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Balanced Nutritious Diet and Limited Gadget Use to Optimize Stunting Prevention

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Abstract

Background: In Indonesia, based on the 2019 Basic Health Research (Riskesdas), the nutritional status of toddlers with stunting was 37.2%. The prevalence of stunting did not show any decrease or improvement compared to 2020 (35%) and 2021 (36.8%). Based on data from the 2023 Indonesian Health Survey (SKI), the prevalence of stunting in Makassar increased from 18.04% to 25.6%, a 7.2% increase. This situation presents a major challenge for all parties, including the government, health services, health workers, the community, and the private sector, to collaborate in achieving the target of reducing stunting rates to 14% by 2024. **Objective:** To determine the effect of a balanced, nutritious diet without gadgets on stunting prevention at the Tamangapa Community Health Center. **Method:** Objective: To determine the effect of a balanced, nutritious diet without gadgets on stunting prevention at the Tamangapa Community Health Center. The population in this study was 30 respondents. The sampling technique used was total sampling, with 30 respondents included in the study. **Results:** Of the total 30 toddlers (100%), 20 toddlers (66.7%) had good dietary pattern suitability but were given gadgets, 0 toddlers (0%) had good weight gain without being given gadgets, 5 toddlers (16.7%) had moderate dietary suitability without gadgets, 3 toddlers (10%) had poor dietary suitability, and 2 toddlers (6.6%) had poor dietary suitability without gadgets. Data analysis using Fisher's Exact Test showed a p-value of 0.020, indicating a significant relationship between a balanced nutritional diet and the provision of gadgets in relation to stunting prevention ($p < 0.05$). **Conclusion:** There is a significant relationship between a balanced nutritious diet without gadgets and stunting prevention among 30 toddlers at the Tamangapa Community Health Center (Posyandu RW 1). A good and appropriate diet can support optimal growth and development in toddlers aged 1–5 years. A balanced diet without gadgets significantly influences toddlers' weight and height growth.

Keywords: Balanced nutritious diet, Stunting prevention, Gadgets exposure, Toddlers' growth and development

1. Introduction

Linear growth problems in toddlers are often overlooked because parents assume that as long as the child's weight meets the standard, their growth is considered normal. In fact, growth monitoring in early childhood requires not only weight gain but also appropriate linear growth indicators. Several studies have shown that stunting is associated with an increased risk of morbidity and mortality, as well as delays in motor and cognitive development (Priyono, Sulistiyani, & Ratnawati, 2020).

Globally, the Global Nutrition Report (2014) revealed that Indonesia was among the top 17 out of 117 countries facing the triple burden of malnutrition: stunting, wasting, and overweight in children under five. It was reported that 56% of stunted children live in Asia and 36% in Africa (Kemenkes, 2016). Compared to other ASEAN countries, Indonesia's prevalence of stunting among children under five is among the highest, exceeding Myanmar (35%), Vietnam (23%), Malaysia (17%), Thailand (16%), and Singapore (4%) (UNSD, 2014). According to the Ministry of Health's Nutritional Status Monitoring (PSG) in 2016, the prevalence of stunting among Indonesian children under five was 29.0%, higher than among children under two (21.7%). The World Health Organization (WHO) classifies stunting as a public health problem if the prevalence reaches 20% or more.

At the national level, the 2019 Basic Health Research (Riskesdas) reported that 37.2% of Indonesian children under five were stunted. This prevalence showed little to no improvement compared to 2020 (35%) and 2021 (36.8%). A study by Losong (2019) at Tambak Wedi Community Health Center reported that, based on annual growth monitoring, 335 children under five (31.3%) were stunted, and the prevalence increased to 33% in 2020, defined as children with TB/U ≤ -2SD (short and very short categories).

Locally, data from the Indonesian Health Survey (SKI, 2023) indicated that the prevalence of stunting in Makassar rose from 18.04% to 25.6%, a 7.2% increase. This alarming trend poses a significant challenge for all stakeholders—government,

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health services, health workers, communities, and the private sector—to collaborate in achieving the national target of reducing stunting to 14% by 2024. To address this, the Makassar City Government has launched several flagship programs, such as Bapak Asuh Anak Stunting, Dapur Sehat Atasi Stunting (Dashat), Kontainer Makassar Recover, Lorong Pengendali Stunting (LOPIS), and Family Development Classes, which integrate community participation from prospective brides, pregnant women, postpartum mothers, children, and toddlers.

Despite these efforts, stunting in Makassar remains linked to improper feeding practices, including inappropriate food types and inadequate portion sizes, often compounded by gadget distraction during mealtimes. These factors interfere with children's ability to eat properly and obtain adequate nutrition. However, the relationship between a balanced, nutritious diet without gadget distraction and the occurrence of stunting among toddlers has not been thoroughly explored and therefore requires further research (Ishak et al., 2019).

2. Materials and Methods

The study employed a quantitative descriptive design with a cross-sectional analytic approach to examine the relationship between a balanced nutritious diet without gadget distraction and stunting prevention (Sugiyono, 2013). The research was carried out at the Tamangapa Community Health Center, specifically at Posyandu RW 1, during June–July 2025. The population in this study consisted of all toddlers attending Posyandu RW 1, with a total of 30 children. The sample included all 30 toddlers who met the inclusion criteria, selected using a total sampling technique. Data collection utilized both primary and secondary sources. Primary data were obtained through direct observation and interviews with mothers regarding feeding practices and gadget use during mealtimes, while secondary data were gathered from growth monitoring records at the Posyandu. The collected data were analyzed using the Chi-Square test with a significance level set at $p < 0.05$.

3. Results

3.1 Toddler Diet

Table 1. Frequency Distribution of Toddler Dietary Suitability

Compatibility Level	Frequency	Percentage (%)
Baik	5	16.7
Sedang	10	33.3
Kurang	15	50
Total	30	100.0

Based on table 1. showed that the highest number of respondents were those who had a low level of diet as many as 15 (50%), while the lowest were those who had an appropriate diet as many as 5 (16.7%) toddlers

3.2 Toddler Age

Table 2. Distribution of Toddler Age Frequency

Age	Frequency	Percentage (%)
1 Year	10	33.4
2 Years	7	23.3
3 Years	6	20
4 Years	4	13.3
5 Years	3	10
Total	30	100.0

Based on table 2. It shows that 1-year-old toddlers who dominate the Posyandu are as many as 10 toddlers (33.4%), while the age of toddlers who come to the Posyandu is 3 toddlers aged 5 years (10%).

3.3 Weight and Height of Toddlers

Table 3. Distribution of Weight and Height Frequencies of Toddlers

Weight:Height	Frequency	Percentage (%)
Appropriate	20	66.6
Inappropriate	10	33.3
Total	30	100.0

Based on table 3. It shows that the number of toddlers whose weight and height are appropriate for age are 20 (66.4%) toddlers, while those who do not match their weight and height are as many as 10 (33.3%) toddlers.

3.4 Use of Gadgets when eating in toddlers

Table 4. Distribution of Frequency of Gadget Use While Eating

Use of Gadgets	Frekuensi	Persentase (%)
Gadget Provided	25	83.3
No Gadgets Provided	5	16.7
Total	30	100.0

Based on table 4. It shows that the number of toddlers who are given the most gadgets when eating is as many as 25 (83.3%) toddlers, while the least given gadgets when eating is only 5 (16.7%) toddlers.

3.5 The Relationship between the Suitability Level of a Balanced Nutritious Diet with Weight and Height

Table 5. The Relationship between the Suitability Level of a Balanced Nutritious Diet with Weight and Height

Dietary Fit Rate	Weight : Height				Total		P Value
	Appropriate		Inappropriate				
	N	%	N	%	N	%	
Good	20	66.7	0	2.0	20	100.0	0.020
Moderate	5	16.7	0	0.0	5	100.0	
Poor	3	10	2	6.6	5	100.0	
Total	30	24.3	2	2.9	30	100.0	

Based on table 5. showing that from the total number of toddlers as many as 30 (100.0%) toddlers, the total number of dietary suitability levels with the good category was 20 (66.7%), with the result of the number for the weight and height categories that were not suitable as much as 0 (%), the level of dietary suitability with the medium category was 5 (16.7%), with the result of the number of food suitability for the weight and height categories that were not suitable as much as 0 (%), The level of dietary conformity with the category of less was 3 (24.3%), with the result of the number of inappropriate weight and height categories as many as 2 (6.6%).

Based on the results of data analysis, the Chi Square value using Fisher's Exact Test is known that the magnitude of the p-Value = 0.020 means the relationship between the level of knowledge and anxiety of students where $p < \alpha$ (alpha = 0.05) with an error rate of 0.05. because the p-Value is 0.00 < 0.05, it can be concluded that there is a relationship between the suitability of a balanced nutritious diet without gadgets to maximize stunting prevention at the Tamangapa Health Center.

3.6 The Relationship between the Level of Dietary Suitability and the Use of Gadgets

Table 6. The Relationship between the Level of Dietary Suitability and the Use of Gadgets

Dietary Fit Rate	Use of Gadgets				Total		P Value
	Gadget Provided		No Gadgets Provided				
	N	%	N	%	N	%	
Good	20	66.7	0	2.0	20	100.0	0.020
Moderate	0	0	5	16.7	5	100.0	
Poor	3	10	2	6.6	5	100.0	
Total	30	24.3	2	2.9	30	100.0	

Based on table 6. showing that from the total number of toddlers as many as 30 (100.0%) toddlers, the total number of dietary suitability levels with the good category and given gadgets was 20 (66.7%), while with the results of the number for the weight category good but not given gadgets as much as 0 (0%), the level of dietary suitability with the medium category but not given gadgets was 5 (16.7%), the level of dietary suitability with the poor category was 3 (24.3%), with the result of the number for the category that was not given a gadget as many as 2 (6.6%).

Based on the results of data analysis, the Chi Square value using the Fisher's Exact Test is known that the value of p-Value = 0.020 means that there is a relationship between a balanced nutritious diet in toddlers and the use of gadgets to prevent stunting where $p < \alpha$ (alpha = 0.05) with an error rate of 0.05. because the p-Value of 0.020 < 0.05 indicates that there is a relationship between the suitability of a balanced nutritious diet without gadgets to maximize stunting prevention at the Tamangapa Health Center.

4. Discussion

The Effect of a Balanced Nutritional Diet on Weight and Height

A balanced diet plays a pivotal role in supporting optimal growth and development during infancy and early childhood. Adequate nutrition ensures that infants receive the necessary macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals) required for physical growth, immune function, and cognitive development. Several studies highlight that children who consume a balanced diet demonstrate better growth trajectories compared to those with inadequate or imbalanced nutrient intake (WHO, 2020; Dewey & Adu-Afarwuah, 2018).

Weight and height are the primary anthropometric indicators used to evaluate a child's nutritional status and growth pattern. Malnutrition—whether undernutrition or overnutrition—has been consistently associated with deviations in these growth indicators. Undernutrition can lead to stunting (low height-for-age) and underweight (low weight-for-age), while overnutrition, often caused by excessive caloric intake without balance, increases the risk of overweight and obesity (Black et al., 2013).

Furthermore, dietary patterns that emphasize a variety of food groups—such as fruits, vegetables, whole grains, lean proteins, and dairy products—have been shown to significantly improve linear growth and maintain a healthy weight status. In contrast, diets dominated by processed foods high in sugar, sodium, and unhealthy fats hinder growth and predispose children to nutritional deficiencies (Victora et al., 2021). Therefore, maintaining a balanced diet not only ensures adequate weight gain but also supports proportional height development, both of which are essential determinants of long-term health outcomes.

The Effect of Gadget Use on Infant Feeding Patterns

The increasing use of digital gadgets, such as smartphones and tablets, has become a significant concern in infant and child feeding practices. Parents and caregivers frequently use gadgets as a tool to distract or pacify children during mealtimes, which inadvertently alters natural feeding behaviors. Research suggests that prolonged screen exposure during meals disrupts a child's ability to recognize hunger and satiety cues, potentially leading to overeating or undereating (Radesky et al., 2016).

The distraction caused by gadgets may reduce the parent–child interaction that is critical during feeding. Responsive feeding, where parents actively observe and respond to their child's hunger and fullness signals, is vital for developing healthy eating habits (Daniels, Mallan, & Nicholson, 2013). However, when gadgets dominate the feeding environment, this responsiveness diminishes, resulting in irregular eating schedules, reduced dietary variety, and a preference for fast foods or snacks.

Moreover, reliance on gadgets has been linked to delayed introduction of appropriate complementary foods and inadequate exposure to textures and flavors, which are crucial during the early feeding period. Such practices not only affect immediate feeding behavior but also have long-term implications, including increased risk of picky eating, unhealthy weight gain, and poor nutritional status (Borghese et al., 2020).

Thus, while technology has become deeply integrated into modern lifestyles, its misuse during infant feeding poses a threat to the establishment of healthy dietary habits. Limiting gadget use during meals and encouraging more interactive, responsive feeding practices are essential strategies to safeguard optimal growth and nutrition in early childhood.

5. Conclusions

This study demonstrates that a balanced nutritional diet significantly influences the growth of infants, as reflected in their weight and height. Adequate intake of nutrients supports optimal physical development and prevents growth delays. Furthermore, the use of gadgets was found to negatively affect infants' eating behavior, leading to irregular meal patterns and reduced food intake, which may hinder proper growth. These findings highlight the importance of ensuring appropriate dietary practices and limiting gadget exposure during infancy to support healthy growth and development.

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Conflict of Interest

The authors declare no conflicts of interest.

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