

# THE DETERMINANT MOTHER FEEDING ON CHILDREN UNDER FIVE STUNTING HEALTH CENTER IN RURAL AREA

Arief Khoerul Ummah

Universitas Galuh, West Java, Indonesia

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## \*Corresponding Author

Arief Khoerul Ummah

[Arief\\_khoerul@unigal.ac.id](mailto:Arief_khoerul@unigal.ac.id)

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## ABSTRACT

Stunting is a significant nutritional issue affecting children that has been the world's concern in recent years, especially in developing countries. The study aims to identify the determinant factors affecting mothers' feeding practices for children experiencing stunting. The research used an observational and correlation design involving 258 respondents from three health centers. Data were collected through a questionnaire conducted between December 2022 and January 2023. The data analyzed utilized chi-square tests and logistic regression. The variables that dominantly contribute to the practice of meal provision included economic factors for children under five with stunting ( $P = 0.001$ ,  $OR = 4.276$ ), compared to other variables such as knowledge ( $P = 0.004$ ,  $OR = 2.632$ ), attitude ( $P = 0.001$ ,  $OR = 3.237$ ), hygiene ( $P = 0.013$ ,  $OR = 3.552$ ), and cultural factors ( $P = 0.001$ ,  $OR = 3.216$ ). Economic factors emerged as the primary determinants influencing meal provision practices for stunted toddlers. Economic factors were also dominantly associated with maternal feeding practices for stunted children under five in rural areas.

Keywords: *Children; feeding; practice; stunted; toddlers*



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## INTRODUCTION

Stunting in toddlers, a result of chronic malnutrition, causes children to appear shorter than their peers (Mbuya & Humphrey, 2018). Globally, there are 149.2 million toddlers, or 22% or 22 who suffer from stunting (WHO, 2021). According to data from Ministry of Health, Republic of Indonesia (2021), Indonesia currently ranks second in Southeast Asia, with a stunting rate of 30.8% among children. In 2022, the number of toddlers experiencing stunting in the Ciamis Regency area reached 2334 children or 3.4% (Dinas Kesehatan Ciamis (Ciamis Health Office), 2022).

The issue of stunting in children affect the resilience of body, cognitive development, mental health development, motor skills, and even lead to death (Vonaesch *et al.*, 2018). Stunting is multifactorial problem, with various interrelated factors contributing to its prevalence. One critical factor is the feeding practices that mothers apply to their infants. Addressing these feeding practices for children is essential, as early malnutrition is leading cause of long-term issues in infants. Research by Utami (2022) prove that Infant and Young Child Feeding Program or Program Pemberian Makan

Bayi dan Anak (PMBA) significantly deal with improved nutrition status in babies. Besides, Tette *et al.* (2015) reported that 50 % of child mortality is associated with malnutrition, with two-thirds of these cases caused by inadequate feeding practices, such as insufficient breastfeeding or introducing complementary foods too early or too late. This situation often result in illness and failed growing (Wahyuningsih, 2015). Failure to practice exclusive breastfeeding and appropriate complementary feeding for toddlers by mothers is influenced by various factors, including knowledge, attitudes, hygiene, economic conditions, and cultural factors. The researchers are motivated to carry out further research on feeding practices for toddlers experiencing stunting because the handling of stunting in toddlers within the Ciamis Regency area remains suboptimal. This is largely due to the inadequate parenting style among mothers, which contribute to poor feeding practices. The study aims to identify the determinant factors that affect mothers in their feeding practices for stunted toddlers within the District Health Center area.

## METHOD

### Research design

This research was a quantitative study with a cross-sectional design.

### Sample and setting

In this study, the population consisted of 580 mothers with stunted children across 3 primary health care facilities. The inclusion criteria for the research sample encompassed mothers with stunted children aged 1 to 5 years, as well as mothers who were the primary caregivers and resides in the same house as the stunted children. Sampling was conducted using cluster random sampling, applying Lemeshow formula ( $\lambda 2.N.P.Q/d2(N-1) + \lambda 2.P.Q$ ) at a 95% confidence level, resulting in a sample size of 232 respondents. To anticipate for potential respondents who did not meet the criteria, an additional 5% was added to the sample, calculated using  $n1 = n/(1 - f)$ , bringing the total number of respondents to 258 people. Sampling was carried out using cluster random sampling within each class, following formula  $N = (NS: NS+Nt) \times nt$ , yielding the results: Panawangan District had 91 respondents, Rancah District had 88 respondents, and Pamarican District had 79 respondents. This research was conducted within the work area of the Ciamis Health Center and took place from December 2022 to January 2023.

### Variables

Feeding practices consist of knowledge, attitudes, hygiene, economics factors, and cultural variables.

### Instruments

In this study, both primary and secondary data were collected. The primary data were obtained through a questionnaire assessing feeding practices, knowledge, attitudes, hygiene, economics and culture factors from respondents. The secondary data were sourced from the health center and included the information such as names of children experiencing stunting, the ages and gender of the children, and their mothers' age, the mothers' highest level of education, and mothers' occupations.

The study began with an application for permission from Padjadjaran University and the head of the health center, followed by the preparation and approval of research ethics. After obtaining permission, from the Office of National and Political Unity and the Health Office, the researchers collected data using a questionnaire. Data collection was facilitated by health center cadres through a door-to-door method, replacing any unavailable samples. The researcher explained the purpose of the study to the respondents, asked for consent, and accompanied them in completing the questionnaire to ensure the completeness and accuracy of the data.

The instrument used in this study, adopted from the eating research by Maudina (2018), consists of 49 questions. This instrument has been tested for both validity and reliability, yielding a validity range of 0.80 to 0.91 and a reliability value of 0.80 to 0.90. The measurement criteria classify scores as poor if they are below 45 and good if they are 45 or above. Instruments measuring knowledge and attitudes were adopted from research by Andriyanti (2017). The knowledge instrument consists of 25 questions, while the attitude instrument comprises 10 questions. Each instrument has been tested for validity and reliability, with the knowledge instrument showing a validity value of 0.22 to 0.53 and a reliability value of 0.777. Knowledge is categorized as poor if the score is < 47 and good if the score is  $\geq 47$ . The attitude

instrument has the validity range of 0.29 to 0.75 and a reliability value of 0.873. Attitudes are considered poor if the score is < 45.7 and good if the score is  $\geq 45.7$ . The instrument regarding hygiene was adopted from the research by Wulandari (2020) consists of 7 questions. This instrument has been tested for validity and reliability, yielding a validity range of 0.741 to 0.834 and a reliability value of 0.798. Hygiene is classified as poor if the score is < 45 and good if the scores is  $\geq 45$ . Instruments measuring economics and culture were adopted from Dwiwardani (2017). The economic instrument consists of 4 questions, while cultural instrument comprises 8 questions. Each instrument has been tested for the validity and reliability, with the economic instrument showing a validity value of 0.344, a reliability value of 0.754, and the cultural instrument demonstrating a reliability value of 0.923. Economic scores are considered poor if they are less than 44.2 and good if they are 44.2 or higher. Cultural scores are categorized as poor if they are less than 44.7 and good if they are 44.7 or higher. Reason: Improved clarity, readability, and technical accuracy while correcting grammar, punctuation, and mechanics.

### Data collection

The procedure using a questionnaire administered door to door by health cadres. The respondents filled out the questionnaires voluntarily, without any coercion, and their responses remain and anonymous. All respondents provided informed consent prior to participation. Those who choose to continue are encouraged to complete the questionnaire, while individuals who prefer not to participate are free to decline without any pressure. The questionnaire consists of variables related to knowledge, attitudes, hygiene, economy, and culture. The final results of this study were analyzed in relation to variables affecting mother's feeding practices in stunting among toddlers.

### Data analysis

The research data that had been cross-tabulated were subsequently analyzed using statistics software. The results were presented descriptively through frequency distribution tables and cross-tabulations between variables. The analysis of the factors influencing mothers' feeding practices in relation to stunted was carried out using bivariate statistical tests and logistic regression, with a significance level of  $p < 0.05$ .

### Ethical Considerations

This research has obtained ethical approval from the Padjadjaran University Ethical Commission, as indicated by certificate number No. 33/UN6.KEP/EC/2023. The management of research ethics involves evaluating proposals and research designs in accordance with established ethical principles of health research. The ethical review was carried out at the Faculty of Nursing Padjadjaran University for one month and was analyzed by with expertise in the field of research.

## RESULT

The data collection process obtained the demographic characteristics of the respondents (Table 1).

**Table 1. Demographics Data (N=258)**

Characteristics	n	%
Mother's age (years)		
17-25	22	8.5
26-35	134	51.9
36-45	88	34.1
36-55	14	5.4

Characteristics	n	%
Child age (month)		
12-23	32	12.4
24-35	81	31.4
36-47	71	27.5
48-59	74	28.7
Gender		
Male	148	57.4
Female	110	42.6
Mother's Last Education		
Primary School	32	12.4
Middle School	105	40.7
High School	68	26.4
College	53	20.5
Work		
Housewife	197	76.4
Labor	11	4.3
Private Employee	18	7.0
Civil Servant	17	6.6
Self Employed	15	5.8

Based on Table 1, the distribution of mothers' feeding practices for stunted toddlers predominantly fell in the less category, with 139 respondents (53.9%). In the frequency distribution of mothers' knowledge regarding the feeding practice for stunted toddlers, 149 respondents (57.8%) also fell into the poor category. The frequency distribution of mothers' attitudes towards feeding stunted toddlers shows that the majority were in the poor category, with 151 respondents (58.5%). In the frequency distribution of maternal hygiene practices in feeding stunted toddlers, the majority were in poor category, as many as 195 respondents (75.5%). The frequency distribution of the mother's economy in the practice of feeding the majority of stunted toddlers shows the poor category of 174 respondents (67.4%) and the distribution of the frequency of mother's culture in the practice

of feeding mothers to the majority of stunting toddlers shows the poor category of 137 respondents (53.1%).

**Table 2. Univariate Analysis**

Variable/category	n	%
Feeding Practice		
Poor	139	53.9
Good	119	46.1
Knowledge		
Poor	149	57.8
Good	109	42.2
Attitude		
Poor	151	58.5
Good	107	41.5
Hygiene		
Poor	195	75.6
Good	63	24.4
Economy		
Poor	174	67.4
Good	84	32.6
Culture		
Poor	137	53.1
Good	121	46.9

Table 2 and Table 3 present a cross-tabulation of the factors influencing feeding practices among mothers with limited knowledge in this area. The majority of respondents, totaling 104 (69.8%), fell into the poor category regarding their feeding practices. In terms of maternal attitudes towards feeding, 108 respondents (71.5%) also exhibited a poor category. Regarding maternal hygiene during feeding practices, 129 respondents (66.2%) were categorized as having inadequate hygiene. When considering the economic status of the mothers, 123 respondents (70.7%) were classified in the poor category for their feeding practices. Lastly, in relation to cultural influences on feeding, 101 respondents (73.7%) demonstrated inadequate practices.

**Table 3. Cross Tabulation of Bivariate Analysis**

Variable	Feeding Practice				$\chi^2$	p	OR CI 95%
	Poor		Good				
	n	%	n	%			
Feeding Practice							
Poor	104	69.8	45	30.2	35.982	0.0001	4.886 (2.868 – 8.326)
Good	35	32.1	74	67.9			
Knowledge							
Poor	108	71.5	43	28.5	45.629	0.0001	6.158 (3.563-10.642)
Good	31	29.0	76	71.0			
Attitude							
Poor	129	66.2	66	33.8	48.444	0.0001	10.359 (4.952-21.668)
Good	10	15.9	53	84.1			
Economy							
Poor	123	70.7	51	29.3	60.799	0.0001	10.250 (5.432-19.341)
Good	16	19.0	68	81.0			
Culture							
Poor	101	73.7	36	26.3	46.303	0.0001	6.128 (3.569-10.521)
Good	38	31.4	83	68.6			

**Table 4. Analysis of Candidate Variables in the Multivariate model**

	B	S.E.	Wald	Df	Sig.	95% C.I For EXP (B)		
						Exp	Lower	Upper
Knowledge	0.968	0.335	8.352	1	0.004	2.632	1.365	5.074
Attitude	1.175	0.366	10.288	1	0.001	3.237	1.579	6.636
Hygiene	1.268	0.511	6.156	1	0.013	3.552	1.305	9.669
Economi	1.453	0.424	11.750	1	0.001	4.276	1.863	9.815
Culture	1.168	0.367	10.158	1	0.001	3.216	1.568	6.596
Constant	-8.390	1.004	69.906	1	0.000			

In Table 4. shows multivariate analysis using logistic regression on variables that demonstrate significant values from the bivariate analysis. The practice of feeding mothers to stunted toddlers illustrates that the factors affecting this practice, ranked from greatest to least impact, are as follows: economic factors ( $p=0.0001$ ,  $OR=4.276$ ), hygiene ( $p=0.13$ ,  $OR=3.552$ ), attitudes ( $p=0.0001$ ,  $OR=3.237$ ), culture ( $p=0.0001$ ,  $OR=3.216$ ), and knowledge ( $p=0.0004$ ,  $OR=2.632$ ). Among these, economic factors have the most substantial influence on the feeding practices, as indicated by an odds ratio (OR) of 4.276. This suggest that economic factors play a critical role in determining the feeding practices of mothers with stunted toddlers.

## DISCUSSION

The practice of feeding mothers to stunted toddlers shows that economic factors are the most significant influence compared to other variables such as knowledge, hygiene attitudes, and culture. This predominance is attributed to the low purchasing power for food necessary to meet family nutritional needs. Low family incomes often leads to feeding practices that hinder effective nutritional improvement, especially in children. According to research by Raniati (2023), field observations reveal that the family economy play a crucial role in provision of food. Consequently, even with high levels of education, knowledge, and positive hygiene families may still struggle to implement Infant and Young Child Feeding (IYCF) practices that adhere to food diversity, meal frequency, and minimum acceptable meal standards if their income is inadequate to purchase and provide sufficient food for their children.

In line with the research by Nisa (2022), family income is the most significant factor affecting the nutrition of children, particularly in families with low incomes, which limits their ability to provide for daily needs. This finding is further supported by Devi (2018), which reports that socioeconomic level is closely related to family purchasing power. In addition, money is needed to meet aterials necessary to prepare food with high nutritional value; thus, families with limited purchasing power struggle to provide adequate nutrition. . This condition hinders stunted toddlers to obtain adequate nutrition so they cannot catch up proper growth. Moreover, income generation primarily depends on the head of the household, resulting in restricted financial resources. To address this issue, mothers are encouraged to enhance their skills and empower themselves by utilizing natural products and their own abilities to improve the family economy, ideally surpassing the minimum wage. This can be achieved by working with PKK organizations at both the sub-district and village levels on increasing the market value of existing agricultural products or creating handicrafts that can be produced at home.

In this study, a lack of knowledge contributed to poor parenting behaviors. As a result, poor child feeding behavior negativeky impacted the nutritional status of children, leading to stunting. In contrast, respondents with sufficient and good knowledge have an adequate frame of reference for understanding of child nutrition, which facilitated their ability to recall relevant information that influences parenting behavior (Sari & Ernawati, 2018). During feeding practices, toddlers depend entirely on the care and feeding of their mothers. Therefore, a mother's knowledge is very instrumental, because good knowledge of feeding practices enables her to create nutritious menu for her toddler. The better a person's nutritional knowledge, the more thoughtfully they will consider the type and quantity of food provided for consumption.

Another factor in this research is that attitudes are formed from a combination of knowledge and belief. Attitude is often closely related to knowledge. The better the mother's knowledge, the more positive her attitude toward health it will be. If a person possesses good knowledge about healthy foods, then their attitude foods is likely to be more favorable. This positive attitude can support actions in providing nutritious food to toddlers. In this study, many mothers did not fully understand the concept of balanced nutrition, leading to incorrect feeding practices within their family, especially for toddlers. Although mothers have been advised to exclusively breastfeed for the first 6 months, many still introduce additional foods to their babies before this age, often citing reasons such as frequent crying and fussiness. This study aligns with the research by Syarifuddin & Najmi (2020), which revealed that maternal knowledge shapes maternal attitudes and beliefs in providing children's nutritional intake. A lack of knowledge about nutrition correlates with a diminished attitude towards providing adequate nutritional support. The strategy to prevent and reduce the incidence of stunting in toddlers emphasizes the importance of hygiene. Hygiene refers to the effort to prevent disease, focusing on individual health and the surrounding environment (Silalahi & Putri, 2017). One effective hygiene carried out by a person to avoid germs or pathogens is washing hands with soap and running water (Mbuya & Humphrey, 2016). In addition, Kwami (2019) notes that proper hygiene using soap and water, along with accessible handwashing facilities, such as handwashing tubs or water storage buckets equipped with taps, as well as liquid or bar soap.

Based on the results of this study, there remains a lack of awareness among mothers regarding the importance of washing their hands with soap at five critical times, namely before eating, after eating, after defecating, and before feeding their child. This finding is in line with Dwipayanti (2020), which indicates hand washing behavior, specifically, the failure to use soap and the neglect of three essential times (before eating, before preparing food, and after using the toilet)—is associated with the incidence of stunting.

Hand washing with soap during critical times is one of the efforts to prevent diarrhea, environmental enteric dysfunction (EED), and worm infection in children, all of which can contribute to stunting. Dirty hands can serve as a medium for pathogenic microorganisms to enter the body, either directly through the mouth or indirectly through feeding and drinking by the mother (Permatasari, Soerachmad, & Hasbi, 2021).

Based on the results of this study, it is evident that the incidence of stunting in children is influenced by family eating habits, particularly those of mothers. This includes improper feeding practices and a lack of attention to the nutritional intake contained in the food consumed by children. Respondents still hold beliefs that certain food restrictions such as eggs and fish, are detrimental to a child growth. In addition, mothers always establish a habit of giving crushed bananas and coconut water to infants under six months old, believing that these practices will promote health and strength. Furthermore, they believe that their children who experience stunting due to heredity factors from their parents. This aligns with Fariq (2021), which reported a relationship between cultural factors and child feeding practices. Another study conducted by Rahmadiyah and Nursasi (2021) found that culture influences on feeding highlight the importance of family support, especially from grandmothers, in feeding toddlers. The role of grandmothers also significantly impacts toddler feeding, in many cases, the voice of the oldest household member or the closest person to the mother in the

household is highly regarded. Other studies have shown that mothers are not sole decision-makers when it comes to feeding their children. Grandmothers play a key advisory role in addition to potentially being caregiver. Apart from being a health worker, grandmothers also play a crucial part in this process. Most mothers recognize and value the advice provided by grandmothers (Faye, Fonn, & Levin, 2019).

During the research, the researcher found several limitations. Specifically, some mothers had difficulty understanding the questions in the questionnaire, necessitating additional explanations from the researchers and research assistants. Additionally, some mothers were less focused while filling out the questionnaire due to the large number of question items and frequent crying of their children. As a result, the researcher and the research assistant read aloud each question from the questionnaire.

## CONCLUSION AND RECOMMENDATION

Stunting is a public health problem and a global challenge in achieving sustainable development goals. It is a main focus of government health initiatives. One of the key factors contributing to stunting is improper feeding practices applied by parents, which can lead to early malnutrition. Additionally, the feeding practices of mothers with stunted toddlers are heavily influenced by economic factors, which are considered to have a more dominant influence.

## DECLARATION CONFLICT OF INTEREST

This manuscript does not have any conflicts of interest with anyone, and the authors of this study also declare no conflict of interest.

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## DATA AVAILABILITY

This research study has completed data saved by the authors and the authors just present the important data that was suitable for this research. If the reader needs to share the data, they can get more information from corresponding author.

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