



Mother' s Knowledge and Dietary Patterns with Incidence of Stunting in Toddlers During New Normal

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ABSTRACT

Stunting is a development disorder characterized by inadequate height for age and chronic malnutrition resulting from a protracted shortage of food. Stunting can be caused by a mother's lack of nutrition knowledge and her inability to get both quality and quantity of meals. This study aimed to explore the relationship between mother's knowledge and dietary pattern with incidence of stunting in toddlers aged 24-59 months during new normal era in Solok Regency. This observational cross-sectional study was done in the working area of the Paninggahan, Batu Bajanjang, and Alahan Panjang Health Centers, Solok Regency, with 110 participants aged 24-59 months using Multistage Random Sampling. A questionnaire containing the characteristics of mothers and toddlers, mothers' knowledge, FFQ and IDDS forms was applied for data collecting. The data were then analyzed using the Chi-Square test. 60.9% of children aged 24-59 months were found to be stunted, according to the study. The Chi-Square test showed that there was a relationship between the mother's knowledge and the incidence of stunting in toddlers ($p = 0.024$ and $OR = 2.0$). In addition, there is a substantial relationship between dietary pattern and the incidence of stunting in toddlers ($p = 0.000$ and $OR=7.9$).

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Kata kunci:

Pengetahuan Ibu
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ABSTRAK

Stunting adalah gangguan perkembangan yang ditandai dengan tinggi badan yang tidak memadai untuk usia dan kekurangan gizi kronis akibat kekurangan makanan yang berkepanjangan. Stunting dapat disebabkan oleh kurangnya pengetahuan ibu tentang gizi dan ketidakmampuan ibu dalam mendapatkan makanan baik kualitas maupun kuantitas. Tujuan penelitian ini adalah untuk mengetahui hubungan antara pengetahuan ibu dan pola konsumsi dengan kejadian stunting pada balita usia 24-59 bulan pada masa adaptasi kebiasaan baru di Kabupaten Solok. Penelitian ini merupakan penelitian observasional dengan desain cross-sectional yang dilakukan di wilayah kerja Puskesmas Paninggahan, Batu Bajanjang, dan Alahan Panjang, Kabupaten Solok, dengan jumlah partisipan 110 orang berusia 24-59 bulan dengan menggunakan Multistage Random Sampling. Kuesioner yang berisi karakteristik ibu dan balita, pengetahuan ibu, formulir FFQ dan IDDS digunakan untuk pengumpulan data. Data kemudian dianalisis menggunakan uji Chi-Square. 60,9% anak usia 24-59 bulan ditemukan mengalami stunting, menurut penelitian tersebut. Uji Chi-Square menunjukkan bahwa ada hubungan antara pendidikan ibu dengan kejadian stunting pada balita ($p = 0,024$ dan $OR = 2,0$). Selain itu, terdapat hubungan yang bermakna antara pola konsumsi dengan kejadian stunting pada balita ($p = 0,000$ dan $OR=7,9$).

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INTRODUCTION

One of the effects of hunger on toddlers worldwide is stunting. Around 150.8 million (22.2%) children under the age of five had stunting in 2017. With a proportion of 36.4%, Indonesia ranks third in the Southeast Asia/South-East Asia Regional (SEAR) area for stunting prevalence, according to the World Health Organization (WHO) (Kementerian Kesehatan RI, 2018b). Additionally, according to the 2018 Riskesdas data, Indonesia has a 30.8% stunting prevalence (Riskesdas, 2018). Because the aim for reducing the prevalence of stunting is less than 20%, this prevalence is still very high by WHO standards and is regarded as a public health issue (Kementerian Kesehatan RI, 2018b).

A long-term shortage of nutrients can lead to stunting, a chronic malnutrition issue. Future problems result from this, including challenges in achieving ideal physical and cognitive development. Additionally, children who are stunted will be more prone to illness and run the risk of developing degenerative diseases as adults (Kementerian Kesehatan RI, 2018b). A toddler is considered stunted, per the World Health Organization (WHO) Child Growth Standard, if their height for age (TB/U) z-score is less than -2SD.

Toddler stunting can be brought on by a number of interconnected variables rather than just one. One of the elements influencing stunting is mother knowledge, and mothers play a crucial role in ensuring that children receive the nutrition they need to grow and develop normally. Children still rely on their parents for all of their needs and attention. In order to create and provide a healthy food menu that is in accordance with balanced nutrition at the phases of infant development, mothers truly need to have a good understanding of nutrition (Muzayyarah, 2021). Therefore, it's critical to improve moms' awareness of how to handle issues with a child's nutrition.

Along with the mother's awareness, bad dietary patterns and eating habits can also result in delayed growth in children. The mother's skill in creating a menu that keeps the child from getting bored is linked to the child's dietary pattern, which will affect the amount consumed and have an effect on the child's nutritional status (Petralina, 2020). Due to the high nutrient content of food, dietary habits are crucial to a toddler's growth process. Growth is mostly dependent on nutrition (Purwani and Mariyam, 2013). This is consistent with Mentari and Hermansyah (2018), finding that stunting in toddlers and food pattern have a strong association. Diverse eating habits are anticipated to support the body's nutritional requirements for optimum growth (Susilowati and Kuspriyanto, 2016).

According to UNICEF, the Covid-19 epidemic may result in a 15% global rise in the number of instances of stunting related to acute malnutrition (wasting). This translates to 7 million additional cases (UNICEF, 2020). Riskesdas (2018), reports that West Sumatra has a high frequency of stunting in toddlers—29.9%. In the meantime, according to the findings of the 2018 Nutritional Status Assessment (PSG), the prevalence of stunting in Solok Regency was 31.12%. Based on the findings of the Indonesian Toddler Nutrition Status Study (SSGBI), the prevalence of stunting among toddlers aged 24–59 months in Solok Regency was 35.45% in 2019 (Kemenkes RI, 2020), and it climbed to 40.1% in 2021 (Kemenkes RI, 2021). One of the West Sumatra province's regencies, Solok, has the third-highest proportion of the country's impoverished (Badan Pusat Statistik, 2020). One of the regencies with a high priority for stunting is (Keputusan Menteri PPN, 2020). Research on the association between

mothers' knowledge and dietary habits and the incidence of stunting in toddlers aged 24–59 months in the new typical era in Solok District is required due to the high prevalence of stunting in that area.

METHODS

This study was carried out in the working spaces of the Panninggahan Public Health Centers, Batu Bajanjang, and Alahan Panjang, Solok Regency, between August and November 2022. It is an analytical observational study with a cross-sectional design. Each toddler in the study was between 24 and 59 months old. 110 toddlers' samples were collected using the Multistage Random Sampling method. Toddlers between the ages of 24 and 59 months who met the following criteria were included: living with their parents, being under no medical care, living in the service area of the Panninggahan, Batu Bajanjang, and Alahan Panjang public health centers (for at least one month), and possessing a Mother and Child Health book (KIA). Exclusion criteria were children with physical disabilities and in the last 3 months, the child had severe infections (diarrhea for 2–3 consecutive days, ISPA, pulmonary TB).

The data used in the study were the nutritional status of toddlers based on height for age, mother's knowledge, and toddler consumption patterns. Nutritional status is categorized into 2, namely stunting if the z-score is <-2SD and not stunting (normal) if the z-score value is ≥-2SD (Kementerian Kesehatan RI, 2020). The WHO Anthro 2005 application is used to calculate the z-score in order to retain the precision of identifying toddler stunting. A microtoice was used to measure height with an accuracy of 0.1 cm. The mother was interviewed using a questionnaire to gather information about her knowledge. The mother's knowledge level is categorized into 3 levels, namely the mother is said to have less knowledge if the number of correct answers is ≤55%, 56–75% is sufficient, and 76–100% is good. Meanwhile, data on the dietary patterns of toddlers was obtained through interviews with mothers of toddlers and filling out the IDDS (Individual Dietary Diversity Score) form related to food consumed in the last 1 month using the FFQ (Food Frequency Questionnaire) form. The results are categorized into 2, namely dietary patterns diverse if the score is > 5 and the score is not diverse ≤ 5 (FAO, 2013). Frequency tables and cross-tabulations between mothers' knowledge of and eating habits and the nutritional health of toddlers based on the height/age index are used in the data presentation technique. Chi-Square analysis was done on the data. With approval number 4429/B.1/KEPK-FKUMS/XI/2022, the Faculty of Medicine Ethics Commission at Universitas Muhammadiyah Surakarta has granted ethical clearance for this study.

RESULTS AND DISCUSSIONS

The Characteristics of Toddlers and Mothers

In this study, the frequency distribution of the characteristics of toddlers and mothers is presented including nutritional status based on height/age, sex of toddlers, mother's education level, mother's occupation, family income, mother's knowledge and dietary patterns of toddlers.

Table 1. The Characteristics of Toddlers and Mothers

Variable	Total (n)	Percentage (%)
Toddlers Gender		
Male	56	50.9
Female	54	49.1
Nutritional Status Based		
Height/Age		
Stunting	67	60.9
Not Stunting	43	39.1
Mother's Education		
Low (Not school, SD, SLTP)	43	39.1
High (SLTA, College)	67	60.9
Mother's Job		
Housewife	84	76.4
Entrepreneur	9	8.2
Honorary	5	4.5
Farmer	12	10.9
Family Income		
< UMR	54	49.1
≥ UMR	56	50.9
Mother's Knowledge		
Less	33	30
Sufficient	59	53.6
Good	18	16.4
Toddlers Dietary Patterns		
Diverse	50	45.5
Not diverse	60	54.5

The toddlers were mostly male, namely 50.9% and the majority of stunted toddlers are also male, namely 52.2%. This result is in line with the research of Savita and Amelia (2020) which revealed that male toddlers are at risk of experiencing stunting compared to female toddlers. The development of gross motor skills in boys is faster so more energy is needed (Setyawati, 2018) and if this condition is not balanced with adequate nutritional intake, it can cause stunting (Rosha, Hardinsyah and Baliwati, 2012). The Chi-Square test results, however, showed that there was no correlation between gender and the prevalence of stunting ($p=0.728$). Research by Widyaningsih *et al* (2018), which revealed no significant correlation between gender and the incidence of stunting, supported the findings of this study.

There is a considerable correlation between maternal education and stunting, as evidenced by the fact that mothers of stunted children who have poor levels of education (50.7%) are more likely to be stunted than not (20.9%). This is in line with research Sutarto *et al* (2020), there is a strong correlation between maternal education and the prevalence of stunting in toddlers. Higher educated mothers are more likely to make choices that will improve their kids' diet and health. The length of schooling sought determines the mother's educational level. Mothers with higher levels of education will more easily receive health information, especially about educating toddlers on a daily basis.

The majority of moms who are stunted and those who are not are not working/housewives, according to data on mothers' characteristics (76.4%). The study's findings demonstrated that there was no connection between the mother's profession and the prevalence of stunting. This is in line with research Susilawati (2022), there is no connection between maternal work and stunting. Mothers' understanding of nutrition and the kind of foods they eat still have an impact on the amount of nutrition their children will receive, even if they do not work or become housewives and have more free time to focus on their children's nutrition. In addition, women are also impacted by economic

circumstances or family income while cooking nourishing food for kids; for this reason, work has no connection to providing toddlers with the nourishment they need to grow normally.

When viewed from family income, the percentage of stunted toddlers who have income below the minimum wage is higher (53.7%) compared to stunted toddlers who have family income above the minimum wage (46.3%) with a value of $p = 0.224$. These results indicate that there is no relationship between income and stunting.

Mother's Knowledge with the Incidence of Stunting

Stunting in toddlers is not just influenced by the characteristics of toddlers; other factors, like as the mother's knowledge, can also have an impact.

As can be seen from Table 3, after using the Chi-Square test to analyze the mother's knowledge, there is a significant relationship between the mother's nutritional knowledge and the incidence of stunting in toddlers aged 24-59 months. The OR= 2.0 indicates that mothers who have less knowledge about nutrition are at risk of having stunting toddlers at a rate that is 2.0 times higher than mothers who have good knowledge. This result is reinforced by the research of Adelina *et al* (2018) which found that moms of toddlers who lack information are 3.69 times more likely to produce children with stunted growth, supports this conclusion. Age, education, and employment are only a few causes of this. Education and knowledge are strongly related, therefore it may be believed that someone with more education will also have a broader knowledge base (Adelina, *et al*, 2018). According to Table 2, moms of toddlers with stunting have a lower level of education (50.7%) than mothers of toddlers without stunting, who have a higher level of education (79.1%). Stunting is primarily brought on by the mother's inadequate education. Mothers with higher levels of education are more likely to make choices that will benefit their children's nutrition and health. The mother's education level also aids in her ability to absorb and comprehend the acquired dietary knowledge. This has an impact on the food that kids eat (Sutarto, Azqinar and Puspita Sari, 2020).

One's employment status as well as educational factors have an impact on how knowledgeable they are. The effects of a person's job might be both favorable and unfavorable. The less time someone has to focus on their own condition and that of the child, especially a woman with a toddler, the busier they are. According to the study's findings, which are presented in table 2, there is no connection between the mother's profession and the prevalence of stunting in toddlers in the working neighborhoods of Batu Bajanjang and Solok Regency's Alahan Panjang and Paninggahan Health Center. According to (Muzayyarah, 2021) shows that mothers who are not working, the adequacy of consumption of nutritious toddler food is not achieved.

Dietary Patterns with the Incidence of Stunting

Dietary patterns are behaviors that can affect nutritional status. Dietary patterns are an overview of intake regarding the type, amount, and schedule of meals in fulfilling nutrition (Kementerian Kesehatan RI, 2018).. According to Candra (2020) diet is the type of food consumed that determines the nutritional status and quality of food if the daily menu provides a nutritious, balanced and varied menu composition according to their needs.

Table 2. Distribution of Subject Characteristics Based on Toddler Nutritional Status

Variabel	Toddlers Nutritional Status				p-value
	Stunting		Not Stunting		
	n	%	n	%	
Toddlers Gender					
Male	35	52.2	21	48.8	0.728
Female	32	47.8	22	51.2	
Mother's Education					
Low (Not school, SD, SLTP)	34	50.7	9	20.9	0.002*
High (SLTA, college)	33	49.3	34	79.1	
Mother's Job					
Work	16	23.9	10	23.3	0.94
Not work	51	76.1	33	76.7	
Family Income					
< UMR	36	53.7	18	41.9	0.224
≥ UMR	31	46.3	25	58.1	

*) Significant with Chi-Square test

Table 3. The Relationship between Mother's Knowledge with the Incidence of Stunting in Toddlers

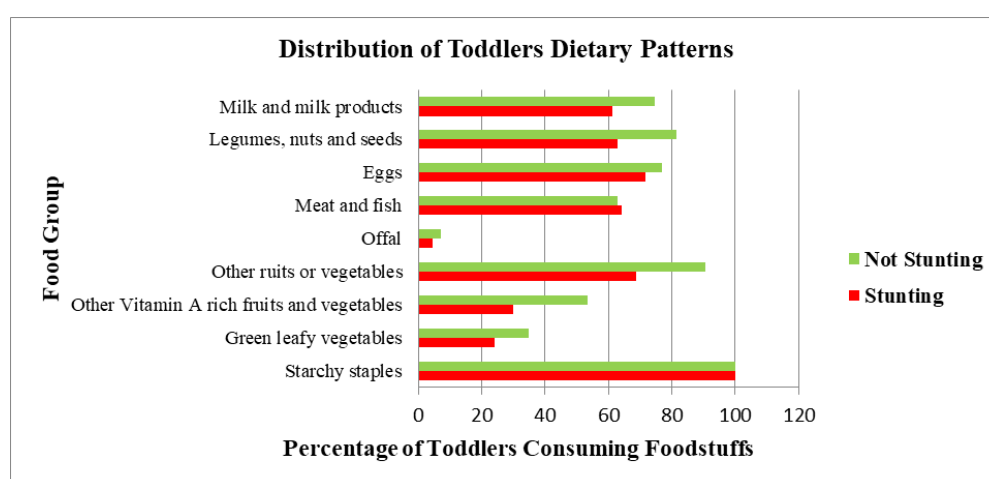
Variable	Toddlers Nutritional Status				X ²	p-value	OR (95% CI)
	Stunting		Not Stunting				
	n	%	n	%			
Mother's Knowledge							
Less	22	32.8	11	25.6	9.933	0.024*	2.005 (1.096-3.669)
Sufficient	40	59.7	19	44.2			
Good	5	7.5	13	30.2			

*) Significant with Chi-Square test

Table 4. The Relationship between Dietary Patterns with the Incidence of Stunting in Toddlers

Variable	Toddlers Nutritional Status				X ²	p-value	OR (95% CI)
	Stunting		Not Stunting				
	n	%	n	%			
Dietary Patterns							
Diverse	49	73.1	11	25.6	23.887	0.000*	7.919 (3.310-18.948)
Not diverse	18	26.9	32	74.4			

*) Significant with Chi-Square Test



Picture 1. Distribution of Toddlers Dietary Patterns

Table 4 shows that as many as 73.1% of toddlers with non-diverse dietary patterns experience stunting and only 26.9% of toddlers with diverse dietary patterns experience stunting. The Chi-Square test yielded a p-value of 0.000

indicating that there is a significant relationship between dietary patterns and the incidence of stunting in toddlers, with OR=7.9 denoting that toddlers who have dietary patterns that do not vary have a risk of 7.9 times to

experience stunting compared to toddlers who have diverse dietary patterns. This is consistent with studies by Prastia and Listyandini (2020), which found a strong correlation between dietary diversification and the prevalence of stunting (p-value = 0.047). The more diverse the dietary patterns of toddlers, the better the nutritional status of toddlers.

Figure 1 shows that there is a tendency that stunted toddlers to have lower intakes of greens, fruits, and vegetable sources of vitamin A, other fruits and vegetables, organ meats, eggs, nuts, and milk lower when compared to toddlers who are not stunted. However, the percentage of stunted children who consume meat and fish is higher than children who are not stunted, but the difference is only 1.4%.

The diverse of children's food consumption provides a great opportunity to meet children's nutritional needs. If children only consume animal foods without consuming foods in the fruit and vegetable group, it will affect the absorption of protein in these animal foods (Basri *et al.*, 2021). The human body needs a variety of nutrients that work in concert to synthesize food, such as micronutrients that aid in absorbing proteins into ATP or turning them into food stores for the body (Bloem *et al.*, 2013).

CONCLUSION AND SUGGESTIONS

According to statistical analysis, there is a significant relationship between mothers' knowledge and dietary pattern with the incidence of stunting in toddlers ages 24-59 months during the new normal era in Solok Regency. When compared to women who have good nutrition knowledge, mothers with less understanding run a 2.0 times greater risk of having toddlers who are stunted, while toddlers with not diverse dietary patterns run a 7.9 times greater risk of stunting compared to toddlers who have diverse dietary patterns.

ETHICAL CONSIDERATIONS

This research has received approval from the Health Research Ethics Committee Faculty of Medicine, Universitas Muhammadiyah Surakarta with number 4429/B.1/KEPK-FKUMS/XI/2022.

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Conflict of Interest Statement

There is no conflict of interest in this research.

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