

NUTRITION EDUCATION ON FAMILY-BASED FOOD AND KNOWLEDGE ON FEEDING PRACTICES OF MOTHERS OF CHILDREN UNDER TWO YEARS OLD

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ABSTRACT

Wasting is a chronic malnutrition problem. Maternal knowledge on feeding practices is one of the causes that can trigger wasting in children, therefore, nutrition education regarding the recommended family-based food feeding practice is necessary. To find the impacts of nutrition education regarding family-based food feeding practices toward the improvement of knowledge of mothers of wasted children under two years. The research design applied quasi-experiment with pre-post test two group design. This study was conducted in the working area of Purbaratu Health Center and Mangkubumi Health Center of Tasikmalaya City that has high prevalence of wasting (>5%). The number of the research subjects in group A (lectures and demonstrations) and group B (lectures and role play) were respectively 20 people with the inclusion criteria both physically and mentally healthy children, breastfed babies, mothers of 6-24-month-old wasted children during the research, the mothers were able to communicate and were willing to become the research subjects. The intervention was nutrition education regarding family-based food feeding practices toward infants and young children provided four times at one-week intervals. The collected data included the ages of the mothers, educational background, occupations, the meal patterns, pre-post knowledge. The statistical analysis used was Wilcoxon test and Mann Whitney test. The results of the study showed that the mean increase in knowledge pre-test and post-test on group A were 8.40 and 9.40, and the mean increase in knowledge pre-test and post-test on group B were 8.70 and 9.35. Based on the data, it was found that the difference of the increase in knowledge of group A and group B were respectively 1.00 and 0.65 with the p-value of each group was ($p=0.001$; $p=0.010$). It showed that there was significant mean difference on the knowledge before and after the intervention toward both groups. There were some impacts of nutrition education on family-based food feeding toward the knowledge of mothers of wasted children under-two on feeding practices.

Keywords : Nutritional Education; Knowledge; Feeding Practice; Wasting

ABSTRAK

Wasting merupakan masalah gizi kurang yang telah terjadi dalam jangka waktu lama (kronis). Pengetahuan ibu dalam praktik pemberian makan merupakan salah satu penyebab yang dapat memicu terjadinya kejadian wasting, sehingga diperlukan adanya edukasi gizi mengenai praktik pemberian makan berbasis makanan keluarga yang sesuai dengan anjuran. Untuk melihat pengaruh intervensi edukasi gizi tentang pemberian makan berbasis makanan keluarga terhadap perbaikan pengetahuan ibu yang mempunyai baduta dengan status gizi wasting. Desain penelitian menggunakan quasi experiment dengan pre-post test two group design. Penelitian ini dilaksanakan di wilayah kerja Puskesmas Purbaratu dan Puskesmas Mangkubumi Kota Tasikmalaya yang memiliki prevalensi wasting tinggi (>5%). Jumlah subjek penelitian pada kelompok A (ceramah dan demonstrasi) dan kelompok B (ceramah dan role play) masing-masing adalah 20 orang dengan kriteria inklusi anak tidak cacat fisik dan mental, anak mendapatkan ASI, Ibu mempunyai anak usia 6-24 bulan dengan status gizi wasting pada saat penelitian berlangsung, ibu dapat diajak berkomunikasi dan bersedia menjadi subjek penelitian. Intervensi berupa edukasi gizi tentang pemberian makan bayi dan anak berbasis makanan keluarga yang diberikan sebanyak 4 kali dengan selang waktu selama 1 minggu. Data yang dikumpulkan meliputi usia ibu, pendidikan, pekerjaan, pola menu, pre-post pengetahuan. Analisis statistik yang digunakan adalah uji Wilcoxon dan uji Mann Whitney. Hasil penelitian didapatkan rata-rata peningkatan pengetahuan pre-test dan post-test pada kelompok A yaitu 8,40 dan 9,40 dan rata-rata peningkatan pengetahuan pre-test dan post-test pada kelompok B yaitu 8,70 dan 9,35. Berdasarkan data tersebut, terdapat perbedaan peningkatan pengetahuan pada kelompok A dan B dengan masing-masing selisih sebesar 1,00 dan 0,65 serta nilai p-value masing-masing kelompok adalah ($p=0,001$; $p=0,010$). Hal ini menunjukkan bahwa terdapat perbedaan rerata yang bermakna pada skor pengetahuan sebelum dan sesudah intervensi pada kedua kelompok. Terdapat pengaruh edukasi gizi pemberian makanan berbasis keluarga terhadap pengetahuan feeding practice ibu baduta wasting.

Kata kunci : Edukasi Gizi; Pengetahuan; Feeding Practice; Wasting

INTRODUCTION

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Baduta (under-two-year children) is the age of children before entering toddlers, aged 6 to 24 months. This age stage is the golden age and has excellent potential for the growth and development of children. This potential will emerge if they obtain good nutritional intake, adequate access to health, and education. Due to the rapid growth and development of under-two-year children, they require relatively better and more nutritional intake (Anindita, 2012). One of the main health problems of children under two is malnutrition because it can hinder the process of growth and development and also contribute to morbidity and mortality of children under two years old (Black et al., 2013).

If the under-two-year children have a poor nutritional intake that fails to meet their caloric needs, they will experience malnutrition or wasting. Wasting is a chronic malnutrition problem requiring early attention and treatment. If left untreated for an extended period, wasting can lead to the risk of disruption of the immune system, infection, and death (Rapar et al., 2014). Wasting is one of the main indicators in determining the quality of human resources in the future, because in children's early life particularly until 2 years old, it can lead to permanent damage in the process of growth and development. If wasting during the first two years of the children's life is not well-treated, it may lead to low cognitive development and low learning memory, stunting, metabolic disorder, and not productive (Pem, 2015), (Dewey, 2013).

The nutritional problem mentioned above was related to the food intake factor of the children under two years old. In addition to breastmilk, children under two should also be given complementary food known as complementary feeding. The purpose of complementary feeding is to meet nutritional requirements and the development process of children under two. The main reason of wasting in children under two is not lack of food, but early and also inadequate complementary feeding (Darmawan et al., 2015). Looking at the socio-cultural aspect, in order to provide sufficient nutrition for children under two, it is suggested that meal is made out of affordable food sources, nutritional, varied, and easy to find nearby. Complementary food made of local food sources has several advantages for mothers, such as mothers can easily and creatively cook the family-based meal menu for the children under two years old (Ani et al., 2020) (Rahmuniyati & Khasana, 2020). Complementary food for ASI (MP-ASI) is additional food or drink that contains nutrients and is given from 6-24 months of age to meet nutritional needs apart from Mother's Milk (ASI). After the baby is six months old, the need for nutritional intake increases along with the growth and development of the baby. In contrast, the nutritional intake and production of breast milk (ASI) decreases, so babies need additional food to complement breast milk. The provision of additional food that is not following the quality and quantity can cause malnutrition in under-fives which has an impact on growth and development disorders if not addressed immediately (Hakim, 2015).

Wasting is a description of poor nutritional status (z score < -2 SD) or malnutrition (z score < -3 SD) based on the results of anthropometric measurements with indicators of body weight (BB) according to body length (PB) or body weight (BB) according to height (TB) (Kementerian Kesehatan RI, 2020). Nearly 200 million children under five in low-income countries suffer from stunting, wasting, or even both, and 340 million children under five are starving due to a lack of access to vitamins and minerals. At the same time, 40 million children under five are overweight, with a prevalence that continues to increase every year (Unicef, 2019). The prevalence rate of wasting among toddlers in Indonesia is 7.7% and 6% in West Java Province. Based on these prevalence rates, the provincial level has a better prevalence than the national level. Meanwhile, the prevalence of wasting in Tasikmalaya City is 5.5% (Badan Kebijakan Pembangunan Kesehatan Kemenkes RI, 2023). However, the three prevalence rates have yet to reach the standard set by the WHO of 5%.

Several factors, including direct and indirect factors, can influence wasting. Direct factors consist of food intake and infectious diseases (Chand et al., 2018). When an infectious disease affects under-two-year children, they will suffer from decreased appetite, diarrhea, and vomiting, resulting in a lack of food intake and a change in their nutritional status towards malnutrition (Santoso, 2004). On the other hand, the indirect factors include family food resilience, environmental health, and parenting. Maternal behavior in parenting, including feeding practices, is influenced by several factors, such as age, income, education, employment, and knowledge (Supariasa, 2016). Poor maternal behavior can be caused by the lack of maternal knowledge related to nutrition and the inability to apply the knowledge in everyday life (Susanti et al., 2017).

The mother's knowledge supports success in the complementary feeding program for breast milk (MP-ASI). Knowledge is an outcome obtained by individuals who receive learning because they gain understanding and new knowledge that is formed continuously. Several factors can affect knowledge: age, economy, socio-culture, level of education, information, experience, and environment (Riyanto, 2013). The education that a person has will vary because it is influenced by where they live, someone who lives in an urban area will have a higher level of education when compared to those who live in a rural area (Juniasti & Asriati, 2023). The results of previous research stated that online education's effect on complementary feeding on feeding practices (Tane & Sembiring, 2021) and research conducted in Gowa Regency revealed that most of the mothers who were respondents in the study had a level of knowledge that was lacking and inappropriate in providing MP ASI (Parandari et al., 2021).

One of the intervention efforts to improve maternal knowledge related to feeding practices is the provision of nutrition and health education. Nutrition education for mothers of under-two-year children is to support 1000 HPK (Window of Opportunity), provided that this is the golden age of life.

METHOD

This research used a quantitative design with quasi-experiment pre-post test two-group design. The independent variable was nutrition education, and the dependent variable was maternal knowledge related to feeding practice. The selected research subjects were grouped into two for intervention through nutrition education to study which intervention provided higher improvements in maternal knowledge scores related to feeding practices.

The operational definition of nutrition education was a learning process to improve maternal nutrition knowledge and practices using lecture and demonstration methods (group A) and lecture and role play methods (group B). The operational definition of feeding practice knowledge was the knowledge of mothers related to the feeding practices of mothers of infants as assessed by the frequency of feeding infants, food texture and diversity given to infants, sanitary hygiene, active feeding, and food quantity. The interventions in this research were carried out four times with a period of 1 week.

This research was conducted in the working area of Purbaratu Health Center and Mangkubumi Health Center of Tasikmalaya City. The researcher determined the intervention group so that the research subjects living in the Purbaratu Health Center working area were included in Group A, and those living in the Mangkubumi Health Center working area were included in Group B. The research subjects of each group were taken by purposive sampling from the puskesmas population of 20 people, with inclusion criteria determined by the researcher. This research was conducted from March to May 2023.

The collected data were analyzed univariately and bivariately. Univariate analysis used descriptive analysis to see the distribution of each group. Using the Wilcoxon test, the bivariate analysis tested

the difference in pre-post means within groups. It is because the distribution of data obtained was not normally distributed. Meanwhile, the difference in pre-post means between groups was tested using the Mann-Whitney test. Research ethics had been approved and signed by the research subject. This research was approved by the Health Research Ethics Committee of the Faculty of Medicine, Universitas Sebelas Maret Number : 46/UN27.06.11/KEP/EC/2023.

RESULTS AND DISCUSSION

A total of 40 respondents were grouped into 2 intervention groups, namely group A and group B. The two groups were willing to participate in the research and met the inclusion criteria. The distribution of research subject criteria based on characteristics is presented in Table 1.

The characteristics of the respondents in this research were reviewed in terms of age, family income, maternal education, and maternal occupation. Based on the distribution, the respondents' characteristics in Group A and Group B were not significantly different, so they were homogeneous. However, the difference between the two groups was slightly high based on maternal occupation. Based on the data, most mothers served as housewives, so they should have plenty of time to provide nutritious food to their children. However, due to a lack of knowledge related to nutrition, they did not provide nutritional food based on the recommendations.

Table 1. Distribution of Research Subjects Based on Characteristics

General Characteristic	A*		B**	
	n	%	n	%
Maternal Age				
Late Teenagers	3	15	2	10
Early Adulthood	11	55	14	70
Late Adulthood	6	30	4	20
Total	20	100	20	100
Family Income				
> RMW (Regional Minimum Wage)	12	60	14	70
≤ RMW	8	40	6	30
Total	20	100	20	100
Maternal Education Background				
Not Attending Elementary School	0	0	0	0
Elementary School	6	30	5	25
Middle School	7	35	3	15
High School	6	30	6	30
University	1	5	6	30
Total	20	100	20	100
Maternal Occupation				
Housewife	19	95	14	70
ASN (State Civil Servants)	0	0	1	5
Entrepreneur	0	0	1	5
Teacher	1	5	3	15
Private Employee	0	0	1	5
Total	20	100	20	100

Soucer: Primary Data, 2023

* Intervention Group A (Lecture and Demonstration Method)

** Intervention Group B (Lecture and Role Play Method)

The minimum and maximum scores of group A and B were almost the same result and it was found an increase in the knowledge score of both groups. The analysis of knowledge levels between groups using the Mann-Whitney test showed no significant difference between Group A and Group B ($p=0.833$; >0.05) (Table 2). This result was in line with previous research that nutrition interventions in the form of nutrition education could improve feeding practices characterized by increased nutrient intake, frequency, and texture of food given to infants (Ulfani et al., 2011).

Table 2. Comparison of Mean Feeding Practice Knowledge Score Between Group A and B

Knowledge Variable	n	Median (Minumum-Maksimum)	<i>U</i>	<i>p</i>
A	20	9,5 (8-10)	193	0,833
B	20	10 (7-10)		

Source: Pimary Data, 2023

The results of the Wilcoxon statistical test showed a difference in the mean increase in knowledge scores in groups A and B was 1.00 and 0.65, respectively (Table 3). Meanwhile, the analysis of knowledge levels in groups using the Wilcoxon test showed that there was a significant difference between the pre-post scores in Group A ($p=0.001$; <0.05) and Group B ($p=0.010$; <0.05). After the intervention, there was an increase in the maternal knowledge score related to feeding practice. This result was supported by Nugraheni's research which stated that maternal knowledge increases after obtaining nutrition counseling (Era Nugrahaeni, 2018).

Nutritional intervention in this research is the education that includes sharing knowledge and motivation toward behavioral and attitude change in family-based or local-based feeding practices. The education used a flipchart and food samples as the media applying different teaching methods for each group: group A (lectures and demonstration) and group B (lecture and role play). Knowledge is a sensitivity a peson obtains through the senses cause stimulation in attitudes and behavior. The sense of sight absorbs the most knowledge into the human brain with a percentage of 75%-87%, while the sense of hearing is 13%, and the other senses are 12% (Maryati, 2016).

Knowledge was acquired when someone sensed a particular object. Some pictures on the flipchart, such as how to cook complementary food, how to wash the dishes and wash hands properly, were meant to stimulate the respondents to remember the interventions provided in order that maternal knowledge regarding family-based feeding could be increasing. The result of the study showed that the score of group A gained higher increase than the score of group B. This condition could be explained based on field observation on the teaching methods provided that the respondents in group A (lectures and demonstration) were more active and enthusiastic than those in group B (lectures and role play).

Demonstration method is a learning process management that uses props or models to elaborate problems more easily and to provide a certain skill to the respondents (Bando & Elihami, 2021). Demonstration activity in this study was conducted through illustrating the process of cooking meals for children under two years old and serving the recommended meals allowed for them to consume. The results of the study are aligned with the research conducted by Fitriani, Khotidjah, and Pangestu (2020) on the difference of maternal knowledge before and after being demonstrated how to cook complementary food. The results showed that there was significant difference on the knowledge before and after the demonstration of cooking complementary food with the value $p=0.000$ (Fitriani et al., 2020).

Table 3. Comparison of Mean Knowledge Score Before and After Intervention in Group A and B

Knowledge Variable	n	Mean	Median (minimum-maksimum)	z	p
A					
Before	20	8,40	9 (6-10)	-3,442	0,001
After	20	9,40	9,5 (8-10)		
B					
Before	20	8,70	9 (7-10)	-2,588	0,010
After	20	9,35	10 (7-10)		

Source: Pimary Data, 2023

CONCLUSIONS AND SUGGESTIONS

Nutrition education interventions conducted four times with a period of 1 week could increase knowledge scores related to feeding practices among mothers of under-two-year children with wasting nutritional status. The group that received the intervention with the lecture and demonstration method had higher knowledge scores related to feeding practice. It is expected that public health centers (puskesmas) through the health workers and the empowerment of Posyandu (Integrated Health Centers) cadres could provide socialization and trainings in persuasive and motivating way by providing family-based food to the vulnerable groups, from pregnant mothers until mothers of children under two as one of the efforts to prevent wasting in children.

ETHICAL CONSIDERATIONS

This research has received approval from the Health Research Ethics Committee of the Faculty of Medicine, Universitas Sebelas Maret Number : 46/UN27.06.11/KEP/EC/2023.

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Conflict of Interest Statement

There is no conflict of interest in this research.

REFERENCES

- Ani, N., Ani, N., Nugroho, F. S., & Wartini, W. (2020). Edukasi Perilaku Orang Tua dalam Pemberian MP-ASI pada Balita di Dusun Kodokan. *IJECS: Indonesian Journal of Empowerment and Community Services*, 1(2), 43. <https://doi.org/10.32585/ijecs.v1i2.801>
- Anindita, P. (2012). *Hubungan tingkat pendidikan ibu, pendapatan keluarga, kecukupan protein*

dan zink dengan stunting (pendek) pada balita usia 6-35 bulan di Kecamatan Tembalang Kota Semarang. 1, 1–10.

- Badan Kebijakan Pembangunan Kesehatan Kemenkes RI. (2023). *BUKU SAKU Hasil Survei Status Gizi Indonesia (SSGI) 2022*.
- Bando, U. D. M. A., & Elihami, E. (2021). Pengaruh Metode Demonstrasi Terhadap Pembelajaran Fiqh Di Pesantren Melalui Konsep Pendidikan Nonformal. *Jurnal Edukasi Nonformal*, 2(1), 81–90.
- Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., De Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., & Martorell, R. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890), 427–451.
- Chand, R., Kumar, A., Singh, N., & Vishwakarma, S. (2018). Knowledge, attitude and practices about complementary feeding among mothers of children aged 6 to 24 months in tertiary care centre of Kumaun region. *International Journal of Contemporary Pediatrics*, 5(6), 2142–2147.
- Darmawan, F. H., Nur, E., & Sinta, M. (2015). Hubungan Pengetahuan dan Sikap Ibu Dengan Perilaku Pemberian MP-ASI yang Tepat pada Bayi Usia 6-12 Bulan. *Jurnal Bidan Midwife Journal*, 1(2), 32–42.
- Dewey, K. G. (2013). The challenge of meeting nutrient needs of infants and young children during the period of complementary feeding: an evolutionary perspective. *The Journal of Nutrition*, 143(12), 2050–2054.
- Era Nugrahaeni, D. (2018). Pencegahan Balita Gizi Kurang Melalui Penyuluhan Media Lembar Balik Gizi Prevention of Undernourished Children through Nutrition Education using Nutrition Flipchart. *Jurnal Amarta*, 12–15. <https://doi.org/10.2473/amnt.v2i1.2018.113-124>
- Fitriani, H., Khitidjah, S., & Pangestu, J. F. (2020). Perbedaan Pengetahuan Ibu Sebelum dan Sesudah Diberikan Demonstrasi Pembuatan Pemberian Makanan Pendamping Asi (Mp-Asi) Di Desa Benuang Kecamatan Toho. *Jurnal Kebidanan Khatulistiwa*, 6(1), 27–34.
- Hakim, M. A. (2015). Pemberian MP-ASI dan Status Gizi Bayi Usia 6-24 Bulan Berdasarkan Indeks BB/U di Desa Ban Kecamatan Kubu Tahun 2014. *Intisari Sains Medis*, 4(1), 14–23.
- Juniasti, H. T., & Asriati, A. (2023). Pengetahuan dan Sikap Remaja Tentang HIV/AIDS pada Remaja Kota dan Desa di Provinsi Papua . *Jurnal Pendidikan Dan Konseling (JPDK)*, 5(2 SE-Articles), 4269–4276. <https://doi.org/10.31004/jpdk.v5i2.14053>
- Kementerian Kesehatan RI. (2020). *Permenkes No 2 Tahun 2020 Tentang Standar Antropometri Anak*.
- Maryati, D. (2016). Pengaruh edukasi gizi terhadap feeding practice ibu balita stunting usia 6-24 bulan. *Indonesian Journal of Human Nutrition*, 3(1), 1–8.
- Parandari, S., Muslimin, M., Hajrah, H., Imran, A., & Adam, A. (2021). Pengetahuan, Sikap, Dan Dukungan Keluarga Dengan Ketepatan Pemberian Mp-Asi. *Jurnal Gizi Prima (Prime Nutrition Journal)*, 6(2), 138–145.
- Pem, D. (2015). Factors affecting early childhood growth and development: Golden 1000 days. *Adv Practice Nurs*, 1(101), 347–2573.
- Rahmuniyati, M. E., & Khasana, T. M. (2020). Edukasi Penganekaragaman Menu 4 Bintang (4*) Mp-Asi Homemade Sebagai Upaya Meningkatkan Status Gizi Balita. *Community Development Journal : Jurnal Pengabdian Masyarakat*, 1(3), 410–415. <https://doi.org/10.31004/cdj.v1i3.1099>
- Rapar, V., Rompas, S., & Ismanto, A. (2014). *Hubungan pola asuh ibu dengan status gizi balita di wilayah kerja Puskesmas Ranotana Weru Kecamatan Wanea Kota Manado*. 1–7.
- Riyanto, A. (2013). Kapita selekta kuesioner pengetahuan dan sikap dalam penelitian kesehatan. *Jakarta: Salemba Medika*, 66–69.
- Santoso, L. (2004). *Kesehatan dan Gizi*. Rineka Cipta.
- Supariasa, I. (2016). *Ilmu Gizi : Teori dan Aplikasi*. EGC.
- Susanti, R., Indrianti, G., & Utomo, W. (2017). *Hubungan pengetahuan ibu balita tentang gizi dengan status gizi anak usia 1-3 Tahun*. 1–7.

- Tane, R., & Sembiring, F. B. (2021). Edukasi online pemberian mpasi terhadap praktik pemberian makan dan status gizi anak usia 6-24 bulan. *BEST Journal (Biology Education, Sains and Technology)*, 4(2), 244–249.
- Ulfani, D., Martianto, D., & Baliwati, Y. (2011). Faktor-faktor sosial ekonomi dan kesehatan masyarakat kaitannya dengan masalah gizi underweight, stunted, dan wasted di Indonesia. *Jurnal Gizi Dan Pangan*, 6(1), 63–64.
- Unicef. (2019). Children, food and nutrition: growing well in a changing world. *The State of the World's Children, 2019*.