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# Factors That Increase The Risk of A Mother Giving Birth to A *Stunting Toddler*

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## ABSTRACT

*Stunting* is a condition where linear growth is disturbed so that the body height is not normal, also known as being short or dwarf in comparison to the standard age. This matter is caused by nutrition and health in the poor pre- and post-natal period. An educated and knowledgeable mother has a significant role in overcoming, managing, and organizing family resources to meet nutritional needs. The study was directed at analyzing factors that increase the risk of mothers giving birth to stunted toddlers in work areas at the Public Health Center Namorambe. The study uses a descriptive-analytical approach using a cross-sectional model, where data collection is conducted in a single instance.Thirty mothers were studied as study subjects with toddlers ages 0–60 months with *stunting* conditions and living in the work area of the Public Health Center Namorambe. The study results show that the possibility of mothers giving birth to stunted toddlers is affected by their knowledge, attitudes, and actions.

**Keywords: risk factors, mothers, toddlers, *stunting***

## INTRODUCTION

The main problem with nutrition is that it has a very significant impact on social and economic conditions. Studies provide information that individuals who are stunted have a higher risk of death and are vulnerable to various diseases. Physical performance is disturbed by the occurrence of *stunting*, as well as their intellectual and mental health (Mann et al., 2023).

In the world, it is estimated that there are 165 million children aged < 5 years who experience malnutrition, including failure to grow linearly or *stunting*. The global public health community prioritizes the incidence of *stunting*; the target is to reduce it by around 40% by 2025. WHO data shows that 162 million children under five are stunted (2012) and targeted to decrease to 127 million (2025); of course, efforts will be made to overcome this (Kementerian Kesehatan RI, 2016). In various countries, there are many intervention programs applied to reduce and prevent *stunting*. Food and Nutrition Surveillance System is carried out in Brazil with continuous monitoring of the nutritional status of the population (WHO, 2014). UNICEF itself carries out *stunting* prevention operations in Africa (Remans et al., 2011). In many developing and poor countries, *stunting* occurs, with figures in Southern Asia (35.0%) and Africa (36.0%) ((Quamme & Iversen, 2022; Wali et al., 2020). Overall, the prevalence of *stunting* in

developing countries is up to 32.0%. The incidence of *stunting* in Indonesia is quite high (36.4%) compared to Malaysia (20.0%) and Thailand (10.5%), and it ranks 17th in the world among 117 countries experiencing *stunting* (Huriah & Nurjannah, 2020).

Data from Riskesdas 2013 shows *stunting* had a prevalence of 37.2%, an increase from 35.60% (2007) and 36.80% (2010). Prevalence in 2013, the decline was minimal, initially from 18.80% to 18.00% (2007) and 18.50% (2010). The prevalence increased from 18.0% (2007) to 19.20% (2013). The prevalence is around 20 provinces above the National average; North Sumatra is in eighth place (Kementerian Kesehatan RI, 2014). The 2014–2017 period shows that the number of *stunting* varies from 27.50% to 29.60% (Kementerian Kesehatan RI, 2017). In Medan City, North Sumatra Province, there were 210,958 toddlers, with 3,169 (1.50%) *stunting* in 2015. Medan Tembung, Deli, Maimun, Belawan, Sunggal, Helvetia, Marelan, and Timur, each with 6.6, 4.4, 2.7, 1.5, 1.4, 1.3, 1.1, and 1.04%; are the eight subdistricts with the highest prevalence (Dinas Kesehatan Kota Medan, 2015).

Mothers who are knowledgeable about nutrition have a huge influence on children's growth and development (Bintang, 2020). Mothers have a significant impact on shaping the health behavior of their families. The determinants of health behavior are categorized into three elements: predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include individuals' health knowledge and attitudes, cultural traditions, beliefs related to health, societal value system, level of education, and economic status. Enabling factors include the presence of accessible facilities, infrastructure, and healthcare services within the community. Reinforcing factors can be seen in the attitudes and actions of healthcare professionals or other workers, who serve as a standard for community behavior (Noorhasanah et al., 2020).

Various factors contribute to *stunting*, including access to nutritious food, care practices, and minimal knowledge about health and nutrition before and during pregnancy, as well as limited health services, including *Ante* and *Postnatal Care*, as well as poor sanitation. Therefore, this research focuses on developing fundamental variables that make certain mothers more vulnerable to giving birth to underdeveloped toddlers, specifically examining their knowledge, attitudes and behavior. The objective of the study is to examine the factors that contribute to the increased risk of mothers giving birth to underdeveloped children.

## METHODS

This study is a quantitative descriptive study using a *cross-sectional approach*, indicating that data is gathered at a single point in time. The study was carried out in Pancurbatu in December 2023. The sample population consisted of 30 respondents who met the criteria, specificially mothers who had *stunted toddlers* and visited the Pancurbatu Public Health Center.

The dependent variable consists of mothers who are at risk of giving birth to stunted toddlers, while the independent variables are knowledge, attitudes, and actions. The measurements of the variables were conducted using an ordinal scale. It can be explained as follows:

Knowledge: The examination has 20 statements, including both positive and negative comments. For positive statements, a correct answer is given a score of 2, while an incorrect answer is given a score of 1. For negative statements, a correct answer is given a score of 1, while an incorrect answer is given a score of 2.

Attitude: The assessment includes 20 statements, each consisting of positive and negative comments. For positive statements, choosing the agree option will result in a score of 2, while choosing disagree will result in a score of 1. When answering negatively, choosing "agree" will result in a score of 1, while choosing "disagree" will result in a score of 2.

Action: The examination includes 20 statements that include both positive and negative statements. For positive statements, a score of 2 is given for a positive response, while a score of 1 is given for a negative response. When answering negatively, a score of 1 is given for a "yes" answer, and a score of 2 is given for a "no" answer.

The analysis carried out included both univariate and bivariate methods. The univariate analysis is used to describe the frequency distribution of the respondents characteristics and variables. The bivariate analysis is conducted to examine the impact of knowledge, attitudes, and behaviors on the risk of mothers giving birth to stunted toddlers. The *chi-square* test was used due to the categorical nature of the data. The data were analyzed using the *SPSS version 21.0 program for Windows*. The results are presented in the form of narratives and frequency distribution tables.

## RESULTS

### Univariate Analysis

A univariate analysis was conducted to clarify and illustrate all the variables in the study, including age, education, number of children, age of toddlers, gender, type of stunting, knowledge, attitudes, and actions.

**Table 1. Description of Respondent's Mother**

| Characteristics | Frequency (f) | Percentage (%) |
|---|---|---|
| **Age (Year)** | | |
| 20-30 | 24 | 80.0 |
| 31-40 | 6 | 20.0 |
| **Education** | | |
| Senior High School | 21 | 70.0 |
| Junior High School | 8 | 26.7 |
| Elementary School | 1 | 3.3 |
| **Child (Person)** | | |
| 1 | 3 | 10.0 |
| 2-4 | 25 | 83.3 |
| >4 | 2 | 6.7 |
| **Toodler (Month)** | | |
| 1-12 | 1 | 3.3 |
| 13-24 | 7 | 23.3 |
| 25-36 | 7 | 23.3 |
| 37-60 | 15 | 50.0 |
| **Gender** | | |
| Female | 13 | 43.3 |
| Male | 17 | 56.7 |
| **Stunting** | | |
| Short | 18 | 60.0 |
| Very short | 12 | 40.0 |
| **Knowledge** | | |
| Not good | 22 | 73.3 |
| Good | 8 | 26.7 |
| **Attitude** | | |
| Negative | 14 | 46.7 |
| Positive | 16 | 53.3 |
| **Action** | | |
| Not good | 15 | 50.0 |
| Good | 15 | 50.0 |

Table 1 provides information on the demographic characteristics of mothers aged 20-30 who have a high school degree and have 2-4 children each. The table shows that among the total number of respondents, 24 (80%), 21 (70%), and 25 (83.3%) fall into this category. Among the respondents, the majority of toddlers aged 37-60 months were male, with 15 (50%) and 17

(56.7%) respondents, 18 (60%) displayed slowed growth resulting in shorter bodies. The majority of mothers, 22 (73.3%) respondents, had limited understanding of *stunting*. However, 16 mothers (53.3%) showed a positive attitude and the action of mothers towards stunted toddlers was evenly split between positive and negative behaviors, with 15 (50%) of the respondents.

**Bivariate Analysis**

Bivariate analysis is a statistical analysis method used to examine the relationship or condition between an independent variable and a dependent variable. This analysis uses the chi-square statistical test with a level of assurance of 95%.

**Table 2. Factors that Influence the Risk of Mothers Giving Birth to *Stunted Toddlers***

| Variable | *Stunted* Toddlers | | | | Total | | P-value |
|---|---|---|---|---|---|---|---|
| | Short | | Very short | | | | |
| | f | % | f | % | f | % | |
| **Knowledge** | | | | | | | |
| Not good | 16 | 53.3 | 6 | 20.0 | 22 | 73.3 | 0.034 |
| Good | 2 | 6.7 | 6 | 20.0 | 8 | 26.7 | |
| **Attitude** | | | | | | | |
| Positive | 5 | 16.7 | 11 | 36.7 | 16 | 53.3 | 0.001 |
| Negative | 13 | 43.3 | 1 | 3.3 | 14 | 46.7 | |
| **Action** | | | | | | | |
| Not good | 14 | 46.7 | 1 | 3.3 | 15 | 50.0 | 0,000 |
| Good | 4 | 13.3 | 11 | 36.7 | 15 | 50.0 | |

Table 2 provides an overview of the mothers who were at risk of giving birth to toddlers with stunted growth. Out of the respondents, 16 (53.3%) had insufficient knowledge, 13 (43.3%) had a negative attitude, and 14 (46.7%) showed poor behavior.

## DISCUSSION

### Influential Factors Affecting the Risk of Mothers Giving Birth to *Stunted Toddlers* Based on Level of Knowledge

This research covers a range of knowledge relevant to the prevention of *stunting* in children that is known to pregnant women. This includes information on several aspects such as nutrition throughout pregnancy, vaccination, regular pregnancy check-ups, taking iron pills, early initiation of breastfeeding, place of delivery, and the importance of exclusive breastfeeding. This includes supplementary nutrition from breast milk, vaccinations, essential nutrients, and the frequency of meals.

The study results show that a significant number of mothers are susceptible to birthing underdeveloped children due to their limited understanding. Statistical analysis shows there is a significant correlation between knowledge and the probability of mothers birthing stunted toddlers.

Based on the responses of the participants about their understanding of *stunting*, it was discovered that the majority of mothers had insufficient knowledge. This is shown in the responses to the questionnaire, which indicate that numerous mothers lack sufficient knowledge on vaccinations for pregnant women, the necessity of exclusive breastfeeding for a period of 6 months, and the importance of complementary nutrition alongside breast milk. In order to improve the knowledge of pregnant women, counseling sessions can be provided at their health examinations. Additionally, pregnant women's group classes may be created in each sub-district from the beginning of pregnancy.

According Kusumawati et al., (2015) identified several risk factors for *stunting*, including immunization, household economy, food availability, maternal knowledge, health services, and environmental sanitation. This study has similarities to Kusumawati's research in terms of maternal knowledge and family income. However, the model used to adjust for *stunting* differs. Kusumawati's study presents a model for empowering families, whereas this study presents a paradigm for empowering a cadre. Kusumawati's study results show that three factors, including infectious diseases, availability of food, and environmental sanitation, collectively contribute to stunting in children aged 6 to 36 months. The most commonly encountered infectious diseases in this group are acute respiratory infections (ARI) and diarrhea. The bivariate analysis of maternal factors shows a statistically significant relationship (p value < 0.05), specifically in relation to the maternal knowledge variable (p value = 0.008) with an odds ratio (OR) of 3.27. This shows that having poor maternal knowledge is associated with a 3.27 times higher risk of stunting compared to having good maternal knowledge.

**Influential Factors on the Risk of Maternal Birth of *Stunted Toddler* Based on Attitudes**

Attitude implies the level of importance and accountability a pregnant mother has towards various activities such as maintaining proper nutrition during pregnancy, getting vaccinated, going to regular pregnancy examinations, choosing a suitable place for delivery, practicing exclusive breastfeeding, providing appropriate supplementary nutrition, initiating early breastfeeding, taking iron tablets, receiving essential immunizations and vitamins, and maintaining sufficient eating frequency to prevent *stunting*.

The study results showed that a significant number of mothers who were at risk of birthing stunted toddlers with low heights showed a negative attitude. Statistical analysis shows a significant correlation between attitudes and the probability of mothers birthing stunted toddlers.

The respondents' answers show that mothers with negative attitudes, such as ignoring the impact of malnutrition on toddlers, failing to follow recommended guidelines for vaccinations during pregnancy, and not complying with recommended practices of exclusive breastfeeding and supplementary nutrition, are more likely to give birth to *stunted toddlers.*

The lack of variety in dietary options and the introduction of supplemental foods alongside breast milk at the appropriate time are directly linked to the occurrence of stunting in children between the ages of 6 and 24 months (WHO, 2023). The strategic plan of the Director General of Nutrition Development and the KIA program aims to improve the attitude of pregnant women with the goal of preventing stunting. This will be achieved by offering early nutritional guidance in pregnant women's group classes and other social activities. The effectiveness of this activity relies on the crucial cooperation and collaboration of village administration with public health centers, RWs, and RTs (Satriawan, 2019). The results of this study align with the research conducted by Kusumawardani and Muljono, (2018), indicating a statistically significant correlation between attitude and cadre work motivation of 0.390, a correlation between attitude and performance of 0.322, and a correlation between work motivation and performance of 0.375.

**Influential Factors on the Risk of Maternal Birth of *Stunted Toddler* Based on Actions**

Actions refer to the various initiatives made by the mother during pregnancy that are specifically linked with the 1000 HPK program, with the goal of preventing her child from experiencing *stunting*. The study results show that a significant number of mothers who are at risk of having undernourished toddlers with low heights showed insufficient behaviors. Statistical analysis shows a significant correlation between behaviors and the probability of mothers giving birth to stunted toddlers.

Based on the responses given by the participants, it indicates that mothers are not prioritizing early measures to prevent *stunting*. This includes neglecting to receive vaccinations during pregnancy, not consistently taking iron tablets, failing to initiate early breastfeeding, and not providing breast milk to their children until they reach the age of two. As a result, there is an increased possibility of giving birth to children who are stunted.

Providing exclusive breast milk, along with complementary nutrition with enough amounts of zinc and iron, can decrease the probability of *stunting* in children living in both rural and urban regions (Aridiyah et al., 2015). In order to prevent anemia in pregnant women, it is necessary to regularly consume iron tablets for a period of 3 months to prevent complications during pregnancy and labor (Hastuty et al., 2022).

To improve the prevention of *stunting*, it is essential to increase maternal intervention through the implementation of the Supplementary Food Program (PMT) at public health centers. Furthermore, direct monitoring of the dietary needs of pregnant women and toddlers should be done at home. Collaborating cadres and mothers with a track record of *stunting* in their toddlers may create small groups to exchange knowledge on *stunting* prevention and deliver instruction on cost-effective, nutritious meal options. Food diversity is essential for achieving a balanced nutritional intake.

## LIMITATION

The limitation of this research is the use of a cross-sectional maternal data survey. This type of research was conducted only once to study the behavior of mothers of toddlers during the 1000 HPK period. However, relying on data obtained from mothers may be less accurate due to their tendency to forget past behaviors.

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