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# THE RELATIONSHIP BETWEEN NUTRITION CONSCIOUS FAMILY BEHAVIOR (KADARZI) AND STUNTING INCIDENTS IN TODDLERS IN THE JELBUK HEALTH CENTERWORKING AREA, JEMBER REGENCY

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## Abstract

***Background**: Stunting is one of the nutritional problems affecting Indonesian toddlers. Inadequate nutritional intake and nutritionally conscious family behavior are one of the trigger factors. The prevalence of stunting in Jember Regency according to SSGI in 2022 is still at 34.9%, which is the highest figure in East Java. From the results of a preliminary study conducted by researchers, it wasfound that 356 children (17.8%) were stunted in the weighing month of February 2023 and 381 children (18.46%) were stunting in the weighing month of August 2023. KADARZI behavior plays an important role in the growth process in toddler. **Method**: The method in this research is quantitative correlational with an observational approach and a cross-sectional research design. The total sample was 95 respondents using cluster sampling techniques with the Slovin formula. Themeasurement instrument for this research uses a questionnaire, then assesses stunting in toddlers using microtoise measurements and converts it into a standardized value (Zscore) using the WHO-2005 anthropometric standards for toddlers. Statistical analysis uses Chi Square with significance <0.05. **Results**: The results of this study show that the majority of respondents do not behave as stunted, 67 (70.5%) respondents, and the majority of respondents experience stunting, 65 (68.4%) respondents. The results of the Contingency Coofficient statistical test show that the Approximate Significance value= 0.000 so there is a significant relationship between KADARZI behavior and theincidence of stunting in toddlers aged 6-59 months. **Discussion**: It is hoped that mothers who have toddlers can apply the 5 indicators of KADARZI*

***Keywords**: KADARZI behavior, Stunting, Toddlers*

## Introduction

The incidence of *stunting* is one of the nutritional problems that afflict Indonesian toddlers . Inadequate nutritional intake and nutritionally conscious family behavior are one of the triggering factors . *Stunting* is an indicator of chronic malnutrition caused by a lack of nutritional intake in the long term, poor food quality , an increase in the number of illnesses and an increase in height that is not appropriate for their age (TB/U) (Ernawati et al., 2013). The situation of undergrowth not only results in low height of

children, but alsosuboptimal cognitive, motor, and language development in children so that they can causing a lack of talent (Nurfadillah, 2023).

Statistics from the United Nations (United Nations) in 2020 recorded that more than 149million (22%) children under five worldwide are stunted, of which 6.3 million areearly childhood or stunted toddlers are Indonesian toddlers. The prevalence of *stunted*children in Indonesia decreased from 24.4% in 2021 to 21.6% in 2022 (Indonesian Nutrition StatusSurvey (SSGI)). Based on the 2022 Indonesian Nutrition Status Survey (SSGI), the prevalence of *stunting* in East Java Province is 19.2%. Jember Regency ranks first with the highest *stunting* prevalence in East Java at 34.9 % (SSGI, n.d.). The Jelbuk Health Center is one of the health centers with the highest stunting incidence in Jember Regency. From the results of a preliminary survey conducted by the researcher, 356 children (17.8%) with *stunting* in the February 2023 weighing month and 381 children (18.46%) with stunting in the weighing month in August 2023 (Dinas Kesehatan Kabupaten Jember, 2023). Based on the results of interviews conducted with nutrition officers from the Jelbuk Health Center and coordinating midwives in the Jelbuk Health Center work area, it was explained that one of the causes of *stunting* in the area is the behaviorof nutritionally conscious families that is not optimal. However, currently the relationship between nutritionally conscious behavior and *stunting* incidence in toddlers is still unproven in the working area of the Jelbuk Jember Health Center.

Indonesia still faces various nutritional problems , especially the high prevalence of *stunting, underweight, wasting*, and anemia in pregnant women (Kementerian Kesehatan Republik Indonesia, 2018). According to UNICEF (United Nations Children's Fund), stunting is caused by malnutrition in children aged 2 years, malnutrition in mothers during pregnancy, and poor sanitation. Various nutritional problems will affect the quality of life of future generations and burden the nation due to the health issues they cause (Kementerian Kesehatan Republik Indonesia, 2023). This may be one of the factors hindering Indonesia from becoming a developed country. Therefore, there is a need to enhance various good nutritional intervention efforts carried out by both the government and the community. One of the efforts to improve public knowledge about balanced nutrition is through the behavior of families aware of nutrition. Nutrition-Conscious Family (KADARZI) is a family that can identify and prevent nutritional problems in each of its members. A family that has good nutritional habits is called KADARZI. A family is called KADARZI when it has good nutritional behavior. Indicator

that describes conscious nutrition behavior. 1) Weighing regularly, 2) Exclusively breastfeeding infants from birth to six months, 3) Eating a variety of foods, 4) Using iodized salt, 5) Taking nutritional supplements as recommended.

At the Jelbuk Health Center itself, there are already several programs to raise awareness about the importance of KADARZI, including counseling, provision of PMT and MP ASI, and encouraging the community to utilize land around their homes to plant a variety of vegetables as an effort to improve nutritional value through food diversification to reduce family expenses. However, nutritional problems in toddlers still show a high prevalence of stunting, making it one of the highest in Jember Regency. The program has not been implemented continuously to improve the nutritional status of toddlers, and it is carried out by enhancing family behavior through a nutrition awareness program that can be monitored through monthly posyandu activities.

## Methods

This research was conducted from January 25 to February 28, 2024, in 43 posyandu from 6 villages within the working area of Jelbuk Health Center, Jember Regency. This research uses a correlational quantitative method with an observational approach and a cross-sectional research design, where this type of research focuses on the measurement/observation time of independent and dependent variable data only once. In this type, there is no tracking because the independent and dependent variables are evaluated simultaneously at a certain point in time. Of course, it is not necessary to observe all research subjects on the same day or time, but the independent and dependent variables are only evaluated once. The population in this study consists of toddlers aged 6-59 months, totaling 2003 toddlers. The sample in this study consists of 95 mothers and toddlers aged 6-59 months. Determination of the sample size using the Slovin formula. The sampling technique used is cluster sampling. Next, the sample was eliminated based on inclusion criteria, namely mothers who were willing to be respondents, mothers who had toddlers aged 6-59 months, toddlers who visited the posyandu, toddlers who had a KIA book, and toddlers aged 6-59 months. Exclusion criteria included mothers of toddlers who were illiterate, toddlers with congenital diseases, toddlers who were not the target of the Jelbuk posyandu, and toddlers who were sick. This research instrument uses a questionnaire from previous researchers that has undergone reliability testing with the cronbach Alpha test, The research instrument was taken from previous researchers with 25 questions with a

validity value of 0.553 and a reliability value of 0.890. Stunting in toddlers is assessed using microtoise measurements and converted into standardized scores (Z-scores) using the WHO-2005 child anthropometry criteria. The univariate analysis in this study includes the characteristics of toddlers (gender and birth weight), family characteristics (mother's education, mother's occupation, and family income), and nutritional indicators. Weighing regularly, providing exclusive breastfeeding, consuming a variety of foods, using iodized salt and consuming nutritional supplements as recommended. Considering the large number of samples and the vast area, the researchers were assisted by enumerators who had the same understanding of the research, coordinated with the midwife coordinator at the community health center. In this study, the Chi Square test was used. The use of initials in informed content and blurring the respondents' images is done to maintain research ethics. This research has passed the ethical review and meets the ethical requirements with the number: 30/KEPK/UDS/I/2024 dated January 19, 2024, by the KEPK of Universitas dr. Soebandi.

## Results And Discussion

### Results

The results of the data collection are presented in the form of a table that contains explanations.

Table 1. Frequency distribution of demographic characteristics of toddler respondents

| No | Characteristic | Category | f | % |
|---|---|---|---|---|
| 1 | Gender | Male | 44 | 46,3 |
| | | Female | 51 | 53,7 |
| | **Total** | | **95** | **100** |
| 2 | Birth Weight | Normal | 87 | 91,6 |
| | | Low Birth Weight | 8 | 8,4 |
| | **Total** | | **95** | **100** |

Source: primary data, 2024

The table above shows that the majority of respondents are female, with 51 people (53.7%), and the majority of toddlers have a normal birth weight, with 87 people (91.6%).

Table 2. Frequency distribution of the demographic characteristics of mother and family respondents

| No | Characteristic | Category | f | % |
|---|---|---|---|---|
| 1 | Mother's Education | Elementary School | 50 | 52,6 |
| | | Junior High School | 20 | 21,1 |
| | | High School | 17 | 17,9 |
| | | Diploma/Bachelor's Degree | 8 | 8,4 |
| 2 | Mother's Occupation | Housewife | 71 | 74,7 |
| | | Farmer | 7 | 7,4 |
| | | Factory Worker | 14 | 14,7 |
| | | Entrepreneur | 3 | 3,2 |
| 3 | Family Income | < Rp. 2.555.662 | 64 | 67,4 |
| | | > Rp. 2.555.662 | 31 | 32,6 |
| | **Total** | | **95** | **100** |

Source: primary data, 2024

The table above shows that the majority of mothers are elementary school graduates, 50 people (52.6%), most of the mothers are housewives/unemployed, 71 people (74.7%), and the family's income is mostly below Rp. 2,555,662 (< Jember Regency Minimum Wage).

Table 3. Frequency distribution of family nutrition awareness behavior (KADARZI) in the working area of Puskesmas Jelbuk, Jember Regency

| No | KADARZI | N | % |
|---|---|---|---|
| 1 | KADARZI behavior | 28 | 29,5 |
| 2 | Non-KADARZI behavior | 67 | 70,5 |
| | **Total** | **95** | **100.0** |

Source: primary data, 2024

Table 3 above shows that the majority of respondents do not practice KADARZI behavior, with 67 respondents (70.5%).

Table 4. Frequency distribution of stunting incidents in the working area of Jelbuk Health Center, Jember Regency

| No | Stunting Incidence | N | % |
|---|---|---|---|
| 1 | Stunting | 65 | 68.4 |
| 2 | Non-Stunting | 30 | 31.6 |
| | **Total** | **95** | **100.0** |

Source: primary data, 2024

Table 4 shows that the majority of respondents experienced stunting, with a total of 65 (68.4%) respondents.

Table 5. The relationship between KADARZI behavior and the incidence of stunting in toddlers in the working area of Jelbuk Health Center, Jember Regency.

| KADARZI behavior | Stunting | | | | Total | | Sig |
|---|---|---|---|---|---|---|---|
| | Stunting | | Non-Stunting | | | | |
| | N | % | N | % | N | % | |
| Non-KADARZI behavior | 38 | 56,7 | 29 | 43,3 | 67 | 100 | 0,000 |
| KADARZI behavior | 27 | 96,4 | 1 | 3,6 | 28 | 100 | |
| Total | **65** | **68,4** | **30** | **31,6** | **95** | **100** | |

Source: primary data, 2024

Table 5 shows the relationship between KADARZI behavior and the incidence of stunting in children aged 6-59 months. The results of the statistical test using Chi Square obtained an Approximate Significance of p=0.000 and a Contingency Coefficient of 0.000, with a significance level of $\alpha < 0.05$, which means H1 is accepted. The results of the analysis indicate the presence of the relationship between KADARZI behavior and the incidence of stunting.

## Discussion

### The behavior of KADARZI

The research results in Table 3 show that the majority of respondents do not practice KADARZI behavior. Based on the questionnaire responses, the majority of mothers of toddlers do not regularly weigh their children's weight 6 times over 6 consecutive months, and in the food diversity item, the majority of mothers of toddlers do not provide vegetables and fruits. A Nutrition-Conscious Family (KADARZI) is a family that has balanced nutritional habits and is capable of identifying and addressing nutritional issues among its members. KADARZI has 5 indicators, including exclusive breastfeeding for the first 6 months, consuming a varied diet, consuming iodized salt, taking nutritional supplements (vitamin A), and regularly weighing the baby's weight. To achieve this, collaboration among family members is necessary, including emotional support, input and information, as well as advice (Dea Ananda et al., 2023). Family factors have the potential to influence KADARZI behavior, including the level of education, family economic status, and the role of health workers, which is also important in providing education about KADARZI as an effort to restore the nutrition of toddlers.

***Stunting Incident***

Based on the research results in table 4 above, the majority of toddlers experience stunting. Stunting is a form of physical underdevelopment. The brain is one of the most at-risk organs. This is because the brain has nerve cells that are related to the child's reactions such as seeing, hearing, and thinking during the learning process (Elni & Julianti, 2020). Cognitive abilities decline, learning abilities decrease, and the immune system weakens, making a person more susceptible to diseases, thus increasing the risk of diabetes, obesity, heart disease, cancer, stroke, vascular disorders, and disabilities as they age (Putri et al., 2019). Chronic eating disorders are manifested by the birth of short toddlers influenced by the mother's condition, the fetal period, weight, and diseases suffered during infancy. Other nutritional problems are not only related to health issues but are also influenced by indirect diseases that affect health (Rizki Awalunisa Hasanah, 2018). Several factors influence the occurrence of stunting, including pregnancy history, birth weight, genetic disorders, and food intake. It is expected that the role of health workers and health cadres will optimally provide education and understanding about stunting.

**The relationship between KADARZI behavior and the incidence of stunting in toddlers in the working area of Jelbuk Health Center, Jember Regency**

The results of the correlation test in this study show that the KADARZI behavior with the non-KADARZI category had 38 cases of stunting, while the KADARZI behavior with the KADARZI category had 27 cases of stunting. Based on statistical tests, it was found that there is a relationship between KADARZI behavior and the incidence of stunting in toddlers aged 6-59 months at Puskesmas Jelbuk, Jember Regency (p value = 0.000; $\alpha < 0.05$). The results of this study are supported by the findings of Hutabarat et al. Stunting has been proven to be a chronic malnutrition problem caused by long-term inadequate food intake due to the provision of food that does not meet nutritional needs. The economic condition of parents and families plays an important role in the occurrence of stunting in children. Parents play a role in the quantity and quality of healthcare their children receive, the food they eat, the amount of physical activity they engage in, the emotional support they provide, and the quality of the environment before and after birth. Mothers generally play a more significant role as the primary caregivers compared to children in the family, resulting in longer duration and frequency of interactions with the

children. (Hutabarat et al., 2021). Furthermore, in the journal published by Ludong et al., the research conducted found that economic status is closely related to the family's ability to provide adequate nutrition and optimal healthcare services. Children from families with poor economic conditions have a higher risk of experiencing nutritional problems, because their nutritional needs may be lower over a long period, thus putting them at risk of stunting (Ludong & Lubis, 2021). Suggestions for parents of toddlers or respondents can use the results of this research as a reference for increasing awareness of the importance of nutrition for toddlers which influences the incidence of stunting through appropriate feeding patterns. Continuous education and food support by authorities to fulfill nutritional intake for toddlers. For future researchers to be able to develop and deepen the discussion regarding Kadarzi behavior and the incidence of stunting in toddlers. If necessary, provide intervention or look for other variables that are closely related to the incidence of stunting. It is hoped that researchers will be able to increase insight into the behavior of Kadzi and efforts to prevent stunting. And for institutions, it is hoped that this research can be used as basic information and guidance for further research (Mochammad Arif Tirtana, Kustin, 2023).

KADARZI has five indicators: regularly weighing body weight, providing exclusive breastfeeding, eating a varied diet, using iodized salt, and consuming recommended nutritional supplements. Regarding the indicator of regularly weighing toddlers, it is necessary to monitor their growth and development, but it also enhances the knowledge of mothers and families about signs and symptoms related to toddler growth, allowing for immediate action to minimize adverse effects on the toddler's condition. In addition, for a 6-month-old baby, breast milk is an important nutrition to produce a healthy baby. One of the causes of nutritional problems in young children is the quality of their diet. You need to understand balanced nutrition. The next indicator is the consumption of iodized salt; iodine is needed by the body to produce hormones involved in growth and intellectual development. In addition, vitamin A helps support the baby's immunity, reducing the risk of infection. Among the five indicators of toddler nutrition, according to the TB/U index and indicators related to the intake of various foods, the greatest influence on toddler nutritional status according to W/H is observed (Rodiah et al., 2018). In addition to that, to prevent stunting, efforts can be made through family empowerment, especially mothers, with nutrition garden activities such as utilizing the land around the house to grow vegetables that can be processed and consumed daily (Kustin, 2021).

## Conclusion

Based on the research objectives and results, the following conclusions were drawn:

1. Families with toddlers in the working area of Puskesmas Jelbuk, Jember Regency, mostly do not practice KADARZI behavior.
2. Toddlers in the working area of Puskesmas Jelbuk, Jember Regency, mostly experience stunting.
3. Families with poor nutritional awareness have a significant relationship that causes stunting in toddlers.

## Suggestion

Parents of toddlers or respondents can use the results of this research as a reference to raise awareness about the importance of nutrition for toddlers, which affects the incidence of stunting. Continuous education and food support by authorities for fulfilling nutritional intake for toddlers. For future researchers to further develop and deepen the discussion on KADARZI behavior and the incidence of stunting in toddlers. If necessary, provide interventions or seek other variables closely related to the incidence of stunting. Researchers are expected to enhance their understanding of KADARZI behavior and efforts to prevent stunting. For the institution, it is hoped that this research can serve as basic information and guidelines for future research.

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