



Beyond Nutritional Provision: Exploring Food Acceptability and Implementation Challenges of the Free Nutritious Meal Program in Early Childhood Education

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ABSTRACT

The Free Nutritious Meal Program aims to improve children's nutritional status and support learning readiness through the provision of balanced meals in educational settings. This study analyzed the implementation of the MBG program in early childhood education, focusing on menu suitability and food acceptability among young children. A qualitative descriptive case study was conducted at RA Assaadah, Tasikmalaya City, involving one teacher and two parents selected through purposive sampling. Data were collected through semi-structured interviews and observations and analyzed using data reduction, data display, and conclusion drawing techniques. The findings revealed four major factors influencing children's acceptance of MBG meals: incompatibility between menus and children's eating habits, limited menu variety, cold food conditions, and unattractive food presentation. These factors reduced children's willingness to consume meals at school, causing some meals to be taken home rather than eaten. The study highlights that the effectiveness of school feeding programs depends not only on nutritional content but also on children's developmental characteristics and sensory preferences. Therefore, child-centered menu planning, greater menu diversity, and improved food presentation are recommended to enhance the effectiveness of the MBG program in supporting children's nutritional well-being and learning readiness.

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1. INTRODUCTION

Early childhood is a critical developmental period often referred to as the golden age (Nur & Anggraeni, 2023) during which children experience rapid growth in physical, cognitive, linguistic, social-emotional, and moral domains. The quality of stimulation and care provided during this stage significantly influences children's future development and overall quality of life. Among the essential factors supporting optimal growth and development, adequate nutrition plays a fundamental role.

Proper nutrition contributes significantly to children's physical growth, brain development, learning readiness, and academic performance (Aboy, 2024). Children who receive sufficient nutritional intake tend to demonstrate better concentration, memory, and cognitive abilities. Conversely, nutritional deficiencies may lead to various developmental problems, including stunting, impaired cognitive functioning, and poor educational outcomes. Therefore, improving children's nutritional status has become a major priority in human resource development policies worldwide.

In Indonesia, the government has introduced the free nutritious meal program (*Makan Bergizi Gratis*—MBG) as a strategic initiative to improve the nutritional status of students at various educational levels, including early childhood education (ECE) institutions (Ngurah & Seventilofa, 2025). The program aims to provide balanced and nutritious meals, enhance students' health and learning concentration, and contribute to the prevention of malnutrition and stunting (Tanziha et al., 2025). The meals provided through the program generally consist of carbohydrates, proteins, vegetables, fruits, vitamins, and minerals designed to meet children's nutritional requirements.

However, the effectiveness of school feeding programs is determined not only by the nutritional content of the meals but also by children's acceptance of the food provided. Food acceptability is a crucial factor influencing whether children consume the meals and ultimately benefit from the nutritional intervention. Young children tend to prefer familiar foods and are highly sensitive to taste, texture, aroma, and visual appearance (Donadini et al., 2021). They are also more likely to consume foods that are presented in an attractive and engaging manner. Creative food presentation can significantly increase children's interest in consuming nutritious meals. Consequently, understanding children's food preferences and eating behaviors is essential for the successful implementation of nutrition programs in early childhood settings (Kostecka, 2022).

Previous studies have reported that the Free Nutritious Meal Program has positive impacts on children's nutritional intake, learning motivation, and educational participation (Ma, 2025). The effectiveness of the program is influenced by meal quality, distribution mechanisms, and stakeholder involvement. However, these studies mainly focused on the implementation and outcomes of the program, with limited attention to menu suitability and children's acceptance of the meals in early childhood education (Utami, 2020). Therefore, this study addresses this gap by examining the suitability of the MBG menu and the factors that influence why some young children do not consume the meals at school. Nevertheless, existing studies have predominantly focused on policy implementation, nutritional outcomes, and educational benefits among elementary school students. Research specifically examining the implementation of the MBG program in early childhood education settings, particularly regarding food acceptability and children's responses to the provided meals, remains limited.

Preliminary observations conducted at RA Assaadah, Tasikmalaya City, revealed several challenges in the implementation of the MBG program. In some cases, the meals provided were not consumed by children at school but were instead taken home after being

photographed as evidence of program implementation. Additionally, several children showed low interest in consuming the meals due to factors such as unfamiliar menu items, limited menu variation, cold food conditions, and unattractive food presentation. These findings indicate a gap between the intended objectives of the MBG program and its practical implementation in early childhood education settings.

From a theoretical perspective, children's food acceptance is influenced by both internal and external factors. Internal factors include taste preferences, previous eating experiences, and individual eating habits, while external factors encompass food presentation, meal environment, family influence, and teacher support during mealtime. Therefore, the success of a school feeding program requires not only nutritionally balanced meals but also developmentally appropriate strategies that consider children's psychological, sensory, and behavioral characteristics (Da Fonseca et al., 2025).

Based on the literature review and preliminary findings, there is a need for further investigation into the implementation of the Free Nutritious Meal Program in early childhood education institutions. The novelty of this study lies in its focus on examining the suitability of meal menus for young children, analyzing food acceptability, and identifying factors influencing children's consumption of the meals provided through the MBG program. Unlike previous studies that primarily evaluated policy outcomes and nutritional impacts, this research emphasizes children's direct experiences and responses to the program.

Therefore, this study aims to analyze the implementation of the Free Nutritious Meal Program (MBG) in early childhood education, examine the suitability of the provided menus with children's developmental characteristics and nutritional needs, and identify factors affecting food acceptability among young children at RA Assaadah, Tasikmalaya City.

2. METHODS

This study employed a qualitative approach with a descriptive case study design to explore the implementation of the Free Nutritious Meal Program (*Makan Bergizi Gratis*—MBG) in an early childhood education setting. A qualitative approach was considered appropriate because it enables researchers to understand social phenomena from the participants' perspectives and to obtain in-depth information regarding the context under investigation. The study was conducted at RA Assaadah, Tasikmalaya City, West Java, Indonesia. Participants were selected through purposive sampling based on their direct involvement in the implementation of the MBG program. The participants consisted of one teacher and two parents who were considered capable of providing comprehensive information regarding children's responses to the meals and the implementation process of the program.

Data were collected through semi-structured interviews and non-participant observations. Semi-structured interviews were employed to allow participants to share their experiences and perceptions while enabling the researcher to explore issues relevant to the research objectives. The interviews focused on the implementation of the MBG program, menu suitability, children's eating behaviors, food acceptability, and challenges encountered during implementation (Ningsih, 2025). In addition, observations were conducted to examine the actual implementation of the program, including children's responses to the meals, food presentation, and mealtime practices within the school environment. The researcher served as the primary research instrument, supported by interview guidelines, observation notes, and field documentation.

Data were analyzed using the interactive model developed. Which consists of data reduction, data display, and conclusion drawing and verification. During the data reduction stage, interview transcripts and observation records were reviewed, coded, and categorized

according to the research objectives. The organized data were then presented narratively to facilitate interpretation and identification of emerging themes related to menu suitability, food acceptability, and implementation challenges (Fuster et al., 2024). Conclusions were subsequently drawn through an iterative process of interpretation and verification to ensure the consistency of the findings.

To ensure the trustworthiness of the data, source triangulation was employed by comparing information obtained from different participants, namely the teacher and parents. Triangulation is widely recognized as an effective strategy for enhancing credibility and reducing potential bias in qualitative research. Through this process, the researcher sought to validate the consistency of the information and develop a comprehensive understanding of the implementation of the Free Nutritious Meal Program in early childhood education settings.

3. RESULTS AND DISCUSSION

3.1. Suitability of MBG Menus with Children's Eating Habits

The findings revealed that one of the primary challenges in implementing the Free Nutritious Meal Program (MBG) was the mismatch between the provided meals and children's eating habits at home. Interviews with teachers and parents indicated that many children were reluctant to consume meals that differed from foods they commonly ate in their family environment. Several children preferred familiar foods and tended to reject meals prepared using unfamiliar ingredients, flavors, or cooking methods. This condition resulted in some children taking the food home instead of consuming it at school.

Food preference development in early childhood is strongly influenced by repeated exposure and family eating patterns. Food choices are shaped by their previous experiences with food, parental feeding practices, and cultural eating habits (McGuire et al., 2021). Children who are repeatedly exposed to certain foods are more likely to accept and consume them. Conversely, unfamiliar foods often trigger food neophobia, a common developmental phenomenon characterized by reluctance to try new foods.

Exposure to healthy foods can gradually increase children's acceptance of those foods (Varela et al., 2024). Similarly, reported that children categorized as picky eaters tend to select foods based on familiarity, taste preference, and previous eating experiences. Therefore, the success of school feeding programs depends not only on nutritional adequacy but also on how well the menu aligns with children's habitual dietary patterns.

From a developmental perspective, Vygotsky's sociocultural theory suggests that eating behavior is influenced by social interactions and cultural practices within the child's environment. Consequently, collaboration between schools and parents is essential to ensure consistency between home and school food experiences. Introducing unfamiliar foods gradually and combining them with foods already accepted by children may increase menu acceptance and reduce food waste within the MBG program.

3.2. Limited Menu Variety and Children's Food Acceptance

Another significant finding was the limited variety of menus provided through the MBG program. Participants reported that menu repetition reduced children's enthusiasm during mealtimes (Searle et al., 2025). Several children became bored with frequently repeated food items and demonstrated lower motivation to consume the meals provided.

Menu variety is recognized as a critical factor in promoting healthy eating behavior among young children. According to repeated exposure to diverse foods enhances children's

willingness to explore new tastes and contributes to broader dietary acceptance. A varied diet is also associated with improved nutritional adequacy because it increases the likelihood that children consume different sources of essential nutrients.

Children who are exposed to a wide variety of fruits and vegetables exhibit greater acceptance of healthy foods than children with limited exposure (Pickard et al., 2025). Emphasized that menu diversity supports balanced nutrition while preventing boredom during meals. In school feeding programs, menu variation is particularly important because children often consume meals in the same setting every day.

Furthermore, sensory-specific satiety theory explains that repeated consumption of the same food decreases pleasure and interest in eating that food, whereas introducing new flavors, textures, and colors can stimulate appetite. This theory helps explain why repetitive menus in the MBG program may reduce children's food consumption (Awal, 2025). Therefore, school feeding programs should prioritize menu diversification through rotating ingredients, cooking methods, and food presentations while maintaining nutritional standards.

3.3. The Influence of Food Temperature on Children's Appetite

Food temperature emerged as another important factor affecting children's willingness to consume meals provided through the MBG program. Observational data indicated that meals often reached children after becoming cold due to transportation and distribution processes. Teachers reported that children were generally more enthusiastic when food was served warm and fresh.

Food temperature is closely related to sensory perception and food enjoyment, sensory attributes such as temperature, aroma, texture, and appearance significantly influence food acceptance and eating behavior (Schwartz et al., 2022). Warm foods typically release stronger aromas and provide more pleasant sensory experiences, thereby enhancing appetite and food enjoyment.

Sensory characteristics play a crucial role in determining food intake among children. Young children are particularly sensitive to changes in food texture and temperature because their sensory systems are still developing. Found that warm meals tend to be more acceptable to children than cold meals, especially when the food contains rice, vegetables, and protein-based side dishes.

In addition, Bronfenbrenner's ecological systems theory suggests that environmental factors directly affect children's behaviors, including eating practices. The physical environment surrounding mealtime, including food condition and serving quality, can shape children's willingness to eat. Consequently, maintaining food temperature during transportation and distribution should be considered an essential aspect of MBG implementation. The use of insulated food containers and improved meal scheduling may help preserve food quality and increase children's consumption rates.

3.4. Food Presentation as a Determinant of Children's Interest in Eating

The study found that food presentation significantly influenced children's interest in consuming meals. Participants noted that children were more likely to eat foods that appeared colorful, visually attractive, and creatively arranged (Vermeir, 2020). Conversely, meals presented in a plain or monotonous manner were often ignored or left unfinished.

Visual appearance is one of the first characteristics children evaluate before tasting food. Visual cues strongly influence food expectations and acceptance. Children tend to associate colorful and aesthetically pleasing foods with positive eating experiences. Therefore,

presentation serves not only an aesthetic function but also a psychological role in encouraging food consumption.

Demonstrated that creative food presentation can significantly improve children's willingness to consume nutritious foods. Attractive food arrangements increased vegetable consumption among young children. Shapes resembling animals, cartoon characters, flowers, or familiar objects often capture children's attention and encourage them to try new foods.

From the perspective of developmental psychology, children in early childhood rely heavily on visual perception when making decisions. Piaget's preoperational stage theory explains that children are strongly influenced by observable characteristics such as color, shape, and appearance. Consequently, visually appealing meals can positively affect children's perceptions and willingness to eat.

The findings suggest that food presentation should be considered an integral component of school nutrition programs (Rose et al., 2023). Beyond nutritional content, meals should be designed to stimulate children's curiosity and enjoyment. Incorporating colorful vegetables, creative food shapes, and child-friendly serving styles may enhance food acceptance and contribute to better nutritional outcomes.

3.5. Implications for the Implementation of the MBG Program in Early Childhood Education

The overall findings indicate that the effectiveness of the MBG program extends beyond nutritional adequacy. Children's acceptance of food is influenced by multiple interacting factors, including familiarity, variety, sensory characteristics, and presentation quality (Rose et al., 2023). These findings support the ecological perspective of child development, which emphasizes the interaction between individual characteristics and environmental influences in shaping behavior.

Therefore, policymakers, nutritionists, and educators should adopt a child-centered approach when designing and implementing school feeding programs. Menu planning should consider children's preferences and developmental needs while gradually introducing healthy food choices. Greater collaboration between schools, families, and nutrition professionals is also necessary to create consistent food experiences that support healthy eating behaviors (Varela et al., 2024).

By addressing these factors, the MBG program can improve food consumption rates, reduce food waste, enhance children's nutritional status, and ultimately contribute to better learning readiness and overall well-being among young children.

4. CONCLUSION

This study concludes that the implementation of the Free Nutritious Meal Program (*Makan Bergizi Gratis*-MBG) at RA Assaadah, Tasikmalaya City, has not yet fully achieved its intended objective of optimizing children's nutritional intake due to several factors affecting food acceptability. The findings revealed that children's willingness to consume the provided meals was influenced by the suitability of menus with their eating habits, the variety of menu options, food temperature, and the attractiveness of food presentation. These factors demonstrate that the effectiveness of school feeding programs depends not only on nutritional adequacy but also on children's developmental characteristics, sensory preferences, and eating experiences. The novelty of this study lies in its identification of food acceptability as a critical dimension in the implementation of the MBG program within early childhood education settings, highlighting that menu suitability and child-friendly meal presentation are as important as nutritional content.

This study has several limitations. First, the study was conducted in only one early childhood education institution with a small number of participants, which may limit the generalizability of the findings. Second, the data were collected only through interviews and did not include direct measurements of children's nutritional status or food intake. Therefore, future implementation of the MBG program should adopt a more child-centered approach by considering children's food preferences, increasing menu diversity, maintaining food quality during distribution, and improving food presentation strategies. Further research is recommended to involve a larger number of participants and educational institutions, as well as to examine the relationship between food acceptability, nutritional status, and learning outcomes among young children.

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirm that this study was conducted in accordance with ethical research principles, including voluntary participation, confidentiality, and respect for participants' rights. All data presented in this article were collected, analyzed, and reported objectively for academic purposes. The authors further confirm that this manuscript is an original work, has not been published elsewhere, is not under consideration by another journal, and is free from plagiarism, data fabrication, data falsification, and any form of academic misconduct. The authors take full responsibility for the content and conclusions presented in this article.

7. REFERENCES

- Aboyo, M. (2024). Effect of nutrition on the mental development of children. 3(2), 79–84.
- Awal, M. Z. (2025). Analysis of the free nutritious food program (MBG) in addressing stunting among lower-grade students at SDN 042 Tarakan. *Journal of Physical Education and Health Science*, 1(1), 7-18.
- Da Fonseca, P. G., Raposo, A., Alqarawi, N., Alasqah, I., Pinto, M. F., Martins, T. M. M., Gonçalves, V. D., Pereira, S. C. L., Albaridi, N. A., BinMowyna, M. N., Saraiva, A., and Guimarães, N. S. (2025). The influence of family in children's feeding difficulties: An integrative review. *Frontiers in Pediatrics*, 13, 1–10. <https://doi.org/10.3389/fped.2025.1609714>
- Donadini, G., Spigno, G., and Porretta, S. (2021). Preschooler liking of meal components: The impact of familiarity, neophobia, and sensory characteristics. *Journal of Sensory Studies*, 36(3), e12649.
- Fuster, M., Hipol, S., Tk, T., Uriyoán, H., Conaboy, C. C., Abreu, R., Castro, L., and Margaret, M. (2024). Bridging implementation science and human-centered design: Developing

- tailored interventions for healthier eating in restaurants. 446–458.
- Kostecka, M. (2022). The effect of the “colorful eating is healthy eating” long-term nutrition education program for 3-to 6-year-olds on eating habits in the family and parental nutrition knowledge. *International journal of environmental research and public health*, 19(4), 1981.
- Ma, Z., Ma, Y., Zou, W., and Fan, Z. (2025). Free school meals and educational outcomes: Evidence from China’s nutrition improvement program. *Frontiers in Public Health*, 13, 1542861.
- McGuire, J., Irvine, S., Smith, J., and Gallegos, D. (2021). Australian early childhood educators and infant feeding: A qualitative analysis using social cognitive theory. *Early Child Development and Care*, 191(5), 773-788.
- Ngurah, I. G., and Seventilofa, O. (2025). The impact of MBG program towards student intelligence in Indonesia: Dampak program MBG (makanan bergizi gratis) terhadap kecerdasan siswa di Indonesia. *PESOLAH: Jurnal Pendidikan, Sosial dan Humaniora*, 1(2), 85-91.
- Ningsih, K. P. (2025). Evaluation of MBG implementation in correctional institutions: Nutritional status and consumer satisfaction study. *Journal Nutrizione*, 2(3), 26–37. <https://doi.org/10.62872/9605pr57>
- Nur, M., and Anggraeni, I. (2023). How early children understand diversity in social interaction (ICLIQE). *Atlantis Press (pp. 1013-1020)*. https://doi.org/10.2991/978-2-38476-114-2_93
- Pickard, A., Alving-jessep, E., Delivett, C., Jenkins, R. H., Pullar, L., Farrow, C., Blissett, J., Pickard, A., Alving-jessep, E., Delivett, C., Pullar, L., Farrow, C., Blissett, J., and Jenkins, R. H. (2025). Improving children’s diets by introducing fruits and vegetables in group-based settings: A scoping review. *Nutrition Reviews*, 84(5), 1039-1050.
- Rose, K., O’Malley, C., and Lake, A. A. (2023). ‘Doing school food!’: A practical toolkit for adopting a whole school food approach. *Perspectives in public health*, 146(1), 29-37. <https://doi.org/10.1177/17579139231185302>
- Schwartz, M., Marais, J., Strydom, P. E., and Hoffman, L. C. (2022). Effects of increasing internal end-point temperatures on physicochemical and sensory properties of meat: A review. *Comprehensive Reviews in Food Science and Food Safety*, 21(3), 2843-2872.
- Searle, B., Houen, S., Staton, S., and Thorpe, K. (2025). Meals, mealtimes and moments for learning: Assessment of quality in early childhood education and care services. *Public Health Nutrition*, 28(1), e50.
- Tanziha, I., Ekayanti, I., and Ahmad, A. (2025). The impact of a free nutritious meal program on elementary school students’ concentration levels. *AcTion: Aceh Nutrition Journal*, 10(3), 790-800.
- Utami, F. B. (2020). The implementation of eating healthy program in early childhood. *JPUD- Jurnal Pendidikan Usia Dini*, 14(1), 125-140.
- Varela, P., De Rosso, S., Moura, A. F., Galler, M., Philippe, K., Pickard, A., Rageliene, T., Sick, J., van Nee, R., Almlí, V. L., Ares, G., Grønhøj, A., Spinelli, S., and van Kleef, E. (2024). Bringing down barriers to children’s healthy eating: A critical review of opportunities, within a complex food system. *Nutrition Research Reviews*, 37(2), 331–351. <https://doi.org/10.1017/S0954422423000203>
- Vermeir, I., and Roose, G. (2020). Visual design cues impacting food choice: A review and future research agenda. *Foods*, 9(10), 1495.