

# Factor Analysis of Stunting Prevention Efforts in Mothers of Toddlers

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## Abstract

**Background:** Stunting is a condition of failure to thrive in toddlers due to chronic malnutrition during the first 1,000 days of a child's life. The prevalence of stunting as a result of Riskesdas has increased by 35.6%, in 2013 it increased nationally by 37.2%, namely 18% very short and 19.2% short, in 2022 the working area of Puskesmas Wire ranked first in stunting prevalence which is 24.43%. The purpose of the study was to determine the dominant factors in efforts to prevent stunting events in mothers with toddlers in the work area of the Wire Health Center, Tuban Regency.

**Method:** The research design is descriptive correlation, cross-sectional approach. The population is all mothers with toddlers as many as 400 mothers, the sample is selected by no probability sampling technique, namely quota sampling as many as 200 mothers. Its data collection using questionnaires, further tabulated in distribution tables and analyzed. Statistical test descriptive analysis is univariate analysis for research variables of frequency and percentage distribution. Bivariate analysis with logistic regression test to analyze dominant factors.

**Results:** It was found that most mothers under five (69.5%) aged 20-35 years, most (52.5%) had a junior high school/MTs education, almost all (78.5%) were not working, almost all (77%) earned <2.5 million. In maternal behavior, social support was obtained p-value 0.029<0.05, intention of p-value 0.018<0.05, autonomy of p-value 0.018<0.05, access to information of p-value 0.998>0.05, p-value situation 0.999>0.05. Of the five factors, efforts to prevent stunting are influenced by social support, intention and autonomy.

**Conclusion:** Family support, intention and autonomy in mothers with toddlers play a major role in health behavior change and preventive measures against increasing stunting can prevent the consequences of stunting both in the short and long term.

**Keywords:** Factor analysis; Stunting; Autonomy; Intention

children [1]. The government has provided regulations on stunting prevention with the National Nutrition Awareness Movement since 1,000 HPK from pregnancy to the age of 2 years [2]. Stunting is an indication of poor nutritional status and is used as a long-term indicator for undernutrition in children [3]. Stunting in general is often not realized by families and after 2 years it is only seen and has an impact on cognitive abilities and long-term productivity, it can even have an impact on death [4-6]. The prevalence of stunting in toddlers based on the results of Riskesdas has increased by 35.6% of children under five who are stunted and in 2013 the prevalence increased nationally to 37.2%, consisting of 18% very short and 19.2% short [7-9]. Based on the Tuban Regency Health Office report in 2022, the work area of the Wire Health Center ranks first in the highest stunting prevalence at 24.43% [10-13]. Factors that affect stunting are divided into two kinds of factors directly divided into two factors, namely direct factors, namely food intake, infectious diseases, low birth weight and genetics. While indirect factors are knowledge about nutrition, parental education, socio-economics, parenting, food distribution and family size/number of family members [14]. Research states that genetic and biological factors, as well as maternal behavior and how to care for infants are important in preventing stunting, especially in the first 1,000 days of a child's life. Prevention to reduce the incidence of stunting should begin before birth through perinatal care and maternal nutrition, then prevention is continued until the child is 2 years old. Maternal behavior in preventing stunting in toddlers can be influenced by several factors, based on the theory, which is one of the theories of health behavior change which points to the point that a person's behavior is determined by behavior intention, social support, accessibility of information, personal autonomy and action situation. Prevention of malnutrition in mothers and children is a long-term investment that can have a good impact on the current generation and the next generation. The purpose of the study was to determine the dominant factors in efforts to prevent stunting events in mothers with toddlers in the work area of the Wire Health Center, Tuban Regency [15].

## Materials and Methods

This study used a correlation descriptive design, aimed at explaining the relationship among variables. The timed approach is cross-sectional. The population is all mothers with toddlers as many as 400 mothers, the sample was selected with a no

## Introduction

Stunting is a condition of failure to thrive in toddlers due to chronic malnutrition during the first 1,000 days of life (HPK) of

probability sampling technique, namely quota sampling of 200 mothers in the working area of the Wire Health Center Tuban Regency. The variable of the study is stunting prevention efforts. Its data collection using questionnaires, further tabulated in distribution tables and analyzed. Statistical test Descriptive analysis is univariate analysis for research variables of frequency and percentage distribution. Bivariate analysis with logistic regression test to analyze dominant factors.

## Results

Demographic characteristics of mothers with toddlers in the working area of Puskesmas Wire Tuban Regency based on Tables 1 and 2 shows that mothers with toddlers in the Tuban Regency Wire Health Center working area who participated in this study were mostly (69.5%) aged 20-35 years, most (52.5%) had junior high school/MTs education, almost all (78.5%) were not employed and almost all (77%) had an income of <2.5 million [16].

**Table 1:** Distribution of characteristics of mothers with toddlers in the working area of the Wire Health Center, Tuban Regency, August 2022.

Variable	Category	Frequency	%
Age	20-35 year	139	69.5
	>35 years	61	30.5
Total		200	100
Education level	No school	1	0.5
	SD/MI	31	15.5
	SMP/MTs	105	52.5
	High School/MA	47	23.5
	PT	16	8
Total		200	100
Work	Does not work	157	78.5
	Work	43	21.5
Total		200	100
Income	<2.5 million	154	77
	>2.5 million	46	23
Total		200	100

Factor analysis of efforts to prevent stunting events in mothers with toddlers in the working area of the Wire Health Center, Tuban Regency.

**Table 2:** Analysis of factors with the incidence of stunting in the working area of the Wire.

Variable	B	S.E.	Wald	Df	Sig.	Exp (B)	95.5% C.I for Exp (B)	
							Lower	Upper
Social support	1.151	0.526	4.786	1	0.029	3.163	1.127	8.874
Intention	1.27	0.537	5.596	1	0.018	3.56	1.243	10.195

Self-government	1.243	0.525	5.604	1	0.018	3.466	1.239	9.702	
Access information	-18.625	9113.179	0	1	0.998	0	0		
Situation	-18.833	17673.353	0	1	0.999	0	0		
Constant	70.976	39769.187	0	1	0.999	667439654355			
						545600000000			

Table 2 informs the following results:

- The social support variable obtained a regression coefficient of 1.151 with a level of significance (p-value) of  $0.029 < 0.05$ . Because the significance is smaller than  $p=0.05$ , the hypothesis is accepted. This means that social support has a significant effect on efforts to prevent stunting [17].
- The intention variable obtained a regression coefficient of 1.270 with a signification level (p-value) of  $0.018 < 0.05$ . Because the significance is smaller than  $p=0.05$ , the hypothesis is accepted. This means that intention has a significant effect on stunting prevention efforts.
- The autonomy variable obtained a regression coefficient of 1.243 with a signification level (p-value) of  $0.018 < 0.05$ . Because the significance is smaller than  $p=0.05$ , the hypothesis is accepted. This means that autonomy has a significant effect on efforts to prevent stunting.
- The information access variable obtained a regression coefficient of -18.625 with a signification level (p-value) of  $0.998 > 0.05$ . Because the significance is greater than  $p=0.05$ , the hypothesis is rejected. This means that access to information does not significantly affect efforts to prevent stunting events.
- The situation variable obtained a regression coefficient of -18.833 with a signification level (p-value) of  $0.999 > 0.05$ . Because the significance is greater than  $p=0.05$ , the hypothesis is rejected. This means that the situation does not significantly affect stunting prevention efforts.

## Discussion

Characteristics of mothers under five (education level, age, occupation, income) in efforts to prevent stunting in toddlers.

From the results of the study, it was found that most mothers with toddlers in the Wire Health Center working area of Tuban Regency were mostly (69.5%) aged 20-35 years, most (52.5%) had junior high school/MTs education, almost all (78.5%) were not working, almost all (77%) had an income of <2.5 million [18].

According to the Ministry of National Education (2001), education is the process of changing the attitudes and behavior of a person or group of people in an effort to mature humans through teaching and training efforts. The level of education of parents greatly affects the growth of children under five, the

level of education will affect food consumption through the selection of food ingredients. Mothers who have low education are 5.1 times more likely to have stunted toddlers. People who have higher education will respond more rationally than those who are poorly educated or those who are not educated. The higher one's education, the easier it is for a person to receive and develop knowledge and technology that can increase the productivity and welfare of his family. The lack of knowledge of stunting toddler families is because families have received information through health education about stunting carried out by Puskesmas Wire health workers and posyandu cadres, but stunting toddler families cannot understand it so they only consider the information as unimportant.

Maternal age is one of the factors that can affect nutritional status in toddlers. The results of the study, showed that maternal age has a significant relationship with the incidence of stunting. Mothers who are still classified as adolescents (<20 years) if pregnant have a higher risk of having stunting offspring than mothers of reproductive age (20-34 years). This study is in line with previous research in Ghana where maternal age has a significant relationship with the incidence of stunting and baduta of adolescent mothers has an 8 times risk of stunting compared to mothers who are old enough to conceive and give birth. A similar study was put forward; the relatively young age of mothers is closely related to growth failure in infants 0-11 months. Other studies show results that are in line with this study, where those who are too young (<20 years) and too old (>35 years) have a significant relationship with the incidence of stunting and have a 4 times higher risk of having stunting offspring compared to ideal age mothers (20-35 years). Mothers with toddlers who participated in this study were almost entirely in the productive age category which is one of the factors preventing stunting because physically and psychologically mothers are ready to carry out their role as parents [19].

According to Djaeni, work is the livelihood of what is the staple of life, something that is done to earn a living. Ever a person works daily in general 6-8 hours (the remaining 16-18 hours) used for life in the family, community, rest, sleep, etc., the wider employment opportunities, the more encouraging the number of women who work especially in the private sector. On the one hand, this has a positive impact on income growth, but on the other hand, it has a negative impact on child

development and maintenance. Mothers who participated in the study were almost entirely out of work, the researchers assumed mothers had enough time to seek access, participate in posyandu activities and care for their babies by providing nutrition and breast milk.

The amount of income earned or received by households can describe the welfare of a society. In developing countries, meeting food needs is still a top priority, because it is to meet nutritional needs. Nutritional problems are multidimensional problems because they are influenced by many interrelated factors. Economic factors (income), for example, will be related to a person's ability to meet their food needs so that it will also be related to nutritional status indirectly. At least, families with minimal income will not guarantee the availability of food quantities and diversity, because with limited money usually the family cannot have many choices. Said that families, especially mothers with low incomes, usually have less self-confidence and have limited access to participate in health and nutrition services such as posyandu, Bina Keluarga Balita and Puskesmas. Therefore, they have a higher risk of having malnourished children. However, in families with higher economies, high incomes do not guarantee that the food consumed by the family is better and more diverse. A greater amount of expenditure on food does not guarantee that the quality of food consumed is better and more diverse. Sometimes the difference lies in the price of food that is more expensive. Family income is related to economic status, but researchers assume that the area where mothers with toddlers live is in villages with sufficient land use and access to health services is easy and affordable, so that with relatively low family incomes they can still meet the nutritional intake of their toddlers by utilizing local food obtained from their yards.

### **Social support obtained by mothers in efforts to prevent stunting in toddlers**

Based on the results of the study, social support obtained a regression coefficient of 1.151 with a level of significance (p-value) of  $0.029 < 0.05$ . Because the significance is smaller than  $\alpha = 0.05$ , the hypothesis is accepted. This means that social support has a significant effect on efforts to prevent stunting.

Family support is a form of attitude, action and acceptance given by the family to sick family members. Family support is a continuous process of interaction in the form of attitudes, actions and family acceptance of family members by always being ready to provide help and assistance when needed. One of the external factors that affect family support is the practice in the family, namely how the family provides support, usually by taking disease prevention measures as an example to influence other family members to do the same. All family members play a role in providing family support to stunted toddlers, such as reminding them to eat, other family members reminding them to bring stunted toddlers to posyandu to monitor their height development and pay attention to complaints felt by stunted toddlers. In line with research, if good family support will be 3.4 times more likely to participate in weighing their toddlers to posyandu compared to families who do not get support from family. There are still mothers with stunting toddlers in Tunah

village, the working area of the Wire Health Center, who are not interested in bringing their children to the toddler Posyandu because they are embarrassed to have stunted children. Other family members may also not provide good support because they do not have knowledge about stunting so that no one supports the care of stunted children independently.

### **Mother's behavior intention in efforts to prevent stunting in toddlers**

The results of the intention research obtained a regression coefficient of 1.270 with a signification level (p-value) of  $0.018 < 0.05$ . Because the significance is smaller than  $\alpha = 0.05$ , the hypothesis is accepted. This means that intention has a significant effect on stunting prevention efforts.

Defines that behavior intention is a person's intention to act with respect to his health or health care. Behavioral Intention is a composite of subjective attitudes and norms about target behavior and predicts a person's actual behavior.

A person's desire to perform an action can be seen through his behavioral intention. Behavioral intention is the most significant factor influencing a person's actual behavior. Explains in Nursalam that intention plays a distinctive role in directing behavior, namely connecting deep behaviors believed and desired by a person with certain behaviors. Intention determines that the attitude believed will or will not be displayed as behavior. Stunting is closely related to the nutritional intake given to children, this is in line with Aulidina's research stating that mothers' intentions in doing kadarzi have a relationship with Kadarzi behavior in malnourished toddlers. Likewise, Asriningrum's research states that intention affects behavior change. So that someone's behavior begins with intention. Strong intentions will result in good behavior. Thus, good maternal intentions towards stunting prevention will affect maternal behavior as caregivers and regulators of food consumption of family members in an effort to improve family nutrition, especially to improve the nutritional status of infants and children in efforts to prevent stunting.

### **Personal autonomy of mothers in efforts to prevent stunting in toddlers**

The autonomy result obtained a regression coefficient of 1.243 with a signification level (p-value) of  $0.018 < 0.05$ . Because the significance is smaller than  $\alpha = 0.05$ , the hypothesis is accepted. This means that autonomy has a significant effect on efforts to prevent stunting.

Personal autonomy is the personal autonomy of the person concerned in taking actions or decisions or the right to control themselves, and is one of the starting points for a person's health behavior. Freedom in doing things is a fundamental factor that can influence a person's behavior. The freedom of mothers with toddlers to carry out stunting prevention behaviors is not prohibited and limited by the family and the surrounding environment. Based on this study, it was found that the mother's personal autonomy is almost entirely in the high category, so that mothers show freedom of behavior in stunting prevention both by providing good and balanced food intake,



exclusive breastfeeding and food sanitation to prevent stunting of their toddlers. This is in line with the results of Alfatihana's research, mothers with high personal autonomy will be able to determine their own good and balanced food intake for their children's needs without any obstacles. This is also in line with research conducted by Dian that the more individuals feel many supporting factors and few inhibiting factors to be able to perform a behavior, the greater their control over the behavior and vice versa.

Mothers with toddlers who played a role in this study mostly have high personal autonomy so that it is possible to be able to freely provide food intake, breast milk and other supporting factors that minimize the incidence of stunting in their babies.

### **Accessibility of information obtained by mothers in efforts to prevent stunting in toddlers**

Based on the results of the information access study, a regression coefficient of -18.625 was obtained with a significance level (p-value) of  $0.998 > 0.05$ . Because the significance is greater than  $\alpha = 0.05$ , the hypothesis is rejected. This means that access to information does not significantly affect efforts to prevent stunting events.

The availability of access to health services can provide preventive, promotive, curative and rehabilitative services as well as provide attention and confidence to people who need to use health services and shape community behavior patterns in improving health. Health workers have a function as facilitators who provide easy access to existing facilities and infrastructure so that the community can reach existing health services. With the high role of existing health workers, it will affect the understanding and behavior of health in the community. Health workers who routinely interact with the community are by visiting people's homes and providing the right information to mothers related to family health to behave in a healthy life. Officers who utilize technology will provide easy access to information through information technology that is more optimal in health services. Health promotion carried out by health workers, namely cadres, will be very meaningful in knowledge and attitudes in stunting reduction. This shows the important support that health workers have in stunting prevention. The support of health workers related to stunting prevention in terms of increasing knowledge and meeting information needs for families is very important. With the presence of health workers, public understanding related to stunting is getting better. Toddlers who get basic health programs are expected to monitor their growth and development, because during the toddler period they are prone to infection and susceptible to nutritional diseases. Healthy children are not because children are getting fatter but children who also experience an increase due to height increase. The availability, affordability and accuracy of health service access are the basis of health systems to solve various health problems and create equitable health for everyone and the results of this study do not prove the effect of access to information on stunting prevention because demographically the study location is close to health facilities and transportation access is very easy.

### **Action situation of mothers in efforts to prevent stunting in toddlers**

Based on the results of the situation research, a regression coefficient of -18.833 was obtained with a level of significance (p-value) of  $0.999 > 0.05$ . Because the significance is greater than  $\alpha = 0.05$ , the hypothesis is rejected. This means that the situation does not significantly affect stunting prevention efforts.

Situation is one of the determinants of stunting prevention behavior. Conditions or situations in the environment of mothers with toddlers make it possible to behave in preventing stunting, with support from the surrounding environment. The environment is divided into family, school and promotional environments carried out by food companies both on print and electronic media. Family and school environments will affect a person's habits that can shape his diet. Food advertising promotion will also bring attraction to someone which will later have an impact on the consumption of these foods, so that it can affect a person's diet. Access to clean water and poor sanitation facilities can increase the incidence of index which can make energy for growth diverted to the body, body resistance to infection, nutrients difficult to be absorbed by the body and stunted growth. Sanitation factors and environmental cleanliness affect children's growth and development, because at the age of children are susceptible to various infections and diseases. Continuous exposure to human and animal feces can lead to chronic bacterial infections. The infection is caused by poor sanitation and hygiene practices that make nutrition difficult for the body to absorb. One of the triggers of digestive tract disorders is low sanitation and environmental hygiene. This makes the energy for growth diverted to the body's resistance to infection. The results of this study are not in line with research which states that situations to act have a positive relationship in influencing behavior change. Action situations do not have a big role in preventing stunting events because the use of local food can provide good food intake for toddlers, mothers who do not work there are no obstacles in caring for their toddlers and good intentions and support from mothers and families in carrying out stunting prevention measures.

### **Conclusion**

Social support, intention and autonomy have a significant effect on efforts to prevent stunting. This is because families that do not provide good support do not support the care of stunting children independently, as well as strong maternal intentions will produce good behavior, thus good maternal intentions towards stunting prevention will affect maternal behavior, high personal autonomy allows mothers of toddlers to freely provide food intake, Breast milk and other supporting factors that minimize the incidence of stunting in their babies. Meanwhile, access to information and situations does not significantly affect efforts to prevent stunting events. It is necessary for mothers with toddlers to participate in the PIS-PK program (Healthy Indonesia Program with a Family Approach) and health workers and cadres to bring closer/improve access to health services by visiting family homes (home visits).

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