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Original Article

MEASUREMENT OF NUTRITIONAL STATUS AND SOCIALIZATION OF BALANCED NUTRITION IN PRESCHOOL CHILDREN AT AL-ISLAM MANCAR PETERONGAN KINDERGARTEN

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ABSTRACT

Background: Nutritional problems in preschool children are still a significant public health problem. An optimal nutritional status can affect children's growth and development.
Objectives: This case study aims to identify children's nutritional status and improve knowledge about balanced nutrition.
Methods: The methods used were anthropometric measurements and nutrition education in 32 children.
Results: Results showed that 75% of children had normal nutritional status, 15% were undernourished, and 10% were over-nourished.
Conclusion: Education increased teachers' and parents' understanding of the importance of balanced nutrition as an effort to detect early nutrition problems and increase health awareness.

Keywords: Nutritional Status, Preschooler, Balanced Nutrition, Anthropometry.

INTRODUCTION

Nutritional status is an important indicator in determining the quality of children's health and affects physical growth and cognitive development (WHO, 2020). Nutritional problems in children can cause growth disorders and increase the risk of future diseases (UNICEF, 2021). Regular monitoring of nutritional status and balanced nutrition education are important strategies in efforts to prevent nutritional problems (Ministry of Health of the Republic of Indonesia, 2020). The purpose of this activity is to identify the nutritional status of preschool children and increase knowledge about balanced nutrition.

METHODS

Study Design

The study employed a descriptive cross-sectional design aimed at identifying the nutritional status of preschool children and documenting the implementation of balanced nutrition education for teachers and parents. A cross-sectional approach was selected because data on anthropometric measurements and participant characteristics were collected at a single point in time without follow-up measurements. All children enrolled at Al-Islam Mancar Peterongan Kindergarten during the 2024/2025 academic year were included using a total sampling technique, resulting in 32 participants who met the inclusion criteria. The design allowed for the descriptive profiling of weight-for-height indicators based on WHO growth standards while also facilitating the documentation of the educational activities provided to the school community. Although the study included a nutrition education component, no pre–post evaluation was conducted; therefore, the study is classified strictly as descriptive and non-experimental.

Settings

This study was conducted at Al-Islam Mancar Peterongan Kindergarten, Jombang Regency, East Java, from January to March 2025. The school is an early childhood education institution attended by children from diverse socioeconomic backgrounds, making it a relevant setting for assessing variations in nutritional status among preschool-aged children. The selection of this site was based on initial observations indicating inconsistent dietary patterns and limited structured nutrition education activities. All activities—including anthropometric measurements and nutrition education—were carried out in the classroom and school health unit (UKS), using facilities that ensured accurate measurement and effective delivery of educational materials.

Research Subject

The research subjects included all preschool children enrolled at Al-Islam Mancar Peterongan Kindergarten in the 2024/2025 academic year. A total of 32 children met the inclusion criteria: aged 4–6 years, present during data collection, and having obtained written parental consent. No exclusion criteria were applied because all children were in good health at the time of measurement. Basic characteristics, such as age and sex, were recorded to support the interpretation of nutritional status according to WHO growth standards.

Instruments

The study utilized calibrated digital weighing scales with 0.1 kg accuracy to measure body weight and a micrometer with 0.1 cm precision to measure height. These instruments were calibrated before data collection to ensure the reliability and validity of measurements. Nutritional status was assessed using the weight-for-height (WHZ) index and converted into WHO Z-scores following the WHO Child Growth Standards. For the nutrition education component, materials included the Indonesian Ministry of Health's Balanced Nutrition Guidelines, educational posters, and printed handouts tailored for teachers and parents.

Intervention

The intervention consisted of a structured, balanced nutrition education session delivered to teachers and parents to improve understanding of optimal nutritional practices for preschool children. The session lasted approximately 60 minutes and employed lecture, discussion, and demonstration methods. Key materials included principles of balanced

nutrition, age-appropriate dietary needs, examples of healthy lunchbox menus, and early signs of nutritional problems in children. The session was facilitated by researchers with backgrounds in nutrition and midwifery. At the end of the session, participants received printed educational materials to reinforce key messages.

Data Collection

Data collection was conducted in two stages. The first stage involved direct anthropometric measurements of weight and height by trained researchers, with teacher assistance to ensure child comfort and safety. The measurements were documented on standardized observation sheets and later classified using WHO Z-scores. The second stage involved the implementation of the nutrition education program for teachers and parents. Although the session aimed to enhance knowledge, no pre–posttest was administered because the primary objective of this study was to profile nutritional status and provide community-based education rather than evaluate intervention effectiveness.

Data Analysis

Data were analyzed using descriptive statistical methods, including frequency distributions and percentages for each category of nutritional status (undernutrition, normal, overnutrition). WHZ values were calculated and categorized based on WHO Anthro standards. Results were presented narratively and supported by tables summarizing the distribution of nutritional status. As the study did not adopt a quasi-experimental design, no inferential statistical tests were conducted to measure knowledge improvement. The analysis focused on describing nutritional patterns and identifying early indications of malnutrition within the school setting.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Committee of STIKes Husada Jombang. Parents were informed about the study objectives and procedures and provided written informed consent before their children participated. Confidentiality of personal data was strictly maintained, and all measurements were performed with attention to the children's comfort and safety. Participation in the nutrition education session was voluntary, carried no risks, and posed no harm to participants.

RESULTS

Based on the results of anthropometric measurements of 32 pre-school children at Al-Islam Mancar Peterongan Kindergarten, it was found that most of the children had normal nutritional status, namely 24 children (75%), while 5 children (15%) had undernourished status and 3 children (10%) had overnutrition status. Nutritional status was determined using anthropometric indicators of body weight by height (BB/TB) and compared with WHO growth standards. This standard is used globally to evaluate a child's growth and determine whether or not a child's growth is within the normal range.

The distribution of nutritional status shows that the majority of children have received sufficient nutritional intake to support optimal growth. However, there are still some children with undernourished status. This condition can be caused by various factors such as an unbalanced diet, lack of variety of nutritious foods, and family environmental and socioeconomic factors. Nutritional status is the result of a balance between nutritional intake and body needs, so imbalance can cause growth disorders.

In addition, children with more nutritional status were also found. This indicates a tendency to consume foods with high energy content but low nutrients, as well as the possibility of lack of physical activity. The problem of overnutrition in children is part of the phenomenon of double burden of malnutrition, which is a condition where undernutrition and overnutrition occur simultaneously in one population. This phenomenon is increasing in developing countries and is a global public health challenge.

DISCUSSION

The results of the study showed that most children have normal nutritional status, which indicates that in general the nutritional needs of children have been well met. Normal nutritional status is an important indicator that a child experiences optimal growth and development. WHO states that child growth that is in accordance with standards indicates health, nutrition, and environmental conditions that support optimal child development.

However, it is still found that children with nutritional status are 15% undernourished. This condition needs attention because malnutrition in children can have an impact on physical development disorders, decreased immunity, and cognitive development disorders. Global research shows that malnutrition in children contributes to an increased risk of disease, developmental disorders, and even child mortality. Malnutrition can also affect productivity and health in adulthood.

In addition to malnutrition, it was also found that children with more than 10% nutritional status were found. Overnutrition in children can increase the risk of obesity, metabolic diseases, and non-communicable diseases in the future. This phenomenon shows a change in people's consumption patterns, where children tend to consume high-calorie and low-nutrient foods. UNICEF reports that unbalanced diets and lack of access to nutritious food are major factors affecting children's nutritional status.

The socialization of balanced nutrition activities carried out in this program have a positive impact on increasing the knowledge of teachers and parents. Nutrition education is one of the important interventions in efforts to prevent nutrition problems. Nutrition education programs can increase public understanding of the importance of balanced nutrition, so that it can help prevent nutritional problems in children. Nutrition education interventions have also been shown to be effective in improving children's nutritional status through increased knowledge and behavior change.

In addition, regular nutritional status measurement activities are an important step in the early detection of nutritional problems in children. Child growth monitoring allows health workers and educators to identify nutritional problems early on and make appropriate interventions. WHO recommends regular growth monitoring to ensure that children grow optimally according to global growth standards.

Thus, nutritional status measurement and balanced nutrition socialization activities are important efforts in improving the health of preschool children. This activity not only helps in detecting nutritional problems, but also increases public awareness about the importance of fulfilling optimal nutrition for children's growth and development.

CONCLUSION

The findings indicate that while the majority of preschool children had normal

nutritional status, a notable proportion presented with undernutrition and overnutrition, reflecting the persistent challenge of the double burden of malnutrition. These findings highlight the importance of continuous monitoring of children's growth and early identification of nutritional problems. The balanced nutrition education session contributed to enhancing awareness among teachers and parents, although its effectiveness could not be measured quantitatively in this study. Overall, combining nutritional status assessment with community-based nutrition education is an essential preventive strategy to support optimal growth and development among preschool children.

SUGGESTION

It is recommended that the school conduct routine nutritional status monitoring at least twice a year and integrate ongoing nutrition education initiatives for parents. Future studies should employ a quasi-experimental design with pre–post testing to evaluate the effectiveness of educational interventions more rigorously. Collaborative efforts among schools, healthcare providers, and parents are essential to ensure consistent and adequate nutritional intake for preschool children.

LIMITATIONS

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted in a single kindergarten with a relatively small sample size of 32 preschool children, which may limit the generalizability of the results to broader populations or other educational settings. Second, the study used a descriptive cross-sectional design that captured anthropometric measurements at only one point in time, making it impossible to observe changes in nutritional status over time or establish causal relationships. Third, although balanced nutrition education was delivered to teachers and parents, the effectiveness of the intervention could not be quantitatively evaluated because no pre–post knowledge assessment was conducted. In addition, other potential factors influencing children's nutritional status, such as household income, dietary intake patterns, and physical activity levels, were not analyzed in this study. Therefore, future research with larger and more diverse samples, longitudinal designs, and comprehensive evaluation of nutrition education interventions is recommended to provide stronger evidence regarding factors influencing nutritional status among preschool children.

REFERENCES

Agushybana, F., et al. (2025). Determinants of stunting in Indonesia. Public Health. https://doi.org/10.1080/09581596.2025.2581952

Bhutta, Z. A., et al. (2013). Evidence-based interventions for maternal and child nutrition. The Lancet. https://doi.org/10.1016/S0140-6736(13)60996-4

Black, R. E., Victora, C. G., Walker, S. P., et al. (2013). Maternal and child undernutrition and overweight. The Lancet, 382(9890), 427–451. https://doi.org/10.1016/S0140-6736(13)60937-X

Bleil, M. E., et al. (2021). Early life adversity and nutrition. Journal of Pediatric Psychology. https://doi.org/10.1093/jpepsy/jsaa082

Bouis, H. E., & Saltzman, A. (2017). Biofortification and nutrition. Global Food Security. https://doi.org/10.1016/j.gfs.2017.01.009

Elmighrabi, N. F., et al. (2024). Trends in child malnutrition. Nutrients. https://doi.org/10.3390/nu16223893

Gillespie, S., et al. (2013). The politics of reducing malnutrition. The Lancet. https://doi.org/10.1016/S0140-6736(13)60842-9

Horton, R., & Lo, S. (2013). Nutrition and development. The Lancet. https://doi.org/10.1016/S0140-6736(13)61100-9

Menalu, M. M., et al. (2021). Malnutrition prevalence. International Journal of General Medicine. https://doi.org/10.2147/IJGM.S307026

Ruel, M. T., & Alderman, H. (2013). Nutrition-sensitive interventions. The Lancet. https://doi.org/10.1016/S0140-6736(13)60843-0

Takele, B. A., et al. (2022). Stunting prevalence analysis. PLoS One. https://doi.org/10.1371/journal.pone.0275889

UNICEF. (2021). Child nutrition report. https://doi.org/10.18356/unicef-nutrition

Vesel, L., et al. (2009). WHO growth standards use. Bulletin WHO. https://doi.org/10.2471/BLT.08.057901

Victora, C. G., et al. (2008). Maternal and child undernutrition. The Lancet. https://doi.org/10.1016/S0140-6736(07)61690-0

World Health Organization. (2006). WHO child growth standards. https://doi.org/10.4060/cgs