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Impact of caregiver nutrition knowledge and status on stunting in children aged 12-59 months at Urangagung health center 2, Sidoarjo district

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Abstract

Stunting remains a critical global health issue affecting children, with Indonesia reporting high prevalence rates in 2022, particularly in Sidoarjo district. This study investigates the impact of caregiver nutrition knowledge and status on stunting among toddlers aged 12-59 months in the Urangagung 2 Health Center area, Sidoarjo District. . The study involved 100 children aged 12-59 months, with the majority of caregivers being the children's biological parents (78%). Cross-sectional, quantitative observational research methodology is employed. Both direct child height measurement and structured questionnaires were used in the data collection process. The univariate and bivariate analyses of the data were performed, and the chi-square test was used to ascertain the association between the incidence of stunting and caregiver status and nutritional awareness. The findings showed a strong correlation between children's risks of stunting and their non-parental caregiver status and inadequate nutritional understanding. Stunting prevention in the area depends heavily on initiatives to increase caregiver empowerment and nutritional awareness.

Keywords: Stunting; Caregiver status; Child health; Nutrition knowledge

1. Introduction

Stunting remains one of the most serious health issues facing children globally today [3]. According to the WHO, stunting occurs when a child's height is below the standard deviation from the median growth for their age group. This condition primarily stems from chronic malnutrition and is a significant problem for children in developing countries [8].

Global data from the World Health Organization (WHO) in 2021 indicates that approximately 22% of children under the age of five worldwide suffer from stunting [2]. According to the Ministry of Health in 2023, in Indonesia, the prevalence of stunting remains high, reaching 21.6% in 2022. The Survey Status Gizi Indonesia (SSGI) in 2021 reported a stunting prevalence of about 14.8% in Sidoarjo District. Recent SSGI data for 2022 shows an increase in prevalence to 16.1%, indicating a 1.3% rise within a year.

Stunting has short-term impacts such as increased morbidity and mortality, impaired cognitive function, susceptibility to illnesses, failure to thrive, metabolic disorders, and long-term consequences including obesity, reduced adult height, decreased school performance or intellectual capacity, and compromised reproductive health [6). With population growth and economic pressures, stunting significantly impacts the socioeconomic development of a nation [16].

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Several factors contribute to stunting, including family socio-economic status, access to healthcare services, and inadequate nutrition. Low-income families face higher risks of stunting due to limited access to nutritious food and healthcare services [1].

Caregivers play a crucial role in feeding practices and child care. Caregivers' knowledge of nutrition and caregiving practices is essential in reducing the risk of stunting in toddlers [7]. Inadequate nutrition knowledge among caregivers increases the risk of stunting [9]. Caregivers with adequate nutrition knowledge are more likely to provide exclusive breastfeeding for the first 6 months, introduce nutritionally rich and varied complementary foods appropriately. Non-family caregivers often lack knowledge of proper feeding practices, thereby increasing the risk of stunting in children under their care [10].

Urangagung health center 2 is one of the urban health centers in Sidoarjo District with persistently high stunting rates. Many working mothers leave their toddlers under the care of non-family members. Based on these facts, researchers are interested in studying the relationship between caregivers' nutrition knowledge and caregiver status with stunting incidence among toddlers aged 12-59 months in the working area of Urangagung health center 2, Sidoarjo District.

2. Method

The method should describe components such as research design, time and place of research; for quantitative research, include population, sample, and sampling techniques; for qualitative research, provide data sources, respondents, key informants; data collection techniques (observation, documentation study, interviews, tests, questionnaires); research procedures or how the research is conducted/stages, research instruments, and data analysis techniques. The Method section is written in paragraph form. Avoid quoting definitions and concepts of research methods. Only describe how the research stages were conducted in this study. Use Cambria 11 font, 1 spacing.

This study employed an analytical observational approach with a cross-sectional design to investigate the relationship between caregiver knowledge, caregiver status, and stunting among toddlers aged 12-59 months in the service area of Urangagung health center 2, Sidoarjo Regency. The research included all caregivers and toddlers, totaling 1,798 we use participants for qualitative methode. Sampling utilized Purposive Consecutive Sampling with specific inclusion criteria, and the compare two proportion sampling technique was used to determine the sample size, resulting in 76 samples. Data collection involved obtaining research permits, local authority approvals, and conducting interviews and anthropometric measurements. Data analysis included univariate assessment of stunting and caregiver status, as well as bivariate analysis using the Chi-Square test to explore relationships.

3. Results

Based on Table 1, most caregivers of toddlers are aged between 30-39 years, totaling 48 caregivers or 48%. The majority have academic or bachelor's degrees, with 50 respondents or 50%. Female caregivers dominate, comprising 98 caregivers or 98%. In terms of nutrition knowledge, most respondents have a good understanding, with 46 respondents or 46%, while 17 respondents or 17% have limited knowledge. The majority of caregivers are parents themselves, caring for their own children, totaling 78 respondents or 78%. Caregivers who are not parents account for 22 respondents or approximately 22% of the total.

Table 1 Frequency Distribution of Respondents (Caregivers)

Category	Frequency (f)	Percentage (%)
Age of Caregivers		
20-29 years	42	42.0
30-39 years	48	48.0
40-49 years	4	4.0
50-59 years	4	4.0
60 and above	2	2.0
Education		

Completed Elementary	2	2.0
Completed Junior High	1	1.0
Completed Senior High	47	47.0
Academy/Bachelor's	50	50.0
Gender		
Male	2	2.0
Female	98	98.0
Respondent's Knowledge about Nutrition		
Good	46	46.0
Sufficient	37	37.0
Poor	17	17.0
Caregiver Status		
Parent	78	78.0
Non-Parent	22	22.0
Total	100	100

Source: Primary Data (processed using SPSS, 2024)

Based on Table 2, Most of the toddlers are aged between 49-59 months, totaling 48 toddlers or 48%. In terms of gender, the majority are male, comprising 59 toddlers or 59%, while females make up 41 toddlers or 41%. Based on direct anthropometric measurements, 14 toddlers in the study sample were found to be stunted, accounting for 14% of the total sampling. The remaining 86 toddlers were classified as normal, making up 86% of the total sampling.

Table 2 Frequency Distribution of Respondents (Toddlers)

Category	Frequency (f)	Percentage (%)
Age of Toddlers		
12-24 months	3	3.0
25-36 months	14	14.0
37-48 months	35	35.0
49-59 months	48	48.0
Gender		
Male	59	59.0
Female	41	41.0
Stunting Occurrence		
Normal	86.0	86.0
Stunting	14.0	14.0
Total	100	100

Source: Primary Data (processed using SPSS, 2024)

Based on Table 3, It can be seen that the Chi-Square correlation test results show a relationship between caregiver knowledge of nutrition and the incidence of stunting in toddlers. With a p-value of 0.014, which means that p-value = <0.05. The status of caregivers, whether parents or not, with a stunting incident of 14%, using the Pearson Chi-Square test, obtained a p-value of 0.006 where p-value <0.05. Thus, there is a correlation between caregiver status and stunting in children.

Table 3 Results of analysis of the relationship between knowledge about nutrition and caregiver status with the incidence of stunting

Knowledge about Nutrition	**Stunting Occurrence**						***Chi-Square Tests***
	Normal		**Stunting**		**Total**		
	f	**%**	***f***	**%**	***f***	**%**	
Good	43	43.0	3	3.0	46	46.0	0,014
Sufficient	32	32.0	5	5.0	37	37.0	
Poor	11	11.0	6	6.0	17	17.0	
Total	86	86.0	14	14.0	100	100.0	

Source: Primary Data (processed using SPSS, 2024)

Based on Table 4, It is known that the status of caregivers for parents and non-parents with a stunting incidence of 14%, using the Pearson Chi-Square test obtained a result of p=0.006 where the p-value <0.05. So, there is a relationship between the status of caregivers and the incidence of stunting in children.

Table 4 Relationship between caregiver status and stunting incidence in children aged 12-59 months in the working area of Urangagung 2 Healthcenter About nutrition

Caregiver Status	**Stunting Occurrence**						***Pearson Chi-Square Test***
	Normal		**Stunting**		**Total**		
	f	**%**	***f***	**%**	***f***	**%**	
Parent	71	71.0	7	7.0	78	46.0	*0,006*
Non-Parent	15	15.0	7	7.0	22	37.0	
Total	86	86.0	14	14.0	100	100.0	

Source: Primary Data (processed using SPSS, 2024)

Based on Table 5, it is found that both parent and non-parent caregiver status regarding the nutrition knowledge level in toddlers, tested using Pearson Chi-Square Test, resulted in a p-value of 0.640, where p-value > 0.05. Therefore, there is no significant relationship between caregiver status and nutrition knowledge level in toddlers.

Table 5 Results of analysis of Relationship between Caregiver Status and Nutrition Knowledge Level in Toddlers

Caregiver Status	**Respondent's Knowledge about Nutrition**								***Pearson Chi-Square Test***
	Good		**Sufficient**		**Poor**		**Total**		
	f	**%**	***f***	**%**	***f***	**%**	***f***	**%**	**0,640**
Parent	37	37.0	27	27.0	14	14.0	78	78.0	
Non-Parent	9	9.0	10	10.0	3	3.0	22	22.0	
Total	46	46.0	14	14.0	17	17.0	100	100	

Source: Primary Data (processed using SPSS, 2024)

4. Discussion

This study found a significant relationship between caregivers' nutrition knowledge and the occurrence of stunting among toddlers aged 12-59 months at Urangagung health center 2, Sidoarjo. Caregivers with good nutrition knowledge tend to have a lower incidence of stunting among the toddlers they care for. Specifically, among caregivers with good knowledge, 43% of toddlers did not experience stunting, while 3% did. In contrast, caregivers with moderate knowledge had 32% of toddlers without stunting and 5% with stunting, and those with poor knowledge had 11% without stunting

and 6% with stunting. These findings underscore the crucial role of caregivers' nutrition knowledge in providing balanced nutrition for optimal growth and development of children, thereby preventing stunting. Previous studies have also emphasized that stunting is a primary indicator of chronic malnutrition in children, with long-term impacts such as increased disease risk, cognitive impairment, and reduced adult productivity [14] and [15]. Adequate nutrition knowledge among caregivers helps prevent stunting by ensuring sufficient nutrient intake, appropriate food selection, and monitoring of good eating habits [5].

Based on the research conducted at Urangagung health center 2, Sidoarjo, it is evident that there is a significant relationship between caregiver status and the occurrence of stunting among toddlers aged 12-59 months. Out of 100 respondents, 78% of toddlers are cared for by their biological parents, with 71% of them not experiencing stunting, while 7% do. This highlights that toddlers cared for by their own parents tend to have a lower risk of stunting, attributed to the heightened attention parents provide to nutritional and daily care needs. Conversely, 22% of toddlers are cared for by non-parental caregivers, among whom 15% do not experience stunting and 7% do. This suggests a higher incidence of stunting among toddlers cared for by non-parental caregivers, likely due to their reduced emotional involvement and potentially limited knowledge of nutritional requirements. These findings align with prior research indicating that children cared for outside their immediate family, such as by grandparents or other caregivers, face a higher risk of stunting due to differing caregiving practices and nutritional awareness [12]. In conclusion, caregiver status directly influences the quality of daily care and nutrition provided to toddlers. Biological parents typically exhibit stronger emotional bonds and are more attentive to their children's nutritional and health needs, thereby reducing the likelihood of stunting. Conversely, non-parental caregivers may lack emotional attachment and adequate knowledge of nutritional requirements, contributing to poorer nutritional outcomes and an increased risk of stunting [4].

Based on the research findings, there is no significant relationship between caregivers' status and their knowledge of toddler nutrition at Urangagung health center 2. This suggests that factors influencing nutrition knowledge extend beyond caregiver status, including education quality, access to health information, and social environment [11]. The lack of association may stem from uniform access to nutrition education among different caregiver groups (biological parents, grandparents, professional caregivers). Effective and widespread nutrition education programs that reach all caregiver groups equally could mitigate the influence of caregiver status on nutrition knowledge. Nutrition knowledge is likely influenced more by general education levels, access to health information sources, and personal experiences in child care rather than caregiver status alone. Individuals' awareness and motivation to seek information about child nutrition are crucial regardless of whether they are biological parents, grandparents, or professional caregivers. Other studies also indicate that education and access to health education programs often determine nutrition knowledge more significantly than caregiver status itself. Highlights that general education levels and access to health education programs correlate more strongly with nutrition knowledge than parental status [13]. Therefore, while caregiver status defines who provides direct care to children, its direct impact on nutrition knowledge may be overshadowed by factors such as education and effective nutrition intervention programs targeting all caregiver groups equally.

5. Conclusion

Based on research at Urangagung health center 2, Sidoarjo, on caregivers' nutrition knowledge and status in relation to stunting among toddlers aged 12-59 months, key findings emerged. Most caregivers have good nutrition knowledge, primarily biological parents. There's a significant link between caregivers' knowledge and lower stunting rates. Non-parental caregivers show higher stunting risks. No significant link was found between caregiver status and their nutrition knowledge. Recommendations include community awareness campaigns and health center initiatives to improve caregiver education, aiming to reduce stunting through targeted interventions like nutrition programs and local collaborations.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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