Prevalence and Behavior of Nutrition-Aware Families Related to the Incidence of Stunting in Toddler
Prevalensi dan Perilaku Keluarga Sadar Gizi (Kadarzi) Berhubungan dengan Kejadian Stunting pada Toddlers

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Abstract
Introduction: Although the Government of Indonesia has implemented the behavior of nutrition-aware family programs for a long time. However, it is still the most dominant factor in the occurrence of stunting cases in toddlers. Purpose: To evaluate the effect of Nutrition-aware family behavior on the incidence of stunting in toddlers aged 24-59 months in the working area of Citeureup Community Health Center, North Cimahi District, Cimahi City, Indonesia. Methods: A cross-sectional study was chosen as the study design with a sample of 76 children aged 24-59 months. Samples were selected using the cluster random sampling technique. The questionnaire is a research instrument to obtain data on five indicators of nutrition-aware behavior, while the book on maternal and child health is to obtain stunting data. The data were analyzed using the chi-square test. Results: Of the children aged 24-59 months who were stunted (14.5%), nearly half did not belong to Nutrition-aware families (36.8%). The study found a relationship between the behavior of the nutrition-aware family and the incidence of stunting in toddlers (p-value 0.000; OR 3.824; CI 95%: 2.541-5.753). Conclusion: Behavior of nutrition-aware family programs has not reduced the incidence of stunting in toddlers. The results of this study provide information for consideration in planning intervention strategies to reduce stunting by increasing the role of Nutrition-aware families.

Kata kunci: ASI eksklusif; keluarga sadar gizi; perilaku; stunting pada toddler.

Introduction
Stunting is a state of long-term or chronic malnutrition from the period before pregnancy, during pregnancy, and after childbirth to give birth to children (Rachmawati et al., 2021; Holdsworth & Schell, 2018), defined as short or very short children according to height per age of children less than -2 standard deviations according to the WHO Z-score table (WHO, 2018). Stunting has a major impact on various risks of increased pain. Children may experience developmental delays and low intelligence, an increased risk of infectious diseases due to decreased body immunity and non-
communicable diseases in adulthood, and decreased productivity (Berti & Vecchia, 2023; Rachmawati et al., 2021; Beal et al., 2018).

Stunting di dunia dilaporkan oleh UNICEF/WHO dan Bank Dunia sekitar 149 juta anak atau 22% dari semua anak. Di Asia Tenggara Prevalensi stunting tertinggi di Asia berjumlah seperempat lebih (27.4%), sedangkan di Indonesia stunting termasuk masalah malasnutrisi gizi yang jumlahnya banyak (WHO et al., 2021). However, it has decreased (30.8%) in 2018 compared to the 2013 Basic Health Research report in Indonesia, which was 37.2% (Kementerian Kesehatan RI., 2018), and in 2021 the results of nutritional status monitoring have decreased to 26.6% (Hutabarat, 2022). However, the prevalence of stunting is still above the standard threshold target by WHO of 20% (WHO, 2022). Meanwhile, the incidence of stunting in West Java province was 31.1%, higher than Bengkulu (29.0%) and West Sumatra (28.8%) provinces and the national rate (Kementerian Kesehatan RI., 2018). Di The Citeureup Community Health Center reported the highest prevalence of stunting in one of the villages with 303 cases in this study (Cimahi Regional Government, 2021).

The results of a literature review by Beal et al. (2018) found that low maternal education is an important determinant of child stunting in Indonesia. Another study by Castro-Bedriñana et al. (2021) also reported maternal education as a significant factor related to the incidence of stunting. In addition, the lack of knowledge among mothers about stunting contributes to increased prevalence (Djogo et al., 2022; Yunitasari et al., 2021). Education and knowledge are predictors of behavior change (Green & Kreuter, 1999). Various studies have found that Behavior of Nutrition-aware Families predicts increased stunting incidence (Berawi et al., 2022; Rachmawati et al., 2021; Rosalina et al., 2023). Behavior of Nutrition-aware Families is the most dominant factor in stunting (Lindawati et al., 2023). However, the implementation of Nutrition-aware behavior, especially in standby villages, has been started since 2007 by the Government of Indonesia (Depkes RI., 2007).

Nutrition-aware families have five indicators: weighing regularly, breastfeeding exclusively, consuming diverse foods (balanced nutrition), consuming iodized salt, and taking supplements as recommended (UGM, 2019). Five indicators of Nutrition-aware behavior from the results of the study have been shown to contribute to the incidence of stunting in children (Lindawati et al., 2023; Rosalina et al., 2023; Berawi et al., 2022; Nahak et al., 2022; Fitriah et al., 2021). Another study shows that there is a contribution to Nutrition-aware family indicators, namely weight weighing in Posyandu (Prasetyani et al., 2023), exclusive breastfeeding (Lindawati et al., 2023; Hadi et al., 2022), feeding practices (Quamme &; Iversen, 20220; Gunawan et al., 2022), iodized salt consumption (Abbag et al., 2021; Gunawan et al., 2022), Fe and vitamin A supplements (Silaban et al., 2022), against the incidence of stunting in children. However, research obtained different results that breastfeeding until the first 6 months did not correlate with the incidence of stunting, even further multivariate analysis showed exclusive breastfeeding was protective in mothers ≥ 30 years (Hikmaharachim et al., 2019).

However, stunting prevalence studies have been conducted by analyzing risk factors for Nutrition-aware families. However, exclusive breastfeeding as part of the behavioral indicators of Nutrition-aware families towards the incidence of stunting obtained different (contradictory) effects. This study confirms these effects with a Behavior of Nutrition-aware Families approach in urban locations. Therefore, this study focuses on identifying the prevalence of stunting and evaluating the effect of Nutrition-aware families on stunting in toddlers in urban locations of the Citeureup sub-district, Cimahi City, Indonesia. The study’s results can provide information to be considered in the plan to develop stunting prevention intervention strategies through a Nutrition-aware family program approach.
Method
This study used survey research with a cross-sectional design, which is research conducted by emphasizing the observation time of independent and dependent variable data only once at a time. The design was used to prove that Nutrition-aware behavior is associated with the incidence of stunting in toddlers. The study was conducted at the Integrated Health Post (Posyandu in Indonesian) of the Community Health Center in Citeureup sub-district, West Java, Indonesia, in June 2023.

The study population was all toddlers aged 24-59 months and mothers as informants totaling 303 toddlers. The number of samples was calculated using the Slovin formula with N = 303 people and Ne = 0.1, so the number of samples was 76 toddlers. The inclusion criteria are toddlers aged 24-59 months and their mothers living in the study area, toddlers having a Maternal and Child Health book, and visiting the Integrated Health Post. Meanwhile, exclusion criteria include toddlers experiencing mental disorders and physical disabilities. A total of 76 toddlers were selected from 8 Integrated Health Posts with cluster random sampling techniques using strata formulas. Samples were selected from 8 Integrated Health Posts, Sawo Integrated Health Posts 1, 2, 3, 4, 5, 6, 7, and 8, so that 11, 6, 5, 11, 5, 10, 12, and 10 toddlers were selected, respectively.

Data collection using primary data is carried out by distributing questionnaires to respondents. Some complementary data are secondary data sourced from the Maternal and Child Health (MCH) book, including birth weight, upper arm circumference, weight, and height of the baby. The measuring instrument uses questionnaires to measure respondents’ characteristics (toddler age and gender, maternal education), stunting prevalence, and Behavior of Nutrition-aware Families. The stunting variable is categorized as stunting if -3 SD to -2 SD or not stunting if -2 SD to +1 SD. Meanwhile, Behavior of Nutrition-aware Families variables are measured by five behavioral indicators, including (1) eating variegated, (2) weighing yourself regularly, (3) providing exclusive breastfeeding, (4) providing nutritional supplements, and (5) weighing regularly developed according to UGM (2019). Behavior of Nutrition-aware Families is categorized as good if it meets the five indicators of and is categorized as lacking if the behavior < 5 indicators.

Univariate and bivariate analyses were used as analyses of the data that had been collected. This analysis used the chi-square test to examine the relationship between Behavior of Nutrition-aware Families and stunting incidence. A P-value less than 0.05 is interpreted as statistically significant. The study was conducted after obtaining research permission from the Center for Public Health and informed consent from participants after explaining the objectives and procedures of the study.

Hasil
Karacteristik Responden
The findings in Table 1 show that of the 76 respondents, the dominant is the age group of 44-59 months (67.1%). Meanwhile, according to the dominant male gender (52.7%), the highest level of education is elementary school (43.4%).

Analysis Results
The study results showed that respondents who were stunted, 14.5% of toddlers, and more than one-third (36.8%) did not behave as Nutrition-aware families, with indicators seen in Table 3. Meanwhile, Table 4 shows the bivariate analysis results obtained a relationship between Behavior of Nutrition-aware Families and the prevalence of stunting in toddlers (p = 0.001).
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Table 1.
Frequency Distribution of Respondents Characteristics of Respondents

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Category</th>
<th>n=76</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of toddler (month)</td>
<td>25-43</td>
<td>25</td>
<td>32,9</td>
</tr>
<tr>
<td></td>
<td>44-59</td>
<td>51</td>
<td>67,1</td>
</tr>
<tr>
<td>Gender</td>
<td>Man</td>
<td>40</td>
<td>52,7</td>
</tr>
<tr>
<td></td>
<td>Woman</td>
<td>36</td>
<td>47,3</td>
</tr>
<tr>
<td>Education</td>
<td>No School</td>
<td>8</td>
<td>10,6</td>
</tr>
<tr>
<td></td>
<td>Elementary school</td>
<td>33</td>
<td>43,4</td>
</tr>
<tr>
<td></td>
<td>Junior High School</td>
<td>20</td>
<td>26,3</td>
</tr>
<tr>
<td></td>
<td>Senior High School</td>
<td>10</td>
<td>13,1</td>
</tr>
<tr>
<td></td>
<td>Diploma III / Bachelor</td>
<td>5</td>
<td>6,6</td>
</tr>
</tbody>
</table>

Table 2.
Frequency Distribution of Stunting Prevalence in Toddlers and Behavior of Nutrition-aware Families

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n=76</th>
<th>%=100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunting</td>
<td>Yes</td>
<td>11</td>
<td>14,5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>65</td>
<td>85,5</td>
</tr>
<tr>
<td>Behavior of Nutrition-aware Families</td>
<td>Yes</td>
<td>28</td>
<td>36,8</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>48</td>
<td>63,2</td>
</tr>
</tbody>
</table>

Table 3.
Behavior of Nutrition-aware Families According to Five Indicators

<table>
<thead>
<tr>
<th>Nutrition-aware Family Indicators</th>
<th>Category</th>
<th>n=76</th>
<th>%=100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior of Monthly weight loss</td>
<td>Yes</td>
<td>25</td>
<td>32,8%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>51</td>
<td>67,2%</td>
</tr>
<tr>
<td>Behavior of breastfeeding &gt; 6 months (exclusive)</td>
<td>Yes</td>
<td>33</td>
<td>43,5%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>43</td>
<td>56,5%</td>
</tr>
<tr>
<td>Behavior of feeding balanced nutrition</td>
<td>Yes</td>
<td>36</td>
<td>47,4%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>40</td>
<td>52,6%</td>
</tr>
<tr>
<td>Behavior of iodized salt consumption</td>
<td>Yes</td>
<td>35</td>
<td>46,1%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>41</td>
<td>53,9%</td>
</tr>
<tr>
<td>Behavior of giving nutritional supplements</td>
<td>Yes</td>
<td>22</td>
<td>28,9%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>54</td>
<td>71,1%</td>
</tr>
</tbody>
</table>

Table 4.
The Relationship between Behavior of Nutrition-aware Families and the Incidence of Stunting in Toddlers

<table>
<thead>
<tr>
<th>Behavior of Nutrition-aware Families</th>
<th>Prevalence of Stunting</th>
<th>Total</th>
<th>OR CI 95%</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stunting</td>
<td>No Stunting</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>39,2</td>
<td>17</td>
<td>60,8</td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0</td>
<td>48</td>
<td>100</td>
</tr>
</tbody>
</table>

Discussion
Prevalence of Stunting in Toddlers

One of the unresolved nutritional problems in Indonesia is stunting (Kasmita et al., 2023). This study found that the prevalence of stunting in toddlers amounted to 14.5% in the Citeureup sub-district, West Java. Stunting is the condition of short or very short children according to height per age < -2 standard deviations according to the WHO curve (WHO, 2018). The magnitude of the problem of stunting is caused by multidimensional factors and is not only caused by malnutrition experienced by pregnant women and children under five. The most decisive interventions to reduce the prevalence of stunting. Therefore, it must be done in the First 1,000 Days of Life of children under five (Setiawan, 2018), nutrition-specific and nutrition-sensitive interventions (Kementerian Kesehatan RI., 2023). This finding is lower than the stunting prevalence of West Java province of
31.1% and National of 30.8% in 2018 (Kementerian Kesehatan RI., 2018), and Indonesia's stunting rate in 2021 and 2022, which has decreased to 24.4% and 21.6% respectively. In addition, it has achieved the stunting prevalence target in 2024 of 14% (Kementerian Kesehatan RI., 2023) and the target standard of WHO < 20% (WHO, 2022).

Seeing the phenomenon of the problem of stunting prevalence, the government has established a stunting prevention policy through Presidential Decree Number 72 of 2021 concerning the National Movement for the Acceleration of Nutrition with a focus on the first age group of 1000 days of life, namely pregnant women get at least 90 Blood Add Tablets during pregnancy, additional feeding pregnant women, fulfilling nutrition, giving birth with an expert doctor or midwife. Early Breastfeeding Initiation, exclusive breastfeeding for infants up to 6 months of age, providing complementary foods for infants over six years to 2 years, providing complete primary immunization and Vitamin A, monitoring toddler growth at the nearest Integrated Health Post, implementing clean and healthy behaviors (Presiden RI., 2021).

Behavior of Nutrition-aware Families and the Incidence of Stunting in Toddlers

This study aims to evaluate the effect of Behavior of Nutrition-aware Families on the incidence of stunting in toddlers. The study's results found a relationship between Nutrition-aware families and the incidence of stunting in toddlers (p = 0.001). All families with stunted toddlers are categorized as not yet behaving nutritionally conscious, while families with toddlers who are not stunted with the category of not behaving nutritionally aware account for 26.2%. This finding is consistent with previous research that Behavior of Nutrition-aware Families has a significant effect on the incidence of stunting in toddlers conducted by Berawi et al. (2022), Fitriah et al. (2021), Rosalina et al. (2023), and Supetran (2023). Nutrition-aware families have five indicators, namely behaving in weighing themselves regularly every month, behaving in giving breast milk for up to 6 months (exclusively) to their children, behaving in consuming diverse foods (balanced nutritional diet), taking nutritional supplements regularly and behaving in consuming iodized salt (UGM, 2019).

The results of this study analysis showed that the most common indicators of Behavior of Nutrition-aware Families were still lack of nutritional supplements, namely Fe tablets and vitamin A (71.1%), regular weight weighing (67.2%), and exclusive breastfeeding for up to 6 months (56.5%). This study is in line with previous research that the incidence of stunting correlates with exclusive breastfeeding for up to 6 months (Lindawati et al., 2023; Hadi et al., 2022), visits to integrated health posts with child weighing (Prasetyani et al., 2023), and supplementation of Fe and vitamin A (Silaban et al., 2022).

WHO and UNICEF recommend exclusive breastfeeding. The nutritional content of breast milk is complete, so that breastfeeding is enough to meet the nutritional needs of babies up to six months of age (Hizriyani & Aji, 2021). Hizriyani & Aji (2021) explained that the content of breast milk at birth in a phase of 0-2 months contains colostrum, AA-DHA, iron, and iodine as the primary raw materials for brain intelligence, which also prevents stunting. Breastfeeding in the phase of 3-4 months increases calories that serve for the child’s motor development. Meanwhile, the last phase of 9-12 months of breastfeeding contains many amino acids for protein needs that function for optimal muscle growth. Thus, the growth of exclusively breastfed babies is optimal and can prevent stunting (Lindawati et al., 2023; Hadi et al., 2022).

Other Behavior of Nutrition-aware Families indicators that still need to be improved based on research conducted are the provision of Fe and vitamin A tablet supplements and weight weighing.
Hadi et al. (2022) explained that the role of Integrated Health Posts (Posyandu) in stunting reduction in Indonesia is critical, especially in efforts to prevent stunting in toddlerhood. According to the results of research on stunting prevention in toddlers through improving services at integrated health posts (Prasetyani et al., 2023) and the lack of iron and vitamin A tablets correlated with the incidence of stunting in toddlers (Silaban et al., 2022).

The integrated service post monitors the growth and development of infants and toddlers, which is carried out once a month by filling in the curve towards health (KMS); toddlers who experience growth problems can be detected as early as possible so as not to fall into chronic growth problems or stunting. Integrated service posts can be an indicator of the affordability of health services for toddlers because by attending regularly, toddlers will receive immunizations and other health programs, such as vitamin A and iodine capsules (Hadi et al., 2022; Prasetyani et al., 2023; Silaban et al., 2022). The Family Nutrition Awareness Program that has served, including toddlers, is expected to monitor their development and growth in vulnerable periods of infectious diseases and nutritional problems, so it is hoped that stunting in children can be prevented.

Information related to Nutrition-aware behavior contributes to the problem of stunting in children and provides information and materials to develop intervention plans in the community. People who have Nutrition-aware behavior will be able to contribute to reducing and overcoming stunting in children who are still high. However, this study had limitations on effect variables to include only behavioral indicators of nutritionally conscious families. Future research needs to include other variables that likely contribute to stunting events with further analysis that can minimize internal and external validity biases.

Conclusion

Almost one-fifth of toddlers are stunted, with the tendency of all stunted toddlers with families not behaving nutritionally consciously. The study found that Behavior of Nutrition-aware Families increases stunting rates in toddlers. Therefore, the results of this study indicate that increased attention to Behavior of Nutrition-aware Families is vital because it can contribute to preventing stunting. Efforts are needed to develop interventions to increase education about stunting and Behavior of Nutrition-aware Families to overcome and prevent stunting in toddlers, a team of health workers, and health cadres in the community.

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