



# Stunting Prevention in Coastal Family with Health-Promoting Family Approach

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## Abstract

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**BACKGROUND:** Stunting is a chronic nutritional problem that occurs worldwide, including in Indonesia. The impact of the COVID-19 pandemic has increasingly caused stunting to increase in coastal areas in particular.

**AIM:** This study aimed to obtain a stunting prevention model with a Health-Promoting Family model approach in coastal families.

**METHODS:** This study was quantitative research. The population in this study was mothers of toddlers aged 6–48 months in the coastal areas of Pamekasan. The sample in this study was mothers of 135 toddlers in Tlanakan and Talang villages who were selected using a simple random sampling technique. The independent variables are the history of present illness, mother's knowledge, care patterns, literacy, cultural aspects, and family support—while the dependent variable is family prevention behavior regarding the incidence of stunting. Data collection was carried out by interview method using a questionnaire. Statistical analysis was carried out using the Logistic Regression test ( $=0.05$ )

**RESULTS:** The factors that affect stunting prevention are knowledge  $p = 0.008$  (CI: 1.438–11.780), literacy  $p = 0.000$  (CI: 2.136–17.003), cultural aspects  $p = 0.00$  (CI: 0.039–0.366) and family support  $p = 0.000$  (CI: 1.273–20.498).

**CONCLUSION:** Knowledge, family support, literacy, and culture affect stunting prevention in families. It takes the collaboration of the community, the government participation in strengthening maternal and child health programs that support the achievement of stunting prevention in families. There are opportunities to research what appropriate forms of literacy in families support the success of stunting prevention in toddlers for further studies.

## Introduction

Stunting is a chronic undernutrition status during growth and development, which is represented by the z-score of height for age  $<-2$  standard deviations based on growth standards [1]. The spread of the COVID-19 pandemic also impacts the health of toddlers, namely increasing the incidence of stunting. This is because toddlers' health has been sidelined due to the global COVID-19 pandemic. Regarding nutrition problems, especially stunting in toddlers, more attention needs to be paid because it will affect their development and cause negative impacts [2], [3]. Stunted toddlers will experience disturbances (brain and intelligence developments, physical growth, and body metabolism) and decreases (cognitive abilities, learning achievement, and immunity). Adequacy of nutrition in pregnant women is influenced by the level of maternal knowledge on the importance of paying attention to food during pregnancy [4], [5], [6]. Meanwhile, parents' role in the family and parents' knowledge becomes significant and dominant factors with the incidence of stunting in toddlers.

Besides, the community's culture of parenting toddlers and preparation during pregnancy and postpartum also plays roles in toddlers' health status [7].

Indonesia is ranked third in the number of toddlers who experience stunting at the Southeast Asia Regional level. These data were obtained based on the World Health Organization data, which explained that in 2005–2019, the prevalence of stunting toddlers in Indonesia was recorded at 36.4%. Furthermore, according to the Monitoring of Nutritional Status, in the last 3 years, stunting has had a high prevalence compared to other nutritional status problems such as undernutrition, thinness, and obesity. The increase of stunted toddlers was recorded from 27.5% in 2016 to 29.6% in 2017. Expressly, in East Java Province, it was stated that ten babies were born every day with low birth weight, and almost 36% of toddlers are susceptible to stunting [8].

Data from the Health Office (Dinkes) of Pamekasan show that the stunting locus is increasing. In 2019, there were ten villages as contributors to stunting. Meanwhile, in 2020 the number increased to 11 villages. However, from the prevalence rate, in 2019,

it was recorded at 27.67%, whereas by August 2020, it was recorded at 17.75%. Of the 11 villages, the village with the highest prevalence of stunting was Bangles Village, with 38.65% of the total 401 toddlers weighed and measured. Meanwhile, the lowest was in Banyupelle Village, with 1.36% of stunting toddlers of the total 738 toddlers weighed and measured [9].

The most dominant cause of stunting is the low level of public awareness, especially mothers/pregnant women, about the importance of nutrients in food with the assumption that the food consumed is quite filling. In addition, babies exclusively breastfed in Bangkalan are only 49.8% [10]. A preliminary study at a Public Health Center in Pamekasan revealed that so far, it has provided counseling and assistance related to the prevention and treatment of stunting. However, the program is not comprehensive, and the counseling content has not touched the critical role of the family in stunting prevention. Furthermore, the community lacks the ability and skills to obtain information, understand how to analyze, and evaluate the usefulness of the information that has been received. Whereas, if parents and family members can use data from books or magazines and other sources from school staff, friends, television, and the internet, they can function as a health-promoting strategy [11].

A model will have a positive and good impact if developed based on the needs of providers and users of health services, especially in this case, improving the health of children and families. This follows the concept in the Health-Promoting Family Model, which explains that families can promote health, so it can be stated that families can improve family health. This model focuses on children's health and welfare, which explains that families have the right and authority to care for their children and maintain their family members' health [12], [13]. Therefore, one approach to health services can be family-centered.

The application of health-promoting families in the context of stunting prevention in toddlers looks at the independence of families with toddlers in improving health promotion regarding prevention and handling of stunting comprehensively conduct health education for patients and their families. Coaching is focused on improving the health of all family members so that family independence in overcoming their health problems, especially in stunting prevention, is achieved. In practice, the ability of families to improve family health is strongly influenced by culture and the environment [14], [15]. This study aimed to obtain a stunting prevention model with a Health-Promoting Family model approach in coastal families.

## Methods

This study is a quantitative research using a cross-sectional design. It was conducted in 2 villages,

namely Tlanakan and Talang villages, Pamekasan, Madura. The population in this study was mothers of toddlers aged 6–48 months in the coastal areas of Pamekasan. The sample in this study was mothers of 135 toddlers in Tlanakan and Talang villages who were selected using a simple random sampling technique. Inclusion criteria are mothers who have children aged 6–48 months in the coastal area of the Tlanakan Public Health Center and Talang Center. Exclusion criteria for toddlers who are not recorded, toddlers who do not live with their families and are not cared for by their families.

The independent variables are the history of present illness, mother's knowledge, care patterns, literacy, cultural aspects, and family support—while the dependent variable is family prevention behavior regarding the incidence of stunting. The instrument used to develop the Health-Promoting family components has been modified with 22 questions with yes and no answers. The collected data are presented descriptively utilizing a frequency table. Logistic Regression analysis was used to find out the factors that influence stunting prevention. The Ethics committee has approved this study of Universitas Muhammadiyah Surabaya No 21/KEPK/2021 and the National Unity and Political Agency (Bakesbangpol) of Pamekasan in 2021, while informed consent has been obtained from each mother of the toddler. SPSS did statistical Analysis with a 95% Confidence Interval and alfa 0.05.

## Results

Table 1 shows that most mothers of toddlers are aged between 28 and 31 years, with most of their occupations being homemakers or not working with 77 people or at 57.9%. The majority of mothers of toddlers have the highest education at senior high school with 69 people (51.9%), and the highest family income is IDR 500,000 to 1,000,000 with 52 families (39%).

**Table 1: Characteristics of toddlers' mothers**

Characteristics	n	%
Age		
20–23	27	20
24–27	27	20
28–31	46	34
32–35	12	8.8
36–39	10	7.4
40–43	13	9.6
Occupation		
Housewife (Not working)	77	57.0
Entrepreneur	27	20
Fisherman	25	18.5
Civil Servant	6	4.4
Education		
University	6	4.4
Senior High School	69	51.1
Junior High School	32	23.7
Elementary School	24	17.7
No educational background	4	2.9
Income		
<IDR 500,000	20	14.8
>IDR 500,000 to 1 million	52	28.8
>IDR 1 million to 1.5 million	46	34.1
>IDR 1.5 million to 2.5 million	9	6.7
>IDR 2.5 million to 3 million	4	2.9
>IDR 3 million	4	2.9

Based on Table 2, it is known that the excellent knowledge variable has the most significant percentage at 75.6%, with 102 people. The majority of toddlers have a history of present illness, with 104 toddlers at 77%, and the majority of toddler care patterns are good at 69%. Regarding the literacy on the importance of care and stunting prevention, most toddlers have a high literacy with 81 people or at 60%. Most families do not have a culture (not affected by culture) in caring for their toddlers, with 119 people or 88.1%. Most families have good family support, with 126 people at 93.3%. Finally, most families have good preventive behavior in toddlers, with 96 people or 71.2%.

**Table 2: Identification of factors in the Health-Promoting Family model on stunting prevention in families**

Risk Factors	Frequency	%
Knowledge		
Insufficient	71	52.8
Good	64	47.4
History of present illness		
Yes	102	75.6
No	33	24.4
Care Pattern		
Insufficient	51	37.8
Good	84	64.2
Literacy		
Low	53	39.3
High	82	60.7
Cultural Aspects in the family		
Yes (negative)	86	63.3
No (positive)	49	36.3
Support		
Lack of support	33	24.4
Good Support	102	75.8
Dependent Variable		
Stunting prevention behavior		
Insufficient	73	54.1
Good	62	45.9

Based on the logistic regression test in Table 3, it is known that the significant variables are knowledge at 0.08 literacy at 0.001, cultural aspect at 0.00, and family support at 0.021. Mothers who have good knowledge have a risk of 1,415 times to prevent stunting than mothers who have insufficient knowledge. Meanwhile, mothers with high literacy have a chance of 1,796 times to prevent stunting compared to mothers with low literacy. The cultural aspects of the family are inversely proportional to stunting prevention—in the sense that families with an adverse cultural history will be less likely to prevent stunting in their children than families with a positive cultural history. Furthermore, mothers who have good family support have a risk of -2. One hundred thirty times to do stunting prevention in toddlers compared to mothers with low family support. The details of the results are explained in Table 3.

**Table 3: Factor analysis of the Health-Promoting Family model on the stunting prevention in families**

Variable	B	Sig	Exp (B)	95% CI	
				Lower	Upper
History of present illness	-0.312	0.586	0.732	0.238	2.249
Knowledge	1.415	0.008	4.115	1.438	11.780
Care Pattern	0.275	0.620	1.317	0.443	3.914
Literacy	1.796	0.001	6.027	2.136	17.003
Culture	-2.130	0.000	0.119	0.039	0.366
Support	1.631	0.021	5.109	1.273	20.498
Constant	-4.410	0.049	0.012		

## Discussion

### Mothers of toddlers' knowledge

The results show that mothers of toddlers' knowledge in stunting prevention is insufficient, with 71 people or 52.6% in most categories. In comparison, some of them have good knowledge of stunting and its prevention with 64 people or 47.4%.

A person's knowledge can positively impact the family, which can be a family guide in implementing stunting prevention. Based on the study results, it is still found that mothers with good knowledge have toddlers with malnutrition. This can happen because when mothers of toddlers are told that their children are classified as malnourished, they will immediately seek information on the causes of the malnutrition and the health problems that occur in the family, which eventually will affect their knowledge. Furthermore, maternal education is also an important aspect that affects efforts to improve toddler nutrition [16]. Maternal parenting, mother's knowledge of stunting, and family income factors are related to the incidence of stunting [17].

The common maternal knowledge on nutrition is thought to be closely related to the level of the mother's education, which causes access and opportunities to obtain nutritional knowledge to be very limited [18]. The story of maternal knowledge on nutrition will change the nutritional status. The higher the mother's nutritional knowledge, the better the behavior prevents poor dietary quality [19]. These results also follow the study, which states that a person's level of knowledge on nutrition affects their attitudes and behavior in determining the type and variety of food, which will subsequently affect the nutritional status of their family. Accordingly, a person's level of knowledge on nutrition will also act the lack of application of nutritional knowledge in determining the types and variations of food every day which can cause dietary problems. Thus, knowledge or cognition is a critical determinant in forming a person's behavior; in this case, the mother's knowledge of nutrition is one of the factors that affect the high prevalence of malnutrition in toddlers [19].

### History of present illness

Based on the study results, most toddlers have a history of present illness, with 102 people (75.6%). Present disease in toddlers affects the achievement of nutritional status. This condition emerges as a form of parenting that will ultimately affect nutritional status.

For toddlers with nutritional disorders who have a history of infectious diseases, their conditions will impact their dietary needs. Factors that affect the history of present illness in stunted toddlers are parenting or care patterns—which are the behaviors and practices of their caregivers (mother, relatives, fathers,

and child care providers) to provide food, health care, stimulation, and encouragement that are important for healthy child growth and development; family history of health practices—including family diet, involvement in physical activity, attitudes toward health services; and so on. Finally, several community environments also affect and shape children's health [20], [21], [22].

### **Care pattern**

Based on the study results, most toddler care patterns are good, with 84 people or at 62.2%. Health and nutrition care in the 1<sup>st</sup> year of life is very important for a child's development. Parenting or care patterns are not always the same in every family. This is influenced by factors that support it, including maternal education, maternal occupation, maternal nutritional status, the number of children in the family, etc. Differences in the characteristics of mothers will result in different parenting or care patterns that will affect the nutritional status of children. Several studies have concluded that a mother's educational status dramatically determines the quality of her care. Mothers with high education levels will undoubtedly be different from mothers with low education levels. The story of education will affect food consumption by selecting food ingredients. People with higher education tend to choose food ingredients that are better in quality and quantity for their dishes than those with lower or moderate education. The higher the level of education, the better the nutritional status of the child is [23], [24].

Good care patterns show that mothers have realized the importance of health and care for young children during their toddler years. Studies have revealed that some mothers have toddlers' insufficient care patterns—this is because, in an extended family, the care patterns given are referred to as the care patterns from their parents, where young families adhere to the hereditary culture in the area.

### **Literacy**

The implementation of literacy on stunting prevention and nutrition of toddlers is in the high category with 82 people (60.7%). Health literacy is a person's ability to obtain, process, and understand information and health services needed to make the right health decisions. Health information can be obtained from various sources of information such as print media, mass media, and electronic media. This is following the Institute of Medicine. They define health literacy as the level of an individual's ability to obtain, process, and understand basic health information and health services needed to make the right decisions in managing health and disease. Various factors affect a person's level of health literacy, including the story of education, individual abilities, age, gender, culture and language, living conditions, workplace, and growth and

development during childhood. To realize a high level of health literacy requires people who have a sufficient literacy level and are supported by health workers who have elevated health literacy. The higher the literacy level, the lower the disease's death rate. This will result in an optimal level of public health. Literacy is closely related to the development of public health and death from the disease [25].

Both direct and indirect factors influence the nutritional status of a child. The natural elements are food and infectious diseases suffered by the child. This is because malnutrition is due to the food consumed and contagious diseases such as disturbances in appetite, digestion, and absorption of food in the body. The indirect factors are food security, parenting, health care, and inadequate environmental sanitation. These three indirect factors are closely related to maternal education, knowledge, skills, and family income [26], [27].

### **Culture**

Based on the study results, it is known that the majority of the coastal families, in carrying out the stunting prevention, still adhere to cultural aspects that affect their toddlers' care patterns with 86 people or at 63.7%. Various socio-cultural conditions will affect different parenting styles—and these need attention concerning the prevalence of malnutrition that occurs. Besides, Indonesia, which consists of many villages, is also an area with a high prevalence of disease in toddlers at 57.9%—which can affect the nutritional status of toddlers. Socio-cultural factors affect toddlers' care patterns in the family, which subsequently will affect toddlers' health and nutritional status. These socio-cultural factors include education, occupation, income, ethnicity, tradition, and habit [28], [29].

This ecocultural approach is an important step forward in viewing family health. The ecocultural pathway encompasses all the goals, values, and practices of the family and thus forms the broad environment in which health practice occurs. Therefore, health-related practices are only part of the picture and must be understood in this broader context. Families must balance individual and shared goals and needs with health and well-being and integrate these within the overall family goals [30].

### **Family support in stunting prevention**

Based on the study results, most families have good family support in implementing stunting prevention, with 102 people (75.6%). Toddlers who do not get family support have been shown to have an increased risk in the incidence of stunting. Thus, it is necessary to develop efforts in every family, especially those with stunted toddlers, to improve family support in the practice of feeding and to care for their toddlers.

Family support is the family's attitude, action, and acceptance towards its members. Family members are seen as an inseparable part of the family environment. Family members view that supportive people are always ready to provide help and assistance if needed. Family support is all assistance received by a family member from other family members to carry out their functions, including emotional, instrumental, informative, and assessment supports [31]. Family support refers to the support that a family member feels that is present or accessible (support can or cannot be used, but family members can accept that—as stated by Suharmanto in the Study of Nutritional Status of Toddlers Based on Parenting and Family Support where 15 supporters are ready to provide help and assistance if needed). With family support, a family member who faces problems feels that they are not carrying their burden alone. Still, other family members pay attention, be ready to listen to all their complaints, sympathize and empathize with the problems they face—and even want to help solve them. The supports provided by the family are in the form of informational, assessment, instrumental, and rewards that children need to achieve goals [31].

#### ***Stunting prevention of families in the coastal areas***

Regarding stunting prevention, based on the study results, most of the families in the coastal region are in the insufficient category, with 73 people (54.1%).

Preventive behaviors are efforts or actions taken by families to overcome health problems. Steps that can be made in stunting prevention are conducting regular health checks on toddlers at the health service center, providing immediate care when the toddlers are sick, providing food according to the toddlers' age, and maintaining maternal health during pregnancy. The study results indicate that the coastal family community is insufficient because some families have limited time to care for their toddlers. After all, they do not know what to do when their children are sick. The coastal families in this study assume that toddlers who refuse to eat and do not gain weight are familiar. They generally know that their children are sick when the health worker tells them that they have a developmental disorder. The family carries typically out prevention only after their children are diagnosed with malnutrition. The family will also receive information so that their children will not experience stunting.

#### ***Stunting prevention based on the Health-Promoting Family Model approach in the coastal communities***

Based on the statistical analysis of the results, it is found that the stunting prevention models based on the health-promoting family are who have good

knowledge have a risk of 1,415 times to prevent stunting compared to mothers who have insufficient knowledge, mothers who have high literacy have a risk of 1,796 times to do good stunting prevention compared to mothers with low literacy, while the cultural aspects are inversely proportional to stunting prevention—meaning that, families with adverse cultural history have a risk of –2.130 times to be less likely preventing stunting in their children compared to families with a positive cultural history. Furthermore, mothers with good family support have a risk of 1,631 times to do stunting prevention in toddlers compared to mothers with low family support.

The study results indicate that stunting prevention is strongly influenced by the mother's knowledge, family literacy, and family support. Meanwhile, the cultural factor is also an influential factor in preventing stunting. Positive cultural aspects, such as providing foods that contain protein like eggs and fish in the coastal areas, really support the achievement of good nutritional status in toddlers. The Health-Promoting Family model explains that several factors affecting family actions to promote family health include family characteristics factors including maternal education, maternal occupation and family income, eco-cultural and family health practice implementation history [30]. In the coastal area in this study, most mothers of toddlers have high school education levels with 51.1%. Mother's education affects the practice of stunting prevention in the family. Meanwhile, most family income in this study is classified as low income ranging from 500,000 to 1 million. The common family income affects the fulfillment of food, which affects food security and infant feeding. The cultural factor in the HPF component, which is called Ecocultural, can be used to determine family health practices in various activities carried out by the family. Part of this model is referred to as the "family ecocultural pathway" [31], [32].

Based on some of the explanations above, it can be stated that knowledge, family support, literacy, and culture affect toddlers' care patterns in stunting prevention. In this case, cooperation is urgently needed, both from the community and government participation, to strengthen the maternal and child health programs that support stunting prevention in families. The family literacy factor is the most significant factor needed in stunting prevention in toddlers.

## **Conclusions and Suggestions**

Based on the results of the study, it is found that the model affecting the coastal families in this study in stunting prevention based on health-promoting families is the factors of knowledge with  $p = 0.08$ , literacy with  $p = 0.001$ , the cultural aspect with  $p = 0.00$  and family

support with  $p = 0.021$ . The health status of toddlers requires the strengthening of maternal knowledge, sources of information, and family support so that the incidence of stunting decreases. Furthermore, positive cultural aspects of the family can also be used as a reinforcing factor in improving the health of toddlers.

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