



## The Impact of Nutritional School Based Feeding Program on Academic Achievement of Selected Elementary Learners in West Philippines

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**Abstract:** This study investigates the impact of nutritional school-based feeding programs on the academic performance of 45 elementary learners. This research method uses a quasi-experimental design with a pretest and posttest structure; a two-part questionnaire was the primary research tool. The first part gathered demographic information, while the second assessed participating students' nutritional status and academic performance. Researchers administered the questionnaire to parents or caregivers, selected students systematically, traced household addresses, and conducted home interviews. The study results showed that the general weighted average increased noticeably and statistically significantly after implementing school-based feeding programs. Subsequent investigation, however, revealed a fascinating finding: the gains in academic achievement did not correspond consistently with the varied profiles of respondents, including age, gender, socioeconomic status, and educational attainment. The research highlights the necessity for additional investigation into the impact of nutrition on academic achievement.

## INTRODUCTION

Several factors have accounted for academic success. In recent years, the academic world has become increasingly interested in the connection between nutrition and academic performance. Providing healthful school meals is a potential strategy to increase kids' academic progress, particularly in impoverished communities. Their diet fundamentally influences the physical and cognitive development of children, and this has a direct bearing on their academic performance. The development of young minds and the promotion of the best learning capacities depend critically on adequate nutrition. Unfortunately, major nutritional problems affect many children globally, particularly in low- and middle-income nations, which impede children's ability to learn (Rector et al., 2021). To address these issues, academics and policymakers have become more interested in creating school-based feeding programs since they know nutrition's crucial role in determining academic outcomes.

Adelman and Lehrer (2008) highlight the multifaceted benefits of school feeding programs, emphasizing their role in alleviating short-term hunger, incentivizing school attendance, and potentially enhancing cognitive development. Bundy et al. (2009) further

stress the pivotal contribution of these programs to children's nutritional status and overall health. Shahid (2003), Taras (2005), and Ahmed (2004) underscore the positive impact of proper nutrition on academic performance, with George (2007) and the FAO (2007) highlighting the significant role of school feeding programs in alleviating hunger and improving educational quality. In examining the contextual factors influencing academic performance, Robert and Getinet (2017) emphasize the extensive effects of school feeding programs in the Philippines, particularly addressing poverty-related factors. Despite contextual differences, Dalma et al.'s (2016) study on parent's and children's perceptions suggests positive feedback regarding the potential influence of feeding programs on academic performance in a specific setting. Francis and Pegg's (2020) insights into nutrition program implementation during the COVID-19 pandemic, Rector et al.'s (2021) evaluation of programs for adolescents, and Tabunda et al.'s (2016) positive outcomes from the Department of Education's School-Based Feeding Program in the Philippines collectively highlight the need for tailored research to address existing gaps and comprehensively understand the impact of school-based nutrition programs on academic success.

There are no geographical or national boundaries to the problem of malnutrition and its effects on academic performance. Because of an unhealthy diet, millions of kids cannot study and grow to their full potential (UNICEF, 2020). The World Food Programme (2020) believes that more than 30% of school-age children in underprivileged countries experience chronic malnutrition based on country statistics. Locally, it is the same experience as pupils at Buluang and Butnongan Elementary School, a rural institution with significant academic achievement and nutrition challenges. This study is crucial because it examines the impact of feeding programs on students' academic performance in rural schools. According to WHO (2021) and the Food and Agriculture Organization (FAO, 2021), a healthy school food environment has the potential to play an essential role in controlling body mass index (BMI) since it could influence students' diet. Previous studies have demonstrated the positive effects of healthy eating on students' academic performance; nevertheless, the findings of individual studies may vary. Students may not receive the nourishment they require in remote schools since there may not be enough options for healthy cuisine. To resolve these problems, this study is essential. It is necessary as eating healthy directly impacts students' academic performance. This study investigates how improved school food supports children's attention, learning, and participation.

Moreover, the study intends to build upon recent research highlighting the positive effects of school feeding programs on students' academic achievements. For instance, a systematic review by Acham et al. (2020) emphasizes the significant impact of such programs on the health and nutritional outcomes of school children in developing countries. Bundy and Grosh's (2019) research elucidates the broader implications of school feeding programs on social safety nets, child development, and education. By expanding upon the existing body of knowledge and recent studies, this research aims to clarify further the connection between nutritional school-based feeding programs and the academic success of elementary learners. Understanding this can significantly contribute

to more informed decision-making regarding educational policies and resource allocations to support students' academic achievements.

Lastly, this study looks into the impact of nutrient-based school food programs on primary students' academic achievement. It aims to comprehend the connection between serving pupils a balanced diet at school and how it affects their academic performance. The study investigated how young learners' cognitive development and learning capacities are impacted by a better diet. Analyze pupils' academic achievement at Butnongan and Buluang Elementary Schools concerning the outcomes of a wholesome school-feeding initiative. This research sheds light on the possible advantages of such programs. It provides recommendations to improve educational performance in contexts with limited resources by analyzing the literature gap and considering the global, national, and local perspectives. This study focused on the impact of nutritional-based feeding programs on elementary students' academic achievement. Specifically, the study sought to describe the nutritional status of the learners before and after the nutritional school-based feeding program and the learners' academic performance before and after the nutritional school-based feeding program. Also, it determined the significant difference in the nutritional status of the learners before and after the nutritional school-based feeding program and the significant difference in the learners' academic performance before and after the nutritional school-based feeding program.

## **METHODOLOGY**

The study employed a quasi-experimental design. Despite lacking random assignment, this design effectively addressed the directionality problem by manipulating the independent variable before measuring the dependent variable, offering an understanding of cause-and-effect relationships (Creswell, 2012). The research systematically explored various components of the feeding program, such as meal quality, frequency, and nutrients, to assess their impact on elementary learners' academic achievement. The study conducted at Buluang and Butnongan Elementary School in Palawan, Philippines, strategically selected these locales due to their practical accessibility and active participation in school-based feeding programs, directly aligning with the research objectives. Forty-five kindergarten to Grade 6 students, representing both genders, form a diverse group for a comprehensive assessment of feeding program impacts across different age levels. Notably, by including respondents in the school-based feeding program, the study ensures a focused evaluation of its effects on academic performance.

## **RESULT AND DISCUSSION**

This research provides some information from research findings that have been carried out and produces some data that shows the impact of the Nutritional Status of Students before and after the School-Based Nutrition Feeding Program; then, you can also see the Academic Achievement of Students back and after the School-Based Feeding Program Nutrition and finally the evaluation analysis between students' academic achievements before and after the program of providing nutritious food at school. The role of nutrition is significant in supporting students in understanding learning and providing

positive encouragement to children so that they become better at carrying out the learning process. Good individual thinking skills accompanied by nutrition will prepare students to receive the knowledge conveyed to the teacher. Everyone in the learning process has the same opportunities, but many external factors, including nutritional factors, can influence student learning outcomes. The student's academic achievements before and after the school-based nutrition feeding program can be seen in Table 1.

**Table 1.** General Weighted Average (Before and After)

Before		After	
Outstanding	4	Outstanding	4
Very Satisfactory	2	Very Satisfactory	4
Satisfactory	30	Satisfactory	28
Fairly	4	Fairly	4
Satisfactory		Satisfactory	

Table 1 shows that several sections are in a constant condition, namely in the Outstanding category before and after having the same value, namely 4. In contrast, there is a change from 2 to 4 in the very satisfactory value. Then, if you look further at the acceptable section, it experiences a decrease from 30 to 28, while the entirely good part remained or did not experience change, namely 4. Some data in Table 1 shows that some parts experienced changes and reductions, but some remained stable. The data in Table 1 describes the damage that occurred, and of course, because the data still needs to be challenging, further and in-depth research is required. This research also presents comparative data on students' nutritional status before and after the school-based feeding program, as seen in Table 2.

**Table 2.** Comparative analysis between the nutritional status of the learners before and after the nutritional school-based feeding program.

Nutritional Status	Mean	SD	t-value	p-value	Interpretation
Before the Feeding Program	14.7	2.32	-5.59	.001	Significant
After the Feeding Program	16.3	1.98			Difference Exist

Table 2 provides information that before the implementation of the feeding program, the average nutritional status was 14.7 and showed variability with a standard deviation of 2.32. After this program ran, there was a significant improvement, with the average dietary status increasing to 16.3 and variability decreasing, as reflected in the standard deviation falling by 1.98. The statistical significance of this change is confirmed by the t-value of -5.59 and the small p-value of 0.001. This research clearly illustrates and provides evidence of increased children's nutrition after implementing the feeding program. The data above provides a clear picture that good food is a necessity that must be provided to students in carrying out the learning process. Researchers believe that a good and balanced diet will provide maximum benefits for students, so fulfilling nutrition is essential in education, where nutrition is considered to improve children's achievements. A comparative analysis of student's academic achievements before and after the program of providing nutritious food at school can be seen in Table 3.

**Table 3.** Comparative analysis between the learners' academic performance before and after the nutritional school-based feeding program.

Academic Performance	Mean	SD	t-value	p-value	Interpretation
Before the Feeding Program	82.6	3.32	-4.27	.001	Significant Difference Exist
After the Feeding Program	83.5	3.04			

This research also provides an overview of the academic performance evaluation before and after the Feeding Program, as in Table 3. Table 3 provides information and shows a statistically significant difference, as shown by the t-value of -4.27 and the p-value of 0.001. This strong statistical evidence includes information that there is a substantial and massive improvement after a feeding program treatment, especially in academic performance. The ability to provide food can provide very significant changes because it cannot only improve children's physical health, but researchers also believe it can deliver extraordinary improvements to children's thinking abilities or ways of thinking that are more critical, effective and innovative. The research data that the researcher has presented above should be valuable input and information, especially in the Philippines and in general throughout the world and most specifically in education, where healthy food and a balanced lifestyle can make the nation's children better and of better quality.

#### ***Nutritional Status of the Learners before and after the Nutritional School-Based Feeding Program***

There has been a notable enhancement in the nutritional status of students, indicating a favorable outcome attributable to the implementation of school-based feeding programs. This positive transformation is reflected in key indicators such as height, weight, BMI, and overall health condition. According to Ahmed (2004), participants in the School Feeding Program exhibited a higher average BMI, lending credence to the notion that the program plays a pivotal role in fostering student growth. This improvement underscores the efficacy of nutritional interventions, particularly school-based feeding programs, in positively shaping the health and well-being of students. These findings align with the conclusions drawn by the World Health Organization in 2021 and the Food and Agriculture Organization (FAO) in 2021, suggesting that providing nutritious meals in schools can aid in weight management and influence children's dietary choices. In essence, these results indicate that school meal programs can significantly contribute to enhancing students' nutritional and physical well-being. Furthermore, these outcomes suggest that the implemented strategies have successfully delivered essential nutrients, facilitated healthy growth, and potentially addressed nutritional deficiencies. Consequently, these efforts contribute to the overall welfare and development of the student population.

#### ***Academic Performance of the Learners before and after the Nutritional School-Based Feeding Program***

The notable rise in the average Grade Weighted Average is credited to the favorable influence of the school-based feeding program. Providing nutritional support through this program is vital to this positive development. The program's beneficial impact on GWA

strongly indicates its effectiveness in alleviating food insufficiency, as George (2007) and FAO (2007) underscored, enhancing concentration, cognitive function, and learning gains. The program positively influences academic performance by ensuring students receive essential nutrients for optimal cognitive function. Adelman and Lehrer's (2008) emphasis on school meal programs fostering early enrollment aligns with the observed enhancement in academic outcomes. Recognizing that even seemingly modest improvements in average GWA can have significant implications for individual students and the school community is crucial. The improvement underscores that the nutritional school-based feeding program positively impacts learners' academic achievements, emphasizing the critical role of addressing nutritional needs to support cognitive function and academic success.

### ***Comparison between the Nutritional Status of the Learners before and after the Nutritional School-Based Feeding Program***

Before the implementation of the feeding program, the average nutritional status stood at 14.7, exhibiting some variability with a standard deviation of 2.32. Following the program, there was a notable enhancement, with the average nutritional status rising to 16.3 and a reduction in variability, as reflected in the diminished standard deviation of 1.98. The statistical significance of this change is underscored by a t-value of -5.59 and a small p-value of .001. The shift from 14.7 to 16.3 in average nutritional status signifies a positive impact attributed to the school-based feeding initiative. The decrease in standard deviation post-program implies greater consistency in learners' nutritional status. The negative t-value of -5.59 accentuates the substantial and non-random nature of this difference, reinforcing the effectiveness of the feeding program in positively shaping learners' nutritional well-being.

The current study's findings align harmoniously with Bundy et al.'s (2009) research, emphasizing the pivotal role of school-based feeding programs in providing well-balanced, nutritious meals, addressing micronutrient deficiencies, and promoting overall health. The observed elevation in average nutritional status from 14.7 to 16.3 substantiates the notion presented by Jomaa et al. (2011) that school feeding programs play a significant role in enhancing the health of school children, in line with the broader emphasis on improved nutrition. Furthermore, the reduction in standard deviation post-program in our study underscores more excellent uniformity in learners' nutritional status, resonating with the multifaceted positive impacts highlighted by various studies. Kristjansson et al. (2007) underscore the importance of such programs in combating malnutrition in regions with food insecurity. The negative t-value of -5.59, indicating a significant and meaningful difference, aligns with Bhutta et al.'s (2008) emphasis on improved child nutrition's social and economic benefits, contributing to the long-term advantages of cultivating a healthier and more productive population.

### ***Comparison between the Academic Performance of the Learners before and after the Nutritional School-Based Feeding Program***

The academic performance evaluation conducted before and after the Feeding Program reveals a statistically significant difference, as indicated by a t-value of -4.27 and

a p-value of .001. This robust statistical evidence underscores a noteworthy enhancement in academic performance following the implementation of the Feeding Program. The observed improvement aligns seamlessly with the assertions made by Robert and Getinet (2017), emphasizing that providing nutritionally enriched school meals contributes to strengthened immune systems, reduced sick days, and heightened learning capabilities. The statistically significant progress in academic performance post-Feeding Program implementation is anticipated to impact overall classroom productivity positively. The increased student attendance resulting from improved health is expected to foster a conducive learning environment, positively influencing concentration and cognitive processes attributed to consuming nutrient-rich meals. These findings substantiate that the nutritional intervention has yielded a tangible and positive effect on academic outcomes. This aligns with the perspective advocated by Shahid (2003) and Taras (2005), emphasizing the crucial role of nutrition in academic performance. According to their viewpoints, maintaining healthy diets enhances problem-solving skills, test scores, and attendance, underscoring that nutritional deficiencies can adversely affect cognitive abilities and attendance. Thus, addressing nutritional needs is pivotal in augmenting students' physiological learning capacity and significantly contributing to overall academic success.

## CONCLUSION

The evidence from this study strongly supports the positive impact of Nutritional School-Based Feeding Programs on students' physical health and academic performance. The higher average BMIs observed in participants indicate a clear link between the feeding program and improved overall health and nutrition, emphasizing the essential role of such initiatives in fostering students' physical development. Besides, the significant enhancement in Grade Weighted Averages suggests a notable correlation between access to nutritious food and academic success. These findings underscore the importance of sustained support and implementation of school feeding programs and emphasize their broader implications for educational outcomes and overall student well-being. Furthermore, this study aligns seamlessly with existing literature, reinforcing the positive relationship between proper nutrition and academic achievement. The consistency with established knowledge enhances the credibility of the research findings, emphasizing the pivotal role of adequate nutrition in supporting students' academic success. Particularly crucial in resource-constrained settings, where access to nutritious food may be limited, Nutritional School-Based Feeding Programs emerge as indispensable interventions bridging nutritional gaps and positively influencing students' academic performance. This recognition emphasizes the need for educational authorities to strategically integrate such programs into broader academic initiatives, thereby contributing to comprehensive efforts to improve overall educational outcomes.

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