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The Influence of Balanced Nutrition Education on The Knowledge of Posyandu Cadres in Preventing Stunting

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Abstract

Childhood stunting, a persistent public health concern in Indonesia, has significant implications for long-term health. Improving the knowledge of balanced nutrition among Posyandu cadres plays a pivotal role in tackling this issue. Our objective was to assess the impact of balanced nutrition education on Posyandu cadre knowledge concerning stunting prevention. The research involved 129 participants and evaluated their knowledge through pretest and posttest scores, employing the Wilcoxon Sign Rank Test for statistical analysis. The results indicated that the majority of respondents initially possessed "sufficient" and "good" knowledge levels. However, following the educational intervention, a remarkable 69.8% achieved "good" knowledge, with a minimal 0.8% showing "insufficient" knowledge. The statistical analysis further revealed a significant disparity between pretest and posttest knowledge scores, underscoring the substantial and beneficial impact of balanced nutrition education. In conclusion, this research confirms the positive influence of nutrition education on Posyandu cadre knowledge. The findings emphasize the urgency of sustained, accessible nutritional education programs supported by government and healthcare institutions. Such efforts are imperative for effective stunting prevention, especially in high-stunting regions like East Nusa Tenggara.

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INTRODUCTION

In Indonesia, the prevalence of inadequate nutrition remains quite high. According to the results of the nutritional status monitoring conducted by the Ministry of Health in 2018, it was found that 3.9% of children aged 0-59 months suffered from poor nutrition, while 13.8% experienced malnutrition. According to the 2018 Basic Health Research, there is a stunting issue among toddlers in Indonesia with a prevalence rate of 24.4% in 2021. The province of East Nusa Tenggara (NTT) has the highest stunting rate in Indonesia, reaching 42.6% (Riskedas, 2018). The 2018 Basic Health Research indicates that the issue of stunting among toddlers in Indonesia reached a prevalence rate of 30.8%, equivalent to nearly 8 million toddlers. Based on data from the Nusa Tenggara Timur (NTT) Provincial Health Office in 2022, this figure has increased by 1.1% from 2021, reaching 20.9%. The data for stunting in 2022, which stands at 22.0%, was released by the NTT Stunting Handling Working Group (Pokja) on March 18, 2022. One of the areas with the highest stunting rates is Kupang Regency, with a proportion of 41.4%, equivalent to 5,390 toddlers. One of the consequences of this nutritional deficiency is the occurrence of stunted child growth, commonly referred to as stunting (Rusilanti & Riska, 2021).

Stunting is a deficiency in a child's growth, characterized by a significantly lower height than what is expected (Mistari, Pratiwi, & Syahdana, 2022). It is a chronic nutritional problem that occurs because a child experiences a prolonged inadequate intake of nutrition due to dietary patterns that do not align with the nutritional requirements needed for a child's height growth (Rehena et al., 2021). (Asri Dewi & Primadewi, 2021). Stunting is also influenced by several factors such as the provision of colostrum and exclusive breastfeeding, a child's eating habits, infectious diseases, food availability, sanitation, and environmental health (Ruswati et al., 2021). The long-term inadequacy of nutritional intake due to improper or unbalanced feeding practices for children (Listyarini et al., 2020). Stunting in children reflects a failure in their growth, resulting from chronic malnutrition, causing children to be too short for their age and at risk of growth and developmental disturbances throughout their lives (Sugiyanto & Sumarlan, 2021). Efforts to improve the nutritional status of children involve meeting their nutritional needs, and one way to do this is by regulating their dietary patterns (Mentari & Hermansyah, 2019). A balanced nutritional intake from food plays a crucial role in the child's growth process. The implementation of a balanced diet emphasizes a diverse variety and quantity of food to prevent nutritional problems. Components to consider when implementing a balanced diet include ensuring an adequate quantity of nutrition, high quality, containing various essential nutrients for daily life, and capable of storing nutrients to meet the body's needs (Simamora & Kresnawati, 2021). Foods that provide good nutritional intake are part of the concept of 'four healthy five perfect,' which includes staple foods, protein sources, vegetables, fruits, and dairy products (Efendy & Setiawan, 2021). The perspective from Rehena et al. (2021) suggests that stunting in toddlers is attributed to mothers' habits in selecting inappropriate foods. The decision-making regarding the types of foods, the availability of an adequate food supply, and dietary diversity are influenced by mothers' knowledge of nutrition and food. A lack of understanding on the part of mothers can lead to errors in food choices, especially for toddlers. To enhance mothers' awareness and knowledge about the significance of choosing nutritious foods for toddlers, public health programs can provide health education and awareness campaigns. Education is an integral component of health education (Listyarini et al., 2020). Health education involves interventions aimed at behavior as a determinant of health or public health (Rehena et al., 2021). Hence, disseminating information and conducting awareness campaigns about stunting within the community is crucial in reducing the risk of stunting in infants. The role of cadres in providing nutrition education for the prevention of stunting is crucial. They serve as intermediaries who can provide information directly to young mothers and families in the community. Ginting et al. (2022) present a study indicating that improving mothers' understanding regarding the nutritional fulfillment and caregiving patterns for children with stunting can be successfully achieved through a health education approach employing audiovisual methods. The research findings reveal that the utilization of audiovisual media has a significant positive impact on mothers' knowledge, attitudes, and practices in efforts to prevent stunting in children. Health cadres, often involved in posyandu (integrated health service) programs, have good access to the community and can provide education on selecting healthy foods, maintaining a balanced diet, and the

importance of nutrition for child growth. They can also assist mothers in planning daily menus that meet the nutritional needs of their children (Mahardika, 2019).

METHODS

This research was a quantitative study with a pre-experimental design (one-group pretest-posttest design). The research design involved a single sample group, but measurements were taken twice, both before and after the intervention, to assess the knowledge of Posyandu cadres in stunting prevention. The research was conducted in the Bakunase community health center's working area during July to August 2023 for a duration of 40 days. The population for this research comprised all Posyandu cadres in the Bakunase community health center's working area, totaling 190 cadres. The sampling technique used a non-probability sampling method, specifically purposive sampling, with a sample size of 129 respondents. The instrument used in this research is a questionnaire sheet to measure the cadres' knowledge. Univariate data analysis in this research employed frequency and percentage, while bivariate analysis is conducted to determine the impact of parenting education on child growth before and after the intervention, using the Wilcoxon test due to non-normally distributed data and the scale for the research variable is in ordinal form.

RESULTS

Table 1: Characteristics of Respondents in the Bakunase Community Health Center's Working Area

Variable	Frequency	Percent (%)
Age		
<20 years and >35 years	80	62
20-35 years	49	38
Occupation		
Employed	78	60,5
Unemployed	51	39,5
Education		
Elementary education	50	38,8
Higher education	79	61,2
Total	129	100

Source: *Primary Data*

Table 1 provides an overview of the characteristics of respondents in the working area of the Bakunase Community Health Center. The data indicates a varied distribution across different categories. In terms of age, a significant proportion of respondents, constituting 62% of the sample, fall within the age group of <20 years and >35 years, while 38% of respondents belong to the age group of 20-35 years. When it comes to occupation, the majority, or 60.5% of respondents, are employed, while 39.5% are unemployed. As for education, 38.8% of respondents have received elementary education, whereas 61.2% have attained higher education levels.

Table 2: The Frequency Distribution of Respondent Knowledge Before and After Intervention

Knowledge	Good		Sufficient		Insufficient		Total
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	
Before Intervention	60	46,5	30	23,3	39	30,2	129
After Intervention	90	69,8	38	29,4	1	0,8	129

Source: *Primary Data*

Table 2 presents the frequency distribution of respondent knowledge before and after the intervention. Before the intervention, 46.5% of respondents exhibited good knowledge, while 23.3% had insufficient knowledge, and 30.2% had sufficient knowledge. After the intervention, a notable improvement was observed in knowledge levels, with 69.8% of respondents achieving good knowledge, 29.4% having sufficient knowledge, and only 0.8% still exhibiting insufficient knowledge. The total number of respondents remains consistent at 129 before and after the intervention. This data indicates a positive impact of the intervention in enhancing the knowledge of the respondents in the research.

Table 3: The Influence of Balanced Nutrition Education on the Knowledge of Posyandu Cadres in Preventing Stunting

Intervention	N	Mean	SD	Min-Max	Z	P
Pretest Knowledge Scores	129	56.66	6.511	39-79	-5.726[b]	0,000
Posttest Knowledge Scores	129	86.99	4.979	55-90		

Source: Wilcoxon Sign Rank Test Statistical Test

Table 3 provides valuable insights into the impact of balanced nutrition education on the knowledge of Posyandu cadres in preventing stunting. The research encompassed 129 participants, and their knowledge was evaluated through both pretest and posttest knowledge scores. Before the intervention, the mean pretest knowledge score was 56.66, with a standard deviation of 6.511, and scores ranging from 39 to 79. However, after the intervention, there was a substantial and positive shift, with the mean posttest knowledge score significantly increasing to 86.99. The standard deviation also decreased to 4.979, and the scores ranged from 55 to 90. The statistical analysis employed the *Wilcoxon Sign Rank Test*, and the results reveal a highly significant difference *(Z = -5.726, p = 0.000)* between the pretest and posttest knowledge scores. This signifies a substantial and positive impact of the balanced nutrition education intervention on the knowledge of Posyandu cadres regarding stunting prevention. The remarkable improvement in knowledge scores following the intervention suggests the effectiveness of this educational initiative in enhancing their understanding and preparedness in tackling stunting-related challenges.

DISCUSSION

The results of the research, as displayed in Table 2, highlight a significant improvement in the knowledge levels of the respondents before and after the intervention. Initially, the majority of respondents exhibited knowledge falling within the "sufficient" category (30.2%), with a notable proportion having "good" knowledge (46.5%). However, a concerning 23.3% of respondents had "insufficient" knowledge prior to the intervention. Following the educational intervention, there was a substantial positive shift in knowledge levels. A significant 69.8% of the respondents achieved "good" knowledge, indicating a remarkable improvement. Moreover, 29.4% of respondents demonstrated "sufficient" knowledge, reinforcing the effectiveness of the intervention. Importantly, the proportion of respondents with "insufficient" knowledge was notably reduced to a mere 0.8%. Notably, the total number of respondents remained consistent at 129 both before and after the intervention, underlining the reliability of the data. The findings of this research consistently support previous research findings by Ginting et al. (2022) and Nuzula et al. (2020), highlighting the effectiveness of health education approaches in enhancing knowledge and understanding related to stunting prevention. Ginting et al.'s findings emphasize that the use of audiovisual methods significantly improves mothers' understanding of nutrition fulfillment and the caregiving of stunted children. In this context, this research adds further by demonstrating that educational methods can have a significantly positive impact on the knowledge, attitudes, and practices of Posyandu cadres in stunting prevention efforts. On the other hand, Nuzula et al.'s (2020) findings underscore that health education related to specific nutritional interventions has a quite significant impact on the knowledge of cadres. Although this research does not specifically address specific nutritional interventions, but focuses on a general health education approach, these findings align with Nuzula et al.'s research, indicating a significant difference in cadre knowledge after receiving health education.

Overall, the findings of this research provide additional support to the notion that health education can enhance the knowledge and understanding of Posyandu cadres, aligning with previous research findings. Therefore, the implementation of structured health education with a focus on specific nutritional interventions can play a crucial role in stunting prevention and improving child health. In the researcher's opinion, the results of this research underscore the effectiveness of the educational intervention in significantly improving the knowledge of the respondents. The substantial increase in the percentage of respondents with "good" knowledge is particularly noteworthy, as it reflects a meaningful impact of the intervention. The decrease in the proportion of respondents with "insufficient" knowledge further emphasizes the success of the program in addressing knowledge

gaps. These findings have important implications for similar educational interventions aimed at enhancing knowledge in specific areas, underlining the potential for positive and measurable outcomes.

Table 3 provides a comprehensive view of the implications of balanced nutrition education on the knowledge of Posyandu cadres in stunting prevention. This research included 129 participants, and their knowledge was assessed through both pretest and posttest knowledge scores. Initially, the average pretest knowledge score was 56.66, with a standard deviation of 6.511, and scores ranging from 39 to 79. However, after the intervention, there was a significant and positive transformation. The mean posttest knowledge score showed a substantial increase to 86.99. Furthermore, the standard deviation decreased to 4.979, and the scores ranged from 55 to 90. The statistical analysis involved the application of the Wilcoxon Sign Rank Test, and the findings reveal an exceedingly noteworthy disparity ($Z = -5.726$, $p = 0.000$) between the pretest and posttest knowledge scores. This underscores a significant and beneficial effect of the balanced nutrition education intervention on the knowledge of Posyandu cadres in dealing with stunting prevention. The impressive advancement in knowledge scores following the intervention underscores the efficacy of this educational initiative in improving their comprehension and readiness in addressing stunting-related challenges. These findings are congruent with previous research and established theories. They are in accordance with existing studies that emphasize the positive impacts of targeted educational programs in enhancing knowledge. The noticeable positive shift in knowledge levels aligns with the notion that well-structured interventions can lead to substantial improvements in understanding. This is in harmony with theoretical frameworks that underscore the influence of educational efforts on knowledge enhancement.

The results of the research indicate that providing education on the importance of healthy and balanced nutrition to prevent stunting in children can enhance the knowledge of Posyandu cadres. These findings align with the results presented by Rehena et al. (2021) in their research in Kamal Village, West Seram Regency, which also showed that nutrition education has a positive impact on mothers' knowledge regarding stunting. Another research by Wijaya et al. (2021) supports these results, emphasizing the significance of nutrition education in improving public understanding of the importance of healthy food. Additionally, research conducted by Amalia and Nugraheni (2018) also confirms the substantial role of knowledge in shaping an individual's eating habits and behavior, subsequently affecting their nutritional intake. In this context, the research findings underline the urgency of nutritional education as a means to improve health, particularly in making appropriate dietary choices. This underscores the pivotal role of knowledge in shaping the lifestyle and behaviors of the community concerning food consumption and its impact on nutritional intake. These findings reaffirm the significance of an educational approach in enhancing the understanding of both the community and Posyandu cadres regarding balanced nutrition and efforts to prevent stunting.

In the researcher's perspective, the results of this research underscore the effectiveness of the educational intervention in considerably elevating the knowledge of Posyandu cadres. The significant increase in the percentage of cadres achieving "good" knowledge is especially notable, as it reflects a meaningful impact of the intervention. The decrease in the proportion of cadres with "insufficient" knowledge further accentuates the program's success in addressing knowledge gaps. These findings hold substantial implications for similar educational initiatives aimed at enriching knowledge in specific domains, emphasizing the potential for positive and quantifiable outcomes.

CONCLUSION

Based on the results of the research conducted, it can be concluded that nutritional education provided to Posyandu cadres has a positive impact on increasing their knowledge of the importance of balanced nutrition in preventing stunting in children. This knowledge plays a key role in shaping appropriate behaviors and dietary patterns, which, in turn, affect individual nutritional intake.

SUGGESTION

It is important to continuously develop relevant and easily accessible nutritional education programs for Posyandu cadres and ensure that the information provided is regularly updated in line with the latest developments in nutrition. This is aimed at ensuring that Posyandu cadres always have access to the most current information that supports stunting prevention efforts. Additionally, the government and health institutions need to provide strong support for this program by allocating adequate resources. This

includes offering regular training and the necessary equipment to ensure the program runs effectively and sustainably. With these actions, it is expected that the efforts to prevent stunting in children can be significantly enhanced.

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CONFLICTS OF INTEREST

All authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

MVN a contributor of ideas, data analysis, preparation of manuscripts, and publications. DP, YP, and CRN as developers of research methods carried out, data collection, data editing, and manuscript preparation. PYT has the role of data collection, data editing, data analysis, and manuscript preparation.

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