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The Relationship Between Macro (Protein, Fat, Carbohydrate) and Micro (Zn) Nutrient Intake With The Incidence Of Stunting Children Aged 24-59 Months In The Working Area Of Tambakrejo Sidoarjo Health Center

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ABSTRACT

Stunting is a chronic nutrition problem that is still high in Indonesia and has an impact on the quality of human resources. This study determines the relationship between macro (protein, fat, carbohydrate) and micro (Zn) nutrient intake given the prevalence of child stunting in the Tambakrejo Sidoarjo Health Center Work Area. This study employed an observational analytical design with a cross-sectional approach involving 60 children aged 24–59 months in the working area of the Tambakrejo Sidoarjo Health Center. Dietary intake data were collected using a 2×24-hour recall, and nutritional status was assessed based on height-for-age (TB/U) using WHO standards. The chi-square test was used for statistical analysis at a significance level of $p<0.05$. There was a significant association between protein intake ($p=0.000$), fat ($p=0.009$), carbohydrates ($p=0.028$), and zinc ($p=0.040$) with the incidence of stunting. In the working area of the Tambakrejo Sidoarjo Health Center, there is a correlation between the occurrence of stunting children aged 24-59 months and the intake of macronutrients (protein, fat, carbohydrate) and micronutrients (Zn). Adequate and balanced nutrition is essential in efforts to reduce stunting rates.

INTRODUCTION

Stunting is a condition of failure to grow in children under five due to chronic malnutrition. Stunting is defined as dietary status determined by the height for age or body length for age index. The results must be below the threshold (Z-Score) from -2 SD to -3 SD, which means short or stunted, and very short/very stunted (1). Stunting not only inhibits children's physical growth, but also interferes with cognitive, motor, and social-emotional development which has an impact on the quality of human resources in the future. Stunting prevention through nutritional fulfillment in pregnant women, exclusive breastfeeding, and improvement of environmental conditions is very important to be carried out from an early age, especially in the first 1000 days of life (2–4).

Based on 2018 basic health research, East Java province, the prevalence of short children is 19.9%, while the prevalence of very short children is 12.9% (5). Meanwhile, according to the 2019 Indonesian Nutrition Status Survey findings, the country's stunting rate was 27.7%, with a decline in 2021 of 24.4% and in 2022 of 21.6% (5). Data results from the health profile of Sidoarjo district in 2022, from 85,114 children measured, there were 4,906 stunted children with a prevalence of 5.8%. Tambakrejo Health Center is a new health center in Sidoarjo district, so data is not recorded in the

profile of the Sidoarjo District Health Service. Based on the results of earlier studies, the Tambakrejo Health Center in Sidoarjo does not have a PMT (additional food provision) program for stunted children, despite the fact that several children in the area are affected by comorbidities and stunting, with the majority of these children being between the ages of 24 and 59 months.

There are two types of factors that influence stunting: direct and indirect factors. Direct factors such as lack of food consumption in children under five, which can result in insufficient intake of nutrients such as iron (6) and Infectious illnesses (7).

One of the direct factors that can influence the health of children is their nutritional intake. namely macronutrients, which include carbohydrates, protein and fat, which are nutrients that the body really needs and are largely responsible for providing energy. The level of macronutrient consumption can have an impact on the nutritional status of children (8). Since the body requires huge amounts of macronutrients for energy production, macronutrient shortages can result in a number of health issues. Children are at risk of experiencing problems with growth and development if their energy and protein intake is low (9). According to research by Ayuningtyas (2018), There is a connection between macro nutritional status and children' dietary condition: lack of fat protein causes stunting, with a statistical test of 29.3% for stunted children and 47.2% for stunted children (10).

Zinc is an important nutrient and has received a lot of attention recently. Zinc is responsible for preventing infections by various types of pathogenic bacteria because it greatly influences the body's immune function (11). Existing studies show that zinc deficiency in children can cause stunting, or shortness of breath, and delayed sexual function maturity (12). Deficient Children experience decreased appetite and growth failure due to zinc. Zinc is important for the growth process because it functions as a growth hormone mediator and plays a role in metabolism and cell replication (13). According to research by Ayuningtyas (2018), lack of zinc intake increases the risk of stunting, according to statistical test results by 45.2% (10).

Based on this description, This research aims to find out about the relationship between consumption of macro and micronutrients (Zn) and the prevalence of stunted children in the Tambakrejo Health Center's operational area, aged 24-59 months, Sidoarjo.

MATERIALS AND METHODS

This study is an analytical observational study with a cross-sectional approach. The study population was children aged 24–59 months in the working area of the Tambakrejo Health Center. A sample of 60 children was selected using a simple random sampling technique.

Nutritional intake was obtained through interviews with the 2x24-hour recall method. Stunting status was determined by height measurement using anthropometric tools, then compared to the

WHO Anthro standard. The inclusion criteria were toddlers aged 24–59 months who were healthy and willing to participate in the study. The data was analyzed using the chi-square test. To determine the relationship between protein, fat, carbohydrate, and zinc intake to stunting incidence, with a significance limit of $p<0.05$.

RESULTS

General Description of Research Locations

Tambaksari Hamlet, Tambak Rejo Village, Waru District, Sidoarjo Regency is where you can find Tambakrejo Health Center, located at Jl. Tambak Sari No. 8. The Tambakrejo Community Health Center's operating area is 13.68 km2, and it includes the following regional boundaries:

a. North side : City of Surabaya
b. East side :Madura Strait
c. South side :Tambaksawah Village and Sedati District
d. West side :Berberk Village and Kepuh Kuncin Village

The Tambakrejo Community Health Center's workspace is a plain area. Each village can be reached by 2-wheeled or 4-wheeled vehicles with fairly good paved roads. Travel time from each sub-district to the city health center is around 5-15 minutes by car. Because the health center building is a brand-new, 1,775 m2 structure that was constructed in 2022, its current state is still fairly acceptable.

Respondent Characteristics

Table 1.1 Characteristics of Mothers and Stunting Children in the Tambakrejo Health Center Working Area: Frequency Distribution, Sidoarjo

Mother's age	n	%
< 20 & > 35	27	45
20-35	33	55
Amount	60	100
Mother's Education		
elementary school	15	25
Junior high school	28	46.7
Senior high school	13	21.7
PT	4	6.7
Amount	60	100
Mother's Job		
TB	31	51.7
B	29	48.3
Amount	60	100
Toddler Age		
24-36 months	39	65
37-59 months	21	35
Amount	60	100
Gender		
L	34	56.7
P	26	43.3
Amount	60	100

Source : Primary Data 2024

Table 1.1 indicates that 55% of mothers of children aged 20 to 35 years old and 45% of moms of children aged <20 to 35 years old. Based on the mother's educational level, the highest number is a junior high school graduate/equivalent at 46.7%, and the least is a D3-S1 graduate at 6,7%. Based on job characteristics, there are 51.7% of mothers who do not work, and 48.3% of mothers who work. It is known that children aged 2-3 years are 65%, and children aged 4-5 years are 35%. Based on gender, it is known that 56.7% of children are boys, and 43.3% of children are girls.

Micronutrient Intake

Table 1.2 Intake of Macro Nutrients (Carbohydrates, Protein, Fat) with the Incidence of Stunting Children Aged 24-59 Months in the Tambakrejo Health Center Working Area, Sidoarjo

Macronutrient Intake	n	%
Proteins		
Severe deficit	10	16.7
Moderate deficit	4	6,7
Mild deficit	6	10
Normal	12	20
More	28	46.7
Amount	**60**	**100**
Fat		
Severe deficit	31	51.7
Moderate deficit	2	3.3
Mild deficit	11	18.3
Normal	15	25
More	1	1.7
Amount	**60**	**100**
Carbohydrate		
Severe deficit	31	51.7
Moderate deficit	2	3.3
Mild deficit	11	18.3
Normal	15	25
More	1	1.7
Amount	**60**	**100**

Source : Primary Data 2024

Table 1.2 indicates that the distribution of kids younger than five aged 2 years to 5 years according to the level in the Tambakrejo Health Center's operational area, Sidoarjo of carbohydrate intake, most of whom have a carbohydrate intake level in the severe deficit category, 31 (51.7%). Meanwhile, the respondents' distribution according to level of protein intake was mostly more category 28 (46.7%). Likewise, the distribution of respondents' level of fat intake was mostly severe deficit, 31 (51.7%).

Zinc Nutrient Intake

Table 1.3 Intake of the Zinc Nutrient Concerning the Case of Atypical Children Between the Ages of 24-59 Months in the Tambakrejo Health Center Operations Area, Sidoarjo

Zinc Nutrient Intake Levels	n	%
Not enough	23	38
Enough	37	61.7
Amount	**60**	**100**

Source : Primary Data 2024

Table 1.3 displays the distribution of children under five years old, ages 2-5, in the Tambakrejo Health Center's operational area in Sidoarjo, according to the degree of zinc intake, most of whom have a sufficient level of zinc intake, 37 (61.7%).

Stunting Frequency: 24-59 months

Table 1.4: Frequency of Stunting Children in Work Areas, Ages 24-59 Months Sidoarjo Tambakrejo Health Center

Stunting events	n	%
Stunting	24	40
Normal	36	60
Amount	**60**	**100**

Source : Primary Data 2024

The distribution of stunting occurrences in children under five years old, ages 2 to 5, in the Tambakrejo Health Center's operating area in Sidoarjo is displayed in Table 1.4. The majority of them are not stunting, 36 (60%).

The Association Between Macronutrient Consumption and Stunting in Children in the Tambakrejo Public Health Center Working Area, Sidoarjo, Ages 24-59 Months

Table 1.5 shows the association between the incidence of stunting in children 24-59 months old in the Tambakrejo Health Center's working region in Sidoarjo and macronutrient consumption.

Macronutrient Intake	Nutritional status				Total		P value	Note
	Stunting		Normal					
	n	%	n	%	n	%		
Proteins								
Severe deficit	8	13.3	2	3.33	10	16.7	0,000	Significant
Moderate deficit	3	5	1	1.7	4	67		
Mild deficit	3	5	3	5	6	10		
Normal	4	6,7	8	13.3	12	20		
More	6	10	22	36.7	28	46.7		
Amount	**24**	**40**	**36**	**60**	**60**	**100**		
Fat								
Severe deficit	16	26.7	15	25	31	51.7		
Moderate deficit	2	3.33	0	0	2	3.3	0.009	Significant
Mild deficit	4	6.7	7	11.7	11	18.3		
Normal	2	3.33	13	21.7	15	25		
More	0	0	1	1.7	1	1.7		
Amount	**24**	**40**	**36**	**60**	**60**	**100**		
Carbohydrate								
Severe deficit	19	31.7	21	35	40	66.7		
Moderate deficit	2	3.33	1	1.7	3	5	0.028	Significant
Mild deficit	1	1.7	2	3.33	3	5		
Normal	2	3.33	10	16.7	12	20		
More	0	0	2	3.33	2	3.33		
Amount	**24**	**40**	**36**	**60**	**60**	**100**		

Source : Primary Data 2024

The results of the analysis showed a significant relationship between macronutrient intake (protein, fat, and carbohydrates) and the nutritional status of children under five. In protein intake (p=0.000), the majority of children with normal nutritional status were in the category of more protein intake (36.7%), while the majority of stunted children were in the category of severe deficit (13.3%). For fat intake (p=0.009), the majority of stunted children have a severe deficit (26.7%), while children with normal nutritional status in the normal category have as much fat intake as much as (21.7%). In carbohydrate intake (p=0.028), the majority of stunted children also experienced severe deficits (31.7%), while children with normal nutritional status who were in the normal category had as much carbohydrate intake as much as (16.7%). These findings show that the better the adequacy of macronutrient intake, the better the nutritional status of the child.

Table 1.6 The Relationship Between Zinc Nutrient Intake and Stunting in Children Aged 24-59 Months in the Tambakrejo Health Center Working Area, Sidoarjo

Zinc Nutrient Intake	Nutritional status				Total		P Value	Note
	Stunting		Normal					
	n	%	n	%	n	%		
Not enough	13	21.7	10	16.7	23	38.3	0.040	Significant
Enough	11	18.3	26	43.3	37	61.7		
Amount	31	51.7	29	48.3	60	100		

Source : Primary Data 2024

Table 5.6 above provides information on the number of children who have insufficient intake and stunting (21.7%) and the number of children who have adequate intake and do not have stunting (43.3%). The statistical test yielded a p-value of 0.040, indicating a correlation between the incidence of stunting and zinc nutrient consumption in the Tambakrejo Health Center, Sidoarjo working region.

DISCUSSION

Bivariate Analysis

1. The Relationship Between Protein Nutrient Intake and Stunting Incidents in Children at the Tambakrejo Health Center's Working Area, Sidoarjo

   The Tambakrejo Public Health Center Working Area, Sidoarjo, conducted statistical tests that revealed a significant correlation between the incidence of stunting and protein nutrient intake. Based on the results of two 24-hour food recalls, the majority of stunted children had a severe protein nutrient deficit. This was because the children in the Tambakrejo Sidoarjo Community Health Center Working Area were fed food that was not varied and that was served in inappropriate amounts and portions (14). Which allowed the habit to continue. in stunting, as well as the condition of the home environment which is mostly not clean so it can disrupt the child's growth period (15) (16) . Based on research conducted by (Aisyah, *et. al*, 2021) there is a significant relationship between protein intake and the incidence of stunting in children ages 24-59 months in Karanganyar Village, Kawalu District, Tasikmalaya City (17).

2. The Association Between Intake of Fat Nutrients and Incidents of Stunting in Children in the Tambakrejo Health Center, Sidoarjo, Working Area

   The Tambakrejo Public Health Center Working Area in Sidoarjo conducted statistical tests which revealed a significant correlation between the incidence of stunting and the intake of fat nutrients. The majority of children who were stunted experienced a lack of fat nutritional intake, as determined by the results of the two 24-hour food recall. The children who were stunted were aged between 24 and 59 months in the Tambakrejo Health Center Working Area, Sidoarjo (18). They consumed more commercial snacks and drinks that did not contain enough fat for a day's intake, as well as indirect factors like poor maternal parenting patterns and less hygienic conditions (19) (20). Based on research conducted by (Afriansyah, *et.al*, 2023) there is a significant relationship between fat intake and the incidence of stunting in < 5-year-olds in Depok City in 2023 (21).
3. The Association Between Intake of Carbohydrate Nutrients and Incidents of Stunting in Children in the Tambakrejo Health Center, Sidoarjo Working Area

   Due to their dislike of foods high in carbohydrates, such as rice, children in the Tambakrejo Sidoarjo Health Center Working Area constituted the majority of those who did not receive enough nutrition from the two 24-hour food recalls. These children were aged 24-59 months, and ate more snacks such as commercial snacks. and Most respondents eat 50g of rice carbohydrates, which is equivalent to 1 ctg of rice (20). Where the standard portion of carbohydrates at 24-59 months is 125g, so carbohydrate intake is not met properly (22) (23). Based on research conducted by (Anzi, *et. al*, 2024) that there is a significant relationship between carbohydrate intake and the incidence of stunting in toddlers in the Gianyar 1 Health Center Area (24).
4. The Connection Between Zinc Nutrient Consumption and Incidents of Stunting in Children in the Tambakrejo Health Center, Sidoarjo Working Area

   One of the risk factors for stunting is zinc deficiency. According to the 2013 AKG, children in the 1-3 year age group and the 4-6 year age group need to ingest 4 mg and 5 mg of zinc, respectively. The lack of consumption of food sources of zinc, particularly meat protein, is the cause of the low zinc intake (25). The findings of the two 24-hour interviews with toddler mothers reveal this.recall, where normal children consume a lot of formula milk and boxed milk, while stunted children rarely consume foods that contain zinc and the food consumed is less varied and there is a lack of interest in consuming food (19). Based on research conducted by (Rahmadani, *et. all*, 2019) that there is a significant relationship between fat

intake and the incidence of stunting in children aged 24-59 months in the Kabere Health Center Working Area, Cendana District, Enrekang Regency (26).

This research has several limitations that need to be considered. First, the 2x24-hour recall method is highly dependent on the memory of the respondents (parents), so there is a risk of information bias. Second, this study did not include other important factors that can affect stunting incidence, such as infection status, environmental sanitation conditions, disease history, immunization, and parenting patterns. Third, cross-sectional designs cannot show a direct causal relationship between nutrient intake variables and stunting incidence.

Further research is recommended to use a longitudinal design to see a more robust cause-and-effect relationship between nutritional intake and stunting incidence. Additionally, it is important to include additional variables such as environmental sanitation, access to health services, family economic status, parenting, and history of infectious diseases. The use of more objective nutritional measurement methods, such as food weighing or food records, is also recommended to improve the accuracy of nutrient intake data.

CONCLUSION

There was a significant relationship between protein, fat, carbohydrate, and zinc intake with the incidence of stunting in children aged 24–59 months in the working area of the Tambakrejo Health Center, Sidoarjo. Lack of nutritional intake can increase the risk of stunting, so it is important to ensure balanced nutritional adequacy from an early age.

SUGGESTION

It is recommended that the Tambakrejo Health Center intervene in the form of a household-based PMT (Supplementary Feeding) program for stunted toddlers. In addition, nutrition counseling and balanced diet education for mothers under five need to be strengthened. Follow-up research should consider other variables such as sanitary conditions, infections, and parenting patterns that can affect a child's nutritional status.

BIBLIOGRAPHY

1. Utami R, Setianto R, Dewi B, Maftukhin A. Peningkatan Tinggi Badan Z Score TB/U pada Balita Stunting dengan Pemberian Zinc. PREPOTIF J Kesehat Masy. 2023;7(1):756–60.
2. KHOTIMAH K. Dampak Stunting dalam Perekonomian di Indonesia. JISP (Jurnal Inov Sekt Publik). 2022;2(1):113–32.
3. Hartati L, Wahyuningsih A. Hubungan Kejadian Stunting dengan Perkembangan Anak Usia

24-59 Bulan di Desa Wangen Polanharjo. INVOLUSI J Ilmu Kebidanan. 2021;11(1):28–34.

4. Jariah N, Arfa U, Fajhriani N D, Sari YN, Januarti UD. Dampak Stunting Terhadap Perkembangan Kognitif Anak Usia Dini. J Ilm Cahaya Paud. 2024;6(1):33–8.

5. Hidayati et al. Peran Zink terhadap Pertumbuhan Anak The Role of Zinc in Children Growth. Majority. 2019;8:168–71.

6. Fitri L, Ritawani E, Mentiana Y. Hubungan Asupan Energi Dengan Kejadian. J Endur Kaji Ilm Probl Kesehat. 2020;5(3):591–7.

7. Rahmaniah R, Huriyati E, Irwanti W. Riwayat Asupan Energi Dan Protein Yang Kurang Bukan Faktor Risiko Stunting Pada Anak Usia 6-23 Bulan. J Gizi dan Diet Indones (Indonesian J Nutr Diet. 2016;2(3):150.

8. Diniyyah SR, Nindya TS. Asupan Energi, Protein dan Lemak dengan Kejadian Gizi Kurang pada Balita Usia 24-59 Bulan di Desa Suci, Gresik. Amerta Nutr. 2017;1(4):341.

9. Sari HP, Permatasari L, Putri WAK. Perbedaan Keragaman Pangan, Pola Asuh Makan, dan Asupan Zat Gizi Makro pada Balita dari Ibu Bekerja dan Ibu Tidak Bekerja. Amerta Nutr. 2021;5(3):276.

10. Ayuningtyas A, Simbolon D, Rizal A. Asupan Zat Gizi Makro dan Mikro terhadap Kejadian Stunting pada Balita. J Kesehat [Internet]. 2018 Dec 31;9(3):445–50. Available from: http://ejurnal.poltekkes-tjk.ac.id/index.php/JK/article/view/960

11. Dewi R, Siregar UE, Aristantia O. Evaluasi Penggunaan Kombinasi Zink dan Probiotik pada Penanggulangan Pasien Diare Anak Di Instalasi Rawat Inap RSUD H. Abdul Manap Jambi Tahun 2020. Pharma Xplore J Ilm Farm. 2021;6(2):55–63.

12. Anindita P. Hubungan Tingkat Pendidikan Ibu, Pendapatan Keluarga, Kecukupan Protein dan Zink dengan Stunting. J Kesehat Masy [Internet]. 2012;1:1–10. Available from: http://ejournals1.undip.ac.id/index.php/jkm

13. Purwandini S, Atmaka DR. Pengaruh Kecukupan Konsumsi Zink dengan Kejadian Stunting : Studi Literatur The Effect of Adequate Zinc Consumption with the Occurrence of Stunting in Indonesia : Literature Review. Media Gizi Kesmas. 2023;12(1):509–15.

14. Sulistianingsih A, Yanti DM. Kurangnya Asupan Makan Sebagai Penyebab Kejadian Balita Pendek (Stunting). J Dunia Kesehat. 2016;5(1):71–5.

15. Louisa A. Langi RACT. Hubungan Pemberian ASI Terhadap Kejadian Stunting Pada Balita Usia 2-5 Tahun di Puskesmas Manggar Baru, Balikpapan Periode Juli-Agustus 2019. Pro-Life. 2020;7.

16. S A. Prinsip Dasar Ilmu Gizi. Jakarta: Gramedia Pustaka Utama; 2010.

17. Aisyah IS, Yunianto AE. Hubungan Asupan Energi Dan Asupan Protein Dengan Kejadian Stunting Pada Balita (24-59 Bulan) Di Kelurahan Karanganyar Kecamatan Kawalu Kota Tasikmalaya. J Kesehat Komunitas Indones. 2021;17(1):240–6.

18. I Gusti Putu Ngurah Adi Santika. Pengukuran Tingkat Kadar Lemak Tubuh Melalui Jogging Selama 30 Menit Mahasiswa Putra Semester IV FPOK IKIP PGRI Bali Tahun 2016. 2016;1(June):89–98.

19. Astri Widiarti1, Ni Nyoman Sri Yuliani IA. Hubungan Perilaku Personal Hygiene Terhadap Kejadian Kecacingan dan Stunting Pada Siswa Kelas I-III di SDN Pematang Limau, Kabupaten Gunung Mas. 2020;2507(February):1–9.

20. Diki Prayugo Wibowo, Irmawati S, Deby Tristiyanti, Normila AS. Pola Asuh Ibu dan Pola Pemberian Makanan Berhubungan dengan Kejadian Stunting. 2023;

21. Afriansyah E, Yuswita E, Fitriyani L. Hubungan Tingkat Kecukupan Asupan Gizi (Karbohidrat, Protein, Lemak Dan Zat Besi) Sebagai Faktor Resiko Kejadian Stunting Pada Balita < 5 Tahun Di Kota Depok Tahun 2023. J Kesehat Tambusai. 2023;4(4):6427–33.

22. Tri TW, Desy DS, Esa ERS, Titi TPH, Lina LH, Linda L, et al. Edukasi “Isi Piringku” Untuk Balita Di Paud Al-Azmi Kecamatan Cilawu Garut. J Pengabdi Masy Dedik. 2022;3(02):106–10.

23. Baculu EPH. Hubungan Pengetahuan Ibu Dan Asupan Karbohidrat dengan Status Gizi Pada Anak Balita Di Desa Kalangkangan Kecamatan Galang Kabupaten Tolitoli. Encycl Dict Genet Genomics Proteomics. 2004;7(1).

24. Anzi N, Kencana IK. Hubungan Asupan Protein Karbohidrat dan Zat Besi Dengan Stunting Pada Balita di Wilayah Puskesmas Gianyar 1. J Ilmu Gizi … [Internet]. 2024;13(2):128–36. Available from: https://ejournal.poltekkes-denpasar.ac.id/index.php/JIG/article/view/2877

25. Aridiyah FO, Rohmawati N, Mury Ririanty. The Factors Affecting Stunting on Toddlers in Rural and Urban Areas. JAOCS, J Am Oil Chem Soc. 2015;3(1):163–70.

26. Rahmadani NA, Bahar B, Dachlan DM. Hubungan Asupan Zat Gizi Makro Dan Zat Gizi Mikro Dengan Stunting Pada Anak Usia 24-59 Bulan Di Wilayah Kerja 1 Puskesmas Kabere Kecamatan Cendana Kabupaten Enrekang. J Gizi Masy Indones J Indones Community Nutr. 2019;8(2):90–7.