

ANALYSIS OF MATERNAL HYGIENE PRACTICES AND SANITATION KNOWLEDGE ON STUNTING INCIDENCE IN CHILDREN UNDER FIVE AT SEPATAN HEALTH CENTER, TANGERANG REGENCY

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ABSTRACT

Stunting is a global health issue that affects children's growth and development. A child's height that is below -2 standard deviations (SD) from the average growth according to WHO standards indicates that the child is experiencing stunting. Poor sanitation and inadequate hygiene practices can increase the risk of stunting by up to five times. In efforts to prevent stunting, the role of parents, particularly mothers, is crucial, especially if they possess adequate knowledge and understanding of stunting. This study aims to analyze the correlation between maternal hygiene behavior and knowledge of sanitation with the occurrence of stunting in children under five. This study uses a cross-sectional approach with an analytical observational design. The population of this study consists of mothers with children aged 0-5 years who are experiencing stunting in the working area of the Sepatan Public Health Center, Tangerang Regency. A total of 63 respondents were asked to complete a questionnaire related to their hygiene behaviors and knowledge of sanitation. The collected data were then analyzed to examine the correlation between these factors and the occurrence of stunting in children. The study found that most children with stunting had mothers with poor hygiene behaviors, although the mothers' knowledge of sanitation was in the adequate category. The results of the Spearman correlation test revealed a significant relationship between maternal hygiene behavior and stunting occurrence ($p = 0.044$) as well as between maternal sanitation knowledge and stunting occurrence ($p = 0.000$) in children within the working area of the Sepatan Public Health Center, Tangerang Regency.

Introduction

Stunting is a global health issue that affects children's growth and development. A child's height below -2 standard deviations (SD) from the average growth according to WHO standards indicates the condition of stunting.¹ Chronic nutritional deficiencies from pregnancy to the age of two can cause stunting. Children with stunting typically have characteristics such as shorter height compared to the average, growth disturbances, delayed puberty, and cognitive impairments.²

The number of children affected by stunting worldwide reaches 148 million (22%) of the population under five years of age.³ In Indonesia, the prevalence of stunting was reported at 21% in 2022, with a target reduction to 14% by 2024.⁴

Malnutrition, infections, genetic factors, and inadequate exclusive breastfeeding directly cause stunting. Indirect causes include limited access to healthcare facilities, poor sanitation and clean water conditions, insufficient hygiene practices, and a lack of parental knowledge.⁵

Poor hygiene behavior has been proven to increase the risk of stunting by up to five times. An environment with substandard sanitation, such as inadequate latrine access or open waste disposal, can lead to the transfer of bacteria from feces to

the mouth, triggering gastrointestinal infections like diarrhea or intestinal worms, which ultimately impair nutrient absorption in children.⁶

Maternal knowledge is a crucial factor in the occurrence of stunting. Mothers who have adequate knowledge about the importance of sanitation and hygiene are more likely to implement health practices that support children's growth and contribute to stunting prevention, such as maintaining environmental cleanliness, ensuring proper sanitation, and adopting hygiene practices to prevent infections, particularly gastrointestinal infections that contribute to stunting.⁷

In the Sepatan Health Center service area, it has been found that sanitation practices and public hygiene behaviors remain relatively low, including inefficient waste management, limited access to clean water, and open defecation habits.⁸ The stunting rate in Sepatan District, Tangerang Regency, remains a particular concern for the government, with a higher number of stunted toddlers compared to neighboring areas. Recent data shows that the prevalence of stunting in Sepatan District reached approximately 20.24% in 2023.⁹ In Tangerang Regency, the prevalence of stunting was 21.1% in 2022, compared to other areas in Banten Province such as South Tangerang City (9.0%) and Cilegon City (19.1%), with Sepatan District being a priority area for intervention.¹⁰

Methodology

This study employs a cross-sectional approach with an analytical observational design. The approach is used to analyze the relationship between two independent variables — maternal hygiene behavior and the level of maternal

knowledge about sanitation — and the dependent variable, which is the stunting condition in toddlers. Data collection is conducted at a single point in time to describe the correlation between these variables. The study subjects include mothers and toddlers living in the service area of Sepatan Health Center, Tangerang Regency. In this study, toddlers aged 0-5 years who have been diagnosed with stunting and have a history of infectious diseases are included as inclusion criteria. The sample size is determined using a total sampling method, resulting in 63 respondents, consisting of mothers and toddlers who meet the inclusion criteria.

Instruments Section

Data is collected using a questionnaire. Stunted toddlers are identified through reports from the Sepatan Health Center. The data is then validated using the Maternal and Child Health (KIA) Book and by measuring the height and weight of the toddlers with available equipment. Maternal hygiene behavior and knowledge are gathered through interviews based on the questionnaire. During the data collection process, respondents are provided with an explanation of the study's objectives and instructions on how to complete the questionnaire. The questionnaire is distributed to the respondents after they have understood the instructions. Once the questionnaires are completed, they are collected by the researcher for subsequent data processing and analysis.

Statistical Analysis

Analysis is performed to assess the relationship between the independent variables (hygiene behavior and maternal knowledge about sanitation), which are ordinal scale variables (good, sufficient, and poor), and the dependent variable (stunting), which is also an ordinal variable (short and very short). Spearman's Rho correlation test is used for this analysis. The results of the bivariate analysis will indicate the correlation between the variables under study. They can serve as a basis for concluding the

relationship between maternal hygiene behavior and sanitation knowledge, particularly in toddlers

Results and Discussion

Berdasarkan penelitian diatas, dapat
Table 1. Cross-Tabulation of Maternal Hygiene Practices and Stunting Incidence

<i>Stunting</i>	Perilaku Higiene			
	Baik	Cukup	Kurang	Total
Pendek	1	12	32	45
Sangat Pendek	0	1	17	18
Total	1	13	49	63

The analysis of the cross-sectional study on maternal hygiene behavior and stunting incidence showed that among toddlers with stunting and short stature, there was one mother with good hygiene behavior, 12 mothers with fairly good hygiene behavior, and 32 mothers with poor hygiene behavior. Meanwhile, among toddlers with stunting and very short stature, there was one mother with fairly good hygiene practices, while 17 mothers exhibited poor hygiene practices. These findings indicate that the majority of toddlers with stunting and either short or very short stature had mothers with inadequate hygiene behavior.

Table 2. Results of Spearman's Rho Correlation Test Between Maternal Hygiene Behavior and the Occurrence of Stunting

<i>Spearman's Rho</i>	Uji Hubungan			
			<i>Stunting</i>	<i>Perilaku Higiene Ibu</i>
	<i>Stunting</i>	Koefisien Korelasi	1.000	.254*
		Sig. (2-tailed)		.044
		N	63	63
	<i>Perilaku Higiene Ibu</i>	Koefisien Korelasi	.245*	1.000
		Sig. (2-tailed)	.044	.
		N	63	53

The Spearman correlation test, conducted to analyze the relationship between maternal hygiene behavior and stunting incidence, showed a p-value of 0.044 ($p < 0.05$),

experiencing stunting in the Sepatan Health Center service area, Tangerang Regency

indicating a significant relationship between maternal hygiene behavior and stunting in toddlers at Sepatan Health Center, Tangerang Regency. The correlation coefficient of .254 suggests a very weak relationship between maternal hygiene behavior and stunting incidence in toddlers at Sepatan Health Center, Tangerang Regency.

This study is in line with the findings of Pradana (2023), which revealed a significant relationship between hygiene behavior and stunting incidence, based on the results of the Chi-square correlation test, which showed $p < 0.12$ ($p < 0.05$).¹¹ Poor personal hygiene can trigger health problems such as intestinal worms, diarrhea, and malnutrition, which ultimately contribute to stunting. This is caused by inadequate personal hygiene, which serves as a gateway for disease-causing microorganisms. If prolonged, this can affect a child's nutritional status¹²

Hygiene behavior plays an important indirect role in nutrition issues, particularly stunting. Mothers who do not wash their hands before feeding their children are at higher risk of contracting infectious diseases such as diarrhea, which can contribute to stunting. Therefore, optimal healthcare services for toddlers are necessary to reduce the risk of infectious

diseases, which includes attention to the hygiene of both mothers and toddlers, as well as maintaining cleanliness in food preparation and the home environment,¹³

Table 3. Cross Tabulation of Maternal Sanitation Knowledge and the Occurrence of Stunting

<i>Stunting</i>	Pengetahuan Sanitasi			
	Baik	Cukup	Kurang	Total
Pendek	3	36	6	45
Sangat Pendek	0	7	11	18
Total	3	43	17	63

The analysis of the cross-sectional study on the relationship between maternal sanitation knowledge and stunting incidence showed that among toddlers with stunting and short stature, 3 mothers had good sanitation knowledge, 36 mothers had adequate sanitation knowledge, and

6 mothers had poor sanitation knowledge. Meanwhile, among toddlers with stunting and very short stature, 7 mothers had adequate sanitation knowledge, and 11 mothers had poor sanitation knowledge. These findings suggest that the majority of toddlers with stunting and either short or very short stature had mothers with adequate understanding of sanitation.

Table 4. Results of Spearman's Rho Correlation Test Between Maternal Sanitation Knowledge and The Occurrence of Stunting

<i>Spearman's Rho</i>	Uji Hubungan			
			<i>Stunting</i>	<i>Pengetahuan Sanitasi Ibu</i>
	<i>Stunting</i>	Koefisien Korelasi	1.000	.484*
		Sig. (2-tailed)		.000
		N	63	63
	<i>Pengetahuan Sanitasi</i>	Koefisien Korelasi	.484*	1.000
		Sig. (2-tailed)	.000	
		N	63	53

The Spearman correlation test conducted to analyze the relationship between maternal sanitation knowledge and stunting incidence resulted in a p-value of <0.000 ($p < 0.05$), indicating a significant relationship between maternal sanitation knowledge and stunting in toddlers at Sepatan Health Center, Tangerang Regency. Therefore, H_0 is rejected, and H_1 is accepted. The correlation coefficient obtained was .484, indicating a moderately strong relationship between maternal sanitation knowledge and stunting incidence in toddlers

at Sepatan Health Center, Tangerang Regency.

A similar study was conducted by Khairiyah (2020), where the Spearman's rho correlation test showed a p-value of <0.01 ($p < 0.05$), indicating a relationship between sanitation and stunting incidence¹⁴

Adequate sanitation and access to clean water have a significant impact on the incidence of stunting. Poor sanitation facilities, combined with the habit of not washing hands with soap and running water after defecation, can increase the risk of bacterial transmission. This can cause children to suffer from infectious diseases such as diarrhea, intestinal worms, and enteropathy, which can reduce appetite, damage the digestive tract, and limit nutrient absorption, thereby affecting poor nutritional status and contributing to stunting. Good sanitation plays a vital role in reducing stunting in toddlers. Poor sanitation conditions increase the risk of infections and affect children's nutritional status.¹⁵ Parents who are informed about stunting tend to be more aware of the importance of preventive measures, such as ensuring proper nutrition during pregnancy, providing appropriate feeding to children, maintaining a clean environment, and practicing good hygiene.¹⁶

Conclusion

This study concludes that there is a relationship between maternal hygiene behavior and maternal sanitation knowledge, as well as the incidence of stunting in toddlers, at Sepatan Health Center, Tangerang Regency. A majority of toddlers with stunting, particularly those with short

and very short stature, had mothers with inadequate hygiene behavior. In contrast, most toddlers with similar conditions had mothers with adequate knowledge of sanitation.

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References

1. World Health Organization. (2015, November 19). *Stunting* in a nutshell. World Health Organization. <https://www.who.int/news/item/19-11-2015-stunting-in-a-nutshell>
2. Kemenkes. (2023, July 28). Dampak *Stunting*. Kemenkes. https://yankes.kemkes.go.id/view_artikel/2657/mengenal-lebihjauh tentang%20stunting#:~:text=Stunting%20masih%20menjadi%20masalah%20serius%20yang%20di%20hadapi,Jumlah%20ini%20menurun%20dibandingkan%20tahun%20sebelumnya%20yaitu%2024%2C4%25
3. Unicef. (2023). Levels and trends in child malnutrition. <https://www.who.int/publications/item/9789240073791>
4. Kemenkes. (2022). BUKU SAKU Hasil Survei Status Gizi Indonesia (SSGI) 2022. Badan Kebijakan Pembangunan Kesehatan KEMENTERIAN KESEHATAN RI.
5. Mashar, Suhartono, & Budiono. (2021). Faktor-Faktor yang Mempengaruhi Kejadian Stunting pada Anak. *Jurnal Serambi Engineering*. 6(3), 20276-2084. <https://doi.org/10.32672/jse.v6i3.3119>.
6. Apriluana, & Fikawati. (2018). Analisis Faktor-Faktor Risiko terhadap Kejadian Stunting pada Balita (0-59 Bulan) di Negara Berkembang dan Asia Tenggara. *Jurnal Media Litbangkes*, 28(4), 247–256. <https://doi.org/https://doi.org/10.22435/mpk.v28i4.472>
7. Rahmawati, Nurwanti, & Sari. (2019). Faktor yang Berhubungan dengan Pengetahuan Orang tua tentang Stunting pada Balita. *Jurnal Ners dan Kebidanan*, 6(3), 389–395. <https://doi.org/10.26699/jnk.v6i3.ART.p389-395>
8. Dinkes Kab Tangerang. (2024b, May). Puskesmas Sepatan-YBM PLN Teluknaga Beri Suplemen Makanan Pada 31 Balita Stunting. Dinas Kesehatan Kabupaten Tangerang. <https://dinkes.tangerangkab.go.id/detail-berita/puskesmas-sepatan-ybm-pln-teluknaga-beri-suplemen-makanan-pada-31-balita-stunting>
9. Dinkes Kab Tangerang. (2024, August 12). Mantel Emas: Inovasi Telemedicine dan Pemberdayaan Ekonomi Masyarakat untuk Atasi Stunting di Kabupaten Tangerang. *Tangerangkab.Go.Id*. <https://tangerangkab.go.id/detail-berita/mantel-emas-inovasi-telemedicine-dan-pemberdayaan-ekonomi-masyarakat-untuk-atasi-stunting-di-kabupaten-tangerang>
10. Dinkes Kab Tangerang. (2024a, January 4). Pemkab Tangerang Tekan 236 Ribu Kasus Keluarga Berisiko Stunting. Dinas Kesehatan Kabupaten Tangerang. <https://tangerangkab.go.id/detail-berita/pemkab-tangerang-tekan-236-ribu-kasus-keluarga-berisiko-stunting>
11. Pradana, Suparmi, & Ratnawati. (2023). Personal Hygiene, Ketersediaan Air, dan Sanitasi Lingkungan dengan Kejadian Stunting pada Balita Usia 6– 59 Bulan di Wilayah Kerja Puskesmas Singorojo I, Kabupaten Kendal. *Amerta Nutrition*, 7(3), 421–426. <https://doi.org/10.20473/amnt.v7i3.2023.421-426>
12. Amaro, Ariyana, Werdiningsih, Handayani, Nazaruddin, & Widyastuti. (2019). Sosialisasi Personal Hygiene, Perilaku Hidup Bersih Dan Sehat Pada Anak-Anak Tingkat Sekolah Dasar Di Kelurahan Rembiga Kota Mataram. *Jurnal LPPM Universitas Mataram*, 1(2), 348-352.
13. Audiena, & Marintan. (2021). Hubungan Penyakit Infeksi dan Praktik Higiene terhadap Kejadian Stunting Pada Balita Usia 24-59 Bulan. *Jurnal IAGIKMI & Universitas Airlangga*, 5(2), 149-

157. <https://doi.org/10.20473/amnt.v5i2.202> 1.149-157

14. Khairiyah, & Fayasari. (2020). Perilaku higiene dan sanitasi meningkatkan risiko kejadian stunting balita usia 12- 59 bulan di Banten. Jurnal Ilmu Gizi Indonesia, 3(2), 123-134.<https://doi.org/10.35842/ilgi.v3i2.137>

15. Mashar, Suhartono, & Budiono. (2021). Faktor-Faktor yang Mempengaruhi Kejadian Stunting pada Anak. Jurnal Serambi Engineering. 6(3), 20276- 2084. <https://doi.org/10.32672/jse.v6i3.3119>.

16. Rahmawati, Nurwanti, & Sari. (2019). Faktor yang Berhubungan dengan Pengetahuan Orang tua tentang Stunting pada Balita. Jurnal Ners dan Kebidanan, 6(3), 389–395. <https://doi.org/10.26699/jnk.v6i3.ART.p389-395>