

THE RELATIONSHIP BETWEEN MATERNAL NUTRITIONAL KNOWLEDGE AND FEEDING PATTERNS IN STUNTED TODDLERS

Karmila Ayu Wardani¹, Etha Rambung^{1*}, Minarni Wartingsih¹, Bambang Wirjatmadi²

¹. Fakultas Kedokteran Universitas Ciputra Surabaya

². Fakultas Kesehatan Masyarakat Universitas Airlangga Surabaya

*Correspondence email: etha.rambung@ciputra.ac.id

ABSTRACT

The nutrients in the food consumed play a role in determining a person's condition and nutritional status. This research aims to determine the description and relationship between the level of maternal nutritional knowledge and the feeding patterns of mothers who have stunted toddlers in Desa Sumorame Candi Sidoarjo. This research method is analytical observational with a cross sectional approach. The research subjects were 40 mothers of stunted toddlers in Sumorame Candi Sidoarjo Village. Data collection used a questionnaire with guided interviews. Data were analyzed using the Chi-square test (significance $\alpha < 0.05$). Data shows the percentage of mothers with high levels of knowledge about nutrition (5%), medium (27.5%), and low (67.5%) while mothers with appropriate (47.5%) and inappropriate feeding patterns (52, 5%). The chi-square statistical test results showed a relationship between the mother's level of knowledge and toddler feeding patterns ($p=0.027$). The research concludes that the mother's level of knowledge about nutrition influences the mother's feeding pattern for her toddler.

Keywords: Mother knowledge., Feeding patterns., Stunting

INTRODUCTION

Stunting is a term for a child who experiences growth delay not in accordance with their age¹. Stunting is a delay in a child's growth period due to consumption of food that does not meet nutritional standards. The occurrence of nutritional problems (stunting) in children is a manifestation of toddlers experiencing growth failure, presence of disease infections, as well as vitamin A deficiency and nutritional deficiencies². The causes of stunting involve many factors. Some of the contributing factors are maternal factors, breastfeeding history, environmental conditions, and history of infection³⁻⁵.

The prevalence of stunting in Indonesia has decreased by 2.8% from 2021 (24.4%) to 2022 (21.6%). Nevertheless, the government continues to make efforts to reduce this figure and targets a stunting rate of 14% by 2024. The prevalence of stunting in East Java also decreased from 23.5% in 2021 to 19.2% in 2022. However, there are several districts in East Java that have experienced an increase in the prevalence of stunting. One of them is Sidoarjo Regency, which experienced an increase to 16.1% in 2022 from 14.8% in 2021^{6,7}. The city of Sidoarjo has several districts with high rates of stunting and wasting, one of which is the Candi district. The village with the highest number of toddlers suffering from stunting in the Candi district is Sumorame Village. The Sidoarjo government, in

collaboration with the Candi Community Health Center, continues to work towards reducing this figure. The Sidoarjo government aims to reduce the stunting rate to 14% by 2024⁸.

This research aims to determine the description and relationship between the level of nutritional knowledge and feeding patterns of mothers who have stunted toddlers in Sumorame Village, Candi District, Sidoarjo Regency, so that it can be taken into consideration for preventing and treating stunting.

MATERIALS AND METHODS

The research was conducted after obtaining ethical clearance No.024/EC/KEPK-FKUC/VIII/2022 from the Research Ethics Committee of the Faculty of Medicine, Ciputra University (FKUC) Surabaya. The study was conducted in Sumorame Village, Candi District, Sidoarjo City, in August-September 2022. The research method used was analytical observational (cross-sectional approach). The study population consisted of mothers with stunted toddlers residing in Sumorame Village, Candi, Sidoarjo in 2022. Data collection was done using a questionnaire. The questionnaire had been tested for validity and reliability and was divided into two parts: the nutritional knowledge level of mothers with toddlers and the feeding patterns of mothers to their toddlers. The first part was the nutritional

knowledge level of mothers with toddlers, consisting of 20 questions with a score of five for each correct answer and blank if wrong. The scores obtained were then converted into percentages and grouped into three categories of maternal knowledge about nutrition: high category (76%-100%), moderate (56%-75%), and low ($\leq 55\%$). The second part was the feeding pattern consisting of 15 questions divided into three topics: types of food, portion size, and feeding schedule. Each question was measured using a Likert scale with categories of very often (score 4), often (score 3), seldom (score 2), and never (score 1). The assessment results were then converted into percentages and grouped into two categories of feeding patterns: appropriate category (55%-100%) and inappropriate ($<55\%$). The data obtained were analyzed to determine the characteristics of mothers (education, maternal knowledge, economic status, feeding patterns, carbohydrate consumption, fat consumption, protein consumption) and toddler characteristics (age and gender). Hypothesis testing was done using chi-square and logistic regression with a significance level of 95% and an error rate ($\alpha=5\%$ or 0.05).

1. RESULTS

The study subjects were 40 mothers of stunted toddlers residing in Sumorame Village, Candi, Sidoarjo in 2022. The data obtained showed that the majority of mothers (57.5%) had a high school education and the least (1%) had an elementary school education. Five mothers (10%) had completed junior high school, four (10%) had completed D1/D2/D3 education, and seven (17.5%) had completed S1 education. The data also showed that 77% of mothers did not work, and 32% had a family income above Rp. 2,213,604. The description of the nutritional knowledge level of mothers revealed that 5% had a high level of knowledge, 27.5% had a moderate level, and 67.5% had a low level. For feeding patterns, 47.5% of mothers had appropriate feeding patterns, while 52.5% did not. Regarding feeding patterns based on the types of nutrients consumed, 47.5% of mothers often provided carbohydrates, 32.5% often provided fats, 47.5% often provided animal protein, and 42.5% often provided plant protein. As for the profile of toddlers suffering from stunting, 50% were female and 50% were male, with an age range of 31-60 months comprising 52.55% (Table 1).

The data also indicates that among 27 mothers with low nutritional knowledge, nine mothers have appropriate feeding patterns, while among 11 mothers with moderate nutritional knowledge, eight have appropriate feeding patterns, and all mothers with high nutritional knowledge have appropriate feeding patterns. The chi-square test results show a relationship between maternal nutritional knowledge and feeding patterns ($p=0.027$) (Table 2).

DISCUSSION

Nutrition refers to substances found in food that are necessary for the body⁹. Knowledge is the result of knowing acquired after sensing an object. Nutritional knowledge is knowledge related to the nutrients contained in food, the types of food that are sources of nutrients, and the benefits of nutrients¹⁰. Maternal nutritional knowledge can be influenced by several factors including age, education, occupation, income, and local dietary culture¹¹. In this study, it was found that 67.5% of mothers of stunted toddlers in Sumorame Village had low nutritional knowledge. Among the 27 mothers with low nutritional knowledge, 62.9% had a relatively high level of education (high school), and 77.7% were homemakers (not working). These results indicate that not all mothers with higher education levels have sufficient nutritional knowledge, as there are other factors that can influence their level of knowledge, such as limited access to information sources. This is consistent with the findings of Aryni and Agustina (2018), who stated that not all highly educated mothers have good nutritional knowledge due to other influencing factors such as the lack of nutrition education in their village¹². Other research suggests that working mothers have broader knowledge than non-working mothers because they have more relations and opportunities to obtain information¹³.

Feeding patterns are the ways in which mothers provide food to meet their toddlers' nutritional needs. Several factors influence feeding patterns, including maternal education level, maternal nutritional knowledge, and household income¹⁴. In this study, it was found that 52.5% of mothers of stunted toddlers in Sumorame Village had inappropriate feeding patterns. Among the 21 mothers with inappropriate feeding patterns, 57.1% had a relatively high level of education (high school), and 76.2% were homemakers (not working). These results indicate that not all mothers with higher education levels have appropriate feeding patterns, as there are other factors that can influence them, such as the family's socio-economic status. The family's socio-economic status affects their ability to meet their toddler's dietary intake and modify foods liked by the toddler¹⁵. Research by Kahar et al., 2023, suggests that the feeding patterns of toddlers with working mothers are associated with the mothers' employment. Working mothers have their own income, which gives them a greater opportunity to choose the quality and quantity of food their toddlers consume, leading to more appropriate feeding patterns¹³. Another factor influencing feeding patterns is traditional customs and habits that may not be appropriate but have long existed in society, becoming behaviors considered good by society and affecting feeding patterns within families. Taboos related to food ingredients, menus, meal times, and frequency greatly influence society¹⁶.

Table 1. Characteristics of Mothers and Toddlers Variable Frequency (%)

VARIABLE	FREQUENCY	(%)
A. Mothers		
Education Level		
Elementary Scholl (SD)	1	2,5
Junior High School (SMP)	5	12,5
Senior High School (SMA/SMK)	23	57,5
Diploma (D1/D2/D3)	4	10
Bachelor's Degree (S1)	7	17,5
Mother's Occupation		
Working	9	22,5
Not working	31	77,5
Family Income Level		
> Rp. 2.213.604	32	80
< Rp. 2.213.604	8	20
Mother's Nutritional Knowledge Level		
High	2	5
Moderate	11	27,5
Low	27	67,5
Feeding Pattern		
Appropriate	19	47,5
Inappropriate	21	52,5
Carbohydrate Consumption		
Often	19	47,5
Rarely	21	52,5
Fat Consumption		
Often	13	32,5
Rarely	27	67,5
Animal Protein Consumption		
Often	19	47,5
Rarely	21	52,5
Plant Protein Consumption		
Often	17	42,5
Rarely	23	57,5
B. Toddlers		
Age		
0-30 Months	19	47,5
31-60 Months	21	52,5
Gender		
Male	20	50
Female	20	50

Table 2. Relationship Between Maternal Nutritional Knowledge and Feeding Patterns

MOTHER FACTOR		Maternal Nutritional Knowledge				Chi-square
		Low	Moderate	High	n	
Feeding Pattern	Appropriate	9	8	2	19	0,027*
	Inappropriate	18	3	0	21	
Total		27	11	2	40	

*Significant

The results of this study also show a relationship between maternal nutritional knowledge and feeding patterns of stunted toddlers in Sumorame Village. This is supported by other research indicating that maternal nutritional knowledge influences feeding patterns. This knowledge helps mothers choose food ingredients to prepare for their toddlers' consumption, so mothers with better nutritional knowledge tend to have better feeding patterns^{10,14}. Maternal knowledge about nutrition also helps mothers regulate the amount and types of food ingredients to meet their toddlers' nutritional needs¹⁷. Mothers' skills in menu planning, selecting, and preparing nutritious food for their toddlers decrease if they lack nutritional knowledge¹⁸. Other studies also mention that toddlers' nutritional status and the incidence of stunting are influenced by maternal nutritional knowledge and feeding patterns^{19,20}. Therefore, efforts to improve nutritional status and prevent stunting may consider educating mothers about nutrients and healthy feeding patterns.

CONCLUSION

In conclusion, 67.5% of mothers of stunted toddlers in Sumorame Village have low nutritional knowledge, 52.5% have inappropriate feeding patterns, and there is a relationship between maternal nutritional knowledge and feeding patterns of stunted toddlers. Therefore, one of the considerations for improving the nutritional status of toddlers and preventing stunting is through educating mothers about nutrition and healthy feeding patterns.

ACKNOWLEDGEMENTS

The author would like to express gratitude to all members of the academic community at FKUC Surabaya and Puskesmas Candi Sidoarjo for their support in this research.

REFERENCES

1. Sari DN, Oktafiani H, Wirawati K, Lestari SK. Mari Entaskan Resiko Stunting Pada Masa Pandemi Covid-19. *JCES (Journal Character Educ Soc)*. 2022;5(2):536–45.
2. Raga AD, Silitonga HTH. Hubungan Karakteristik Ibu, ASI Eksklusif dan Akses Dasar Terhadap Stunting Balita Usia 2-5 Tahun Puskesmas Manutapen Tahun 2021. *Maj Kedokt Andalas*. 2022;45(2):144–55.
3. WHO. Childhood Stunting: Context, Causes and Consequences - WHO Conceptual framework [Internet]. WHO. 2016April7 (cited 2022 Aug 19). Available from: <https://www.who.int/publications/m/item/childhood-stunting-context-causes-and-consequences-framework>.
4. Wardani DK. Pengaruh Faktor Maternal Ibu terhadap Kejadian Stunting pada Balita Usia 24-59 Bulan di Wilayah kerja UPT Puskesmas Sopaah Kabupaten Pamekasan. *Media Gizi Kesmas*. 2022;11(2):386–93.
5. Jezua EM, Silitonga HTH, Rambung E. Asi Eksklusif, Status Imunisasi, Dan Kejadian Stunting Di Indonesia : Studi Literatur. *Prominentia Med J*. 2021;2(1):17–26.
6. Kementerian Kesehatan Republik Indonesia. Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tingkat Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021. Jakarta: Kementerian Kesehatan Republik Indonesia; 2021.p.10-25.
7. Kementerian Kesehatan Republik Indonesia. Buku Saku Hasil Survei Status Gizi Indonesia (SSGI) 2022. Jakarta: Kementerian Kesehatan Republik Indonesia; 2022. p.5-9,28
8. Dinas KOMINFO Provinsi Jawa Timur. Hasto Wardoyo Optimis Sidoarjo Mampu Turunkan Stunting [Internet]. Dinas KOMINFO Provinsi Jawa Timur. 2023Juni6 (cited 2022 Aug 19). Available from: <https://kominfo.jatimprov.go.id/berita/hasto-wardoyo-optimis-sidoarjo-mampu-turunkan-stunting>.
9. Liana AE, Soharno S, Panjaitan AA. Hubungan Antara Pengetahuan Tentang Gizi Seimbang Dengan Indeks Masa Tubuh Pada Mahasiswa. *J Kebidanan*. 2018;7(2):132–9.
10. Lestari P. Hubungan Pengetahuan Gizi, Asupan Makanan dengan Status Gizi Siswi Mts Darul Ulum. *Sport Nutr J*. 2020;2(2):73–80.
11. Suriani N, Moleong M, Kawuwung W. Hubungan Antara Pengetahuan Ibu Dengan Kejadian Gizi Kurang Pada Balita Di Desa Rambusaratu Kecamatan Mamasa. *J Kesehat Masy UNIMA*. 2021;02(03):53–9.
12. Aryni S, Agustina S. Analisis Tingkat Pengetahuan Ibu Tentang Gizi Balita di Desa Tonjong Kecamatan Palabuhan Ratu Kabupaten Sukabumi Tahun 2017. *J Bid Ilmu Kesehat*. 2018;11(1):736–44.
13. Kahar AA, Hidayanti H, Jafar N, Salam A, Trisasmita L. Hubungan Sosial Ekonomi Dengan Pola Pemberian Makan Pada Balita Stunting Usia 24-59 Bulan di Wilayah Kerja Puskesmas Malimongan Baru di Kota Makassar. *JGMI J Indones Community Nutr*. 2023;12(1):13–26.
14. Noviyanti LA, Rachmawati DA, Sutejo IR. Analisis Faktor-Faktor yang Memengaruhi Pola Pemberian Makan Balita di Puskesmas Kencong An Analysis of Feeding Pattern Factors in Infants at Kencong Public Health Center. *J Agromedicine Med Sci*. 2020;6(1):14–8.
15. Wibowo DP, Irmawati, Tristiyanti D, Normila, Sutriyawan A. Pola Asuh Ibu dan Pola Pemberian Makanan Berhubungan dengan Kejadian Stunting. *JIKES J Ilmu Kesehat*. 2023;6(2):116–21.
16. Indanah I, Dewi JR. Factors Related to Stunting in Toddlers. *Advances in Health Sciences Research*. 2020 (ICoSHEET 2019);27:190–3.
17. Supriasa IDN, Bakri B, Fajar I. Penuntun Status Gizi. 2nd ed. Jakarta: EGC Penerbit Buku Kedokteran; 2016.
18. Oktaviasari DI, Urbaningrum N, Afif A, Nurkhalim RF. Pengetahuan Ibu tentang Gizi Seimbang dan Pola

- Konsumsi Anak Pra-Sekolah pada Masa Pandemi Covid-19. *Jengala : Jurnal Riset Pengembangan Dan Pelayanan Kesehatan*. 2023;2(1):2870–7976.
19. Rettob KK, Adnani H. Pengetahuan Ibu Balita Tentang Gizi dan Pola Pemberian Makan dengan Status Gizi Balita. *Heal Sci Pharm J*. 2023;7(1):167.
20. Kharisma AA. Hubungan Pengetahuan Ibu tentang Gizi dan Pola Pemberian Makan pada Balita dengan Kejadian Stunting di Kelurahan Laweyan [Internet]. UPT Perpustakaan Universitas Sebelas Maret (Institutional Repository). 2023 (cited 2022 Aug 19). Available from: <https://digilib.uns.ac.id/dokumen/detail/104774/Hubungan-Pengetahuan-Ibu-tentang-Gizi-dan-Pola-Pemberian-Makan-pada-Balita-dengan-Kejadian-Stunting-di-Kelurahan-Laweyan>

