International Journal of Nursing and Midwifery Science (IJNMS)

http://ijnms.net/index.php/ijnms
e- ISSN: 2686-2123
p- ISSN: 2686-0538
ORIGINAL RESEARCH

THE RELATIONSHIP OF NUTRITION KNOWLEDGE, FREQUENCY OF ILLNESS AND ECONOMIC STATUS WITH THE INCIDENCE OF STUNTING IN THE WORKING AREA OF THE TANAH KALI KEDINDING SURABAYA HEALTH CENTER

Astrida Budiarti,Savira Adella Fitria Putry, Qori Ila Saidah
Sekolah Tinggi Ilmu Kesehatan Hang Tuah Surabaya
Corresponding Email: as3da_ns@yahoo.com

ABSTRACT

Stunting is a chronic nutritional problem caused by prolonged inadequate nutrient intake. This study aims to analyze the relationship between maternal knowledge, illness frequency, and socioeconomic status with the incidence of stunting in the working area of the Tanah Kali Kedinding Health Center. This research employed a correlational analytic design with a cross-sectional approach. The study was conducted at Posyandu in tanah kali kedinding Surabaya. A purposive sampling technique was used to select 111 toddlers aged 2–5 years. The research instruments included a questionnaire assessing maternal knowledge on child nutrition, frequency of illness, and socioeconomic status, along with observational measurements using a microtoise. Data were analyzed using the Chi-Square test. The results showed a significant relationship between maternal nutritional knowledge and the incidence of stunting. However, no significant association was found between illness frequency or socioeconomic status and stunting. The Chi-Square test results were as follows: nutritional knowledge ($p = 0.001$, $p < 0.05$), illness frequency ($p = 0.734$, $p > 0.05$), and socioeconomic status ($p = 0.306$, $p > 0.05$). This study implies that maternal knowledge of child nutrition significantly influences attitudes and behaviors in food selection. Therefore, health cadres, as the extension of health workers in the community, are encouraged to provide nutrition education through various methods such as videos, leaflets, and other media to improve maternal knowledge about balanced nutrition and stunting prevention.

Keywords

Stunting; knowledge of nutrition; frequency of illness; economic status

INTRODUCTION

Stunting is a condition of growth failure in children under five years of age caused by chronic malnutrition (Aurima et al., 2021) Stunting is the result of prolonged inadequate dietary intake that does not meet the nutritional needs of the child (Wahyurin et al., 2019). Nutritional status is assessed based on the height-for-age index (H/A), using the anthropometric standard for child growth, where measurement results fall within the Z-score threshold of <-2 SD to -3 SD (stunted) and below -3 SD (severely stunted) (Rahmadhita, 2020). According to interviews conducted with nutrition officers at the community health center (Puskesmas), 50 children under five were identified as having poor nutritional status and 18 were classified as stunted. Interviews with mothers of toddlers in the working area of the Puskesmas revealed that many household heads worked informal jobs, while the mothers either supported their husbands by selling food to local stalls or served as full-time housewives. These mothers generally had limited knowledge of nutrition. When asked about balanced meals for toddlers, they admitted to feeding their children the same food consumed by other family members. Moreover, some mothers allowed their children to buy snacks without supervision.

Prevalence of stunting in children is 24.4% (UNICEF Indonesia, 2021). The World health organization (WHO, 2019) states that globally 149.2 million children under 5 years suffer from nutritional problems in 2019 and are the cause of one third of child deaths worldwide. Prevalence of stunting in Indonesia was 21.6% (SGGI, 2022). The prevalence of stunting in the East Java area is 19.2%, while the city of Surabaya is stunting at 4.8% (Kementerian Kesehatan Republik Indonesia, 2022). Preliminary interviews with nutrition officers at the Tanah Kali Kedinding Puskesmas revealed that among 3,000 children under five, 1.66% were undernourished, 0.0003% were severely malnourished, and 0.006% were stunted.

Growth disorders experienced by stunted toddlers may be directly influenced by inadequate nutritional intake and poor health status, as well as indirectly by factors such as healthcare services, household environment, education level, income, and overall family characteristics (Ariati, 2019). Stunted children typically exhibit weaker physical development compared to their peers. Infectious diseases are a direct cause of stunting, as they reduce appetite, which in turn limits food intake. Nutrients consumed are diverted from growth processes to fight infections (Khairani & Effendi, 2020). Efforts to improve human resources should begin with addressing child growth as part of family care through adequate nutrition and proper caregiving. A healthy household environment is essential to prevent infectious diseases and other community-related health issues (Rahayu et al., 2019)

Based on these issues, this study aims to examine the relationship between maternal knowledge, frequency of illness, and economic status with the incidence of stunting in the working area of the Tanah Kali Kedinding Community Health Center.

METHOD

The research method is a correlational analytical study with a cross-sectional approach. The population consisted of all toddlers in the working area of Tanah Kali Kedinding Public Health Center, Surabaya, totaling 200 respondents. A sample of 111 individuals was selected based on inclusion criteria, which included mothers with children aged 2–5 years who were in good health. The exclusion criteria were illiterate mothers and those who did not consent to participate as respondents. The sampling technique used was purposive sampling. The independent variables were knowledge, frequency of illness, and socioeconomic status. The dependent variable was the incidence of stunting.

The instrument used to assess knowledge was a questionnaire in the form of multiple-choice questions. The assessment criteria were as follows: Good (≥76–100%), Fair (60–75%), and Poor (<60%) (Arikunto, 2010). Illness frequency was measured using a reference scale in which frequent illness was defined as ≥6 times per year and infrequent as <6 times per year (Ponamon, 2015). Data were collected using a table-based questionnaire that recorded the frequency of illnesses experienced by toddlers each month over the past year, as well as the types of infectious diseases encountered (e.g., diarrhea, cough, cold, fever, and others). The instrument for assessing socioeconomic status included total monthly income, based on the regional minimum wage. Stunting was determined using a microtoise. The data were analyzed using the Chi-square test.

This research has received a permit certificate from the STIKES Hangtuah Surabaya Health Research Ethics Commission with number No: PE/61/VII/2023/KEP/SHT.

RESULT

Table 1 Characteristics of respondents

Characteristics	N	%
Father's age		
17-25 years	4	3.6
26-35 years	68	61.3
36-45 years	38	34.2
45-55 years	1	9
Mother's age		
17-26 years	13	11.7
26-36 years	75	27.6
36-46 years	25	20.7
Father's education		
Elementary school	11	9.9
Junior high school	8	7.2
High school	76	68.5
College	16	14.4
Mother's education		
No school	2	1.8
Elementary school	8	7.3
Junior high school	19	16.2
High school	68	61.3
College	15	13.5
Father's occupation		
Doesn't work	1	9
Laborer	8	8.1
Self-employed	19	60.4
Private employees	67	25.2
Civil servant	15	5.4
Mother's occupation		
Doesn't work or Housewife	93	83.8
Laborer	7	8.1
Self-employed	9	3
Private employees	3	1.8
Number of family		.
3-4 person	90	81.1
5-6 person	21	18.9

Table 1 shows that the majority of toddler fathers are 26-35 years old, totaling 68 people or (61.3%), the majority of toddler mothers are aged 26-35 years, totaling 75 people or (67.6%), the educational history of fathers graduating from high school is 76 fathers

(68.5%), mothers who graduated from high school as many as 68 mothers (61.3%), fathers under five in RW 9 most work as entrepreneurs as many as 67 fathers (60.4%), mothers under five as many as 93 mothers (83.8%) choose to become housewives households, and there were 90 families (81.1%) who had 3-4 family members in one house and 21 families (18.9%) who had 5-6 family members in one house.

Table 2 Characteristics of respondents based on special data

Characteristics	n
Toddler nutritional status	
Stunting	36
Not stunted	75
Knowledge	
Good ≥76-100%	40
Enough 60-75%	43
Less < 60%	28
Frequency of Illness	
≥6x	56
<6x	55
Economic status	
Above UMR	25
Under UMR	86

Table 2 shows that out of 111 toddlers aged 2-5 years in RW 09, there are 36 stunted toddlers (32.4%) and 75 toddlers who are not stunted (67.6%). Mother's nutritional knowledge shows a sufficient percentage of 60-75% with a total of 43 mothers (38.7%), good ≥76-100% 40 mothers (36.0%) and less <60% 28 mothers (25.2%). The frequency of illness suffered by toddlers ≥6x in one year is 56 toddlers or (50.5%) and the frequency <6x in one year is 55 toddlers or (49.5%) and families who have income below the UMR are more numerous with a total of 86 families (77.5 %), and 25 families (22.5%) have income below the minimum wage.

Table 3 Relationship between knowledge, illness frequency and economic status with the incidence of stunting

Knowledge	Stunting	Normal
Good	6 (15.0%)	34 (85.0%)
Enough	14 (32.6%)	29 (67.7%)
Less	16 (57.1%)	12 (42.9%)
Chi Square p value =0.001 (α=<0,05)		
Frequency of Illness	**Stunting**	**Normal**
≥6x	19 (33.9%)	37 (66.1%)
<6x	17 (30.9%)	38 (69.1%)
Chi Square p value =0.734 (α=<0,05)		
Economic status	**Stunting**	**Normal**
Above UMR	6 (16.7%)	19 (25.3%)
Under UMR	30 (83.3%)	56 (74.7%)
Chi Square p value =0.306 (α=<0,05)		

Table 3 shows that the mother's knowledge of nutrition in the RW 09 area was in the sufficient category 60-75% with a total of 43 mothers under five, good ≥76-100% with a total of 40 mothers under five and 28 mothers under five. From the results of the chi-square test, a p-value of 0.001 was obtained, which means p <0.05. This shows that there is a significant relationship between maternal nutritional knowledge and the incidence of stunting. The frequency of illness suffered by toddlers is ≥6 times more in one year with 56 toddlers than <6x in one year as many as 55 toddlers. From the results of the chi-square test, a p-value of 0.734 was obtained, which means p> 0.05. This shows that there is no significant relationship between the frequency of illness and the incidence of stunting, and families who have income above the

minimum wage have stunted children under five (83.3%) or 30 families and families who have income below the minimum wage as many as 6 families under five or (16.7%) . From the results of the chi-square test, a p-value of 0.306 was obtained, which means p> 0.05. This shows that there is no significant relationship between economic status and the incidence of stunting.

DISCUSS

The results of the Chi-square statistical test showed a p-value is 0.001, indicating a significant association between knowledge and the incidence of stunting. This finding supports the notion that knowledge is related to stunting. The results are consistent with previous research, which found that stunting is influenced by maternal nutritional knowledge (Nasikhah, 2012). Cross-tabulation data revealed that respondents with stunted toddlers were more prevalent in the low knowledge category (57.1%) compared to those in the moderate (32.6%) and good knowledge categories (16.7%). Several factors can influence a mother's knowledge, including education, occupation, experience, age, culture, interest, sources of information, and media exposure (Notoatmodjo, 2010). An individual's health knowledge is a predisposing factor that affects behavior; sufficient knowledge can positively influence a person's mindset and actions (Rahmayanti et al., 2020). Inadequate maternal nutritional knowledge may result from a lack of attention or understanding regarding nutritional issues, which ultimately impacts child growth and development. Parental knowledge of nutrition is one of the key factors determining a child's nutritional status (Yusridawati, 2022).

Based on the results of the Chi-square statistical test, there was no significant association between illness frequency and stunting incidence (p-value = 0.734). The data showed that 50.5% of toddlers experienced illness frequently, defined as six or more episodes per year. However, illness frequency does not capture the long-term impact of the illnesses suffered. This study did not examine the duration of illnesses, which may be one reason why no association was found between illness frequency and stunting. The lack of association may also be attributed to easy access to primary healthcare facilities in the study area, which could reduce children's vulnerability to various infectious diseases. Access to healthcare services is linked to a reduction in the frequency and duration of infectious diseases, particularly when it includes effective infectious disease management, such as improving healthcare practitioners' skills, establishing an effective referral system, and promoting health education for managing infections at home (Halder et al., 2017).

Based on the results of the chi square statistical test, it was found that there was no significant relationship (p value = 0.306) between economic status and the incidence of stunting. This is evidence that economic status is not related to the occurrence of stunting. The results of this study are in line with research conducted in the Ampel Sub-District, Surabaya, which states that income levels and economic status are not a factor causing stunting (p>0.05). Respondents with stunting

toddlers had more income below the minimum wage, namely 83.3%, compared to those with income above the minimum wage, which was 16.7%. Economic assessment can be seen from the family's ability to allocate money to meet family needs such as clothing, food, shelter, health care, the way the family distributes sources of income and seen from whether sources of income are easy to obtain and meet family needs or not (Krisnana et al., 2020). High income does not always improve the nutritional quality of food, high income increases the opportunity to choose the preferred food, even though the food is not highly nutritious. Some families with high incomes tend to buy food of poor quality, which can affect the nutritional status of children (Krisnana et al., 2020). It can be concluded that not all people with low incomes have stunted children under five because there are several families who can distribute sources of income with sufficient health care.

CONCLUSIONS

The majority of mothers had a moderate level of nutritional knowledge, accounting for 38.7% of respondents. The majority of toddlers experienced illness between three to six times per year, with a prevalence of 50.5%. Most respondents (77.5%) had a household income below the regional minimum wage (UMR). There was a significant association between maternal nutritional knowledge and the incidence of stunting. However, no significant association was found between illness frequency and stunting. Additionally, there was no significant association between economic status and stunting in RW 09, Tanah Kali Kedinding Community Health Center, Surabaya

REFERENCES

Ariati, L. I. P. (2019). Faktor-Faktor Resiko Penyebab Terjadinya Stunting Pada Balita Usia 23-59 Bulan. *OKSITOSIN : Jurnal Ilmiah Kebidanan*, *6*(1), 28–37. https://doi.org/10.35316/oksitosin.v6i1.341

Arikunto. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Rineka Cipta.

Aurima, J., Susaldi, S., Agustina, N., Masturoh, A., Rahmawati, R., & Tresiana Monika Madhe, M. (2021). Faktor-Faktor yang Berhubungan dengan Kejadian Stunting pada Balita di Indonesia. *Open Access Jakarta Journal of Health Sciences*, *1*(2), 43–48. https://doi.org/10.53801/oajjhs.v1i3.23

Halder, A. K., Luby, S. P., Akhter, S., Ghosh, P. K., Johnston, R. B., & Unicomb, L. (2017). Incidences and costs of illness for diarrhea and acute respiratory infections for children < 5 years of age in Rural Bangladesh. *American Journal of Tropical Medicine and Hygiene*, *96*(4), 953–960. https://doi.org/10.4269/ajtmh.16-0005

Kementerian Kesehatan Republik Indonesia. (2022). Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tahun 2022. *Kemenkes RI*, 1–14.

Khairani, N., & Effendi, S. U. (2020). *Analisis Kejadian Stunting Pada Balita Ditinjau Dari Status Imunisasi Dasar dan Riwayat Penyakit Infeksi*. *4*, 228–234.

Krisnana, I., Pratiwi, I. N., & Cahyadi,

A. (2020). The relationship between socio-economic factors and parenting styles with the incidence of stunting in children. *Systematic Reviews in Pharmacy*, *11*(5), 738–743. https://doi.org/10.31838/srp.2020.5.106

Nasikhah, R. (2012). *Faktor Risiko Kejadian Stunting pada Balita Usia 24-36 Bulan di Kecamatan Semarang Timur*.

Notoatmodjo, S. (2010). *Metodologi Penelitian Kesehatan*. Rineka Cipta.

Ponamon, N. S. (2015). Hubungan antara durasi dan frekuensi sakit balita dengan terjadinya stunting pada anak SD di Desa Kopandakan 1 Kecamatan Kotambagu Selatan. *Kesehatan Masyarakat Universitas Samratulangi*, 8. https://fkm.unsrat.ac.id/wp-content/uploads/2015/02/Jurnal-Nanang.pdf

Rahayu, A., Yulidasari, F., & Putri, A. O. (2019). *Ekologi Pangan Dan Gizi*.

Rahmadhita, K. (2020). Permasalahan Stunting dan Pencegahannya. *Jurnal Ilmiah Kesehatan Sandi Husada*, *11*(1), 225–229. https://doi.org/10.35816/jiskh.v11i1.253

Rahmayanti, S. D., Dewi, S., & Fitriani, H. (2020). Hubungan Pengetahuan Dan Sikap Ibu Tentang Gizi Dengan Kejadian Stunting Pada Anak Usia 2-4 Tahun Di RW 04 dan RW 07 Kelurahan Cigugur Tengah. *Jurnal Kesehatan Kartika*, *15*(2), 15–24. http://ejournal.stikesjayc.id/index.php/litkartika/article/view/74/123

Sahitarani, A. S., Paramashanti, B. A., & Sulistiyawati, S. (2020). Kaitan Stunting Dengan Frekuensi Dan Durasi Penyakit Infeksi Pada Anak Usia 24-59 Bulan Di Kecamatan Sedayu, Kabupaten Bantul. *Journal of Nutrition College*, *9*(3), 202–207. https://doi.org/10.14710/jnc.v9i3.26952

UNICEF Indonesia. (2021). Laporan Tahunan 2021 UNICEF Indonesia. *United Nations Children's Fund World Trade Centre 2*, 16–16.

Wahyurin, I. S., Aqmarina, A. N., Rahmah, H. A., Hasanah, A. U., & Silaen, C. N. B. (2019). Pengaruh edukasi stunting menggunakan metode brainstorming dan audiovisual terhadap pengetahuan ibu dengan anak stunting. *Ilmu Gizi Indonesia*, *2*(2), 141. https://doi.org/10.35842/ilgi.v2i2.111

WHO. (2019). *Child Stunting World Health Statistics data visualizations dashboard*. World Health Organization. https://apps.who.int/gho/data/node.sdg.2-2-viz-1?lang=en

Yusridawati. (2022). The Relationship of Knowledge and Mother's Attitude to Stunting Incidence in Kutelintang Village, Gayo Lues District Year 2022. *Science Midwifery*, *10*(5), 3685–3693. https://doi.org/10.35335/midwifery.v10i5.914