

Assessment of the needs and role of nutritionists in schools in indonesia? How important? : A literature review

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Abstract

School age is a crucial period in the children's growth and development. Adequate food intake is needed to support children's ability to learn so that children's growth and development can be achieved optimally. Health problems in the group of school-age children are of particular concern to parents and parts of the school. Parents or teachers pay less attention to the food consumed by students in the school, which can lead to nutritional health problems such as deficiency or excess nutrition in school children. School public health can be intended as a vehicle for implementing health programs, such as programs for nutrition, reproductive health, environmental health, and treatment. The implementation of school health efforts is closely related to the experts in charge of implementing children's food at school. This study aims to determine how vital nutritionists' role in the school environment is. The method used is a literature review by analyzing the literature that intersects with the objectives of this research. One example of a food service program is school catering or healthy canteens assisted by nutritionists in compiling food menus so that children can continue to consume healthy snacks and meet their daily energy needs. Based on these results, the presence of a nutritionist at school can play an essential role in organizing meals and monitoring the nutritional status of children regularly.

Keywords: assessment, nutritionists, policy and needs, school feeding program

Introduction

School-age children are the country's most influential human resource assets. School-age children are also the nation's investment as successors who determine the nation's future quality (Kaluku & Junaeni, 2022). Nutrition is one of the factors that has a vital role in shaping quality human resources. Nutritional adequacy is very influential for human health and work productivity. Physical, intellectual, mental, and social growth occurs quickly during school age. School-age children will need more nutrition to support their development and activities. At this age, more attention is required so that children can meet the needs of nutritional intake that has good quality and quantity (Uce, 2018). School-age children are an age group that is prone to nutrition and disease, so it is necessary to monitor children's nutritional intake, especially at school age (Permatasari *et al.*, 2023). School-age is one of the crucial periods in the growth and development of children, with nutritional problems in school-age children that can result in low quality of education, high absenteeism, and high dropout rates (Sari, 2022).

During their development, school-age children are categorized as having a relatively dense level of physical activity because they are usually more active in extracurricular activities, sports training, and private lessons (Juniar, 2020). Problems related to lack or excess nutrition in children can affect children's health during their development. Children can experience decreased concentration in learning if they have a poor nutritional status (Utami, 2019). The parents must pay attention to the health and adequacy of food for children, especially if children have activities outside of school hours, such as lessons or other training.

Under Law No. 36 of 2009 Article 79 on health, the Act has mandated nutrition improvement efforts to improve the quality of individual and community nutrition, among others, through improving food consumption patterns, improving nutrition, physical activity, and health awareness behaviours behaviours, and increasing access and quality of nutrition services following advances in science and technology so that the lunch program with appropriate nutrition services can improve the ability of healthy living of students in a healthy living environment so that students can learn, grow and develop harmoniously and to the greatest extent so that they are expected to become quality human resources (BPOM, 2013).

The School Feeding Programme is a school feeding program launched in many countries, especially those with a high prevalence of malnutrition and hunger. The program has been implemented in more than 70 low-income countries with support and supervision provided by the World Food Programme to improve children's performance as students by providing school meals. According to the World Food Programme's official website, the school feeding program has

existed for six decades. It has successfully made a difference in more than 50 countries around the world, with the initial goal not only focusing on improving the health of school children but also achieving agricultural goals (World Food Programme, 2022).

A report published by the African Union noted that food delivery programs have successfully reduced the prevalence of hunger and nutritional diseases such as malnutrition and micronutrient deficiencies. Developing Countries such as South Africa have maximized the implementation of the school meals program (SFP) by providing healthy meals with additional fortification of some foods to address high-prevalence nutritional problems such as iron deficiency, folate, vitamin A, and various other macronutrients in children (World Food Programme, 2021).

This research is justified by the need to know how the presence of nutritionists affects school feeding programs in Indonesia compared to other countries that have been working around this program for years or decades. The findings of this study will describe why nutritionists have an essential role in school feeding programs.

Methods

Publications were identified by searching various electronic databases on the last ten years of publications (2013-2023). Search terms incorporating school feeding programs, nutritionists, school-aged, policy and needs, developed country, low- or middle-income country, and Indonesia were combined to retrieve relevant literature. In addition, manual searches were conducted, and articles were retrieved from those listed in critical papers. In this paper, we used search engines like Google Scholar and Publish or Perish to complete information for this research and inspect for further accuracy towards the articles. According to the operational definition used, the literature review used four journals.

Results and Discussions

The study results were analyzed by comparing School Feeding Programs in several countries that have included nutritionists in their implementation to success rates and benchmarks. The data is presented in the following articles:

Table 1. Comparison of the Implementation of School Feeding Programmes and the role of nutritionists in different countries

No.	Article/ Journal	Title	Country	Nutritionists' Role	Level of Success	Benchmark
1.	Kitaoka (2018)	The National School Meal Programme in Brazil: A Literature Review	Brazil	They are involved in menu planning and guidance, monitoring food handling, training cooks and managers, and nutritional education.	Nutritional management, quality control, education, nationalized systems, nutritional standards, and nutritionist arrangements are relatively advanced.	The school meal program in Brazil has broad coverage, particularly in secondary schools and education units for youth and adults. Furthermore, it includes elements such as nutritional management, quality control, nutritional education, nationalized systems, nutritional standards, and nutritionist arrangements.
2.	Rivera & MPA-HM (2017)	The Implementation of The School-Based Feeding Programme (SBFP) In The Schools Division Of Tarlac Province	Tarlac, Philippines		Outstanding in its coverage while very satisfactory in its personnel performance, adequate in its financial allocation and facilities.	The primary objectives of the SBFP were mainly accomplished, particularly in restoring a minimum of 70% of severely malnourished individuals to good nutritional health within 100 to 120 feeding days. Furthermore, the program effectively reached its goal of ensuring that 85% to 100% of recipients regularly attended classes, and it also made notable advancements in enhancing the well-being, nutritional status, and behavior of children.
3.	Aliyar (2015)	A review of Nutritional Guidelines and	Kenya	Improving health and academic performance in both	The program functions by the Government,	Enhance enrollment, attendance, and persistence in schools while raising the nation's literacy

		Menu Compositions for School Feeding Programmes in 12 Countries	public and private schools	providing funds directly to the School Management Committees (SMCs) for the procurement of food items.	achievement.	
4.			Italy	Strong focus on organic food and sustainability, along with the endorsement of Italian agricultural methods and the rich culinary tradition.	The Italian Government invests in ingredients and the school meal service. Local authorities purchase foodstuffs for meal preparation.	
5.			USA	It is enhancing the physical and emotional welfare of students in schools.	At the national level, the USDA administers the National School Breakfast Program and the National School Lunch Programme, while at the community level, state education agencies manage these initiatives.	
6.	Ishida (2015)	Role of School Meal Service in Nutrition	Japan	The school nutritionist is responsible for food service management and facilitating food and nutrition education.	The influence of school meal service on eating habits is not as prevalent	In many cases, the direct impact on the physical condition cannot be substantially ascertained except in terms of limited food and company supplies with nutritional deficiencies. Japan is currently facing a scenario where schoolchildren show little change in their physique, and the impact of school meal services is difficult to ascertain.

Some countries have programs that have yet to be measured in terms of their achievements. The direct impact of school feeding in Japan on students' physical condition cannot be concretely ascertained, with little physical change. The school feeding program in England needs to be more equitable in its implementation as some students consume the provided food at school, and some bring food from home due to the unclear food standards set at school.

A comparison was made of the four journals in **Table 1** covering six countries: Brazil, Philippines, Kenya, Italy, Japan, and the USA. Based on this comparison, Brazil has set up nutritionists' roles such as menu planning and guidance, monitoring how food is handled, training cooks and managers, and food and nutritional education. Meanwhile, the Philippines still needs to explain nutritionists' role further, but the program has reduced the prevalence of severe hunger by up to 70%. In Kenya, nutritionists were expected to improve health and academic performance in school. In Italy, no nutritionist role is stated either, but the nutritionist strongly focuses on organic food and sustainability while keeping the Italian culture. In Japan, the school nutritionist manages food service and facilitates food and nutrition education. Lastly, no nutritionists' roles are explained in the United States of America, but they have already succeeded in enhancing students' physical and emotional welfare in schools.

School Feeding Programmes

School Feeding Programmes (SFPs) or School Meals Programmes are policies that provide healthy meals to children in schools. This policy is an intervention to reduce hunger and nutritional problems such as micronutrient deficiencies and obesity. It can improve cognitive and academic abilities so that it is considered to enhance the quality of human resources (Aliyar *et al.*, 2015). School Feeding Programmes have been implemented in various countries ranging from high-income to medium to low-income, albeit with limited coverage (Wang & Fawzi, 2020).

Research conducted in two elementary schools by Palupi *et al.* (2020) shows that both schools do not use nutritionists in organizing school lunches, and the results obtained based on these data show that the fulfilment of energy and nutrients lower than 80% due to lunch intake does not meet the nutritional needs of students. In addition, the menu has been considered quite varied, but one school still needs to provide fruit in implementing the menu. This result

is also supported by research conducted by Cohen (2013) in one of the schools that organized lunch, which showed that students only consumed less than the nutritional recommendations of 85%.

In addition, kitchen facilities and school infrastructure with school feeding programs are also influential in providing meals because they can directly impact the quality of food served. Schools with school feeding programs that operate within the school grounds with sturdy buildings, good sanitation and hygiene, and direct distribution can minimize the occurrence of food spoilage or a decrease in the quality of the food provided (Ronitawati, 2016). This situation has an impact on the occurrence of problems that hinder the implementation of this program, such as low food acceptance, resulting in high rates of food waste from menus that students do not eat, so food service management is needed that can support the level of food acceptance by students (Setyaningtyas *et al.*, 2022).

The role of the school nutritionist

Referring to Ronitawati's (2016) study comparing two other primary schools, it was found that schools that had directly involved qualified nutritionists in the provision of food by considering age, gender, and the budget provided by the foundation had better outputs. When compared to other schools that do not directly involve nutritionists, schools with nutritionists have better organization from input (human resources, raw materials, funds, and methods), process (menu planning, processing, serving distribution, reporting), to output (menu quality and acceptability of student consumption) so that the implementation becomes better. It has a direct effect on the nutritional fulfilment of students at school.

Brazil, one of the countries with the world's most extended school feeding program, states that nutritionists are one of the most critical components of a successful school feeding program. This statement is demonstrated by a document containing the duties and obligations of a nutritionist to succeed in the PNAE or National School Food Programme in the Southern Region of Brazil. The document contains 13 mandatory and nine complementary activities that include carrying out a diagnosis of the students' nutritional status; planning, preparation, follow-up, and evaluation of the school meal menu; human resources training; sanitary hygienic quality control; coordination and implementation of food and nutrition education (EAN) actions (Correa *et al.*, 2017).

Best Practice School Feeding Programmes in countries where nutritionists are involved

School feeding programs are crucial in tackling food insecurity, enhancing nutritional education, and improving overall health results (Cupertino *et al.*, 2022). In its implementation some countries have successfully implemented policies related to school feeding programs and have achieved several benchmarks of success, including reducing the prevalence of nutritional problems, especially in school children.

Based on the results obtained after comparing the countries in **Table 1**, it is found that school nutritionists in each country have roles that are not much different from other countries, namely being responsible for menu planning and evaluation, monitoring the running of food delivery activities, planning according to budget, and adjusting according to the culture of each country. However, all these countries have their achievements despite the similarities in the duties and obligations of a school nutritionist. The Philippines has managed to reduce the prevalence of severe malnutrition by 70% after 120 days of SFP, while in Kenya, SFP has reduced student absenteeism in schools and even raised the nation's overall literacy achievement. SFP in Japan led to physical changes in students, although not significant. The role of nutritionists in Brazil led to a balance in the coverage of nutritional elements so that the output was relatively advanced. This statement aligns with research conducted by Verguet *et al.* (2020), which states that the School Feeding Programme can enhance learning and support higher educational attainment.

The research of Setyaningtyas *et al.* (2022) stated that many school children experienced dissatisfaction with the menu served at school based on several indicators such as taste, texture, aroma, cleanliness, and colour. The result showed that vegetables became one of the variables with the worst assessment due to their unattractive appearance when served, so they became the most significant percentage of discarded food ingredients. The absence of nutritionists who are directly involved in the organization of school meals can be one of the causes of student dissatisfaction with the food served.

According to the observation results, food performances are strongly influenced by how the food is prepared, and this is where the role of a nutritionist is needed. According to research conducted by Correa *et al.* (2017), nutritionists are in charge of promoting healthy eating habits to students and supervising the organization of food in schools, including preparing menus and monitoring food purchases.

Regulation, the urgency of the role of school nutritionists in school feeding programs, and the need for nutritionists in the education sector

Under Law No. 36 of 2009 Article 79 on health, the Act has mandated nutrition improvement efforts to improve the quality of nutrition of individuals and communities, among others, through improving food consumption patterns improving nutrition, physical activity, and health awareness behaviour; and improving access and quality of nutrition services following advances in science and technology. Thus, the lunch program with appropriate nutrition services can enhance the ability of students to live a healthy life in a healthy environment so that students can learn, grow, and develop harmoniously and at the highest level so that they are expected to become quality human resources (BPOM, 2013).

One of the competencies that a nutritionist must possess is supervision to design menus following consumers' needs and nutritional status, control food production that meets nutritional adequacy, estimate the cost of acceptability, and develop food standards for students and employees (MOH, 2015). Although regulations on improving nutrition by increasing access have been passed, Indonesia has no mandatory school feeding program (Setyaningtyas *et al.*, 2022).

Conclusions

Nutritionists play an essential role in implementing School Feeding Programmes to improve the nutritional status of children in schools, according to countries that have implemented such programs. The need for school nutritionists is intensely urgent in preparing students as future generations with superior health status and human resource values. Career development and the need for nutritionists in Indonesia will expand based on the urgency analysis and the need for legislation that strengthens the presence of the role of nutritionists in schools.

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