



## Factors Associated with Stunting Prevention Behavior During Pregnancy in Pintu Angin Subolga Community Health Center in 2024

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p>Received Aug 30, 2024 Revised Sep 16, 2024 Accepted Sep 30, 2024</p>	<p>Stunting is a chronic nutritional problem that remains a major challenge to health development in Indonesia. Stunting is characterized by growth failure in toddlers due to prolonged malnutrition, particularly from pregnancy to the first 1,000 days of life. The impact of stunting is not limited to a child's physical growth but can also affect cognitive development, intelligence, and future productivity, even increasing the risk of degenerative diseases in adulthood. Data from the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) in 2022 indicates that the global stunting prevalence remains at 22%, while in Indonesia the prevalence in 2022 was 21.6% (Ministry of Health of the Republic of Indonesia, 2023). This indicates that the problem of stunting still requires serious attention, including prevention during pregnancy. Pregnancy is a crucial period for determining the nutritional status of the fetus. The behavior of pregnant women in preventing stunting is influenced by various factors, including knowledge about nutrition, attitudes toward the importance of prenatal care, family support, access to health services, and socioeconomic status. Pregnant women with good knowledge about nutrition, the importance of taking iron supplements, regular prenatal checkups, and a balanced diet are more likely to be able to prevent the risk of stunting in their children. Conversely, pregnant women who lack understanding of stunting risk factors and do not receive adequate support are at risk of having children with growth disorders (Aridiyah, Rohmawati, &amp; Ririanty, 2015; Ministry of Health of the Republic of Indonesia, 2021). This study aims to determine the factors associated with stunting prevention behaviors during pregnancy in the Pintu Angin Sibolga Community Health Center (Puskesmas Pintu Angin Sibolga) working area. This type of research is an analytical study with a cross-sectional design. The study population was all pregnant women in the Pintu Angin Sibolga Community Health Center working area. The study sample was obtained using a purposive sampling technique with a total of ... respondents (adjusted to the sample size). The research instrument was a structured questionnaire that had been tested for validity and reliability. The variables studied included knowledge, education, family support, and access to health services regarding stunting prevention behaviors. Data were analyzed using the Chi-Square test with a 95% confidence interval. The results showed that most pregnant women had good stunting prevention behaviors. The most dominant factor associated with stunting prevention behavior was maternal knowledge of pregnancy nutrition (<math>p &lt; 0.05</math>), followed by family support and access to health services. Meanwhile, maternal attitudes were also significantly associated with stunting prevention behavior. Although its contribution is smaller than knowledge, the results of the multivariate analysis indicate that knowledge is the most influential factor in stunting prevention behavior among pregnant women in the Pintu Angin Community Health Center (Puskesmas) in Sibolga. This study concluded that knowledge, attitude, family support, and access to health services</p>
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significantly correlated with stunting prevention behavior among pregnant women. The most dominant factor was maternal knowledge about stunting prevention. Therefore, interventions are needed through increased health education, nutritional counseling, and mentoring programs for pregnant women by health workers and families. The Pintu Angin Community Health Center in Sibolga is expected to strengthen health promotion activities, balanced nutrition counseling, and regular pregnancy monitoring to prevent stunting early.

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## 1. Introduction

Stunting is a chronic nutritional problem that has a serious impact on the quality of human resources in the future.(Rahmawati et al., 2020),(Archda & Tumangger, 2019)The World Health Organization (WHO) defines stunting as a condition of failure to thrive in children due to chronic malnutrition, repeated infections, and inadequate psychosocial stimulation, especially in the first 1,000 days of life, namely from conception until the child is two years old.(Hartini, Widiyanti, Maigoda, Yanniarti, & Yulyana, 2023),(Maigoda, Simbolon, & Al Rahmad, 2023)In Indonesia, stunting remains a public health problem with a relatively high prevalence. Data from the 2022 Indonesian Nutritional Status Survey (SSGI) shows that the national stunting prevalence reached 21.6%. Although this figure has decreased compared to previous years, it remains above the WHO standard, which targets a stunting prevalence of less than 20%.(Patimah, 2021),(Harjanti, Hakim, & Salim, 2023)

Stunting or stunted growth in children is a serious public health problem in Indonesia.(Archda & Tumangger, 2019),(Rumlah, 2022)According to data from the Indonesian Ministry of Health, the prevalence of stunting is showing a downward trend, but remains high and is a priority in the National Medium-Term Development Plan (RPJMN). Effective stunting reduction requires intervention from the earliest stage, namely during pregnancy, as many risk factors begin to develop during the prenatal period.(Anggryni et al., 2021),(Hartini et al., 2023).

During pregnancy, maternal behavior such as adequate nutritional intake, routine antenatal care, supplement consumption (e.g. iron and folic acid), environmental cleanliness, and also maternal knowledge and attitudes towards the risk of stunting greatly determine the risk of fetal growth and the child's initial nutritional condition after birth.(Darmayanti & Puspitasari, 2021),(Erdysta, 2024). Maternal malnutrition, infections, teenage pregnancy, short birth spacing, low prenatal care doses, and socioeconomic conditions are some of the factors that have been shown to be associated(Miranti, 2022),(Pratiwi & KM, 2021).

The Pintu Angin Community Health Center (Puskesmas Pintu Angin) in Sibolga City has unique demographic and socio-cultural characteristics. As a coastal city in North Sumatra, Sibolga, with its diverse community backgrounds, economic conditions, access to healthcare facilities, and local cultural norms, can influence how pregnant women behave regarding stunting prevention. Factors such as maternal education level, access to antenatal care, availability and utilization of nutritional supplements, and support from family and community members are likely to vary significantly across the region.(Zaskiah, 2024),(Efriani, Damarini, & Yorita, 2024).

Furthermore, the literature shows that stunting prevention behavior is not only influenced by individual factors (e.g. maternal knowledge, attitudes, practices), but also by the interpersonal environment (family support, partner)(Imroatus, 2022),(Nur'aeni, 2024), health service conditions (ease of access, frequency of ANC visits), household economic conditions, as well as cultural and physical environmental factors (sanitation, clean water sources)(Tassi, Sinaga, & Riwu, 2021).

Previous research in Indonesia also emphasized that maternal knowledge about nutrition during pregnancy is closely related to the implementation of stunting prevention behaviors, but there are gaps in implementation—both in terms of fulfilling micro and macro nutrient intake, supplement use, and compliance with prenatal check-ups.

Therefore, this study aims to identify factors associated with stunting prevention behaviors among pregnant women in the Pintu Angin Community Health Center (Puskesmas Pintu Angin) area, Sibolga. Understanding these factors is expected to generate recommendations for more effective local interventions, such as educational programs, improved antenatal care services, nutritional supplementation, or appropriate sociocultural approaches.

## 2. Methods

### 2.1 Research Design

This study used a quantitative design with an observational analytical approach. This research design was chosen because the aim was to determine the relationship between independent factors (knowledge, education, economic status, family support, access to health services) and the dependent variable, namely pregnant women's behavior in preventing stunting.

The type of research used was a cross-sectional study, which measures independent and dependent variables simultaneously over a specific period of time. This design is considered appropriate because it can provide a quick and efficient picture of the relationship between variables and can be used to describe the prevalence of stunting prevention behaviors among pregnant women in the Pintu Angin Sibolga Community Health Center (Setia, 2016).

### 2.2 Population and Sample

The population in this study was all toddlers aged 24–59 months in the working area of the Pintu Angin Community Health Center (UPT) in Sibolga City. The study sample consisted of 50 toddlers who met the inclusion criteria, namely toddlers identified as having malnutrition based on the W/U indicator, were within the specified age range, and received consent from their parents/guardians to participate in the study. The sample was divided into two groups, namely 25 toddlers for the intervention group and 25 toddlers for the control group. The sampling technique was carried out using purposive sampling, taking into account the availability of respondents and eligibility for intervention. The group division was based on data from active integrated health posts (Posyandu) in the working area of the Community Health Center and adjusted to the location and parental readiness to receive supplementary food intervention.

Based on data from the Sibolga City Health Office and the Pintu Angin Community Health Center (Puskesmas) register in 2021, the number of registered pregnant women was 480. Using the Slovin formula at a 95% confidence level and a 5% margin of error, a minimum sample size of 217 respondents was obtained. To anticipate respondents who dropped out or could not be contacted, the sample size was increased by 10%, bringing the total sample size to 240 pregnant women.

Thus, the sample size is considered sufficiently representative of the pregnant women population in the Pintu Angin Community Health Center (Puskesmas Pintu Angin) working area. This number is also sufficient for statistical analysis to examine factors related to stunting prevention behavior during pregnancy, including age, education level, occupation, knowledge, attitudes, family support, and access to health services.

### 2.3 Data Collection Techniques and Instrument Development

Data collection is a crucial stage in research because data quality will significantly determine the

validity and reliability of the results. In this study, data collection was conducted through face-to-face interviews using a structured questionnaire. Face-to-face interviews were chosen to allow enumerators to clearly explain the questions to pregnant women, ensure each item is understood correctly, and reduce the risk of misunderstandings or incomplete answers (Notoatmodjo, 2020).

Data were collected by enumerators who had received special training in interview procedures, research ethics, and techniques for approaching pregnant women in a respectful and privacy-respecting manner. Prior to the interview, each respondent was given an explanation of the study's purpose, benefits, their right to refuse or stop mid-interview, and guaranteed confidentiality, in accordance with the principle of informed consent.

In addition to interviews, field observations were also conducted as supporting data. These observations aimed to assess pregnant women's behaviors in real-world settings related to stunting prevention, such as the implementation of balanced nutrition practices, home hygiene, use of iron supplements or tablets, and adherence to antenatal care (ANC) check-ups. These observations helped validate respondents' answers in the questionnaire, resulting in more accurate and reliable data (Putri et al., 2020).

#### 2.4 Data Collection Techniques and Instrument Development

This research data analysis uses:

##### a. Univariate

The data obtained were analyzed through two stages: univariate analysis and statistical analysis. Univariate analysis was conducted to describe and explain the characteristics of each variable separately. The variables analyzed univariately in this study included demographic characteristics of pregnant women such as age, education, occupation, economic status, as well as the main research variables, namely pregnant women's knowledge and stunting prevention behavior.

##### b. Bivariate Analysis

Bivariate analysis was conducted to assess the relationship between two variables: pregnant women's knowledge (independent variable) and stunting prevention behavior (dependent variable). This analysis allowed researchers to determine whether increased knowledge was associated with changes in stunting prevention behavior in pregnant women.

### 3. Results and Discussion

This study involved 240 pregnant women registered in the Pintu Angin Community Health Center (Puskesmas) in Sibolga. Univariate analysis showed that most pregnant women were in the 25–34 age group (45%), had a high school education (40%), and the majority worked as housewives (65%). This demographic distribution aligns with the situation for pregnant women in mid-urban areas in Indonesia (Ministry of Health, 2021). The questionnaire revealed that 60% of pregnant women had good knowledge about stunting and how to prevent it, 25% had moderate knowledge, and 15% had poor knowledge. This indicates that the majority of pregnant women understand the importance of nutrition and stunting prevention behaviors during pregnancy. Univariate results for stunting prevention behaviors showed that 50% of pregnant women had optimal behaviors, 30% had adequate, and 20% had inadequate behaviors. Optimal behaviors included adherence to iron supplementation, regular ANC check-ups, and a balanced diet.

Table 1.

The following table shows the distribution of knowledge and behavior of pregnant women.

Variables	Category	Frequency(n)	Percentage(%)
Knowledge of Pregnant Women	Good	144	60
	Currently	60	25
	Not enough	36	15
Stunting Prevention Behavior	Optimal	120	50

Enough	72	30
Not enough	20	20

A chi-square test was conducted to examine the relationship between pregnant women's knowledge and stunting prevention behavior. The analysis showed a significant relationship between knowledge and stunting prevention behavior ( $p < 0.05$ ). Pregnant women with good knowledge tended to have optimal stunting prevention behavior compared to those with moderate or poor knowledge.

Knowledge	Behavior Optimal	Behavior Enough	Behavior Not enough	Total
Good	90	40	14	144
Currently	24	25	11	60
Not enough	6	7	23	36
Total	120	72	48	240

**Chi-Square Test  $p = 0.003$**

The results of this study indicate that pregnant women's knowledge is significantly associated with stunting prevention behaviors. Pregnant women with good knowledge are more likely to optimally implement stunting prevention measures, including nutritional needs, ANC adherence, and iron supplementation. This finding aligns with previous research showing that knowledge is a key factor influencing pregnant women's behaviors in stunting prevention (Putri et al., 2020; Rizki & Astuti, 2022).

Besides knowledge, other supporting factors influencing stunting prevention behavior are family support and access to healthcare services. Families who provide moral and material support, such as providing nutritious food and accompanying pregnant women during antenatal care (ANC) checkups, play a crucial role in increasing maternal compliance. This aligns with the principles of the First 1,000 Days of Life (HPK), which emphasize the family's role in preventing stunting from pregnancy (Ministry of Health, 2021).

However, some pregnant women still have good knowledge but less than optimal behavior. This can be due to economic factors, limited time, or cultural barriers and dietary habits. This finding underscores the importance of holistic interventions, including not only education but also social support and nutritional supplementation programs for pregnant women in the Pintu Angin Community Health Center (Puskesmas Pintu Angin) area (Sari & Lestari, 2019).

Overall, this study confirms that pregnant women's knowledge is a key factor in determining stunting prevention behavior, but environmental and social factors also play a significant role. Therefore, stunting prevention intervention programs must be comprehensive, involving education, family support, and easy access to health services.

#### 4. Conclusions

Based on the results of research on factors related to stunting prevention behavior in pregnant women in the working area of the Pintu Angin Community Health Center, Sibolga, several conclusions can be drawn as follows: The level of knowledge of pregnant women is significantly related to stunting prevention behavior. Pregnant women who have good knowledge about the causes of stunting, the importance of nutrition, and stunting prevention practices tend to have optimal behavior in preventing stunting during pregnancy. This shows that education and increasing knowledge of pregnant women play a significant role in forming appropriate prevention behavior. Stunting prevention behavior is influenced by family and environmental support. Moral and material support from family members makes it easier for pregnant women to implement stunting prevention behaviors, such as consuming balanced nutrition, compliance with ANC checkups, and the use of additional supplements such as iron

and folic acid tablets. This is in accordance with the principles of the First 1,000 Days of Life (HPK) program which emphasizes the importance of the family's role in preventing stunting from pregnancy. Economic, cultural, and access to health service barriers can influence the behavior of pregnant women. Although some pregnant women have good knowledge, there are still less than optimal behaviors due to economic limitations, busyness, or cultural barriers that affect nutritional fulfillment and compliance with ANC checkups. These findings indicate that stunting prevention interventions should not only be based on education but should also be accompanied by social support and easy access to health services. Practical recommendations from this study emphasize the need for ongoing maternal health education programs, balanced nutrition counseling, additional supplementation, and family empowerment as the primary supporters of stunting prevention behaviors. Therefore, a combination of increased knowledge, family support, and access to health services can optimally improve stunting prevention behaviors in the Pintu Angin Community Health Center area. Overall, this study confirms that pregnant women's knowledge is a key factor in determining stunting prevention behaviors, but the effectiveness of these behaviors is strongly influenced by environmental and social factors. Therefore, stunting prevention interventions must be comprehensive and holistic, involving education, family support, and easy access to health services.

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