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The Effect of Nutrition Education on the Knowledge of Pregnant Women in Preventing 1000 HPK Stunting in Kertasari Urban Village

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ABSTRACT

Purpose: The purpose of this study was to determine the effect of nutrition education on pregnant women's knowledge regarding stunting prevention during the first thousand days of life (HPK 1000). **Methods:** This study employed a quantitative approach with a pre-experimental design using a one-group pre-test and post-test model. The research subjects consisted of 11 pregnant women selected through random sampling from a total population of 28 pregnant women in Kertasari Village. **Results:** The results showed that after the implementation of nutrition education, all respondents (100%) were classified in the good category of nutritional knowledge. This finding indicates an improvement in pregnant women's understanding of nutrition and its role in stunting prevention. **Conclusions:** The conclusion of this study demonstrates that nutrition education has a positive impact on pregnant women's knowledge related to stunting prevention. Adequate nutritional knowledge during pregnancy is an important factor in supporting optimal fetal growth and development and plays a significant role in preventing stunting during the first thousand days of life.

Keywords: Education; nutrition; pegnant women; suntin

Introduction

Pregnancy is an anatomical process that begins with ovulation, followed by conception, implantation, and fetal development until reaching full term. The duration of pregnancy generally lasts for 280 days, equivalent to 40 weeks or approximately 9 months and 7 days, and is divided into three periods. Pregnancy can be detected through increased levels of human chorionic gonadotropin (hCG) in the urine, particularly during the first trimester (Retnoningtyas & Dewi, 2021).

During pregnancy, nutrition becomes a crucial factor influencing fetal growth and development. A balanced and adequate diet supports healthy fetal development both in utero and after birth. Conversely, an unbalanced and inadequate diet may adversely affect the fetus, including the risk of congenital abnormalities (Ratnasari *et al*., 2021).

Stunting can be caused by various factors, including inadequate absorption of essential nutrients from the prenatal period through postpartum, limited access to healthcare services, restricted access to clean water and sanitation, and insufficient maternal knowledge related to nutrition. Additionally, maternal nutritional status during pregnancy, short birth intervals, low birth weight (LBW), and inappropriate breastfeeding and complementary feeding practices contribute to stunting. Other contributing factors include maternal height, household size, socioeconomic status, education level, and parental occupation, all of which are closely associated with the importance of maternal education (Hidayah & Marwan, 2020).

Based on the factors contributing to stunting, the government has committed to reducing stunting prevalence in Indonesia through the First 1000 Days of Life Movement. The program includes both specific and sensitive interventions. Specific interventions encompass actions directly related to individual nutritional issues, such as providing nutritional supplements for infants and toddlers, iron supplements for pregnant women, supplementary foods for pregnant women, fulfillment of nutritional needs, and delivery assistance by doctors or midwives. Early initiation of breastfeeding (EIBF), exclusive breastfeeding for the first six months of life, provision of complementary foods from six months to two years, complete basic immunization, vitamin A supplementation, growth monitoring at community health posts (Posyandu), and the adoption of clean and healthy living behaviors are also essential. However, evidence shows that these specific interventions contribute only around 30% to resolving stunting problems. Therefore, effective stunting reduction requires 70% of efforts through cross-sectoral interventions outside the health sector, known as sensitive interventions (Hidayah & Marwan, 2020).

Short-term impacts of stunting include impaired brain development, reduced intelligence, inhibited physical growth, and metabolic disturbances. In the long term, stunting can lead to declining cognitive performance and learning capacity, weakened immune function, and increased risk of diseases such as diabetes, obesity, cardiovascular disease, cancer, stroke, and disabilities in old age. Additionally, children who experience stunting tend to have lower competitiveness in the workforce, resulting in reduced economic productivity. In contrast, children who are not stunted generally achieve better academic performance (Sholikhah *et al*., 2023).

Based on the Indonesian Toddler Nutritional Status Survey (SSGBI), the national stunting rate decreased to 27.7% in 2019. In the same year, West Java Province also recorded a decrease in stunting prevalence to 26.21% (Ministry of Health RI, 2019). However, in Bogor City, stunting increased from 4.52% in 2019 to 10.50% in 2020 (LPPM IPB, 2020). Likewise, in Ciamis, the stunting rate increased to 18.6% in 2022, compared with the previous year's 16%. The Ciamis District Health Office reported that stunting in the working area of the Ciamis Community Health Center was 17% in 2017 and rose to 23.19% in 2018. These data indicate

that stunting also increased in Ciamis Subdistrict, particularly in Kertasari Village, which, with a population of 479 individuals, recorded the highest stunting prevalence in the area at 96.8%.

Researchers focused on Kertasari Village as the research site following a preliminary study conducted on May 6, 2024. The results showed that Kertasari Village had the highest rate of stunting. Several contributing factors include parental conditions and limited knowledge regarding proper nutrition. Based on these phenomena, the researchers were motivated to conduct a study entitled "The Effect of Nutrition Education on Pregnant Women's Knowledge in Preventing Stunting During the First 1000 Days of Life (HPK)."

Methods

This study employed a quantitative method with a pre-experimental one-group pretest–posttest design to examine the effect of nutrition education on pregnant women's knowledge regarding stunting prevention during the First 1000 Days of Life. A total of 11 pregnant women residing in Kertasari Village, Ciamis Subdistrict, were selected using a total sampling technique, in which all eligible individuals were included. The respondents met specific inclusion criteria, such as the ability to read and write, residence in the study area, and willingness to participate by signing informed consent, while those who were absent during data collection or failed to complete both pre-test and post-test questionnaires were excluded. Data were gathered using a structured questionnaire designed to assess knowledge of maternal nutrition, breastfeeding, complementary feeding, and stunting-related factors. The instrument had undergone expert validation and reliability testing to ensure clarity and consistency. Data collection took place in October 2024 and began with an explanation of the study's purpose and ethical aspects, followed by the distribution of pre-test questionnaires to measure baseline knowledge. Subsequently, nutrition education was delivered through a structured session accompanied by visual aids and interactive discussion lasting approximately one hour. Immediately after the intervention, the respondents completed the post-test questionnaire to determine any improvement in knowledge. All data were then checked for completeness and analyzed using descriptive statistics to describe respondent characteristics and knowledge levels, as well as inferential analysis using a paired sample t-test (or the Wilcoxon test depending on data normality) to evaluate the significance of changes between pre-test and post-test scores. Ethical principles, including informed consent, confidentiality, anonymity, and voluntary participation, were upheld throughout the research process.

Result

Research Process

This research was conducted on October 17, 2024, in Kertasari Village, involving 11 pregnant women as respondents. The study focused on "The Influence of Nutrition Education for Pregnant Women on Stunting Prevention During the First 1,000 Days of Life (HPK) in Kertasari Village." Data collection was carried out using a primary data approach, in which information was obtained directly from the research subjects through the distribution of questionnaires to the respondents.

The univariate data analysis was presented to describe each variable using frequency distribution based on percentages. Meanwhile, bivariate analysis was employed to examine the effect of nutrition education on pregnant women in their efforts to prevent stunting during the First 1.

a. Age

Table 1.
Respondent Characteristics Based on the Age of Pregnant Women

No	Age	Frequency	Percentage
1	20-30	8	72,7%
2	31-40	3	27,3%
	Total	11	100 %

Based on the data presented in Table 1. it can be observed that the most common age group among the mothers is between 20 and 30 years old, with a total of 8 respondents, representing 72.7% of the sample.

b. Education

Table 2.
Characteristics of Respondents Based on the Educational Level of Pregnant Women

No	Education	Frequency	Percentage
1	Elementary school	3	27,3 %
2	Junior high school	6	54,5 %
3	High school	2	18,2 %
	Total	11	100%

Based on the data shown in Table 2. it can be seen that the majority of respondents have an educational level equivalent to junior high school, with a total of 6 respondents, accounting for 54.5%.

c. Occupation

Table 3. Respondent Characteristics Based on Mother's Occupation

No	Employment	Frequency	Percentage
1	Working	3	27,3 %
2	Not working	8	72,7 %
	Total	11	100 %

Based on the data presented in Table 3. it can be observed that the largest proportion of respondents are unemployed, with a total of 8 individuals, representing 72.7% of all respondents.

d. Overview of respondents' knowledge about nutrition for pregnant women before education

Table 4. Frequency Distribution of Respondents' Knowledge Before Education

No	Pre-test	Frequency	Percentage
1	Poor	3	27,3 %
2	Fair	7	63,6 %
3	Good	1	9,1 %
	Total	11	100 %

Based on the analysis presented in Table 4, it can be observed that the highest frequency falls within the “moderate” knowledge category, with 7 respondents (63.6%). In contrast, the lowest frequency is found in the “good” category, which is represented by only 1 respondent (9.1%).

e. Respondents' knowledge of nutrition for pregnant women before education

Table 5. Frequency Distribution of Respondents' Knowledge After Education

No	Pos-test	Frequency	Percentage
1	Poor	0	0
2	Fair	0	0
3	Good	11	100 %
	Total	11	100 %

Table 5 shows that after receiving nutrition education for pregnant women, the majority of respondents demonstrated knowledge categorized as "good," with all 11 participants (100%) falling into this category.

f. The Effect of Nutrition

Table 6. The Effect of Nutrition Education on Pregnant Women's Knowledge of Preventing Stunting in the First 1000 Days of Life

	Jumlah	%	*p-value*
Decreasing	0	0	
Increasing	11	100 %	0,003
Remaining the same	0	0	
	Total	100 %	

In Table 6, a significant difference can be seen in the nutritional knowledge of pregnant women before and after the training, as indicated by a p-value of 0.003, which is lower than the significance level of 0.005. This finding demonstrates a significant improvement in knowledge following the training, suggesting that the intervention had a positive impact on the nutritional understanding of the pregnant women. All respondents, totaling 11 individuals, showed an increase in knowledge after receiving the education.

Discussion

1. Knowledge of Pregnant Women About Nutrition During the First 1000 Days of Life Before the Educational Intervention

The findings of the study revealed that pregnant women as respondents had varying levels of initial knowledge regarding nutrition in the First 1000 Days of Life prior to the educational intervention. A total of six respondents (63.6%) demonstrated a moderate level of knowledge, while three respondents (27.3%) showed a low level of knowledge, and only one respondent (9.1%) exhibited a high level of knowledge. Educational attainment greatly influences one's ability to access and comprehend information, including knowledge about nutrition. These results are consistent with previous research by Raras et al. (2019), which found that knowledge improvement specifically related to analgesics tended to be higher among respondents with higher educational backgrounds, who scored an average of 14.28, compared with those with lower levels of education, who scored 13.75.

However, these findings differ from the study by Tindaon et al. (2024), which noted that higher education does not necessarily guarantee that mothers possess adequate knowledge regarding child care, particularly related to nutrition. Mothers who actively seek information or participate in nutrition counseling often have better nutritional understanding regardless of their educational background (Raras et al., 2021). Nonetheless, mothers with higher education are generally more capable of absorbing health messages effectively. This aligns with Suryanta (2023), who reported that health education using audiovisual media at community health posts successfully improved the knowledge of pregnant women.

Similarly, Hidayati et al. (2022) found that prior to receiving health education, pregnant women's knowledge of nutrition remained at a moderate level, with many answering incorrectly during the pretest. After receiving proper training, however, their knowledge regarding nutrition during the First 1000 Days of Life improved significantly, indicating that although some knowledge existed prior to the intervention, it was insufficient.
Researchers concluded that limited health education and low curiosity hinder pregnant women's ability to access important information during pregnancy. Therefore, providing health education through structured educational interventions using audiovisual media offers valuable learning experiences that enhance mothers' understanding of nutrition during the First 1000 Days (Rahayu et al.,2022). These findings support the theory proposed by Raras et al. (2021), which suggests that factors influencing knowledge include experience, education, and access to information. Higher levels of education typically contribute to broader scientific understanding.

2. Knowledge of Pregnant Women About Nutrition During the First 1000 Days of Life After the Educational Intervention

After the educational intervention, all 11 respondents (100%) demonstrated an improvement in their knowledge regarding nutrition in the First 1000 Days of Life. This significant increase illustrates the effectiveness of health education in enhancing maternal understanding. According to Liu et al. (2018), health promotion plays a vital role in increasing pregnant women's understanding of risks associated with pregnancy. The expected outcome of health education programs is to improve maternal knowledge and attitudes, ultimately leading to positive behavioral changes at the individual, family, and community levels. Through this process, mothers are expected to adopt and maintain healthy behaviors, thereby contributing to improved health outcomes. Health education serves as an effective and intensive tool for conveying essential health information (Arsyati, 2019).

These findings are consistent with previous research by Mamuroh et al. (2019), which demonstrated that educational interventions using audiovisual media significantly enhanced pregnant women's knowledge of nutrition during the First 1000 Days of Life. The researchers proposed that increased nutritional awareness among pregnant women can be achieved through health education delivered using audiovisual methods. Such educational activities help pregnant women understand the importance of 1000 HPK nutrition, which in turn can contribute to the prevention of stunting (Rahmawati et.,2024).

Furthermore, the increased knowledge observed in this study was strongly influenced by the audiovisual-based educational intervention provided to the respondents. This aligns with theories presented by Mamuroh et al. (2019), who stated that knowledge levels may be influenced by educational exposure obtained through both formal and nonformal activities. As highlighted by Suryanta (2023), inadequate information regarding nutrition during the First 1000 Days of Life is one of the indirect factors contributing significantly to health problems such as stunting, low birth weight, nutritional deficiencies, anemia, and perinatal mortality.

3. The Effect of Education on Pregnant Women's Knowledge About Nutrition During the First 1000 Days of Life

The results of this study demonstrate that the use of audiovisual media had a significant effect on improving pregnant women's knowledge about nutrition during the First 1000 Days of Life. The findings revealed a clear difference between pretest and post-test scores, indicating that the educational intervention successfully enhanced respondents'

comprehension. Audiovisual media, which combine sound and visual elements in video form, are considered more engaging and easier to understand, thus effectively delivering health messages (Arsyati, 2019).

Nutritional knowledge includes understanding nutrients, their sources, safe food choices, and proper food preparation methods to maintain nutritional value. It also encompasses adopting a healthy lifestyle. Knowledge plays an important role in shaping attitudes and behaviors related to food choices, which subsequently affect nutritional status. For pregnant women, nutritional knowledge significantly influences their health-related behaviors throughout pregnancy(Noviati et al.,2024). Pregnant women, especially first-time mothers, tend to be more cautious and more inclined to adopt balanced dietary patterns to support healthy pregnancy outcomes (Indrawati et al., 2023). The findings of this study further indicate that maternal knowledge has a substantial impact on maternal nutritional status. Mothers with adequate knowledge of food diversity generally show better nutritional status, whereas those with poor knowledge tend to experience inadequate nutrition. Sufficient knowledge therefore plays a crucial role in shaping maternal behavior in fulfilling nutritional needs both before and during pregnancy.

Conclusion

This study utilized primary data collected through questionnaires distributed to 11 pregnant women residing in Kertasari Village. The main objective of the research was to determine the extent to which nutrition education could improve the knowledge of pregnant women in preventing stunting during the First 1,000 Days of Life (HPK). Based on the findings, it was observed that prior to receiving the nutrition education, most of the pregnant women had a moderate level of knowledge, with 7 respondents (63.6%) falling into this category. After participating in the educational intervention, there was a significant improvement in their level of knowledge, as all respondents 11 in total achieved a good category. Statistical analysis using the Wilcoxon test showed a p-value of 0.000, indicating that the nutrition education provided had a significant effect on increasing the knowledge of pregnant women regarding stunting prevention during the First 1,000 Days of Life in Kertasari Village. Thus, this study confirms that nutrition education interventions play an essential role in enhancing the understanding of pregnant women about stunting prevention.

Recommendations

Based on the findings of this study, several recommendations can be proposed. For healthcare services, it is important to enhance pregnant women's knowledge about food diversity by providing clear and accessible information on how to meet nutritional needs during pregnancy. For the mothers themselves, it is recommended that they actively broaden their understanding of nutrition throughout pregnancy by utilizing various resources, such as the internet, social media, and direct consultations with healthcare professionals. Furthermore, both government and private institutions are encouraged to implement programs focused on pregnancy, particularly within the first 1,000 days of life, as part of efforts to prevent and reduce stunting rates. Finally, future researchers are encouraged to explore additional variables related to the first 1,000 days of life in the context of stunting prevention, with the aim of improving the knowledge and attitudes of pregnant women while also contributing valuable insights to future academic research.

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