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Original Research

# Increasing Knowledge of Stunting through Education for Pregnant Women in the Second and Trimester

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**Abstract**

**Background:** Stunting is a growth disorder in children under five characterized by inappropriate height-for-age (TB/U) measurements. Various preventive efforts have been implemented, including routine classes for pregnant women that provide education about stunting to improve maternal knowledge and awareness.
**Objective:** To describe changes in the level of knowledge among primigravida pregnant women in the second and third trimester before and after receiving stunting education.
**Methods:** This study used a one-group pretest–posttest design involving 32 primigravida pregnant women selected through purposive sampling. Knowledge was measured using a structured questionnaire administered before and after the educational intervention.
**Results:** Prior to the intervention, only seven respondents (21.9%) demonstrated good knowledge, while twenty-five respondents (78.1%) showed poor knowledge regarding stunting. Following the educational session, the number of respondents with good knowledge increased markedly to seventeen (53.1%), while those with sufficient knowledge were fifteen (46.9%). These findings indicate a substantial improvement in knowledge after the intervention.
**Conclusion:** Educational intervention effectively increased the knowledge of pregnant women regarding stunting. The notable improvement between pretest and posttest results highlights the importance of health education as a preventive strategy for stunting.

**Keywords:** Education; knowledge; pregnant women; primigravida; stunting

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## Introduction

Stunting is a condition in which children have a height that is shorter than the average for their age, caused largely by inappropriate nutritional intake during critical periods of growth. This condition inhibits optimal brain development and may result in long-term consequences, including mental retardation, reduced learning capacity, and an increased risk of chronic diseases such as diabetes, hypertension, and obesity (Ministry of Health, 2022). Indonesia is among the countries with the highest prevalence of stunting. Findings from the third year of the Nutrition Status Monitoring Study (PSG) show that stunting remains predominantly experienced by children under five. Globally, around 21.3% of toddlers are stunted, with an estimated 144 million children affected in 2019. The African and Southeast Asian regions recorded the highest stunting rates (WHO, 2021). Recent data further indicates that malnutrition in children under five in Asia reaches 21.8%, exceeding the global average of 21.3%, with Southeast Asia reporting a stunting incidence of 24.7% the second highest after South Asia (Ministry of Health, 2022).

The Nutrition Library report (2020) highlights that despite national progress in reducing stunting, Indonesia's prevalence remains higher than the Southeast Asian average, ranking fourth in the region. Results from the Indonesian Health Survey in July 2023 also show a decrease in the national stunting rate from 24.4% to 21.6%. However, this decline still falls short of the national target of 14% set for 2024 (Ministry of Health of the Republic of Indonesia, 2023). Numerous direct and indirect factors influence the occurrence of stunting. Direct triggers include infectious diseases and inadequate food intake in children, while maternal nutritional status before and after pregnancy serves as a predispositional factor affecting fetal well-being and contributing to neonatal malnutrition. Additionally, poor parenting experience, limited access to health care services, food insecurity, and economic hardship also affect the short- and long-term health outcomes of toddlers (Khoirul Anna, 2022).

Findings by Septamarini et al. (2019) in the Journal of Nutrition College show that mothers with low knowledge of stunting prevention have a ten-fold higher risk of having stunted children compared to those with adequate knowledge. Knowledge itself is obtained through a process of "knowing" that occurs after an individual senses or observes something using their five senses sight, hearing, smell, taste, and touch with sight and hearing serving as the primary channels for knowledge acquisition (Notoatmodjo, 2020). A preliminary study conducted by researchers using data from the Nutrition Report Series found that stunting cases still exist within the working area of the Campagaloe Health Center, although the numbers declined from 35 cases in 2022 to 20 cases in 2023, with 19 cases recorded as of March 2024. Classes for pregnant women are one of the strategies used to provide education about stunting prevention.

An initial survey involving interviews with 10 pregnant women at the Campagaloe Health Center Regional Health Posyandu revealed that although all respondents recognized the general definition of stunting, most of them specifically seven mothers lacked understanding regarding its impacts, causes, and preventive measures. The mothers indicated that they had previously received information about stunting but could not recall the aspects asked by the researchers. This condition reflects a clear research gap: although educational efforts exist, pregnant women especially primigravida still demonstrate insufficient comprehension related to stunting, despite their critical role in prevention. Knowledge during pregnancy is essential because maternal understanding directly influences practices that can determine fetal and child nutritional outcomes.

Based on this research gap, the objective of this study is to analyze the level of knowledge of primigravida pregnant women in the second and third trimesters regarding stunting before and after receiving educational interventions about stunting in the working area of the Campagaloe Health Center, Bantaeng Regency.

## Methods

### Study Design

This study employed a pre-experimental survey approach using a single-group pretest–posttest design. This design was selected to describe the level of knowledge of pregnant women in the second and third trimesters regarding stunting before and after the provision of educational interventions.

### Samples

The study sample consisted of 32 primigravida pregnant women in their second and third trimesters. Participants were selected using a purposive sampling technique based on predetermined criteria, including residing within the working area of the Campagaloe Health Center in Bantaeng Regency and being within the gestational age range of the second and third trimester.

### Instruments

The research instrument used was a questionnaire developed based on educational material related to stunting. This questionnaire served to measure the knowledge of pregnant women through pretest and posttest assessments, enabling the identification of changes in knowledge following the educational intervention.

### Data Collection

Data collection was conducted in two stages. The first stage was the pretest, where participants completed the questionnaire to assess their initial knowledge level. The second stage was the posttest, administered after counseling or educational sessions, using the same questionnaire to evaluate changes in knowledge. Data collection took place at the Posyandu within the working area of the Campagaloe Health Center.

### Data Analysis

Data were analyzed quantitatively using descriptive statistical methods. Pretest and posttest scores were compared to determine differences in knowledge levels before and after the educational intervention. Percentages were used to categorize knowledge levels (good, sufficient, poor) and to identify changes resulting from the intervention.

### Ethical Considerations

Ethical approval for this study was obtained from the Tanawali Takalar STIKes Ethics Institute. An informed consent sheet was provided to each participant prior to data collection. Respondents were given clear information regarding the study and were required to sign the consent form as confirmation of their voluntary participation.

## Results

Table 1 shows that of the 32 respondents based on the age category, the most with a population of > 20-35 years old, i.e. category junior high school education is 14 people (43.7%), and based on work, the most respondents are not working, which is 22 people (68.7%).

Table 1. Respondent Characteristics

| Variable Category | | n | % |
|---|---|---|---|
| Age | < 20 years old | 5 | 15.6 |
| | 20–35 years old | 18 | 56.3 |
| | > 35 years old | 9 | 28.1 |
| Education | Elementary School (SD) | 5 | 15.6 |
| | Junior High School | 14 | 43.7 |
| | Senior High School | 10 | 31.3 |
| | Higher Education | 3 | 9.4 |
| Work | Working | 10 | 31.3 |
| | Not Working | 22 | 68.7 |
| Total | | 32 | 100 |

Source: SPSS Processed Data

Of the 32 respondents before getting education, 25 people (78.1%) had sufficient knowledge, and 7 respondents (21.9%) had good knowledge, according to Table 2. After the same respondent received counseling about stunting, it was seen that there was good knowledge for 17 (53.1%) respondents and lack of knowledge for 15 (46.9%). These results mean that there was an increase in Primigravida Pregnant women in the second and third trimester about Stunting before and after Education about Stunting in the Working Area of the Campagaloe Health Center, Bantaeng Regency.

Table 2. Knowledge Level of Respondents Before and After Education

| Knowledge Level | Before Education | | After Education | |
|---|---|---|---|---|
| | n | % | n | % |
| Good | 7 | 21.9 | 17 | 53.1 |
| Low | 25 | 78.1 | 15 | 46.9 |
| Total | 32 | 100 | 32 | 100 |

Source: SPSS Processed Data

## Discussion

### Knowledge Before Education

Stunting is a condition of impaired growth resulting from chronic malnutrition occurring during the first 1,000 days of life (WHO, 2021). The maternal role, especially in meeting nutritional needs and providing appropriate child care, is crucial in preventing stunting. Thus, increasing knowledge through education is considered one of the most effective strategies to reduce future stunting risk (Retanani et al., 2023). In this study, before the educational intervention, 25 out of 32 respondents (78.1%) had low levels of knowledge, while only 7 respondents (21.9%) demonstrated good knowledge. The pretest was conducted using a questionnaire developed from the educational materials, which enabled the identification of mothers' baseline knowledge.

According to Notoatmodjo (2018), education contributes significantly to the development of critical thinking and comprehension, which in turn influences knowledge acquisition. Maternal education is one

of the key determinants of stunting prevention efforts. Thus, providing structured education is an important approach to improving maternal knowledge and attitudes regarding stunting prevention (Pratiwi B.A., 2019). This finding aligns with the study by Zahra et al. (2021), which showed that the average knowledge level of pregnant women before receiving education was categorized as low.

In this study, the 7 respondents (21.9%) with good initial knowledge were predominantly those with higher levels of formal education—10 respondents had completed high school, and 3 respondents (9.4%) had higher education (PT). This supports evidence that individuals with higher education levels are better able to understand and process information effectively. Naldi & Purwaningrum (2020) also reported that education significantly affects how individuals interpret and internalize new information. Therefore, the researcher assumes that baseline knowledge is influenced by educational attainment and previous exposure to health information.

**Knowledge After Providing Education**

The results showed a clear increase in knowledge after the educational intervention. Mothers with good knowledge increased from 7 people (28.1%) to 17 people (53.1%), while those with low knowledge decreased from 25 people (78.1%) to 15 people (46.9%). This improvement is consistent with the purpose of health education, which is to promote positive behavioral changes by providing information, modifying perspectives, and encouraging healthier decision-making (Listyarini et al., 2020).

Education provided during the second and third trimesters plays an essential role in shaping maternal behavior, especially regarding nutrition and childcare practices that influence child growth and development (Handayani et al., 2020). This is supported by the findings of Retanani et al. (2023), which demonstrated that structured educational sessions using interactive methods significantly improved mothers' understanding of stunting impacts, prevention strategies, and general knowledge.

However, although knowledge increased, 14 respondents (46.9%) remained in the sufficient knowledge category. The researcher assumes that several demographic and psychosocial factors may have contributed to these outcomes. For example, 5 respondents (15.6%) were under 20 years old, and pregnant women within this age range may possess less maturity and limited experience in understanding child nutrition. Educational background also played a role; 5 respondents (15.6%) had only primary education, and 14 respondents (43.7%) had junior high school education, which may have affected their ability to fully comprehend the educational material provided. According to Khoirul Anna (2022), systematic and communicative education can improve knowledge across all educational backgrounds; however, comprehension may still vary depending on the individual's capacity to process information.a

Another factor influencing knowledge change relates to the timing and method of data collection. The pretest and posttest were administered on the same day, which may not have provided adequate time for respondents to internalize the information thoroughly. This could contribute to the remaining proportion of respondents with only moderate improvements.

This study has several limitations that should be acknowledged. First, the pretest and posttest were conducted on the same day, which may have limited the depth of knowledge retention and resulted in short-term recall rather than stable understanding. Second, the relatively small sample size of 32 primigravida mothers and the use of purposive sampling restrict the generalizability of the findings to broader populations. Third, the educational intervention consisted of only a single session, which may not be sufficient to produce long-term behavior change or sustained improvements in knowledge. Additionally, because the questionnaires were administered immediately after the education session, respondents may have been influenced by social desirability bias and felt compelled to provide answers they perceived as correct. These limitations highlight the need for future studies with larger samples, multiple educational sessions, and longer intervals between assessments to better evaluate the long-term impact of stunting education on maternal knowledge.

## Conclusion

The findings of this study indicate a significant increase in the knowledge of primigravida pregnant women regarding stunting after receiving educational interventions. Before education, only 7 respondents (28.1%) demonstrated good knowledge, which increased to 17 respondents (53.1%) following the intervention. This shows that providing structured and targeted education can effectively improve maternal understanding of stunting and its prevention. The study is expected to contribute to the enrichment of scientific knowledge among midwifery students at STIKes Tanawali Takalar and provide practical insights for midwives in designing educational and health promotion programs related to stunting prevention beginning in pregnancy. The results also emphasize the importance of continuous maternal education as a foundation for improving child nutrition outcomes. Despite its limitations, this research serves as a valuable reference for future studies and for strengthening maternal health literacy initiatives in community settings.

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