Medical : Jurnal Kesehatan Dan Kedokteran
Volume 3, Issue 2, July-December 2026
e-ISSN: 3064-6472 (online)
https://jurnal.sinesia.id/index.php/Medical-JKK/index

Mothers' Level Of Knowledge Regarding The Importance Of Vitamin D During Pregnancy For Stunting Prevention

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Info Article
|Submitted: 12 September 2026 **|Revised**: 24 september 2026 **|Accepted**: 4 November 2026
|Published: 4 November 2026
How to cite: Maria Ratu F. Halitopo, etc., "Mothers' Level Of Knowledge Regarding The Importance Of Vitamin D During Pregnancy For Stunting Prevention", *Medical : Jurnal Kesehatan Dan Kedokteran*, Vol. 3, Issue 2, July-December, 2026, P. 453-460.

ABSTRACT
Stunting is a chronic growth disorder in children characterized by a height or length below the standards established by the World Health Organization (WHO). Maternal nutrition during pregnancy plays an essential role in preventing stunting, particularly through adequate vitamin D intake, which supports calcium metabolism, bone development, and fetal growth. This study aimed to assess changes in mothers' knowledge regarding the importance of vitamin D during pregnancy for stunting prevention following a health education intervention and to describe respondents' characteristics based on age and educational background. This research employed a quantitative approach using a pre-experimental design with a one-group pretest-posttest model. The study was conducted in RW 06, Kebon Bawang Urban Village, Tanjung Priok District, North Jakarta, from July to September 2025, involving 50 mothers selected through purposive sampling. Data were collected using questionnaires administered before and after the educational intervention, which provided information about stunting risks and the importance of vitamin D during pregnancy. The collected data were analyzed using the Wilcoxon Signed-Rank Test with the assistance of SPSS. The findings indicated that 25 respondents (50%) were under 25 years old, while 25 respondents (50%) had completed elementary or junior high school education. Before the intervention, 21 respondents (42%) demonstrated moderate knowledge, 18 (36%) had poor knowledge, and 11 (22%) had good knowledge. Following the educational intervention, 47 respondents (94%) experienced an improvement in their knowledge scores, while 3 (6%) showed no change, and none experienced a decrease. The Wilcoxon test revealed a statistically significant difference between pretest and posttest knowledge scores ($Z = -6.004$; $p < 0.001$). These findings demonstrate that health education can significantly improve mothers' knowledge regarding vitamin D during pregnancy and its importance in stunting prevention. Continuous and accessible maternal health education is therefore essential to strengthen community awareness and support early stunting prevention efforts.
Keyword: *Stunting, Vitamin D, Pregnancy, Mothers' knowledge, Health education*

Introduction

Stunting is when a child's height or length for their age is too short, measured below −2 standard deviations from the WHO Child Growth Standards (Marsellinda & Ferilda, 2023). This condition could be connected to a mother not getting enough nutrition during pregnancy, feeding babies in the wrong way, poor eating habits, and repeated infections that stop normal growth (Fadlilah et al., 2022). So, preventing stunting is still a very important problem for public health. The World Health Organization says that about 22.3% of children worldwide are stunted, but

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in Indonesia, the rate was 21.6% in 2022, as reported by the Indonesian Nutritional Status Survey (SSGI) (WHO, 2023).

Helping mothers learn more about nutrition and health is very important in preventing stunting. Knowing things can help someone choose the right ways to take care of their health, but just knowing things on its own doesn't make someone actually do those healthy actions. Mothers who know about the right nutrients needed during pregnancy can make smarter decisions for their own health and the health of their unborn baby (Ulfa Kartika Sari, Mardiah Syofiana et al., n.d.). Studies show that women of childbearing age and mothers have different levels of understanding about stunting (Nasution et al., 2024). This situation shows how important it is to have health education that is easy to understand, closely related to people's lives, and simple to get.

Good maternal nutrition is very important during pregnancy, especially getting enough vitamin D (Fadlilah et al., 2022). Vitamin D helps the body manage calcium and strengthens bones by adding minerals. Vitamin D deficiency is a nutritional problem that has been noted to affect people of all different ages (Made Ayu Purnama Sari, 2022). During pregnancy, when a woman doesn't have enough vitamin D, it can lead to different health issues for both the mother and the baby.These include conditions like preeclampsia, diabetes, problems with bone health, the baby not growing properly, and being born with a low weight.These problems can then affect how the child grows later in life (Sri Hendrawatia & Wiwi Mardiahb, 2024).

Therefore, teaching people about good nutrition is a useful way to improve their understanding of how to prevent stunting. Sari and Nugraheni (2022) found that mothers who have more knowledge about nutrition during pregnancy are less likely to have children who suffer from stunting compared to mothers who have less knowledge. This shows how important it is to teach expecting mothers about their health, especially when it comes to taking vitamin D while they are pregnant. This study gave education on both stunting and the importance of vitamin D during pregnancy to see how it affected the participants' understanding.

Methods

This study uses a quantitative approach and follows a pre-experimental setup, which is a one-group pretest-posttest model. The study wants to find out how much people in the community know about the risks of stunting during pregnancy and the lack of vitamin D. The research took place in RW 06, Kebon Bawang Urban Village, located in Tanjung Priok District, North Jakarta, between July and September 2025.

The study included 50 mothers who lived in RW 06, Kebon Bawang, North Jakarta. Sampling was done using a purposeful method where people were chosen

based on set rules. The study included married women who were between 18 and 50 years old. Mothers with serious health problems like autoimmune diseases, cancer, or HIV/AIDS were not included in the study.

The researchers used purposive sampling to choose participants who fit the study's requirements, making sure the information gathered was connected to what they were trying to learn. However, this method has some limits because the people chosen to take part were not selected randomly. This condition could lead to a sample that doesn't accurately reflect the larger group, and it might make it harder to apply the results to people or places outside of the specific group studied.

Respondents' knowledge was checked through a questionnaire that included information about the risks of stunting during pregnancy and vitamin D deficiency. The same test was given before and after to check how much knowledge changed. The research process had three main steps. First, the participants took a pretest to check their existing knowledge. Next, the people involved were taught about the risks of stunting during pregnancy and why vitamin D is important in preventing stunting. After the education session, the respondents filled out the questionnaire again as a posttest to see how their knowledge had changed after the intervention.

The data collected were analyzed with the help of the Statistical Package for the Social Sciences (SPSS). Because the comparison used scores from before and after the intervention, the Wilcoxon Signed-Rank Test was used to check if there was a significant difference in knowledge scores after the educational program.

Results and Discussion

The researcher did a study in RW 06, Kebon Bawang, North Jakarta, called "Mothers' Knowledge Level Regarding the Importance of Vitamin D During Pregnancy for Stunting Prevention," from July to September 2025, and included 50 mothers in the study.

1.1 Respondent Characteristics

Tabel 1. Respondent Caharacteristics

Characteristics	n	%
Mother's Age		
< 25 Years	25	50
26 – 35 Years	21	42
> 35 Years	4	8
Education		
(Elementary school/Junior high school)	25	50
(High school)	19	38
College	6	12
Knowledge		
Good	11	22
Fair	21	42
Poor	18	36

Table 1 indicates that the biggest group of people surveyed is those who are younger than 25 years old, with 25 people in this group, which makes up 50% of the total. Half of the respondents, which is 25 people or 50%, have a basic level of education, meaning they have completed primary and junior high school. Out of the total respondents, 21 people, which is 42%, had moderate knowledge. Then, 18 people, or 36%, had low knowledge. The remaining 11 people, making up 22%, had good knowledge.

These results show that some people still don't have enough knowledge about stunting and vitamin D. Education level can play a role in how much someone knows, because it influences the way a person gets and understands information depending on what they have learned before. This finding matches what Nasution et al.(2024) found, as they also showed that education level is connected to knowledge about stunting. People who have more education might be better able to get, understand, and use health-related information.

Education helps people understand new information better and make smarter choices about their health. Walyani (2019) says that the way people learn can affect how they think and make decisions. In the area of maternal health, knowing enough about stunting and the role of vitamin D during pregnancy can help in taking the right steps to prevent problems. These practices involve taking good care of your home and family, like making sure everyone eats enough healthy food, stays active with exercise, gets some sunlight each morning, and takes any vitamins or supplements that a doctor has told them to take every day.

Besides their education, a person's knowledge can also depend on their age. Age can show how much someone knows, because as people get older, they usually

learn more things over time. In this study, people were grouped into three age groups: late adolescence (under 25 years old), early adulthood (26 to 35 years old), and late adulthood (over 35 years old). Late adolescence is the time when a person moves from being a teenager into early adulthood. During this period, their thinking becomes more mature, and they get better at understanding and dealing with information. Early adulthood is a time when people often start setting up a home and take on the duties of being a mother and managing household tasks. So, as someone gets older, they learn more and start to understand things better and have a clearer sense of what's happening around them (Insan & Setyorini, 2019).

1.2 Respondents' Knowledge Levels

Table 2. Results of the Wilcoxon Signed-Rank Test on Knowledge Levels Before and After Education

Category	N	%
Negative Ranks (Post-test < Pre-test)	0	0
Positive Ranks (Post-test > Pre-test)	47	94
Ties (Post-test = Pre-test)	3	6
Total	50	100

Table 3. Results of the Wilcoxon Signed-Rank Test

Variable	Z	p-value
Pre-test and Post-test	-6.004	<0.001

The Wilcoxon test gave a Z-value of -6.004 and a p-value less than 0.001. Because the p-value was less than 0.05, the null hypothesis (H0) was not accepted. The results show that there was a significant difference in the respondents' knowledge scores before and after the educational program. Looking at the ranks table, 47 people, which is 94%, had higher knowledge scores after the education.Three people, or 6%, had the same scores before and after.None of the people had lower scores on the test. This shows that the educational session really helped people understand the risks of stunting during pregnancy and how getting enough Vitamin D can prevent stunting.

There is no decrease in knowledge, and since knowledge is often getting better, this shows that the education gave people new information they did not know before. Health education helps people learn more about health by teaching them about the risks, what can happen if they don't take care, and how to stay healthy.

These results match what Unnisa et al.(2023) found, as they said that teaching people about health, especially regarding stunting, can help them learn more about

how to prevent it. Ningrum and others in 2020 also mentioned that giving pregnant women advice about nutrition helps them learn more about what they need to eat during their pregnancy. In addition, Fadilah and their team in 2020 found that activities focused on health education and socializing people can help increase public understanding about how to prevent stunting.

These consistent results show that teaching people about health is a good way to increase their understanding of stunting and how much Vitamin D they should take. In this study, the improvement in knowledge was shown by most of the participants—47 out of 50—who scored higher after receiving the education.This result was also supported by a statistically significant Wilcoxon test with a p-value less than 0.001. So, giving continuous education can be seen as part of the work to improve knowledge about preventing stunting and the role of Vitamin D during pregnancy.

Conclusion

The Wilcoxon Signed-Rank Test results show there is a significant difference in knowledge scores before and after the health education program ($Z = -6.004$; $p < 0.001$).Because of this, the null hypothesis was rejected, and the alternative hypothesis was accepted. So, giving education helped people in RW 06, Kebon Bawang Urban Village, North Jakarta learn more about the dangers of stunting during pregnancy and lacking vitamin D. Out of the 50 people who responded, 47 of them (94%) got higher scores after the test, while 3 (6%) didn't change their scores. Ongoing learning about stunting and vitamin D is important to improve community understanding and help prevent stunting early on. The changes in knowledge were also influenced by the mothers' education and age.

Recommendations

This study has some limits because it included only 50 people and was done at just one place, so the results might not apply to many other situations. It's suggested that future studies should include more people and different places to make sure the findings are more accurate and reflect a wider range of experiences.

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