

## The Relationship Between Maternal Knowledge Level And Feeding Practices With Dietary Patterns In Stunted Children

Syafira Dwi Ananta<sup>1\*</sup>, Ilya Krisnana<sup>2</sup>, Wahyuni Tri Lestari<sup>3</sup>  
Fakultas Keperawatan Universitas Airlangga<sup>1,2,3</sup>

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### ABSTRACT

**Introduction:** Stunting in children becomes a problem as a result of several factors including the level of mother's knowledge, feeding rules, and eating patterns. Data from Basic Health Research (Riskesdas) for 2022, the stunting rate in Indonesia is 21.6% (Ministry of Health RI, 2022). While the target standard for the National Medium-Term Development Plan (RPJMN) is 19% in 2024. This study aims to analyze the relationship between the level of mother's knowledge and feeding rules with eating patterns in stunted children. **Methods:** This research employed a correlational study design and a cross-sectional approach. The sample consisted of 87 respondents selected using a simple random sampling technique. This study's independent variables were maternal knowledge and feeding rules, and the dependent variable was dietary habits. The data was collected using a maternal knowledge level questionnaire, a fundamental feeding rules questionnaire, and a children's feeding questionnaire (CFQ), which was subsequently analyzed using Spearman's Rho with a significance level of  $\alpha=0,05$ . **Results:** The bivariate analysis findings demonstrated a significant correlation between maternal knowledge and dietary habits patterns ( $p=0.000$ ) ( $r=0.372$ ). In addition, there was a significant correlation between feeding rules and dietary habits ( $p=0.000$ ) ( $r=0.424$ ). **Conclusion:** The level of maternal knowledge and feeding rules were related to children's diet patterns. The level of maternal knowledge and feeding rules were factors associated with the dietary habits of stunted children; thus, increasing maternal knowledge and feeding rules would improve the diet patterns.

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#### Email :

syafira.dwi.ananta-2019@fkip.unair.ac.id

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### 1. INTRODUCTION

The growth problem in toddlers is often underestimated in society because it is considered normal as long as the child's weight is sufficient or standard [1]. However, many are still unaware that nutritional issues can lead to stunting, which is a growth disorder in children due to malnutrition and repeated infections. The main factor in stunting is the lack of nutritional intake and nutrients in children [2]. The golden period for child growth and development is from 0 to 6 years old, where optimal food consultation and healthcare are crucial. Nutritional intake is essential for a child's growth and can be fulfilled by consuming foods such as poultry, lean meat, iron-enriched cereals, fish, vegetables, and legumes [3]. The first 1000 days, from infancy to two years, is a critical period in physical growth and child development, requiring higher nutritional needs compared to adults.

A proper diet should provide sources of building blocks, regulators, and energy. It's important for mothers to have knowledge and implement feeding rules early on. However, the level of maternal knowledge and the implementation of feeding rules in stunted children still need further understanding. Stunting has a high prevalence, including in Indonesia. Banyuwangi is one of the districts with a significant stunting rate. The application of dietary patterns and feeding rules for children in Banyuwangi is not yet optimal, and this is a serious issue that needs to be addressed by the government.

A preliminary study at Mojopanggung and Klatak Community Health Centers showed that many children aged 12-24 months do not consume breastfeeding, have an average meal frequency of 2 times a day, and over 90% do not consume nutritious foods such as rice, animal protein, and plant-

based foods. The discipline in implementing feeding rules becomes a factor influencing feeding issues in children. Stunting can have negative short-term and long-term impacts, such as brain development disorders, intelligence, physical growth, and a high risk of disease and disability in old age.

Mother's education and knowledge play a crucial role in child rearing, selecting, and serving appropriate foods. A balanced diet leads to good nutritional status. Therefore, it is important to understand behavioral and non-behavioral factors in addressing stunting and to enhance knowledge and the implementation of feeding rules among mothers with stunted children at Mojopanggung and Klatak Community Health Centers in Banyuwangi District.

## 2. METHOD

This study adopts a cross-sectional method with the evaluation of dependent and independent variables at a single point in time without follow-up [4]. The research sample consists of 87 mothers with stunted children aged 1-3 years at Klatak and Mojopanggung Community Health Centers in Banyuwangi District. Independent variables are maternal knowledge level and feeding rules, while the dependent variable is dietary pattern. Research instruments include informed consent, maternal knowledge level questionnaire, feeding rules questionnaire, and dietary pattern questionnaire that have undergone reliability and validity tests. Data analysis uses Spearman's rho test and IBM SPSS software version 26. This study has obtained ethical approval from the research ethics committee of the Faculty of Dentistry, Universitas Airlangga, on May 15, 2023, with ethics certificate number 470/HRECC.FODM/V/2023.

## 3. RESULTS AND DISCUSSION

**Table 1.** Respondent Demographic Characteristics at the Klatak and Mojopanggung Health Centers, May 2023

	Characteristics	Frequency (n)	Percentage (%)
Mother's age	31-40 Years	39	44,83
	>40 Years	48	55,17
	<b>Total</b>	<b>87</b>	<b>100</b>
Mother's education	No school	10	11,49
	Elementary School	20	22,99
	JUNIOR HIGH SCHOOL	24	27,59
	SENIOR HIGH SCHOOL	31	35,63
	College	2	2,3
	<b>Total</b>	<b>87</b>	<b>100</b>
Mother's job	Laborer	18	20,69
	Housewife	28	32,18
	Private sector employee	18	20,69
	Trader	23	26,44
	<b>Total</b>	<b>87</b>	<b>100</b>
Parents' income	<Rp. 2.000.000	29	33,33
	>Rp. 2.000.000	58	66,67
	<b>Total</b>	<b>87</b>	<b>100</b>
child age	<20 Months	34	39,08
	21-30 Months	40	45,98
	>30 Months	13	14,94
	<b>Total</b>	<b>87</b>	<b>100</b>
Child gender	Male	43	49,43
	Female	44	50,57
	<b>Total</b>	<b>87</b>	<b>100</b>
Posyandu visits	Regular (>8 kali)	53	60,91
	No Regular (<8 kali)	34	39,08

	<b>Total</b>	<b>87</b>	<b>100</b>
Immunization	Complete	53	60,91
	Incomplete	34	39,08
	<b>Total</b>	<b>87</b>	<b>100</b>

Based on Table 1, it can be observed that the majority of mothers are in the age range over 40 years, which is 48 respondents (55.17%). Nearly half of the mothers have completed high school education, accounting for 31 respondents (35.63%). A total of 28 respondents (32.18%) are homemakers. The majority of parents have an income above Rp. 2,000,000, totaling 58 respondents (66.67%). In the category of child age range, nearly half of them are between 21-30 months old, comprising 40 samples (45.98%). A total of 44 samples (50.57%) are female children. Regarding posyandu (Integrated Health Services Post) visits, the majority of mothers make regular visits, which is 53 respondents (60.91%). Additionally, 53 samples (60.91%) have completed immunizations.

**Table 2.** Maternal Knowledge Level about Stunting at Klatak and Mojopanggung Community Health Centers, May 2023

<b>Mother Knowledge Level</b>	<b>n</b>	<b>%</b>
Not enough	35	40,2
Enough	46	52,9
Good	6	6,9
<b>Total</b>	<b>87</b>	<b>100</b>

Table 2 above presents that out of a total of 87 sampled respondents observed in this study, the majority of mothers have a moderate level of knowledge, which is 46 respondents (52.9%), nearly half have a low level of knowledge, which is 35 samples (40.2%), and a small portion have a good level of knowledge, which amounts to 6 samples (6.9%). From these results, it can be concluded that the majority are mothers with a moderate level of knowledge within the score range of 56-75 points.

**Table 3.** Rules for Feeding Stunted Children at the Klatak and Mojopanggung Health Centers, May 2023

<b>Feeding Rules</b>	<b>n</b>	<b>%</b>
Low	16	18,4
Currently	59	67,8
Good	12	13,8
<b>Total</b>	<b>87</b>	<b>100</b>

Out of 87 sampled respondents, the majority of mothers (67.8%) apply a moderate feeding practice (59 samples). Low feeding practices are found in 16 samples (18.4%), while good feeding practices are only observed in 12 samples (13.8%).

**Table 4.** Feeding Patterns in Stunted Children at Klatak and Mojopanggung Community Health Centers, May 2023

<b>Dietary habit</b>	<b>n</b>	<b>%</b>
Not Enough	8	9,2
Enough	66	75,9
Good	13	14,9
<b>Total</b>	<b>87</b>	<b>100</b>

Out of 87 sampled respondents, nearly all stunted children (75.9%) have an adequate dietary pattern (66 samples). There are 13 samples (14.9%) with a good dietary pattern, while 8 samples (9.2%) have a poor dietary pattern. These results indicate that almost all children have an adequate dietary pattern within the score range of 56-75 points.

**Table 4.** The Relationship Between Maternal Knowledge Level and Dietary Pattern of Stunted Children at Klatak and Mojopanggung Community Health Centers, May 2023

Mother Knowledge Level	Dietary habit							
	Not Enough		Enough		Good		Amount	
	n	%	n	%	n	%	n	%
Not Enough	7	8,0	26	29,9	2	2,3	35	40,2
Enough	1	1,1	37	42,5	8	9,2	46	52,9
Good	0	0,0	3	3,4	3	3,4	6	6,9
Amount	8	9,2	66	75,9	13	14,9	87	100
Spearman's rank test results	Correlation Coefficient (r): 0.372 Significant (p): 0.000							

In the table, it is found that nearly half (29.9%) of mothers have a low knowledge level, but the dietary pattern in stunted children is adequate. A small portion (3.4%) of mothers have a good knowledge level, and their stunted children also have a good dietary pattern. On the other hand, a small portion (8.0%) has a poor dietary pattern combined with a low knowledge level, while another small portion (9.2%) has a good dietary pattern along with an adequate knowledge level. Data analysis using the Spearman's rho test resulted in a correlation coefficient of 0.372, indicating a moderately strong correlation between maternal knowledge level and dietary pattern in stunted children. These two variables have a positive correlation with a fairly strong strength, where better maternal knowledge leads to a better dietary pattern in stunted children. With a p-value of 0.000 and a significance level of  $p < 0.05$ , it can be concluded that there is a significant correlation between maternal knowledge level and dietary pattern in stunted children.

**Table 5.** The Relationship Between Maternal Feeding Practices and Dietary Pattern of Stunted Children at Klatak and Mojopanggung Community Health Centers, May 2023

Feeding Rules	Dietary habit							
	Not Enough		Enough		Good		Amount	
	n	%	n	%	n	%	n	%
Low	7	8,0	9	10,3	0	0,0	16	18,4
Currently	1	1,1	48	55,2	10	11,5	59	67,8
Good	0	0,0	9	10,3	3	3,4	12	13,8
Amount	8	9,2	66	75,9	13	14,9	87	100
Spearman's rank test results	Correlation Coefficient (r): 0.424 Significant (p): 0.000							

In the table, it is found that a small portion (10.3%) of mothers have low feeding practices, yet the dietary pattern in stunted children is adequate. There is also a small portion (10.3%) of mothers with good feeding practices, and their stunted children also have an adequate dietary pattern. On the other hand, a small portion (8.0%) has a poor dietary pattern combined with low feeding practices, while another small portion (11.5%) has a good dietary pattern along with adequate feeding practices. Data analysis using the Spearman's rho test resulted in a correlation coefficient of 0.424. This figure indicates a moderately strong correlation between feeding practices and dietary pattern in stunted children. These two variables have a positive correlation with a fairly strong strength, where better feeding practices by mothers lead to a better dietary pattern in stunted children. Furthermore, based on a p-value with a significance level (p) of 0.000 and a significance level of  $p < 0.05$ , it can be concluded that there is a significant correlation between maternal feeding practices and dietary pattern in stunted children.

## Discussion

### Maternal knowledge level about stunting

Educational level affects the reception of information. The research findings indicate that maternal age can influence the occurrence of stunting, as older mothers tend to lag behind in child-

rearing information. Age also influences an individual's knowledge, with knowledge improving as age increases. However, technological advancements require parents to acquire information through social media [5]. Demographic data reveal that the majority of mothers have a moderate level of knowledge, while only a few possess good knowledge. Mothers with good knowledge generally understand food items as the main source of energy but may lack awareness about stunting prevention and various factors affecting child feeding practices. This information serves as a guide for mothers in caring for their young children on a daily basis [6].

Knowledge is gained through formal education and other sources of information, such as mass media. Higher levels of education tend to increase an individual's knowledge, but this does not apply if the person actively seeks information. Higher education levels also allow broader access to information. However, lower education levels can hinder a mother's ability to receive new information and knowledge. Despite mothers with higher knowledge levels being expected to be capable of applying knowledge in daily life, behavior is also influenced by other factors such as the environment, socio-cultural factors, and socio-economic status. High knowledge levels do not necessarily guarantee normal nutritional conditions in toddlers. Overall, most mothers in this study have a moderate level of knowledge, but there is still a lack of knowledge regarding stunting prevention and child feeding practices.

### **Feeding practices for stunted children**

In feeding practices, there are several basic rules to consider. These rules are important to evaluate when a child is experiencing feeding problems. Research shows that maternal age demographic data can influence feeding practices for stunted children. Some mothers may be unaware of when exactly a baby should start receiving complementary foods according to guidelines. Life experiences and the duration of a mother's life can also affect her understanding of providing food as recommended [7].

Research also indicates that maternal occupation demographic data can influence stunting incidents related to feeding practices. Working mothers may be very busy managing both their children and households, often in large numbers. Due to the household chores that must be completed before evening arrives, feeding practices may be neglected. Socio-economic conditions can also disrupt the provision of child nutrition, as some mothers may not have sufficient income [7].

Research reveals that most children with feeding problems are within the age range of 21-30 months. Out of the 87 respondents observed, the majority of mothers implement moderate feeding practices (56-75 points), while a small portion follow good practices (76-100 points). Data also shows that 20 out of 87 respondents implement good feeding procedures, such as helping the child stay focused on eating activities when their attention is diverted [8].

Feeding practices include schedules, environments, and eating procedures. Meal schedules should be regular, including main meals and snacks, with a maximum meal time of 30 minutes. Additionally, children should not be given drinks other than during main meals [9]. Feeding practices or basic feeding rules indirectly affect nutritional conditions, while food intake and infectious diseases directly affect nutritional status. Factors such as family food availability, socio-economic status, education, and others can lead to inadequate food intake. Therefore, feeding patterns are significantly related to a child's nutritional status. When parents are consistent in providing and implementing feeding practices, and when they provide foods containing essential elements such as energy sources, building blocks, and regulators, it contributes to a child's good nutritional status [10].

### **Dietary pattern in stunted children**

An individual's eating habits have a significant influence on the formed dietary pattern. Consumption of nutritious and healthy foods is crucial in achieving optimal health and nutritional status. Research indicates that parental income demographic data can affect stunting incidents related to dietary patterns. Lower parental income is associated with a greater impact on a child's dietary pattern, such as consuming meals less than three times a day. Family income indirectly affects fulfilling a child's nutritional needs through the ability to purchase nutritious foods. Income level also influences the type of foods purchased by the family [11].

In the study, most stunted children have an adequate dietary pattern, while a small portion have a poor dietary pattern. An adequate dietary pattern consists of scores between 56-75, whereas a poor

dietary pattern has scores less than 56. Out of the 87 respondents observed, 21 of them have a good dietary pattern by providing their children with balanced meals every day. However, some mothers do not provide protein-rich foods to their children daily, such as fish, meat, eggs, soy, milk, and legumes [12]. Lack of knowledge about the importance of nutritious foods can also lead to nutritional disorders. Knowledge plays a crucial role in providing appropriate meals so that children can grow and develop according to their age. Lack of nutrition-related information can result in inadequate consumption of nutritious foods by children [8]. Healthy and balanced dietary patterns influence a child's motor development. A healthy dietary pattern involves regular eating habits, consumption of foods with good nutritional content, and appropriate portion sizes. Nutritional needs and intake are obtained from daily meals. Imbalances in nutritional intake can impact a child's nutritional status [13].

#### **Relationship between maternal knowledge level and dietary pattern in stunted children**

Stunting incidents in toddlers are related to nutrient intake and maternal knowledge level. Research reveals that nearly half of the mothers have a low knowledge level, yet there is a fairly strong correlation between maternal knowledge level and dietary pattern in stunted children. Maternal knowledge level influences nutrient intake in toddlers, thus mothers play a vital role in changing a child's dietary pattern. Low maternal education and knowledge levels can limit understanding of health, nutrition, and dietary patterns in stunted children. Misconceptions and lack of knowledge in mothers impact their health-related behaviors and their children's dietary patterns. Furthermore, biological and psychological factors also influence stunting incidents, such as maternal height, malnutrition, infectious diseases, inadequate parenting, environmental sanitation, utilization of services, and hygiene practices. Mothers have full control over a child's food intake, but providing a good dietary pattern may not necessarily reduce the risk of stunting if there are limitations in meeting daily nutritional needs.

#### **Relationship between feeding practices and dietary pattern in stunted children**

This study found a relationship between maternal feeding practices and dietary pattern in stunted children. A small portion of mothers with low feeding practices have stunted children with an adequate dietary pattern, and the same applies to mothers with good feeding practices. In practice, the eating process should teach children about taste, smell, texture, and temperature of food. Regular meal schedules without distractions such as TV or toys are also important. Forcing or using rewards during feeding can disrupt a child's learning process in recognizing foods. The use of demonstration stages and persuasive communication through lectures, brainstorming, and demonstrations can help change maternal behaviors and perceptions regarding stunting prevention. There is also a link between inadequate nutritional needs and economic income or family earnings. Despite having a good dietary pattern, limitations in providing food can affect fulfilling a child's nutritional needs.

#### **4. CONCLUSION**

Based on the research findings, it can be concluded that maternal knowledge level and feeding practices are related to dietary pattern in stunted children. The majority of respondents have a moderate maternal knowledge level and moderate feeding practices. The dietary pattern in children is mostly categorized as adequate. Maternal knowledge level influences health behaviors and dietary patterns in children, while poor feeding practices can lead to negative experiences and trauma in children. A healthy and balanced dietary pattern and nutritional fulfillment are crucial in preventing stunting. In this context, the role of mothers in providing knowledge and good practices is of paramount importance. Recommendations For Mothers: The research is expected to enhance mothers' knowledge regarding dietary patterns, enabling them to provide the best for their children. For Banyuwangi District: This study's findings can be used as a guideline to improve dietary patterns and reduce the incidence of stunting in Banyuwangi District. For the Nursing Profession: This research can be utilized as a guide in educating the community, fostering good dietary patterns in children, and reducing the incidence of stunting. For Future Researchers: It is recommended that future research includes additional variables, such as sleeping habits, genetic factors, and others.

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