The Relationship Between Maternal Nutrition Knowledge and Energy Intake in Lunchbox and Children's Nutritional Status

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ABSTRACT

Nutritional status describes fulfilling nutritional needs through the intake and use of nutrients. Nutritional status is influenced by maternal nutritional knowledge, energy intake, and the status of working mothers. This study aims to determine the relationship between maternal nutrition knowledge and energy intake in lunchboxes and the nutritional status of children in the kindergarten of the Pengharapan Sejati Indonesia foundation. The design of this study is cross-sectional; the sample uses a total sampling technique of 46 respondents. This research was carried out in September 2024 - January 2025 at the Yayasan Pengharapan Sejati Indonesia. The data analysis was descriptive, Spearman's rank, and logistic regression. The results showed that the nutritional knowledge of the medium category of mothers was 23 respondents (50%). Energy intake for 25 children (54.3%) was in the low category. The nutritional status of malnourished children was 25 children (54.3%). The rank-spearman test results on the maternal nutrition knowledge variable were obtained with a p-value of 0.000. The variable energy intake in the lunchbox obtained a p-value of 0.002. The results of the logistical regression analysis of the nutritional knowledge variable with the nutritional status of the child obtained a p-value of 0.002 with an Exp B of 1.102, which means that every 1 point increase in nutritional knowledge provides a 1.102 times greater chance of a normal child nutritional status. The variable of energy intake in lunchboxes with nutritional status was obtained with a p-value of 0.264, meaning there was no relationship between the variable of energy intake in lunchboxes and nutritional status. This study concludes that there was a relationship between maternal nutrition knowledge and child nutritional status, and there was no relationship between energy intake in lunchboxes and children's nutritional status.

Keywords: energy intake in lunchboxes, maternal nutrition knowledge, nutritional status

INTRODUCTION

The nutritional status of children in Kindergarten illustrates the fulfillment of nutritional needs through the intake and use of nutrients in the body. (Iqbal & Puspaningtyas, 2018). Children in kindergarten are children between the ages of five and seven years, and at this age, children's activity will increase, so they need sufficient nutrients (Ministry of Education, Culture, Research and Technology, 2017). One of the factors that affects health is nutritional status. Undernutrition in children can falter growth, decrease immunity, cause behavioral disorders, and affect intelligence, while overnutrition can lead to obesity and degenerative diseases (Ministry of Health of the Republic of Indonesia, 2017).

According to Basic Health Research (Riskesdas) data in 2018, the prevalence of nutritional status in children aged 5-12 years was 9.2% obese, 10.8% overweight, 2.4% fragile, and 6.8% thin

(Ministry of Health of the Republic of Indonesia, 2019). The latest data from the Indonesian Health Survey (SKI) in 2023, the prevalence of children aged 5-12 years who experience obesity was 6.5%, obese 11.8%, very thin 4.2%, and thin 5.2%. (Ministry of Health of the Republic of Indonesia, 2023). The prevalence of children aged 5-12 years who experience nutritional status in North Sumatra is 2.1% very thin, 5.6% thin, 10.6% obese, and 9.1% obese. Data shows an increase in the prevalence of fragile and obese children aged five to twelve years in North Sumatra.

Nutritional problems occur when a gap exists because the current dietary intake does not meet normal nutritional conditions. Optimal dietary status can support kindergarten children's growth and development rate, and a normalized nutritional status in children can also reduce the risk of disease (Yunawati et al., 2023). According to Khair et al., the nutritional status of kindergarten children is influenced by several factors. (2021), stating that there are three factors, namely: 1) if the mother's knowledge is not enough, then in the future it will hinder the improvement of nutrition in children 2) income will affect the consumption of daily food where if the income is higher, then the consumption of food rich in nutritional sources will be more fulfilled 3) the status of working mothers.

The growth and development of kindergarten children can be supported through the quality and amount of nutrients consumed by children, which must receive attention. Mothers' knowledge of kindergarten children's nutrition is one of the components that can affect children's health (Almatsier, 2019). Maternal nutrition knowledge is nutrition-related knowledge that significantly impacts children's growth and development. Lack of maternal knowledge can hinder the improvement of good nutrition in the family, especially in children, because the mother is responsible for the child's nutrition. If there is a need for food or nutrition, a mother must have basic nutrition knowledge to fulfill the child's diet. (Khair et al., 2021).

Maternal nutrition knowledge can influence children's habits in bringing food to school, where providing food for children is inseparable from how mothers play an important role in determining the type, quantity, and diversity of food (Ministry of Health of the Republic of Indonesia, 2014). Providing children with adequate nutritional intake through healthy food lunchboxes can positively affect their nutritional balance and encourage them to filter good, wholesome foods without ordering food outside the home (Insani, 2022). Therefore, mothers need to prepare food supplies to be selective in choosing healthy food without ordering outside the home.

Energy intake reflects the diet consumed by an individual or a group. The child's nutritional status can be influenced by the composition of the food supply and the amount of energy consumed. If the food supply can contribute to the total energy per day and meet his needs, then the child's nutritional status will be good (Anugraheni et al., 2019). Recommendations for the contribution of energy and nutrients to breakfast to realize a healthy, productive, and active life, according to the 2014 Balanced Nutrition Guidelines, can meet as much as 15 - 30% of nutritional needs per day. (Ministry of Health of the Republic of Indonesia, 2014). The opinion of Noviyanti supports this (2018) generally, breakfast with a time range from 06.00 am to 10.00 am contributes 25% of the day's

nutritional needs. Based on this background, it is necessary to conduct a study to analyze the relationship between maternal nutrition knowledge and energy intake in lunchboxes and the nutritional status of children in the kindergarten of the Yayasan Pengharapan Sejati Indonesia.

METHOD

1. Research Location and Time

The research was conducted at the Kindergarten of Yayasan Pengharapan Sejati Indonesia. This research was conducted in September 2024 - January 2025.

2. Research Type and Design

This type of research is an analytical observational research with a cross-sectional design. Maternal nutritional knowledge and lunchbox energy intake were independent variables in this study, while children's nutritional status was dependent. Samples were taken using the total sampling technique on all children and mothers, totaling 46 respondents.

3. Research Procedures

The research was conducted at the Kindergarten of Yayasan Pengharapan Sejati Indonesia. This research was conducted in September 2024 - January 2025.

a. Measurement of Maternal Nutrition Knowledge

The measurement of maternal nutrition knowledge was carried out using questionnaires that had been validated by lecturers and experts in their fields. The questionnaire consisted of 20 questions with four indicators, namely: definition and impact of nutrient deficiency for kindergarten children (7 items), types of nutrients (4 items), types of nutrients in food (5 items), and balanced nutrition messages for kindergarten children (4 items)—questionnaire of 4 answer choices, where there are one correct option and three wrong answer options. After the respondents fill out the questionnaire, the answers will be given a score of 1 for each correct answer and a score of 0 if the answer is incorrect. After the results are obtained, they are converted to a maximum value of 100. The total score of the questionnaire is in the range of 0 - 100. The final score is as follows: if the answer <60 categories, it is lacking; if the answer is 60-80 categories, it is in the medium category; and > 80 categories, it is good (Khomsan, 2021).

b. Measurement of Energy Intake in Lunchboxes

Measuring energy intake in lunchboxes using 2x24-hr Food Recall, with interviews with mothers. Form food recall taken from the E-book Teaching Materials Food Consumption Survey of the Ministry of Health of the Republic of Indonesia. (Ministry of Health Indonesia, 2018). This form comprises a menu, groceries, and amounts (household size and weight in grams). Next, energy intake data will be found using the Nutrisurvey software. Furthermore, the data will be averaged for

two days and compared with 25% of the Nutritional Adequacy Rate. The lunchbox in question is the primary food source of carbohydrates. The results of the calculation of the final score of the questionnaire will be categorized into four categories, namely significantly little (<70%), less (70-<100%), normal (100-<130%), and more (≥130%) (Ministry of Health of the Republic of Indonesia, 2014).

c. Nutritional Status Measurement

Measure children's nutritional status using anthropometry: height, weight, and age. The tools used are digital scales and a *microtome*. The data obtained will be calculated and interpreted through the BMI/U Z-score for children aged 5-18. The Z-score calculation uses the WHO Anthroplus application. The Z-Score results that have been obtained will be categorized into two, namely malnutrition (<-2 elementary and >+1 elementary school) and normal (-2 elementary school to +1 elementary school) (Regulation of the Minister of Health of the Republic of Indonesia, 2020).

d. Data Analysis

This study's data analysis used univariate, bivariate, and multivariate analyses. Univariate analysis to describe the frequency distribution, percentage, mean, standard deviation, minimum, and maximum values. Bivariate analysis uses a Spearman rank test to determine the relationship between independent and dependent variables. Multivariate analysis was performed using a logistic regression test. All data will be analyzed using the SPSS 25 application.

RESULTS AND DISCUSSION

Based on the study's results, the research subjects were children aged 5-6. The study results in the form of respondent characteristics can be seen in Table 1.

Table 1. Respondent Characteristics

Yes	Variable	Category	Frequency (n)	Percentage (%)
1	Mother's Age	Early Adult (19-29 years old)	15	32.6
		Late Adult (30-49 years)	31	67.4
2	Mother's Work	Private Employees	1	2.2
		Entrepreneur/Trader	29	63.1
		Housewives	16	34.7
3	Mother's Last Education	Elementary School	3	6.5
		Junior High School	12	26.1
		Senior High School	28	60.9
		College Academy		

			3	6.5
4	Child's Gender	Man	25	54.345.7
		Woman	21	
5	Child's Age	5 years	39	84.815.2
		6 years	7	
6	Maternal Nutrition Knowledge	Less (<60)	20	43.5
		Medium (60-80)	23	50.06.5
		Good (>80)	3	
7	Energy Intake in Lunchboxes	Very Little (<70%)	0	0.0
		Less (70-<100%)	25	54.3
		Normal (100-<130%)	20	43.52.2
		Over (≥130%)	1	
8	Nutritional Status of Children	Malnutrition (<=-2 SD and >=+1 SD)	25	54.3
		Normal (-2 SD to +1 SD)	21	45.7

Remarks: number of respondents (n=46).

The results of the analysis in Table 1. showing characteristics with the highest percentage of respondents based on the age of the mother are 30-49 years old (67.4%), the mother's job is self-employed/trader (63.1%), the mother's last education is high school (60.9%), the gender of the child is the most in men (54.3%), most of the children's age is 5 years old (84.8%), the mother's nutritional knowledge is in the medium category (50%), energy intake in lunchboxs as much as (54.3%) is in the poor category, and the nutritional status of children is malnourished by (54.3%).

Table 2. The Relationship between Maternal Nutrition Knowledge and Children's Nutritional Status

Maternal Nutrition Knowledge	Nutritional Status of Children				*p-value*	Correlation Coefficients
	Malnutrsi		Normal			
	n	%	n	%		
Less	15	32.6	5	10.9		
Medium	10	21.7	13	28.3	0.000	0.576
Good	0	0	3	6.5		

Table 2 shows that respondents with malnutrition nutrition knowledge of mothers with malnutrition nutrition status are 15 respondents (32.6%). It can be seen that some respondents with malnutrition status, as many as 25 children, are malnourished. The results of *the rank-spearman* test

showed a *p-value* of 0.000, so that the p-value (0.000) < 0.05, which indicates a relationship and a correlation coefficient of 0.576, which means that the relationship between the mother's nutritional knowledge and the child's nutritional status has a moderate level of closeness. The correlation coefficient has a positive value, so it can be interpreted that the higher the mother's nutritional knowledge, the more normal the child's nutritional status. From the statistical test results, it can be concluded that there is a relationship between maternal nutrition knowledge and child nutritional status at Yayasan Pengharapan Sejati Indonesia kindergarten.

Table 3. The Relationship between Energy Intake in Lunchboxes and Children's Nutritional Status

Maternal Nutrition Knowledge	Nutritional Status of Children				*p-value*	Correlation Coefficients
	Malnutrsi		Normal			
	n	%	n	%		
Very Less	0	0	0	0		
Less	20	43.5	5	10.9	0.002	0.449
Normal	4	8.7	16	34.8		
More	1	2.2	0	0		

In Table 3 it can be seen that 20 children (43.5%) of the respondents with the category of energy intake in the food supply category who have a nutritional status are 20% (43.5%), based on the data above, it can be seen that half of the respondents who are malnourished are 25 children (54.3%). The results of the analysis were obtained in the *rank-spearman* test with a *p-value* of 0.002, so that *the p-value* (0.002) < 0.05. Based on the results of statistical tests, it was found that there was a relationship between energy intake in lunchboxes and the nutritional status of children in the kindergarten of the Yayasan Pengharapan Sejati Indonesia.

Table 4. The Relationship between Maternal Nutrition Knowledge and Energy Intake in Lunchboxs and Children's Nutritional Status

Variabel	*p-value*	B XP	95% CI
Maternal Nutrition Knowledge	0.002	1.102	1.036-1.171
Energy Intake in Lunchboxes	0.264	1.037	0.937-1.104

In Table 4, it can be seen that the p-value of the maternal nutrition knowledge variable is obtained at 0.002 < 0.05, which indicates that the maternal nutrition knowledge variable is significantly related to the child's nutritional status. The variable of energy intake in lunchboxes obtained a p-value of 0.264 > 0.05, which indicates that the variable of energy intake in lunchboxes

is not significantly related to the nutritional status of children. The result of the Exp B value in the above analysis is that an Exp B result of 1.102 on the variable of maternal nutrition knowledge indicates that every increase in maternal nutrition knowledge points provides an opportunity of 1.102 for a normal child nutritional status.

1. The Relationship between Maternal Nutrition Knowledge and Children's Nutritional Status

The study results show that maternal nutrition knowledge in Yayasan Pengharapan Sejati Indonesia kindergarten is included in the medium category. This is in line with research conducted by Laila (2022) the study results show that mothers' knowledge about nutrition in the Welahan village posyandu, Jepara Regency, is as much as 43.1% of mothers have sufficient knowledge. Maternal nutritional knowledge is formed after sensing a particular object. The higher the mother's knowledge level, the easier it will be for the mother to receive information (Notoatmodjo, 2014).

Maternal nutrition knowledge in this study is divided into 3: good, moderate, and poor, where most maternal nutrition knowledge is moderate. This study found that some mothers have a final education at the high school level. Mothers with higher education tend to understand the importance of balanced nutrition for children. In comparison, mothers with lower education often have difficulty getting information about good food, which increases children's risk of malnutrition (Bustami & Amiruddin, 2024). Notoatmodjo (2014) stated that education is one of the aspects that affect nutritional knowledge. This is in line with the research conducted by Ronald (2024) who was found that there was a significant relationship between maternal education and nutritional status, with a p-value of 0.01. Apart from education, factors that can affect parents' understanding of nutrition are nutritional information that is not balanced with practices and food choices that are adjusted to the material and non-material circumstances of parents (Maulani et al., 2021).

Results of correlation test analysis, Spearman's rank. A positive and significant relationship exists between maternal nutrition knowledge and child nutrition status in Kindergarten Yayasan Pengharapan Sejati Indonesia (p<0.05). This means that the higher the mother's nutritional knowledge, the better the child's nutritional status. The results of this study are in line with the research conducted by Fitriyah & Firdaus (2024), showing that between maternal knowledge of nutrition and the nutritional status of children at preschool age with *p-value* 0.019 (<0.05), this indicates that there is a significant relationship. It is found that the higher the mother's level of knowledge about balanced nutrition in children, the better the nutritional status of her child. A study conducted by Afrinis et al. (2021) stated that there was a significant relationship between maternal knowledge about nutrition and the nutritional status of preschool children, with a p-value of 0.001 (<0.05). In addition, the results of research conducted by Adha et al. (2020) found the relationship between maternal knowledge about nutrition and the nutritional status of children with p-value 0.004 (<0.05), and there is an OR value of 11.1 which means that mothers with less knowledge are 11.1 times more likely to experience malnutrition in children.

The relationship between mothers' knowledge of nutrition and the child's nutritional status is that it will impact how they feed their children when they do not know what food to eat. Lack of nutrition in food content and wrong choice of food ingredients are due to ignorance related to knowledge about foods with good nutrition, thus impacting children's nutritional status. This is supported by Syafarinoo et al. (2020) there was a relationship between the nutritional status of preschool children in Kindergarten ABA 06 Mergosono and the behavior of mothers in choosing nutritious food. Children from families with low maternal knowledge often have to settle for potluck foods that do not meet their nutritional needs (Saisab et al., 2018). Knowing about the child's good nutritional status will impact the mother's knowledge of how to feed the child.

2. The Relationship between Energy Intake in Lunchboxs and Children's Nutritional Status

The study results show that the energy intake in children's lunchboxs at the Yayasan Pengharapan Sejati Indonesia kindergarten is included in the category of lacking. This can be caused by the selection of the type or portion of food in the lunch that is not by the guidelines for the contents of my plate, so that the energy provided does not meet 25% of the child's daily needs (Noviyanti & Kusudaryati, 2018). Nutritional status occurs because there is a balance between nutrient intake from Food and nutrient requirements for body metabolism (Harjatmo et al., 2017). The nutritional status of children in this study showed that children in the kindergarten of the Yayasan Pengharapan Sejati Indonesia experienced malnutrition, which was seen through the Z-score results with measurements made by comparing the child's weight and height with their age.

There is a positive and significant relationship between energy intake in lunchboxs and nutritional status in the Kindergarten of Yayasan Pengharapan Sejati Indonesia. The higher the energy intake in a child's diet, the higher the child's nutritional status. In line with the research conducted by Anugraheni (2019), there is a significant relationship between the contribution of food provided compared to the energy of the day and the nutritional status of children, with a p-value of 0.001. It can be concluded that the higher the contribution of the food lunchbox, the higher the child's nutritional status.

Energy intake is a factor that affects a child's nutritional status. Energy is generated from carbohydrates, fats, and proteins. If the amount of glucose from food is not present and glycogen stores in the body are depleted, non-carbohydrate energy sources, namely fats and proteins, will be used to produce energy, so that it cannot perform its primary function, resulting in metabolic disorders in the body. Then the nutritional status of the child becomes abnormal (Khomsan et al., 2023). Therefore, the energy intake in the body must be balanced so that metabolism is not disturbed and the nutritional status of children remains normal.

One way to meet the nutritional needs of children at school is to provide them with food with balanced dietary content. Bringing lunchboxes to children by meeting their needs by 25% of their daily needs, then fulfilling children's nutritional needs is met by paying attention to healthy eating

patterns (Noviyanti & Kusudaryati, 2018). Therefore, the role of mothers is essential in choosing the type of food and determining the portions that suit the needs of children. If food can help meet the nutritional needs of a day, the child's nutritional status will be normal. On the other hand, if the child is brought food that is not to his needs, then the child will experience malnutrition (Anugraheni et al., 2019).

Malnutrition is a state of the body resulting from an excess or deficiency of energy or other nutrients that causes damage to tissues/bodies and clinical outcomes (Ministry of Health of the Republic of Indonesia, 2019). Malnutrition can also interfere with the body's normal functioning and lead to general health problems. Consuming less energy than needed leads to weight loss, whereas consuming excess energy over time can lead to being overweight (Aziza, 2023).

3. The Relationship between Maternal Nutrition Knowledge and Energy Intake in Lunchboxs and Children's Nutritional Status

Based on multivariate tests using logistic regression analysis, the maternal nutrition knowledge variable significantly affected the child's nutritional status *(p=0.002).* This is in line with research conducted by Margareta et al. (2023) which study results show that maternal nutritional knowledge, maternal attitude, energy intake, protein intake, and carbohydrate intake are related to the nutritional status of children. Research conducted by Fachri (2022) shows a relationship between maternal nutrition knowledge and parenting and children's nutritional status. Good knowledge of nutrition and proper diet play a role in meeting children's dietary needs, ultimately affecting children's nutritional status.

The variables of energy intake in lunch in this study were not significantly related to nutritional status *(*p-value = *0.264).* This can be caused by other variables such as daily energy intake, children's diet, and behavior*, picky-eater children* and different socioeconomic statuses. According to Zabaldi et al. (2021) Several factors, such as infectious diseases, a family's low ability to provide food, and poor environmental sanitation, can affect the health of preschoolers. Children need more energy than adults, and this is due to their rapid growth. (Aziza, 2023). Children's growth is inseparable from the food they consume. If the child's daily nutritional needs are unmet, it will affect their nutritional status.

According to Khomsan (2021) the cause of macro and micro nutrition problems is due to low nutritional literacy. Understanding a person's nutrition can be considered a sign of good nutritional literacy, in this case, mothers, about the nutritional benefits of the food consumed, being wise in terms of diet to avoid low-nutritious or excessive foods, and reading information labels on processed foods diligently. This study found that some mothers are traders who require mothers to come to the market early, so mothers have obstacles in preparing their children's lunchboxes. Some obstacles affect mothers in providing balanced nutrition through lunchboxes to children, which impacts the nutritional status of children. Some of these obstacles are parents' lack of understanding of children's

dietary needs, parents ' busy work, so they do not have time to prepare balanced meals for their children, and children do not consume food made at home. (Afifah, 2024).

CONCLUSION

Based on the results of the study, it was concluded that there was a relationship between maternal nutrition knowledge and child nutritional status, and there was no relationship between energy intake in lunchboxs and children's nutritional status in the kindergarten of Yayasan Pengharapan Sejati Indonesia. The limitation of the study was the time required to monitor children's food supplies directly, so researchers cannot ensure that children consume the food. The suggestion for the next researcher is to monitor children's lunchboxs so that research bias can be reduced.

REFERENCES

Adha, F., Nurafrinis, & Aprilla, N. (2020). Hubungan Pengetahuan Ibu tentang Gizi, Penyakit Infeksi dan Kebiasaan Jajan dengan Status Gizi Anak Usia Dini di TK Negeri Pembina Kecamatan Kampar tahun 2019. *Jurnal Kesehatan Tambusai*, *1*(1), 12–20. https://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/1063

Afifah, N. (2024). *Peran Orang Tua dalam Meningkatkan Status Gizi Anak Melalui Lunch Box pada Kelas B TK Handayani*. Universitas Islam Negeri Alauddin Makassar.

Afrinis, N., Indrawati, I., & Raudah, R. (2021). Hubungan.Pengetahuan.Ibu, Pola Makan dan Penyakit Infeksi Anak dengan Status Gizi Anak Prasekolah. *Aulad: Journal on Early Childhood*, *4*(3), 144–150. https://doi.org/10.31004/aulad.v4i3.99

Almatsier, S. (2019). *Gizi Seimbang dalam Daur Kehidupann*. Gramedia Pustaka Utama.

Anugraheni, D. D., Mulyana, B., & Farapti. (2019). Kontribusi Bekal Makanan dan Total Energi terhadap Status Gizi pada Anak Sekolah Dasar The Contribution of Packed Lunch and Energy Total to Nutritional Status in Elementary School Students. *Amerta Nutrition*, *3*(1), 52–57. https://doi.org/10.20473/amnt.v3.i1.2019.52-57

Aziza, A. (2023). *Ilmu Kesehatan dan Gizi Anak Usia Dini*. Ruang Karya.

Bustami, & Amiruddin. (2024). Hubungan Karakteristik Ibu dengan Status Gizi Balita di Gampong Dayah Baro Kecamatan Krueng Sabee Kabupaten Aceh Jaya. *EMPIRIS: Jurnal Sains, Teknologi Dan Kesehatan*, *1*(3), 160–167.

Fachri, M. H. (2022). *Hubungan Pengetahuan Gizi Ibu dan Pola Asuh Makan dengan Status Gizi Anak di TK Al-Reza Kota Bireue*. Universitas Negeri Medan.

Fitriyah, E., & Firdaus. (2024). Hubungan Perilaku Picky Eater Dan Pengetahuan Ibu Dengan Status Gizi Pada Anak Pra Sekolah. *Jurnal Keperawatan*, *16*(1), 327–338. http://journal.stikeskendal.ac.id/index.php/Keperawatan

Harjatmo, T. P., Par'i, H. M., & Wiyono, S. (2017). *Buku Ajar Penilaian Status Gizi (2017)*. Kementerian Kesehatan Republik Indonesia.

Insani, A. (2022). Pemenuhan Asupan Gizi Anak Melalui Bekal Makanan Sehat Bagi Kesehatan Anak Usia Dini. *Journal of Innovation Research and Knowledge*, 2(3), 843–848.

Iqbal, M., & Puspaningtyas, D. E. (2018). *Penilaian Status Gizi ABCD*. Salemba Medika.

Kementerian Kesehatan Indonesia. (2018). *Bahan Ajar Gizi: Survey Konsumsi Pangan*. Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan RI. (2014). *Pedoman Gizi Seimbang*. Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan RI. (2017). *Penilaian Status Gizi*. Badan Pengembangan dan Pemberdayaan Sumber Daya Manusia Kesehatan.

Kementerian Kesehatan RI. (2019). *Laporan Nasional Riskesdas 2018*. Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan.

Kementerian Kesehatan RI. (2023). *Survey Kesehatan Indonesia (SKI) 2023 Dalam Angka*. Badan Kebijakan Pembangunan Kesehatan.

Kementerian Pendidikan Kebudayaan Riset dan Teknologi. (2017). *Panduan Deteksi Kematangan Anak di Taman Kanak-Kanak*. Balai Pengembangan Pendidikan Anak Usia Dini dan Pendidikan Masyarakat.

Khair, A., Rahayu, S. F., & Muhsinin. (2021). Faktor Yang Mempengaruhi Status Gizi Anak Prasekolah. *Jurnal Kebidanan Dan Keperawatan*, *12*(1), 33–42. https://doi.org/10.33859/dksm.v12i1.632

Khomsan, A. (2021). *Teknik Pengukuran Pengetahuan Gizi*. IPB Press.

Khomsan, A., Firdaus, A., Dewi, P., Oklita, D., Khuzaimah, U., & Firdaus, D. (2023). *Gizi Seimbang*. IPB Press.

Laila, F. N. (2022). *Hubungan Pengetahuan Ibu tentang Gizi, Pendapatan Orang Tua dan Pemberian Susu Formula terhadap Status Gizi Balita di Posyandu Desa Welahan Kabupaten Jepara*. Universitas Islam Negeri Walisongo Semarang.

Margareta, H. K., Indrawati, V., & Sulandjari, S. (2023). Hubungan Pengetahuan Gizi, Sikap Ibu dan Asupan Zat Gizi Makro dengan Status Gizi Anak di SDN Gedangrowo Prambon Sidoarjo. *Amerta Nutrition*, *7*(4), 503–511. https://doi.org/10.20473/amnt.v7i4.2023.503-511

Maulani, S., Fanny Rizkiyani, & Sari, D. Y. (2021). Pemahaman Orang Tua Mengenai Gizi Seimbang pada Anak Usia 4-5 Tahun. *Kiddo: Jurnal Pendidikan Islam Anak Usia Dini*, *2*(2), 154–168. https://doi.org/10.19105/kiddo.v2i2.4186

Notoatmodjo, S. (2014). *Ilmu Perilaku Kesehatan*. Rineka Cipta Media. https://books.google.co.id/books?id=D9_YDwAAQBAJ&pg=PA369&lpg

Noviyanti, R. D., & Kusudaryati, D. P. D. (2018). *Pentingnya Sarapan Pagi untuk Anak Sekolah*. Nuha Medika Yogyakarta.

Peraturan Menteri Kesehatan Republik Indonesia. (2020). *Standar Antropometri Anak*.

Ronald, Pricilya Margaretha Warwuru, R. B. R. (2024). Hubungan Pekerjaan Dan Pendidikan Ibu Dengan Status Gizi Balita Di Puskesmas Samkai Kabupaten Merauke. *Jurnal Cakrawala Ilmiah*, *3*(9), 2649.

Saisab, J. B., Malonda, N. S. H., & Punuh, M. I. (2018). Hubungan Antara Pola Asuh dengan Status Gizi Anak Usia 24-59 bulan di Kecamatan Tombatu Kabupaten Minahasa Tenggara. *Jurnal KESMAS*, *7*(4), 1–9.

Syafarinoo, A., Maria, L., & Maulidia, R. (2020). Hubungan Perilaku Orang Tua Dalam Pemilihan Makanan Bergizi Dengan Status Gizi anak Pada Anak Usia Pra Sekolah. *Professional Health Journal*, *1*(2), 84–93. https://doi.org/10.54832/phj.v1i2.101

Yunawati, I., Setyawati, N. F., Muharramah, A., Ernalia, Y., Puspaningtyas, D. E., Wati, D. A., Puspita, L. M., Prasetyaningrum, Y. I., Nasruddin, N. I., Indriayani, I., & Akhriani, M. (2023). *Penilaian Status Gizi*. CV Eureka Media Aksara.

Zabaldi, A., Hayu, R. E., & Mayasari, E. (2021). Asupan Energi Terhadap Status Gizi Anak Tk An Namiroh Pusat Pekanbaru. *Al-Tamimi Kesmas: Jurnal Ilmu Kesehatan Masyarakat (Journal of Public Health Sciences)*, *9*(1), 17–23. https://doi.org/10.35328/kesmas.v9i1.956