. Jurnal Besemah, 2(1), 27–36. https://doi.org/10.58222/jurnalbesemah.v2i1.117

Sitorus, F., Anita, S., & Bancin, D. R. (2023). Hubungan Pemberian MP-ASI dengan Status Gizi Anak 6-12 Bulan di Kelurahan Gedung Johor Medan. Jurnal Kesmas Untika Luwuk : Public Health Journal, 14(1), 1–6. https://doi.org/10.51888/phj.v14i1.149

Sriasih, N. K., & Rahyanti, N. M. S. (2021). Pengaruh Edukasi MP-ASI terhadap Kesiapan Ibu dalam Pemenuhan Kebutuhan Gizi Bayi Usia 6 Bulan sampai 24 Bulan. Jurnal Menara Medika, 3(2723–6862), 66–73. https://jurnal.umsb.ac.id/index.php/menaramedika/index

Suantari, N., Marhaeni, G., & Lindayani, K. (2022). Hubungan Pemberian Makanan Tambahan dengan Peningkatan Berat Badan Bayi Usia 6-12 Bulan. Jurnal Ilmiah Kebidanan (The Journal Of Midwifery), 10(2), 101–108. https://doi.org/10.33992/jik.v10i2.1553

Werdaningtyas, R. (2024). Pengaruh edukasi gizi seimbang dan pemanfaatan daun kelor sebagai pencegahan stunting. Kesehatan Tambusai, 5(2), 5138–5147. https://ejurnalmalahayati.ac.id/index.php/manuju/article/view/3231

Zona, P., Mulyani, S., & Raudhoh, S. (2021). Hubungan Pengetahuan Ibu Tentang MP-ASI dengan Status Gizi pada Bayi Umur 6-24 Bulan. Jurnal Ilmiah Ners Indonesia, 2(1), 33–40. https://doi.org/10.22437/jini.v2i1.15398