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Maternal Behavior Regarding Nutrition and Eating Culture of Children Under Five in the Stunting Locus Area, Nusa Tenggara Timur

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ABSTRACT

Background: Stunting has become a major nutritional problem for children under five in Indonesia. Since 2007 until now, the problem of stunting has been detected in Flobamora, including Rote Ndao Regency. The results of the weighing operation in 2023 reported that the prevalence of stunting in NTT province was 21.7%. Measurement data shows that in 2023 there will be 414 babies born, with 38 children experiencing stunting as measured using the baby's birth length. Mother's behavior regarding nutrition and culture of child eating patterns from the time the child is in the womb until the age of under five years plays an important role in shaping the quality of human resources, including preventing the problem of malnutrition, especially stunting. This study aimed to determine the relationship between maternal behavioral factors regarding nutrition and the eating culture of children under five in the stunting locus area, East Nusa Tenggara Province.
Subjects and Method: This was a cross sectional study carried out in Mokdale Village, Lobalain District, Rote Ndao Regency, East Nusa Tenggara, Indonesia, from June to August 2023. A sample of 44 children aged 12 to 36 months, consisted of 22 stunted children and 22 normal height children was selected for this study. The dependent variable was stunting. The independent variables were maternal behavior, knowledge, attitude, and feeding practice, child's eating behavior. The data were analyzed using Chi-square.
Results: The incidence of stunting in children increased with maternal behavior regarding poor nutrition (OR = 2.72; 95% CI= 1.25 to 4.19; p= 0.001); maternal knowledge about poor nutrition (OR= 1.13; 95% CI= -1.06 to 2.37; p = 0.060); attitude = mother regarding poor nutrition (OR = 1.74; 95% CI=0.44 to 3.03; p =0.001); maternal actions regarding malnutrition (OR = 3.07; 95% CI = 1.50 to 4.64; p=0.001); and poor eating culture of children under five (OR= 3.03; 95% CI= 0.12 to 3.57; p= 0.001), and these result were statistically significant
Conclusion: Maternal behavioral factors regarding good nutrition and good eating culture are closely related and can reduce the chances of problems with the nutritional status of toddlers in the stunting locus area, Lobalain District, Rote Ndao Regency, East Nusa Tenggara Province.

Keywords: maternal behavior, nutrition, culture, parenting style, children under five, stunting

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BACKGROUND

Stunting is a form of growth failure (growth faltering) due to the accumulation of inadequate nutrition that lasts for a long time starting from pregnancy until the child is 24 months old (Picaul et al., 2023) and as a result of the incidence of disease repeated infections (Tello et al., 2022). Pregnant women who experience chronic energy deficiency will have an impact on the birth of babies with low birth weight. The research results found that toddlers who had a history of low birth weight had a greater risk of stunting (Hendraswari et al., 2021; Swanida et al., 2020; Berhe et al., 2019; Kusumawati et al., 2019).

Since 2007 until now, the problem of stunting has been detected in Flobamora, including Rote Ndao Regency. The results of measuring the nutritional status of children under five for the period February 2023 in Rote Ndao Regency showed that the prevalence of stunting was 21.7% (2,938 children under five), the prevalence of malnutrition was 1.2% (157 children under five) and the prevalence of undernutrition was 10.7% (1,455 children under five). The prevalence of stunting is still relatively high when compared with the total stunting prevalence of NTT Province (15.7%) and the National.

The incidence of stunting in Rote Ndao Regency from 2021 to 2023 has always decreased, but relatively very slowly. Where, in 2021 there will be 22.5% of toddlers stunted. In 2022, the prevalence will decrease to 22.3% of stunted toddlers. Then in 2023 it will continue to decline to 22.1%. If this is related to the number of stunting prevalence at the NTT provincial level in 2023 (7.5%) and nationally (14%), it can be concluded that Rote Ndao Regency still contributes quite a high proportion of stunted children under five.

Maternal behavior is one of the factors that can influence the incidence of protein energy deficiency and chronic energy deficiency and its impact on the incidence of low birth weight in children born (Aryastami et al., 2017; Luthfiyah and Widjajanto, 2011) and stunting incidents. The behavior in question is the mother's knowledge, attitudes and actions in aspects of food consumption patterns, adequate nutritional intake, mother's parenting patterns regarding eating habits such as food processing habits and taboo foods as well as personal and environmental cleanliness (P2PTM Kemenkes RI, 2018; Picauly et al., 2023). The framework of thought (WHO, 2020) also explains that nutritional problems can be avoided directly by improving maternal behavior in terms of food consumption, maternal parenting patterns and prevention of infectious diseases along with the opportunity to receive regular health services. Apart from that, the mother's positive attitude in utilizing government program support in solving nutritional problems in the household such as support for specific and sensitive nutritional intervention programs (Stewart et al., 2013; Wulandari et al., 2022; BPS, 2018; Kementerian PPN/ Bappenas, 2018). The practice of feeding children under five is closely related to the habits of society that have been passed down from generation to generation or the culture that is applied.

Cultural factors in a particular community environment will influence how a person responds to daily health needs, including how to implement feeding patterns for their toddlers. This is in accordance with the culture-based nursing theory or transcultural nursing which states that culture, values, beliefs will influence a person's health behavior. Mothers have an important role in caring for children and providing food for children. Mothers' daily habits in child care often refer to the culture of the society where the mother lives. One example

of a habit that is still found is giving "lotek" or food made from mashed rice with bananas to babies prematurely and the assumption that fat children are healthy children.

Community traditions in providing inadequate nutrition can have fatal consequences for babies and children. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) state that more than 50 percent of under-five deaths are caused by malnutrition, and two-thirds of them are related to inappropriate feeding practices. Cultural aspects have a major contribution to the practice of feeding toddlers. Thus, it is important to explore cultural-based factors that influence feeding practices for toddlers. The problem encountered was the influence of maternal behavioral factors regarding the nutrition and eating culture of children under five in the stunting locus area, Mokdale Village, Lobalain District, Rote Ndao District. Therefore, this study aims to determine the influence of maternal behavioral factors regarding nutrition on the eating culture of toddlers in the stunting locus area, Lobalain District, Rote Ndao Regency, East Nusa Tenggara Province. This research is useful for providing information and recommendations in the context of the process of adopting innovative measures for caring for and assisting families of toddlers who have low birth weight so that they do not become stunted in Mokdale Village, Lobalain District, Rote Ndao Regency.

SUBJECTS AND METHOD

1. Study Design

The type of research that will be used in this research is quantitative descriptive. This type of research was chosen with the consideration of describing existing phenomena or realities (stunting events), both natural and human engineering in an observed population (Murti, 2022) explains that descriptive research can systematically, factually and accurately describe the facts, characteristics and relationships between toddler family phenomena (mother's behavior and eating culture) and the incidence of stunting

The research design used was a cross-sectional study to describe the behavior (knowledge, attitudes and actions) of mothers regarding the nutrition and eating culture of children under five, including the culture of abstaining from certain types of food in the consumption patterns of children under five in the Stunting Locus Area, Lobalain District, Rote Ndao Regency, East Nusa Tenggara Province.

2. Population dan sample

The population in this study were all toddlers and all mothers who had toddlers aged 12 – 59 months. Meanwhile, research subjects are people who are observed as research targets (Arikunto, 2016) In this study, there were 44 mothers of families who had toddlers aged 12 months to 36 months who were determined using the simple random sampling method. Furthermore, mothers of toddlers act as subjects in providing all information related to maternal behavior (knowledge, attitudes and actions) regarding nutrition and eating culture of children under five in the Stunting Locus Area, Lobalain District, Rote Ndao Regency, East Nusa Tenggara Province.

3. Study Variables

This research uses the independent variable, namely maternal behavior, which includes the knowledge of mothers of toddlers about nutrition and the eating culture of toddlers and the dependent variable is the nutritional status of toddlers.

4. Operational Definition

Maternal behavior regarding nutrition is behavior regarding improving the nutrition of children under five in providing food to children under five, starting from

how to choose, process food ingredients to giving them.

The level of knowledge of mothers of toddlers about nutrition and stunting is the opinion given by mothers of toddlers regarding nutrition and stunting.

The mother's attitude regarding the nutrition of children under five is an evaluative response based on a self-evaluation process, which is concluded in the form of a positive or negative assessment which then crystallizes as a potential reaction to the object.

Mothers' actions regarding the nutrition of children under five are efforts made so that children receive appropriate nutritional intake and meet nutritional adequacy

Eating culture is the eating pattern or ways individuals and groups of individuals choose, consume and use available foods, which are based on the social and cultural factors in which the individual lives.

Nutritional status of toddlers is the physical health condition of toddlers as measured by body anthropometric indicators, namely height for age.

5. Study instruments

Mother's behavior related to nutrition: using a combination of knowledge, attitudes and actions. Knowledge level of mothers of toddlers about nutrition and stunting, attitudes of mothers of toddlers about nutrition and stunting collected by the questionnaire. Actions of mothers of toddlers regarding nutrition and stunting: Structured questionnaire and observation. Nutritional status of toddlers: Secondary data from weighing operations in August 2022 and 2023, namely data from measurements using body anthropometric indicators, namely height according to age.

6. Data analysis

Univariate analysis to obtain frequency distribution and percentage characteristics of research subjects. Bivariate analysis aims to determine whether there is a relationship or influence between one of the independent variables on the dependent variable. In this study, bivariate analysis was carried out with the aim of finding out the relationship between each factor and the behavior of mothers of toddlers regarding nutrition and stunting and the eating culture of toddlers and the nutritional status of toddlers. Based on the nominal data scale used is chi square analysis (Murti, 2021). To see the significance of statistical calculations, a significance limit of 0.05 is used so that if the P value is <0.05 then statistically there is a significant influence, if p≥0.05 then the calculation results do not have a significant influence.

7. Research Ethics

Research ethical issues including informed consent, anonymity, and confidentiality, were handled carefully throughout the research process. The research permit approval letter was obtained from the Rote Ndao Regency Research and Development Planning Agency Number: 000.7/870.a/-Bapeltbang 2023 on 02 August 2023.

RESULTS

1. Characteristics of toddler families

The parenting style of the mother and other family members also shapes the nutritional and health status of children. This research describes the profile of toddler families using indicators including the factors of the party responsible for caring for toddlers (the toddler's mother or other person given this responsibility), the type of work of the toddler's mother/ caregiver, the age of the toddler's mother/ caregiver according to reproductive age, and the allocation of time used. in caring for toddlers (Table 1).

Parenting patterns are the best way to educate children as an embodiment of a sense of responsibility towards children, including parenting patterns for healthy eating and clean living. At the research

location, it can be seen that on average children under five with normal nutritional status and stunting are cared for by biological parents ranging in age from 26 - 52 years. The ages of mothers of toddlers are grouped according to Kemenkes RI (2009). Table 1 shows that the majority (65.91%) were raised by mothers who were in the late adult age group. Furthermore Kemenkes RI (2009) explained that late adulthood is an age group that is relatively emotionally stable and has a better level of knowledge in making decisions about parenting and family patterns.

Table 1 shows that the majority (54.55%) of mothers of toddlers work as government employees. However, the amount of time spent caring for children is more than eight (8) hours every day. The results of previous research found that the longer the allocated parenting time, the better the child's diet and personal hygiene sanitation compared to stunted toddlers with a history of low birth weight.

Table 1. Characteristics of Mothers of Families of Toddlers in Mokdale Village, Lobalain District, Rote Ndao Regency, 2023

Indicator	Frequency (n)	Percentage (%)
Responsible for Caregiving		
Other Family Members	2	4.54
Biological parents	42	95.46
Age of Mother of Toddler		
Late Teenagers < 25 years	0	0.00
Early Adult 26 – 35 years	9	20.45
Late Adult 36 - 45 years	29	65.91
Early Elderly 46 – 55 Years	6	13.64
Types of Work for Mothers of Toddlers		
Housewife/ Not Working	13	29.54
Farmers/ Fisheries/ Private	7	15.91
State Civil Apparatus/ Civil Servants	24	54.55
Time allocation in caring for toddlers		
< 8 hours/day	15	34.09
≥ 8 hours/day	29	65.91

The results of the interview explained that before the toddler's mother went to work, all the toddler's needs had been properly prepared, including food that had to be given according to meal times. Apart from that, the proximity of the house to the workplace allows mothers of toddlers to still control their children's activities while at home. Three (3) factors that can influence a mother's parenting style are 1). Adequate economic status, opportunities and facilities provided as well as a supportive material environment tend to direct parental parenting towards certain treatment that parents consider appropriate. 2). The factor of a parent's talent and ability to communicate and relate in the right way with their child tends to develop a parenting pattern that suits the child. And 3). Community lifestyle factors in villages and big cities tend to have different variations and ways of managing parent-child interactions (Mentari, 2020).

2. Bivariate Analysis

Maternal behavior regarding nutrition can influence the nutritional adequacy of the food consumed and the child's nutritional status (Luthfiyah et al., 2022) it even has an impact on the chances of problems of malnutrition and excess nutrition. The behavior in question is the mother's knowledge,

attitudes and actions in aspects of food consumption patterns, adequate nutritional intake, mother's parenting patterns regarding eating habits such as food processing habits and taboo foods as well as personal and environmental cleanliness.

Frame of mind (Save The Childern, 2018) also explained that nutritional problems can be avoided directly by improving maternal behavior in terms of food consumption, parenting patterns and prevention of infectious diseases along with the opportunity to receive regular health services. In addition, positive behavior by mothers in utilizing government program support in solving nutritional problems in the household, such as support for specific and sensitive nutritional intervention programs, can prevent opportunities for malnutrition problems and other impacts on children's growth and development.

Table 2. Crosstab analysis of factors associated with stunting incidents in Mokdale Village, Lobalain District, Rote Ndao Regency, 2023

Independent Variable	Stunting incident						OR (95% CI)	p
	Stunting		Normal		Total			
	n	%	n	%	n	%		
Maternal Behavior on Nutrition								
Poor	16	76.19	5	23.81	21	100	2.72	0.001
Good	4	17.39	19	82.61	23	100	(1.25-4.19)	
Maternal knowledge of nutrition								
Poor	13	59.09	9	40.91	22	100	1.13	0.060
Good	7	31.81	15	68.19	22	100	(-1.06-2.37)	
Maternal attitude about nutrition								
Poor	4	36.36	7	63.64	11	100	1.74	0.007
Good	16	48.48	17	51.52	33	100	(0.44-3.03)	
Maternal practice on nutrition								
Poor	17	72.27	5	27.73	22	100	3.07	0.001
Good	3	13.63	19	86.37	22	100	(1.50-4.64)	
Child's eating culture								
Poor	18	94.74	1	5.26	19	10	0.33	0.001
Good	2	8.00	23	92.00	25	100	(0.28-7.81)	

Table 2 indicates that a significant majority (76.19%) of mothers with toddlers who exhibit poor behavior regarding nutrition have children experiencing stunting. This can be attributed to the fact that more than half of these mothers possess very limited knowledge about nutrition and the necessary actions to ensure adequate nutritional intake. Interestingly, even though 63.64% of mothers recognize the importance of adequate nutrition for their toddlers, their children do not experience stunting. Additionally, the data reveals that a substantial majority (94.74%) of mothers with poor eating habits have children who are stunted.

The analysis results indicate that the incidence of stunting in children is significantly associated with several factors: poor maternal behavior toward nutrition (OR= 2.72; 95% CI = 1.25 to 4.19; p = 0.001), poor maternal knowledge about nutrition (OR= 1.13; 95% CI= -1.06 to 2.37; p= 0.060), negative maternal attitude toward nutrition

(OR= 1.74; 95% CI= 0.44 to 3.03; p= 0.001), poor maternal practice regarding nutrition (OR= 3.07; 95% CI= 1.50 to 4.64; p= 0.001), and poor eating culture among children under five (OR= 3.03; 95% CI= 0.12 to 3.57; p= 0.001). These findings are statistically significant (Table 2).

RESULTS

1. Relationship between maternal behavior regarding nutrition and incidence of stunting

The golden age, spanning from the fetal stage to the age of two years, is a crucial period in a child's growth and development (Mutingah & Rokhaidah, 2021). During the first two years of life, significant growth and developmental processes occur, beginning in the womb. Adequate nutritional intake during this period is essential for optimal growth and development. Conversely, a lack of sufficient nutrition can lead to developmental disorders across various organs and systems, with long-term consequences. Therefore, the toddler years are considered a critical phase in a child's growth, as development during these early years greatly influences future outcomes (Hina & Picauly, 2021).

The accuracy of feeding practices for children under five can be significantly influenced by the mother's knowledge of nutrition, as mothers play a crucial role in providing food for the family. In addition to maternal nutritional knowledge, the level of food intake directly impacts the nutritional status of children under five (Mustika & Syamsul, 2018; Tello et al., 2022).

Li et al. (2020) and Mentari (2020) have identified nutritional knowledge as a key factor influencing food intake and, consequently, an individual's nutritional status. Nutritional knowledge encompasses an understanding of food and nutrients. A mother's attitude and behavior in selecting food for children under five are shaped by various factors, including her level of nutritional knowledge, which significantly impacts the nutritional status of her children. Insufficient maternal nutritional knowledge can thus be a critical determinant of the nutritional status of children under five, as it affects the mother's choices regarding food types, amounts, and frequency, which in turn influence the child's overall food intake.

The results of this study indicate that maternal nutritional knowledge is not associated with the incidence of stunting in Mokdale Village, Lobalain District, Rote Ndao Regency, in 2023. These findings contradict previous research, which suggested that maternal nutritional knowledge is related to stunting. This discrepancy may be due to factors such as age, education, employment, and income influencing a mother's nutritional knowledge. The study also revealed that the majority (68.19%) of mothers with good nutritional knowledge had children who were not stunted. This could be attributed to the fact that most of these mothers were in the late adulthood age range (36-45 years), were employed as Civil Servants (PNS) or State Civil Apparatus (ASN), and devoted more than eight hours daily to childcare. Additionally, as Picauly (2023) explains, late adulthood is a life stage characterized by relative emotional stability and a higher capacity for making informed decisions regarding parenting and family nutrition.

Table 1 shows that the majority (54.55%) of mothers with toddlers are employed as government workers (PNS/ ASN) and spend more than eight hours each day caring for their children. Previous study indicates that the more time allocated to childcare, the better the outcomes in terms of the child's diet and personal hygiene, especially for children under five at risk due

to low birth weight or stunting. Interviews revealed that mothers with children under two years old typically prepare everything their child needs, including meals, before leaving for work. Additionally, the proximity of their homes to their workplaces allows these mothers to continue supervising their children's activities even while at work. Previous studies have identified three key factors that influence a mother's parenting style: adequate economic status, which provides opportunities, facilities, and a supportive material environment that guide parental behavior in ways deemed appropriate; the ability of parents to communicate effectively and build strong relationships with their children, fostering parenting patterns well-suited to the child's needs; and the differing lifestyle factors in rural and urban areas, leading to variations in how parent-child interactions are managed.

2. Relationship between eating cultural factors and stunting

Indonesia is home to a diverse range of ethnic groups and cultures, each with unique dietary customs. These cultural practices significantly influence the types of food consumed, which in turn impacts the nutritional status of pregnant women and contributes to factors causing stunting in children. Numerous studies have highlighted that negative dietary practices during pregnancy are linked to an increased risk of stunting. For instance, research conducted at the Candi Rejo Community Health Center in Central Lampung found that mothers who adhered to cultural food restrictions during pregnancy had a 72 times higher risk of having children who become stunted compared to those who did not follow such restrictions.

A common food restriction is the avoidance of pineapple, believed to cause a "hot" uterus and increase the risk of miscarriage. However, scientifically, pineapple is rich in essential nutrients such as vitamin C, vitamins A and B6, folic acid, iron, magnesium, potassium, and other minerals that are crucial for pregnant women. Another example is the avoidance of black sticky rice, which is believed to cause back pain during pregnancy. Contrary to this belief, black sticky rice is a valuable source of carbohydrates, low in fat, and high in fiber, which aids digestion (Aryastami et al., 2017; Brooks et al., 2019).

A study by Gaspersz et al. (2020) in the North East Central District and South Central Timor, East Nusa Tenggara (NTT) Province found that negative eating beliefs influenced the incidence of stunting. Pregnant women in these regions avoid eating fish due to the belief that it will make their breast milk smell fishy. However, fish is a valuable source of protein, omega fatty acids, and essential minerals such as calcium, phosphorus, and iron. Additionally, some pregnant women refrain from eating salted fish because they believe it may cause the baby's skin to become itchy at birth. Although salted fish is rich in nutrients like fat, iron, and iodine, excessive consumption is not advisable (Indrayani et al., 2023; Munanadia, 2022).

Pregnant women also avoid jackfruit due to concerns that it might reduce their breast milk production after childbirth, despite jackfruit being rich in calcium, phosphorus, and vitamins A and C. Consuming durian in moderation is generally considered safe during pregnancy, as it is high in carbohydrates, fiber, protein, vitamin C, B vitamins, and minerals. Conversely, some pregnant women avoid chili fearing it will make their stomach hot and cause the baby's skin to turn red. There is also a belief that drinking ice can lead to excessive weight gain and complicate delivery, though the actual concern is that excessive glucose

mixed with ice water could contribute to weight gain. These food restrictions and misconceptions can negatively affect the nutrition and health of pregnant women, as well as the development, health status, and growth of their children after birth.

Findings from Adekanye and Odetola (2014) and Mutingah and Rokhaidah (2021) highlight various food restrictions imposed on pregnant women in different regions. For instance, in Cikunir Village, Tasikmalaya Regency, pregnant women are advised against eating from large plates, bananas from fallen trees, ice water, and spicy food due to beliefs that these can cause the baby to be born with health issues. They are also cautioned against consuming pineapple, durian, and tape. Instead, it is recommended that they drink young coconut water, consume coconut oil, honey, and beaten chicken eggs, as these are thought to be beneficial for the fetus and increase amniotic fluid.

Similarly, research at the Barebbo Community Health Center in Bone Makasar identified restrictions such as avoiding squid, octopus, shrimp, crab, seaweed, stingrays, duck, Moringa leaves, and banana blossoms. These restrictions stem from fears that consuming these foods could lead to difficult childbirth and result in a child with dark skin. Pregnant women adhering to these taboos may face protein deficiencies due to inadequate nutrition. Such dietary restrictions can negatively impact the mother's health and breast milk production, potentially leading to stunting in their children due to insufficient nutritional intake.

The findings of this study diverge from previous research. While there is a documented relationship between cultural eating practices and the incidence of stunting, this study suggests that the relationship is protective. Data indicates that 92% of mothers who maintained a healthy eating culture during pregnancy had children who did not experience stunting. Interviews conducted during the research revealed that these mothers adhered to a varied, nutritious, balanced, and adequate diet during pregnancy. They only practiced a specific habit of avoiding two types of food—squid and octopus—due to a past negative experience of "choking" on these foods as children, rather than a cultural or preference-based reason.

In contrast, among the Makasar Bugis tribe, cultural eating practices are more prevalent and include abstaining from certain foods during pregnancy based on traditional beliefs. For example, some mothers avoid squid to prevent the baby from having dark skin, refrain from eating fish to avoid a fishy-smelling baby, and abstain from shrimp to prevent the baby from having a shrimp-like bent appearance.

Further analysis of this research shows that mothers in Mokdale Village, Lobalain District, Rote Ndao Regency, NTT Province, who maintain a good eating culture can reduce the risk of stunting by 33.3% compared to those with a poor eating culture.

AUTHOR CONTRIBUTION

Intje Picauly was responsible for designing and collecting research data. Intje Picauly analyzed the data, interpreted and wrote the manuscript, and checked and edited the article.

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CONFLICT OF INTEREST

The research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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