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School-Based Support for Monitoring the Nutritional Status of Primary School Initial Reflections on the Implementation of the Free Nutritious Meals Programme as a Tool for Human Resource Development

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Abstract. *Nutritional problems among school-age children remain an important challenge in human resource development in Indonesia. Adequate nutritional status is essential for supporting physical growth, cognitive development, learning achievement, and future productivity. Schools play a strategic role in promoting children's health through nutritional monitoring and educational interventions, particularly during the implementation of the Free Nutritious Meal Program (MBG). This community service activity aimed to monitor students' nutritional status and strengthen awareness of the importance of nutrition as a foundation for human resource development. The activity was conducted on April 5–6, 2026, at SD Negeri 09 Jambi City and involved 261 students from grades I to III. A school-based assistance approach was implemented through anthropometric measurements, including body weight and height assessments, followed by balanced nutrition education. The findings revealed that 77.0% of students had normal nutritional status, while 8.8% were undernourished, 9.6% were overweight, and 4.6% were classified as obese. The activity also increased school awareness regarding the importance of continuous nutritional monitoring and evidence-based health management. These findings suggest that school-based nutritional monitoring can support the implementation of the Free Nutritious Meal Program and serve as an initial effort to strengthen human resource development by fostering healthier, more productive, and higher-quality future generations.*

1. INTRODUCTION

The problem of nutrition in children is still one of the main challenges in human resource development in Indonesia. Good nutritional status is an important prerequisite for a child's physical growth, cognitive development, health, and learning ability (Martony, 2023). On the other hand, malnutrition can cause growth disorders, reduce learning concentration, and have an impact on the quality of human resources in the long term (Victora et al., 2010; Veri et al., 2025). Therefore, improving the nutritional status of children is not only the responsibility of the health sector, but also an important part of sustainable national development efforts.

Based on the results of the 2024 Indonesian Nutrition Status Survey (SSGI), the national stunting prevalence was recorded at 19.8% or around 4.48 million children under five, down from 21.5% in 2023 (Ministry of Health of the Republic of Indonesia, 2025). Although showing a positive trend, this figure is still far from the government's target of 14.2% in 2029 (Ministry of Health of the Republic of Indonesia, 2025). This problem is also inseparable from social and economic factors, considering that the prevalence of stunting tends to be higher in people with low welfare levels (Munawaroh & Ahmad, 2025), so efforts to improve nutrition require a comprehensive and cross-sectoral approach.

At the provincial level, SSGI data recorded an increase in the prevalence of stunting in Jambi Province from 13.5% in 2023 to 17.1% in 2024 (Ministry of Health of the Republic of Indonesia, 2025). This trend in contrast to the decline in national rates indicates the need for a more comprehensive evaluation of nutrition policies in the region, particularly in the primary school-age group that is in a critical growth phase.

Schools are a strategic environment in supporting the improvement of children's nutritional status, because they allow the implementation of health and nutrition programs in a structured manner (Saputra, 2025; Rahmah et al., 2025). Various studies show that school-based nutrition interventions have a positive impact on students' health. Pramesti et al. (2025) found that school feeding programs are able to increase the diversity of food consumption and nutrition knowledge of students, while Permandi et al. (2025) report that adequate energy intake and macronutrients have a significant relationship with the nutritional status of elementary school children. Monitoring nutritional status through anthropometric measurements is one of the simple but effective methods to detect nutritional problems early (Putri et al., 2025).

In response to national nutrition problems, the Indonesian government launched the Free Nutritious Eating Program (MBG) which targets students, toddlers, pregnant women, and breastfeeding mothers (Rahmah et al., 2025). Jambi City is one of the priority areas for the implementation of this program, where the city government prepares distribution mechanisms, school kitchens, and nutrition monitoring to ensure that the program runs effectively (Rahmah et al., 2025). This program is expected to reduce the prevalence of stunting and support the sustainable improvement of the quality of human resources (Kristjansson et al., 2022; Purwati et al., 2024).

Nonetheless, the success of nutrition programs requires ongoing monitoring and evaluation. Until now, information on the nutritional status of elementary school students in the early stages of the implementation of the MBG Program, especially in Jambi City, is still relatively limited. Therefore, this community service activity is carried out on elementary/MI students in Jambi City through monitoring nutritional status based on anthropometric measurements (Rizona et al., 2025), as well as providing education about the importance of fulfilling balanced nutrition. The results of the activity are expected to be a source of information for schools, parents, and stakeholders in supporting efforts to improve the nutritional quality of school-age children in a sustainable manner.

2. METHODS

This community service activity uses a descriptive-participatory approach and was carried out on April 05-06, 2026 at SD Negeri 09 Jambi City which is the location for the implementation of the Free Nutritious Meal Program (MBG). The target of the activity was all students in grades I to III who were present at the time of the activity, a total of 261 students. The approach used is in the form of school-based mentoring which includes coordination with the school, monitoring the nutritional status of students, balanced nutrition education, and the submission of measurement results as initial evaluation material for schools. Assistance is carried out by a team of lecturers and students by involving teachers as partners in the implementation of activities.

Figure 1. SD Negeri 09 Jambi City

Nutritional status monitoring is carried out through weight and height measurements using calibrated measuring instruments. The data obtained was used to determine the nutritional status of students based on the Body Mass Index by Age (BMI/U) indicator according to the Indonesian Child Anthropometric Standard (Muchtar et al., 2023). In addition to anthropometric measurements, participants were given education about a balanced nutritious diet and the importance of consuming nutritious food in supporting growth and learning achievement. The measurement data were analyzed descriptively in the form of frequency and percentage to provide an overview of the nutritional status of students during the implementation of the Free Nutritious Meal Program. The findings obtained are used as the basis for the preparation of recommendations to the school in supporting the optimization of program implementation and the improvement of student health in a sustainable manner.

3. RESULTS AND DISCUSSION

School-based mentoring activities were carried out on students of SDN 09 Jambi City and were carried out on 261 students in grades I to III at one of the elementary schools in Jambi City which is the location for the implementation of the Free Nutritious Meal Program (MBG). The activity began with coordination with the school, followed by anthropometric measurements in the form of weight and height, as well as education about the importance of balanced nutrition for students. The entire series of activities received support from the school and was actively attended by students and teachers involved in the implementation of the program. The mentoring is not only focused on the implementation of anthropometric measurements, but also on strengthening the school's understanding of the importance of monitoring nutritional status as part of efforts to support the health and learning quality of students. Through this approach, schools are encouraged to not only become the location for the implementation of the Free Nutritious Meal Program (MBG), but also to become partners in the process of identifying, monitoring, and evaluating student nutritional conditions on an ongoing basis.

Figure 2. Documentation with Teachers and Principals

During the activity, teachers were involved in the process of collecting participant data, anthropometric measurements, recording results, and discussions about the simple interpretation of students' nutritional status based on the Body Mass Index by Age (BMI/U) indicator. This involvement is a form of mentoring that aims to increase the capacity of schools in understanding the health conditions of students more systematically (Supriani et al., 2024). Thus, this activity not only produces nutritional status data, but also encourages the formation of school awareness about the importance of using health data as a basis for decision-making in supporting the growth and development of students.

Figure 3. Anthropometric Monitoring

Based on the results of anthropometric measurements using the Body Mass Index by Age (BMI/U) indicator, it was obtained that most of the students were in the category of good nutrition (normal), namely 201 students (77.0%). Meanwhile, there were 23 students (8.8%) with undernutrition status, 25 students (9.6%) with overnutrition status, and 12 students (4.6%) included in the obesity category. These results show that the majority of students have good nutritional conditions, but there are still students with undernutrition problems and overnutrition who need attention through continuous monitoring and mentoring.

Table 1. Distribution of Students' Nutritional Status Based on BMI/U

No.	Nutritional Status	Quantity	Percentage
1	Malnutrition	23	8,8%
2	Good Nutrition (Normal)	201	77%
3	More Nutrition	25	9,6%
4	Obesity	12	4,6%
	Total	261	100

Source: Data processed

The implementation of the Free Nutritious Meal Program (MBG) provides a good opportunity to support the fulfillment of students' nutritional needs. The findings of the monitoring results showed that most of the students were in the category of normal nutritional status, but no anthropometric changes were found that were too striking compared to the basic data of the school at the beginning of the semester. These findings present an important reflection on the implementation of the Free Nutritious Meal (MBG) Program. Amid optimism that nutritious food provision programs will directly improve children's nutritional status, field data show that the relationship between feeding and changes in nutritional status is not necessarily linear. The availability of nutritious food in schools is indeed an important prerequisite, but it is not necessarily a sufficient factor to produce a significant change in nutritional status in a short period of time (Hasibuan & Dalimunte, 2025). This condition indicates that the effectiveness of the program cannot only be assumed from the implementation of food distribution, but needs to be proven through measurable outcome indicators and continuous monitoring (Marlina, 2025).

Figure 4. Delivery of Balanced Nutrition Education to Students

These findings also show the difference between the logic of program implementation and the reality on the ground. In many public policies, success is often measured by the size of the scope of beneficiaries and the smooth implementation of activities. However, this approach tends to place output as the main indicator, while the actual outcome to be achieved receives less attention. In the context of MBG, the amount of food that has been successfully distributed

is indeed important as an indicator of program implementation, but this indicator has not been able to explain whether the goal of improving the nutritional quality of students has really been achieved. Therefore, this mentoring activity shows that the existence of a nutrition status monitoring system at the school level is as important as the implementation of food distribution itself.

Furthermore, the results of the activity show that nutrition status monitoring is still not a strongly integrated component in the implementation of programs at the school level. Before mentoring activities were carried out, student weight and height data generally only functioned as administrative data and had not been optimally utilized as a basis for decision-making related to student health. This condition raises fundamental questions about how the effectiveness of the program can be evaluated if monitoring instruments have not been utilized to the fullest. From an *evidence-based policy perspective*, the success of a program should not only be determined by the implementation of the intervention, but also by the ability to generate data that can be used to objectively assess the impact of the intervention (Sari et al., 2024).

Another aspect that needs to be observed is the tendency to place nutrition problems as a problem of food consumption alone. The results of observations during the activity showed that the nutritional condition of students was influenced by much more complex factors, including breakfast habits, consumption patterns at home, food preferences, physical activity, and the level of understanding of balanced nutrition (Pramudya et al., 2026). These findings show that the Free Nutritious Meal Program cannot work optimally if it only focuses on providing food without being accompanied by strengthening education and behavior change. In other words, the program has the potential to produce more limited benefits if interpreted only as a food intervention, not as a comprehensive human development intervention.

In the context of human resource development, these findings are becoming increasingly relevant. So far, the relationship between nutrition and human development is often understood normatively, namely that nutritional improvement will produce a healthier and more productive generation (Marlina et al., 2026). However, the results of this activity show that the process towards this goal requires longer and more complex stages. Good nutritional status does contribute to the cognitive development, learning ability, and productivity of individuals in adulthood (Victora et al., 2010), but these benefits can only be achieved if nutritional interventions are carried out consistently, measurably, and supported by an adequate monitoring system. Without a strong evaluation mechanism, risky programs are judged more in terms of popularity and budget size than their impact on the quality of human

resources (Feriyanto, 2025).

Therefore, the school-based mentoring activities carried out in this service show that schools should not be positioned only as distribution points for the Free Nutritious Meal Program. Schools need to be placed as monitoring and evaluation centers that are able to produce empirical data on the nutritional condition of students (Maulidya & Fitriani, 2025). This approach is important because it allows the program not only to run administratively, but also to measure its effectiveness based on changes in the conditions of the learners who are the main target of the policy. Thus, school-based mentoring not only functions as a technical activity for monitoring nutritional status, but also as an instrument to strengthen program accountability in supporting sustainable human resource development.

4. CONCLUSION

School-based mentoring activities in monitoring nutritional status carried out at SD Negeri 09 Jambi City showed that most students had normal nutritional status, although students were still found with undernutrition, overnutrition, and obesity categories. These results indicate that monitoring nutritional status through anthropometric measurements can be an effective instrument to obtain an initial picture of students' health conditions while supporting the implementation of the Free Nutritious Meal Program (MBG) in the school environment.

Theoretically, these findings reinforce the view that the improvement of the quality of human resources is not only determined by the availability of food interventions, but also by the existence of a monitoring system that is able to identify the nutritional conditions of students in a sustainable manner. Good nutritional status is one of the important foundations in supporting physical growth, cognitive development, and children's learning abilities which ultimately contribute to the development of quality human resources. Therefore, schools need to be positioned not only as a location for the implementation of nutrition programs, but also as a strategic partner in monitoring and evaluating students' health. Based on the results of the activity, it is recommended that nutritional status monitoring be carried out periodically and integrated with school health programs. In addition, nutrition education for students and parents needs to be strengthened to build sustainable healthy living habits. Synergy between schools, parents, health workers, and the government also needs to be improved so that the implementation of the Free Nutritious Meal Program is not only oriented to food distribution, but is able to have a more optimal impact on improving the quality of health and human

resource development from elementary school age.

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