

Nutritional Intake of Children in Kebon Pala East Jakarta

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ABSTRACT

Background: A mother is the main nutrition provider of an Indonesian family. Their own health profiles and situations may affect their abilities to provide proper nutrition. In this research, we try to find mothers in Kebon Pala profile, and the nutrition taken by their children; **Method:** This quantitative descriptive study was conducted by using a self-administered questionnaire which has been responded to by 94 mothers in Kebon Pala. This research was conducted from October 2021-April 2022. **Results:** 61.54% child takes 3 times carb intake a day, but unlike the national nutritional guidelines, only 20% take animal-based protein 3 times a day, only 34.83% take plant-based protein 3 times a day, and only 33.33% take vegetable 3 times a day. This minimal variation of plate filling happened, even though 49.44% child never complained about the food available and 55.56% child never complained about vegetables/fruit on their plate. **Conclusion:** Children in Kebon Pala did not eat balanced nutrition meals, and most of them have eating difficulties (fussy eaters).



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Introduction

Beginning from their born day until six years old, children grow significantly, from about 45 cm became about 100 cm, and from about 3.5 kg became about 25 kg. And throughout this golden period, they will develop sensorimotor abilities that will become starters of intelligence, speaking, and social ability. Fine growth will potentially help their development and a better future. Despite the importance of growth for children's development, Indonesia still faces a double burden of nutrition, where obesity as a sign of overnutrition and stunting as a sign of undernutrition were existing together. Regarding Riskesdas 2018, there are 17.7% of children face malnutrition, 30.8% very short and short, 10.2% very thin and thin, and 8% overweight. In our previous study [1] 75% of girls and 43.75% of boys in Kebon Pala have lower weight increments than the weight velocity predicted for their age. In the same group, we found out that 17.14% of boys and 12.5% of girls were short, and 85.71% of girls facing waste.

Children that have healthy and balanced nutrition have a greater potential to catch better developmental abilities [2,3]. In fact, despite government supports in promoting proper nutrition, vitamins, and supplements, the prevalence of malnutrition is still existing in Jakarta. In 2018, among the children below 2 years of age, 4.82% were very skinny, 8.4% were skinny and 6.24% were overweight while among the children below 5 years of age, 4.33% were very skinny, 6.57% were skinny and 7.34% were overweight [4].



We need to find out, if the children have been getting proper and balanced nutrition and to assess the reason for the situation. As malnutrition is occurred not only from the nutritional intake but also from their mother's educational background as well as families' income. Mothers' educational background may affect their knowledge of nutritional intake for their children. As insufficient knowledge impacts their attitude and behavior in providing food [5]. Moreover, the family income also affects the deciding type of food. Higher-income allows parents to offer fruit, vegetables, and type of food [5]. It is important that the mother's role and responsibility is to provide nutritional intake to her children [6].

Materials and Method

This research was conducted as a descriptive quantitative study of the mother's profile (educational background, family's income, and body mass index) and profile of nutritional intake of their children (frequencies of eating time and children's preference of meals). This research was conducted from October 2021-April 2022. Data collection was done from the. Participants were selected from a total population of mothers that are having 0-72 months-old children in Kebon Pala, willing to fill out the questionnaire, and fill all the questions enlisted in the questionnaire. Participants were asked to fill out questionnaires with the assistance of a local administrator in Kebon Pala. Questionnaires used in this research are particularly the food fussiness subscale, to gather the children's feeding styles, using 23 questions, whereas 10 questions about the meals provided and 13 questions about the children's preferences [7]. Ethical clearance was given by *Lembaga Penelitian dan Pengabdian Kepada Masyarakat* Universitas Kristen Indonesia and Fakultas Vokasi Universitas Kristen Indonesia. No. 553/UKI.F8.D/PPM.1.6/2021.

Results and Discussion

Results

Based on 123 mothers that were recruited, only 94 mothers that fill all the questions in the questionnaire. [Table 1](#) shows us the character of the mother, their age, educational background, employment status, family income, and the number of family members in the household.

Table 1. Characteristics of Study Population

Characteristics	n (%)
Age (years)	
16-24	11 (11.7)
25-29	24 (25.53)
30-34	26 (27.66)
35-39	17 (18.09)
40-45	14 (14.89)
>45	2 (2.13)
Education	
Elementary School	6 (6.45)
Middle school	11 (11.83)
High school	67 (70.97)
Diploma	3 (3.23)
Bachelor	7 (7.53)
Employment	
Full-time housewife	77 (81.91)
Government Employees	3 (3.19)
Private Officer	11 (11.7)
Entrepreneur	3 (3.19)
Income	
>4,267,349 IDR	10 (10.98)
<4,267,349 IDR	90 (89.02)
Family member	
2	1 (1.08)
3	27 (29.03)
4	40 (43.01)
5	20 (21.51)
6	4 (4.30)
7	1 (1.08)

Besides their educational and economical background, we assessed their body mass index, with Asia Pacific Body Mass Index Classification. Most of the respondents have obesity (26.6%). Their body mass index was shown in [Table 2](#).

Table 2. Mother's Body Mass Index

Classification	BMI Ratio	N (%)
Skinny	<18.5	6 (6.38)
Normal	18.5-22.9	20 (21.28)
Overweight	23-24.9	20 (21.28)
Obesity 1	25-29.9	23 (24.47)
Obesity 2	≥30	25 (26.6)

From the questionnaire, we may see in [Table 3](#) about frequencies of the main food, breakfast, and snacks the children provide, and the containment of the food. In [Table 3](#) we found that 73.12% of children take 3 times main food a day, but only 61.54% takes carbohydrate 3 times a day, 20% takes animal-based protein 3 times a day, 34.83% takes plant-based protein 3 times a day, 33.33 takes vegetables 3 times a day, and 10.99% takes fruits 3 times a day. 73.12% of respondents claim that they are providing 3 meals per day, but in fact, only 64.52% that providing 3 times a day, and 58.89% that providing ≥3 times a day.

Table 3. The Pattern of Food Consumption

Meal Pattern	Frequent, N (%)			
	3x	2x	1x	Others
Main Food per day	69 (73.12)	22 (23.66)	1 (1.08)	2 (2.15)
Carbo intake per day	58 (61.54)	32 (34.07)	2 (2.20)	2 (2.20)
Animal-based protein intake per day	19 (20)	55 (58.89)	17 (17.78)	3 (3.33)
Plant-based protein intake per day	33 (34.83)	44 (47.19)	15 (15.73)	2 (2.25)
Vegetable intake per day	31 (33.33)	51 (54.44)	10 (11.11)	1 (1.11)
Fruit intake per day	10 (10.99)	27 (28.57)	55 (58.24)	2 (2.20)

[Table 4](#) shows that most children eat their main food (64.52%) and eat per day (51.65%) in the morning, noon and night. Most children always have breakfast, at least 4 times per week (84.09%). Meanwhile, most snack time per week was more than twice per week (74.16%).

Table 4. The Pattern of Food Consumption

Meal Pattern	N (%)
Time of Main Food	
Morning only	5 (5.38)
Morning and noon	16 (17.20)
Noon and night	12 (12.90)
Morning, noon, and night	61 (64.52)
Time of eating per day	
Morning, noon, evening, night	28 (29.67)
Morning, noon, and night	49 (51.65)
Morning and noon/night	18 (18.68)
Breakfast per week	
4-7 x/week	79 (84.09)
1-3 x/ week	13 (13.64)
never	2 (2.27)
Snack time per week	
<2 x/ week	79 (20.22)
>2 x/ week	13 (74.16)
never	4 (4.49)
other	1 (1.12)

As shown in [Table 5](#), we may see the children's preferences for eating. Protesting about the food available means that the children rejects to take the food provided. By preferring drinks over food, means that the children prefer to drink energy-providing drinks (such as milk, juice, or sugar drinks). As we may see, we find there are many picky eaters in Kebon Pala. As we may see, 32.58%

of children sometimes protest their food, 28.89% reject fruits and vegetables, 34.83% reject meat, 52.75% choose to eat the same food each day, 40% sometimes and 13.33% reject trying a new kind of food, 30.34% eats in slow pace, and choose to eat in small portions.

Table 5. Child Preferences of Eating

Child Preferences	Frequent, N (%)			
	Never	Rarely	Sometimes	Always
Protesting food available	46 (49.44)	14 (14.61)	31 (32.58)	3 (3.37)
Rejecting vegetables/fruit	52 (55.56)	13 (13.33)	27 (28.89)	2 (2.22)
Rejecting meat	41 (43.82)	7 (7.87)	33 (34.83)	13 (13.48)
Always consume the same food	9 (9.89)	21 (21.98)	50 (52.75)	14 (15.38)
Only pick a few kinds of food	38 (40.66)	10 (10.99)	37 (39.56)	8 (8.79)
Did not want to try new food	23 (24.44)	21 (22.22)	38 (40)	13 (13.33)
Eating at a slow pace	53 (56.18)	7 (7.87)	29 (30.34)	5 (5.62)
Preferring sweet and fatty food	16 (16.67)	29 (31.11)	40 (42.22)	9 (10)
Preferring snack over main food	10 (11.11)	29 (31.11)	42 (44.44)	13 (13.33)
Fussy eating	28 (29.67)	26 (27.47)	32 (34.07)	8 (8.79)
Preferring drinks over food	28 (29.67)	26 (27.47)	32 (34.07)	8 (8.79)
Eat in a small portion	21 (21.98)	10 (10.99)	32 (34.07)	31 (32.97)

Discussion

Picky eating in children is considered by many as developmentally normal, so it's important to determine between problematic and non-problematic picky eating [8]. A strong relationship between increased picky eating in children and parenting style was reported [8]. Parenting style was attributed to reducing the likelihood of picky eating including responsive parenting, structuring mealtimes, and autonomy-promoting parenting [8]. Health promotion strategies were best integrated when targeting the whole family and therefore the need for family-centered intervention [8-10]. As shown in Table 1, most of the mothers in Kebon Pala were in primary education and did not work which may affect giving balanced diets to their children. The knowledge may be got from formal and informal education. Information got from social media, health workers and other information sources may help them to find better food ideas for their children. We need to re-educate them, that children in Indonesia should eat three times a day balanced nutrition food, and a meal should contain 100 grams of carbs, 40 grams of animal-based protein, 50 grams of plant-based protein, 50 grams of vegetables, and 50 grams of fruits. As we saw in table 3, the main content of a meal is carbohydrates. Most children take only two times animal-based proteins (58.89%), two times plant-based protein (47.19%), two times vegetables (54.44%) per day, and once a day of fruit intake (58.24%). Caregivers should be reassured that picky eating is a common stage of development that is unlikely to cause any permanent harm to the child's long-term development [11-13].

We assumed that family income may affect their children's nutritional intake, while better nutrition may need higher money. The more stable the income, the better the nutrition that they bought. As we saw in this research, 89.02% of families had low income (below the regional salary rate), which may cause them to give their children carbohydrates more than protein, fruits, and vegetables. We may need to remind them that plant-based protein and many variants of cheaper fruits and vegetables may fulfill their requirements. The best side of their nutritional intake is that most children take breakfast (almost) every day. If children in a golden period of growth did not take a balanced diet, it will lead to malnutrition, such as being wasted, underweight, or overweight.

We need to put attention that 21.28% of mothers were overweight, and 51.11% were obese. As the mother is the main nutrition provider in the family, their own situation with malnutrition indicates that they do not clearly understand nutrition and nutritional status. We need to do a further examination of this situation. Key strategies described in greater detail include (1) having realistic expectations of children's portion size; (2) graded and repeated exposure to unfamiliar foods (1—15 positive experiences may be needed); (3) using non-food rewards to provide motivation; (4) having a positive approach, avoiding negativity and pressure to eat; (5) parental modeling of eating fruit and vegetables and trying unfamiliar foods; (6) promoting appetite by limiting snacks and energy-providing drinks such as milk, juice, and soft drinks in between meals; (7) having social food

experiences such as family meals with all members eating the same food; (8) focusing on long-term goals and being consistent [14-17].

Another factor that needed to view is picky eater children. Picky eaters may happen from many kinds of situations, such as lack of sensory integrity, pressure to eat, late introduction of lumpy foods at weaning, and early choosiness [18-23]. Picky eaters (fussy eaters) are children who consume an inadequate variety of foods through the rejection of a substantial amount of foods that are familiar as well as unfamiliar to them [24-30].

Conclusion

The children in Kebon Pala, East Jakarta did not eat balanced nutrition meals, and most of them are picky eaters. We need to re-educate their mother to provide a balanced meal for each time of eats and give healthy snack to their children. We need to consider if there is a lack of stimulation, which may lead the children to be picky eaters, and therefore need a further investigation about how they introduce food to their children.

Declaration

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Conflicts of Interest: The authors declare no conflict of interest.

References

- Budhyanti W, Lisnaini: Nutrition Status of Children in Kebon Pala, Jakarta. *International Journal of Medical and Exercise Science*, Sept 2022; 8(3):1323-1329. DOI: [0.36678/IJMAES.2022.V08I03.002](https://doi.org/10.36678/IJMAES.2022.V08I03.002)
- Samsudin, Nugraha B: Learning Method and Its Influence on Nutrition Study Results Throwing Ball. *Journal of Education and Practice*, 2015; 6(2). Doi: <https://eric.ed.gov/?id=EJ1083839>
- Deki P: Factors Affecting Early Childhood Growth and Development: Golden 1000 Days. *Journal of Advanced Practices in Nursing*, 2015; 01(01), 1-7. Doi: <https://doi.org/10.4172/2573-0347.1000101>
- Nafia ZI, Shodiq IZ, Handayani L: Nutritional Status of Children Under Five Years in the Work Area of Puskesmas Cipadung. *Disease Prevention and Public Health Journal*, 2021; 15(2):125-132. <https://doi.org/10.12928/dpphj.v15i2.4748>
- Kobylińska M, Antosik K, Decyk A, Kurowska K. Malnutrition in Obesity: Is It Possible? *Obes Facts*, 2022; 15(1):19-25. doi: [10.1159/000519503](https://doi.org/10.1159/000519503)
- Taylor CM, Emmett PM: Picky Eating in Children: Causes and Consequences. *Proc Nutr Soc*, 2019; 78(2):161-169. doi: [10.1017/S0029665118002586](https://doi.org/10.1017/S0029665118002586)
- Chilman L, Kennedy-Behr A, Frakking T, Swanepoel L, Verdonck M. Picky Eating in Children: A Scoping Review to Examine its Intrinsic and Extrinsic Features and How They Relate to Identification. *Int. J. Environ. Res. Public Health*, 2021; 18(17): 9067; <https://doi.org/10.3390/ijerph18179067>
- Lumeng JC, Kaciroti N, Retzlaff L, Rosenblum K, Miller AL: Longitudinal Associations between Maternal Feeding and Overweight in Low-income Toddlers. *Appetite*, 2017; 113:23-29. <https://doi.org/10.1016/j.appet.2017.02.016>
- N Chamidah et al Standard Growth Charts for Weight of Children in East Java Using Local Linear Estimator. *J. Phys.: Conf. Ser.*, 2018; 1097 012092 doi: [10.1088/1742-6596/1097/1/012092](https://doi.org/10.1088/1742-6596/1097/1/012092)
- Kim JH, Yun S, Hwang SS, et al: The 2017 Korean National Growth Charts for Children and Adolescents: Development, Improvement, and Prospects. *Korean J Pediatr.* 2018; 61(5):135-149. doi:[10.3345/kjp.2018.61.5.135](https://doi.org/10.3345/kjp.2018.61.5.135)
- Berkes J, Raikes A, Bouguen A, Filmer D: Joint Roles of Parenting and Nutritional Status for Child Development: Evidence from Rural Cambodia. *Developmental Science*, 2019; 22(5) <https://doi.org/10.1111/desc.12874>
- Jajat J, Suherman A: Indonesian Children and Adolescents' Body Mass Index: WHO and Asia-Pacific Classification. *Advances in Health Science Research* 2019; 21. Doi: <https://doi.org/10.2991/ahsr.k.200214.069>
- Eyong ME, Ikobah JM, Ntia H: Growth Parameters of Children in Calabar, A South-South Nigerian City: Are the CDC Growth Charts Useful in Clinical Practice in This Area? *Niger J Paediatr* 2020; 47(1):30-36 <http://dx.doi.org/10.4314/njpa.v47i1.6>
- Starc G, Popovic S, Dordic V, Ostojic S, Milanovic SM, Kujundzic E, Spiroski I, Duric S, Masanovic B, Sember V, Leskosek B: Differences in Body Height Between the Contemporary Western Balkan Children and the WHO Growth References Core Sample. *Anthropological Notebooks* 2019; 25(3): 55-67 doi: <https://doi.org/10.5546/aap.2020.eng.117>
- Fernandez C, Mc Caffery H, Miller AL, Kaciroti N, Lumeng JC, Pesch MH: Trajectories of Picky Eating in Low Income US Children. *Pediatrics*, 2020; 145(6):e20192018. <https://doi.org/10.1542/peds.2019-2018>
- Patel MD, Donovam SM, Lee SY: Considering Nature and Nurture in the Etiology and Prevention of Picky Eating: A Narrative Review. *Nutrients* 2020, 12(11): 3409; <https://doi.org/10.3390/nu12113409>
- Taylor CM, Steer CD, Hays NP, Emmet PM. Growth and Body Composition in Children Who Are Picky Eaters: A Longitudinal View. *European Journal of Clinical Nutrition*, 2019; 73: 869-878. <https://doi.org/10.1038/s41430-018-0250-7>
- Sandvik P, Ek A, Eli K, Somaraki M, Bottai M, Nowicka P: Picky Eating in An Obesity Intervention For Preschool-Aged Children—What Role Does It Play, and Does the Measurement Instrument Matter?. *Int J Behav Nutr Phys Act*, 2019; 16:76. <https://doi.org/10.1186/s12966-019-0845-y>
- Jordan AA, Appugliese DP, Miller AL, Lumeng JC, Rosenblum KL, Pesch MH: Maternal Prompting Types And Child Vegetable Intake: Exploring The Moderating Role Of Picky Eating. *Appetite*, 2020; 146: 104518 <https://doi.org/10.1016/j.appet.2019.104518>
- Agrawal S, Kim R, Gausman J, Sharma S, Sankar R, Joe W, Subramanian SV. (2019). Socio-Economic Patterning of Food Consumption and Dietary Diversity Among Indian Children: Evidence From NFHS-4 *Eur J Clin Nutr* 2019; 73:1361–1372. <https://doi.org/10.1038/s41430-019-0406-0>
- Liberali R, Kupek E, de Assis AA: Dietary Patterns and Childhood Obesity Risk: A Systematic Review. *Childhood Obesity* 2020; 16(2):70-85. <http://doi.org/10.1089/chi.2019.0059>

22. Freitas-Vilela AA, Pearson RM, Emmet P, Heron J, Smith ADAC, Emond A, Hibbeln JR, Castro MBT, Kac. Maternal Dietary Patterns During Pregnancy and Intelligence Quotients in the Offspring at 8 years of Age: Findings from the ALSPAC Cohort. *Maternal and Child Nutrition* 2018; 14(1):e12431. <https://doi.org/10.1111/mcn.12431>
23. Hinnig PDF, Monteiro JS, De Assis MAA, Levy RB, Peres MA, Perazi FM, Porporanti AL, Canto GDL: Dietary Patterns of Children and Adolescents from High, Medium and Low Human Development Countries and Associated Socioeconomic Factors: A Systematic Review. *Nutrients* 2018; 10(4):436. <https://doi.org/10.3390/nu10040436>
24. Katherine R Arlinghaus, Kirstin Vollrath, Daphne C Hernandez, Shabnam R Momin, Teresia M O'Connor, Thomas G Power, Sheryl O Hughes, Authoritative Parent Feeding Style is Associated With Better Child Dietary Quality at Dinner Among Low-Income Minority Families, *The American Journal of Clinical Nutrition*, October 2018; 108(4): 730–736, <https://doi.org/10.1093/ajcn/nqy142>
25. Shinyoung J, Cowan AE, Tooze JA, Gahche JJ, Dwyer JT, Eicher-Miller HA, Bhadra A, Guenther PM, Potischman N, Dodd KW, Bailey RL: Dietary Supplement Use among U.S. Children by Family Income, Food Security Level, and Nutrition Assistance Program Participation Status in 2011–2014. *Nutrients* 2018; 10(9): 1212. <https://doi.org/10.3390/nu10091212>
26. Arcila-Agudelo AM, Svoboda CF, Torres-Fernandez T, Farran-Codina A. Determinants of Adherence to Healthy Eating Patterns in a Population of Children and Adolescents: Evidence on the Mediterranean Diet in the City of Mataro (Catalonia, Spain). *Nutrients* 2019; 11(4): 854. <https://doi.org/10.3390/nu11040854>
27. Luque V, Escribano J, Closa-Monasterolo R, Zaragoza-Jordana M, Ferré N, Grote V, Koletzko B, Totzauer M, Verduci E, ReDionigi A, Gruszfeld D, Socha P, Rousseaux D, Moretti M, Oddy W, Ambrosini GL, Unhealthy Dietary Patterns Established in Infancy Track to Mid-Childhood: The EU Childhood Obesity Project, *The Journal of Nutrition*, May 2018; 148(5): 752–759, <https://doi.org/10.1093/jn/nxy025>
28. Vepsäläinen, H., Nevalainen, J., Fogelholm, M. et al. Like parent, like child? Dietary Resemblance in Families. *Int J Behav Nutr Phys Act* 2018; 15:62 <https://doi.org/10.1186/s12966-018-0693-1>
29. Dalrymple KV, Flynn AC, Seed PT, Briley AL, O'Keeffe M, Godfrey KM, Poston L: Association Between Dietary Patterns, Eating Behaviours, and Body Composition and Adiposity in 3-Years-Old Children of Mothers with Obesity. *Pediatric Obesity* 2019; 15(5):e12608. <https://doi.org/10.1111/ijpo.12608>
30. Marniati, Putri ES, Sriwahyuni S, Khairunnas, Duana M. Knowledge Study, Income Level and Socio-Culture of the Nutritional Status of Toddler. *J Nutr Sci.* 2020; 1[2]:38–44. DOI: <https://doi.org/10.35308/jns.v1i2.2770>