

Implications of Free Nutritious Meal Program on the Learning Stamina of Grade III Elementary School Students in Banten Province

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ABSTRACT: This research evaluates how the Free Nutritious Meals (MBG) program affects the learning endurance of third-grade students across Banten Province. The MBG program is a government policy designed to improve the quality of human resources through meeting the nutritional needs of students. The research used a quantitative method with a correlational survey approach. The research sample consisted of 147 third-grade students and 7 teachers from seven public elementary schools in Banten Province who had implemented the MBG program. Data was gathered from observations, questionnaires, and document reviews, followed by statistical evaluation using the SPSS application version 31. The results of the study show that the MBG program has a positive and significant influence on students' learning stamina. The results of the regression test showed a significance value of 0.001 ($p < 0.05$), while the correlation coefficient of 0.728 showed a strong relationship between the MBG program and students' learning stamina. Furthermore, a determination coefficient of 0.530 highlights that the Free Nutritious Food (MBG) program accounts for 53% of the variance observed in students' learning stamina. These findings indicate that nutritional fulfillment through the MBG program is able to increase students' learning focus, concentration, motivation, and physical endurance during the learning process. Thus, the MBG program makes an important contribution in supporting the improvement of the quality of basic education through strengthening the physical and mental readiness of students.

KEYWORDS: Free Nutritious Meals, Education Policy, Learning Stamina, School Students

1. INTRODUCTION

Proper nourishment serves as the fundamental building block for the holistic development of children in primary school. Quality nutritional intake has a direct effect on the ability to concentrate, memory, problem-solving, and energy levels needed to undergo intensive learning activities (Karmelia Rosfinda Meo Maku et al., 2025, p. 13). The quality of nutrient intake is directly correlated with the brain's vital functions, including the ability to concentrate, memory, problem-solving, and the energy levels needed to undergo intensive learning activities (Fauza Afni et al., 2024, pp. 1178–1184). Elementary school students who are in an important transition period to academic maturity are particularly vulnerable to malnutrition. Lack of essential nutrients can cause various health problems such as anemia, decreased immune system, and impaired cognitive development which ultimately leads to decreased learning stamina, low motivation, and suboptimal academic achievement (Wulandari et al., 2023, pp. 1–8).

The issue of fulfilling nutrition for school-age children in Indonesia is a challenge that continues to be faced to this day. Statistical data shows that there is still a prevalence of stunting and wasting among school-age children which is an indicator of long-term lack of nutritional intake. Banten Province as one of the provinces with a large school-age population also faces similar challenges. Various reports and studies show that the fulfillment of equitable nutrition is still influenced by family socioeconomic conditions, access to nutritious food, and public understanding of the importance of balanced nutrition. These factors are the main causes of nutritional problems in school-age children.

Realizing the importance of nutritional fulfillment in supporting education, the Indonesian government has initiated various policies to improve children's nutrition, ranging from the Integrated Service Post (*Posyandu*) program to food assistance. One of the strategic policies that is currently being developed is the Free Nutritious Food (MBG) program for elementary school students. The program is designed to ensure that every student gains access to healthy and nutritious food while in school regardless of their family's economic background. Through this program, it is hoped that students will have enough energy, be more active, focused, and enthusiastic in participating in learning so that it has a positive impact on their academic achievement and long-term health.

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However, the effectiveness of the implementation of the Free Nutritious Meal (MBG) program in increasing the learning stamina of elementary school students, especially grade III students in Banten Province, still requires a more in-depth and empirical evidence-based study. The extent to which this program is able to make a significant contribution to improving students' physical and mental endurance in the learning process, as well as what factors affect its success and obstacles to its implementation, are important questions that need to be answered through scientific research

Previous studies have shown that school feeding programs have a positive impact on students' health, attendance, cognitive abilities, and learning outcomes. However, most of the research still focuses on aspects of students' nutritional status, health, or academic achievement in general. Research that specifically examines the relationship between the implementation of the Free Nutritious Meal (MBG) program and the learning stamina of elementary school students, especially in the context of Indonesia and Banten Province, is still relatively limited. In fact, learning stamina is an important factor that determines students' ability to maintain focus, concentration, motivation, and active involvement during the learning process. The limitations of the study show that there are research gaps that need further attention.

Based on these conditions, this study was conducted to examine the implications of the Free Nutritious Meal Program policy on the learning stamina of grade III students of State Elementary Schools in Banten Province. The novelty of this research lies in the focus of analysis that not only assesses the benefits of the program in terms of nutritional fulfillment, but also directly links it to learning stamina as an indicator of students' physical and mental readiness in participating in learning. Thus, this study is expected to provide empirical evidence on the effectiveness of the Free Nutritious Meal (MBG) program as well as become a scientific basis for the government and stakeholders in developing school nutrition policies that are more targeted to support the improvement of the quality of basic education in Indonesia. Therefore, this study aims to comprehensively examine the implications of the policy of providing free nutritious food on the learning stamina of grade III elementary school students in Banten Province in order to provide valuable input for the improvement of policies and programs in the future.

2. THEORETICAL FRAMEWORK

The Free Nutritious Meal (MBG) program represents a state initiative that seeks to enhance the calibre of human capital by fulfilling the dietary requirements of learners. This initiative not merely serves as dietary assistance, but simultaneously as a tool for academic advancement that bolsters learners' scholastic preparedness. The World Health Organization (WHO) clarifies that the provision of sustenance during educational years exerts a profound impact on paediatric cognitive growth, mental focus, and academic preparedness (WHO, 2023, p. 14). From a civic administration standpoint, the execution of an initiative is heavily dictated by the efficiency of its practical application. Edwards III (1980, p. 10) articulated that the triumph of directive execution is shaped by four primary elements, specifically communication, operational assets, implementer attitudes, and administrative frameworks. Provided these four components function ideally, then directive objectives will be simpler to accomplish.

The MBG initiative may be examined through the Human Capital Theory framework which positions wellbeing and schooling as the primary investments for personal advancement. By satisfying proper dietary requirements, learners are anticipated to possess highly effective cognitive capacities so that they might elevate the calibre of the workforce in the coming years. Investigations by Suprpto et al. (2025, p. 149) reveal that the execution of the MBG Initiative possesses immense promise for elevating the calibre of academic acquisition, even though its effectiveness is heavily reliant upon the oversight of meal delivery, nutritional standards, and collaboration among organizations engaged in its execution. Consequently, the MBG Initiative not merely assists in enhancing the wellness of students, but simultaneously bolsters the realization of scholastic objectives by boosting students' bodily and cognitive preparedness to engage in education.

In order to engage well in education, **students' learning stamina** should be prepared well. Learning stamina is the ability of students to maintain physical and mental energy while participating in the learning process for a certain period of time. According to Sardiman (2018, p. 75), learning stamina is closely related to the physical and psychological condition of students. Students who are physically healthy and have physiological needs that are met will be better able to maintain attention, concentration, and active involvement in learning than students who experience fatigue or lack energy.

Health conditions and nutritional adequacy are one of the stimuli that can affect students' learning responses. Students who obtain good nutritional intake tend to exhibit more active, enthusiastic, and productive learning behaviors than students who are nutritionally deficient. Research by Florence, Asbridge, and Veugelers (2008, p. 213) found that the quality of diet has a positive relationship with students' ability to maintain concentration as well as academic achievement, including achievement in Indonesian language as one of the important subjects in junior high school national curriculum. These findings show that fulfilling nutritional needs is one of the important factors in increasing students' learning stamina. Therefore, learning stamina can be

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understood as the ability of students to maintain focus, motivation, and physical endurance during the learning process which is influenced by health conditions, learning environment, and nutritional adequacy.

The relationship of Indonesian language learning theory with free Nutritious Meal Programs (MBG) needs to be assessed more. Learning Indonesian is a process of developing listening, speaking, reading, and writing skills that require physical readiness and good cognitive abilities. Tarigan (2015, p. 1) states that language skills develop through continuous practice and require optimal concentration and attention. Abidin (2019, p. 56) explained that language learning is an active process that involves the ability to think critically, understand information, and communicate ideas systematically. Therefore, the healthy physical condition of students is an important factor in supporting the success of language learning.

The Free Nutritious Meal (MBG) program has the potential to increase the effectiveness of Indonesian language learning by providing sufficient energy for students during learning. Students who get nutritious food tend to be more focused when reading, more active when discussing, and more able to complete writing tasks than students who experience lack energy. Research by Chakraborty and Jayaraman (2019, p. 252) shows that school lunch programs in India are able to improve students' reading and math skills by 10–20 percent. The findings show that nutritional fulfillment has a close relationship with the development of students' academic abilities.

Furthermore, Aurino et al. (2020, p. 1025) discovered that **educational dietary initiatives** in Ghana assist in enhancing reading proficiencies, academic involvement, and pupil preparedness to engage in schooling. Comparable results were presented by Wang et al. (2021, p. 12) who deduced that campus meal initiatives exert a beneficial influence on learners' intellectual maturation and academic achievements. Consequently, the Free Nutritious Meal (MBG) program might act as one of the reinforcing elements for the triumph of studying Indonesian because it is capable of boosting learners' academic endurance, focus, psychological preparedness, and intellectual capacities.

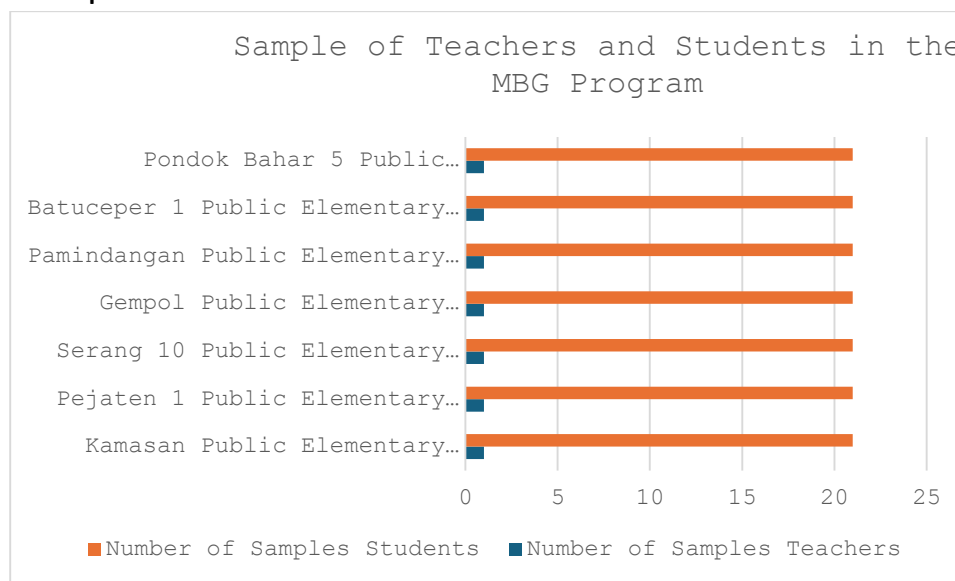
3. RESEARCH METHOD

This study employed a quantitative research method with a correlation approach. The quantitative research was utilized since this investigation seeks to evaluate the connection between the directive of complimentary wholesome meals and students' academic endurance impartially via statistical information evaluated utilizing deductive analytics. This investigation additionally employed an academic directive evaluation viewpoint, since the investigative subject was connected to the execution of civic directives within the sector of schooling. Within this framework, the Free Nutritious Meal (MBG) Program directive acts as a type of state involvement for elevating the calibre of schooling by fulfilling the dietary requirements of learners. Consequently, this investigation not merely observes elements of the mathematical connection among factors, but simultaneously directive consequences regarding the state of learners' academic endurance. Functionally, this investigation evaluates the connection among: independent variable, specifically the Free Nutritious Meal Program and dependent variable, specifically Students' Academic Endurance.

This research was carried out for four months, from February to May 2026, at State Elementary Schools in Banten Province that have implemented the Free Nutritious Meals (MBG) Program. The selection of the research location was based on its relevance to the research objectives since Banten Province is one of the target areas for the implementation of the program. The research population is all third-grade students of State Elementary Schools in Banten Province who participates in the MBG Program. Grade III students were chosen as research subjects because at this level, they already have sufficient ability to understand the research instrument and respond to the questionnaire prepared by the researchers. The number of populations and research samples are presented in the following table:

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Table 1. Population and Sample



In this study, the sampling technique used was *Cluster Random Sampling*. This technique was carried out by selecting public elementary schools that have implemented the Free Nutritious Meal (MBG) program randomly from Banten Province area as a research cluster. Furthermore, grade III students at the selected school were chosen as the research participants. This technique was implemented because the research population was spread across various schools in Banten Province so that it was more effective and efficient in the sampling process. The number of samples was determined based on the total population of grade III students who participated in the Free Nutritious Meal (MBG) program at the schools where the study was taken place.

The research instrument used was in the form of a non-test quantitative questionnaire with a Likert scale of 1–5 given to students and teachers. The student questionnaire was used to measure the perception of the implications of the Free Nutritious Meal (MBG) program on learning stamina, while the teacher's questionnaire was used as supporting data based on the results of observations on changes in students' learning stamina during the learning process. The variables of the study included the Free Nutritious Meal (MBG) program as the independent variable, and students' learning stamina as the dependent variable which were measured through indicators of learning focus, concentration, learning motivation, and physical endurance. Before being used, the instrument was first tested for validity and reliability to ensure its feasibility as a data collection tool.

Data collection was carried out through questionnaires, observations, and documentation, with questionnaires as the main research technique. The data obtained was then analysed using descriptive and inferential statistics with the help of SPSS application version 31.0. After meeting the analysis prerequisite tests, the data was tested using Pearson Product Moment correlation to determine the strength of the relationship between the Free Nutritious Eating Program and students' learning stamina. In addition, the determination coefficient is used to measure the amount of program contribution to students' learning stamina, so that an empirical picture can be obtained regarding the implications of the Free Nutritious Meal Program for grade III elementary school students in Banten Province. Based on the explanation above, the research hypothesis proposed is as follows:

H_0 : There is no significant relationship between the free nutritious meal program policy and the learning stamina of grade III elementary school students in Banten Province.

H_1 : There is a significant relationship between the free nutritious meal program policy and the learning stamina of grade III elementary school students in Banten Province

4. RESEARCH RESULTS

General Description of Research Data

This study aimed to analyze the policy implications of the Free Nutritious Meal (MBG) program on the learning stamina of grade III students of State Elementary Schools in Banten Province. The research was carried out in seven elementary schools that have implemented the MBG program, namely packagng Public Elementary School and Pejaten 1 Public Elementary School in Serang Regency, 10 Public Elementary School, Gempol Public Elementary School, and Pamindangan Public Elementary School in Serang City, as well as Batuceper 1 Public Elementary School and Pondok Bahar 5 Public Elementary School in Tangerang City. The research participants consisted of 147 grade III students and 7 teachers. Data was collected through a questionnaire that measured

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the implementation of the MBG program and students' learning stamina, and supported by data of students' Indonesian language learning outcomes.

The results showed that the Free Nutritious Meal (MBG) Program received a positive response from students and teachers across the schools where the study was taken place. Based on the results of the questionnaire and observation, most of the students showed increased focus, concentration, learning motivation, and physical endurance after participating in the program. These findings indicated that the fulfillment of nutritional needs through the MBG program contributes positively to students' readiness and stamina to learn in participating in the learning process at school.

Before hypothesis testing, the research data is first tested through an analysis prerequisite test which includes a normality test and a linearity test. This prerequisite test is performed to ensure that the data meets the requirements of the regression analysis. Normality tests are carried out to find out whether the data is distributed normally or not. The normality test used in this study is the *One Sample Kolmogorov-Smirnov* which was calculated using the SPSS version 31 application with a significance level of 0.5. The following are presented the results of the calculation of the normality test of the variables of the free nutritious feeding policy (variable X) and student learning stamina (variable Y).

Description of Research Results Data

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Table 2. SPSS Output Data Normality Test Results

One-Sample Kolmogorov-Smirnov Test			
		MBG Program	Students' Learning Stamina
N		147	147
Normal Parameters ^{a,b}	77.99	79.68	78.81
	10.822	9.625	7.789
Most Extreme Differences	.058	.071	.091
	.058	.071	.082
	-.054	-.053	-.091
Test Statistic		.058	.071
Asymp. Sig. (2-tailed)		.200d	.069

Referring to the SPSS output table above, the value of Asymp. Sig. (2-tailed) for variable X is $0.200 > 0.05$ and the value of Asymp. Sig. (2-tailed) for variable Y is $0.069 > 0.05$. hence, it could be said that the data on both variables is **Normally** distributed.

Regression Linearity Test

The linearity test was carried out to find out whether the two variables studied had a significant linear relationship. The linearity test was carried out using the SPSS application version 31 with a significance level of 0.5. The following are presented the results of the calculation of the linearity test of the variables of thinking ability with heart and brain and the achievement of student learning outcomes:

Table 3. SPSS Output Data Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Student Learning Stamina *	Between Groups	(Combined)	9232.597	44	209.832	4.985	.001
		Linearity	7170.261	1	7170.261	170.348	.001
		Deviation from Linearity	2062.336	43	47.961	1.139	.293

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MBG Program	Within Groups	4293.375	102	42.092		
	Total	13525.973	146			

Referring to the SPSS output table above, it could be seen that in the *Deviation from Linearity*, the Sig. value is $0.293 > 0.05$, so it can be said that **there is a significant linear relationship** between variable X (free nutritious feeding policy) and variable Y (student learning stamina). After the prerequisite test was carried out, the process continued with a regression analysis. Regression analysis was performed to determine the extent to which the variables of free nutritious feeding affected students' learning stamina. This analysis involves three main components: model feasibility test using ANOVA tables, significance test of independent variable influence using Coefficient tables, and model strength measurement using Model Summary tables. These three SPSS outputs are used to provide a comprehensive picture of how well free nutritious feeding policy variables can explain variations in student learning stamina, how significant their effects are, and how appropriate the model is for use as a prediction tool. The results of the following analysis provide a comprehensive understanding of the relationship between the two variables and their implications for the research model.

Table 4. ANOVA Table Results

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7170.261	1	7170.261	163.583	.001 ^b
	Residual	6355.712	145	43.832		
	Total	13525.973	146			
a. Dependent Variable: Student Learning Stamina						
b. Predictors: (Constant), MBG Allocation Policy						

Referring to the ANOVA table above, it could be seen that the significance value (Sig.) for the regression model is 0.001, below the limit of 0.05. This shows that the regression model that uses the policy variable of free nutritious feeding as a predictor has a significant influence on the dependent variable, namely student learning stamina. The F-value of 163.583 also shows that the regression model has an excellent ability to explain variations in student learning stamina. The Sum Squared (SUM) value in the regression section of 7,170,261 illustrates the magnitude of the variation in student learning stamina that can be explained by the policy variable of free nutritious feeding, while the residual SUM value of 6,355,712 indicates a variation not explained by the model. With a total variation of 13,525,973, it can be seen that the regression model is able to explain most of the variations that occur significantly. Overall, the results of ANOVA confirm that the regression model used is significant and feasible to use in predicting students' learning stamina based on the variables of the free feeding policy.

Next, a **regression significance** test was carried out using the SPSS application version 31 to find out whether the policy variable of free nutritious feeding had a significant relationship with the variable of student learning stamina.

Table 5. Correlation Test Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.728 ^a	.530	.527	6.621
a. Predictors: (Constant), MBG Program				

Based on the table above, the R value of the calculation (*Pearson Correlation*) of $0.728 > 0.162$ ($N = 147$) shows a strong relationship between independent variables and dependent variables. The R Square value of 0.530 indicates that 53% of the variation in the dependent variable (student learning stamina) can be explained by the policy variable of free nutritious feeding, while the remaining 47% is influenced by other factors outside the model, namely factors that were not studied in this study. The Adjusted R Square value of 0.527 shows that after adjusting for the number of samples and the number of variables, the model is still able to explain 52.7% of the variation of dependent variables so that it can be said that the model is quite stable. The positive value in the *Pearson Correlation* from the output table above shows that the relationship between Variable X and

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Variable Y is positive, which means that if Variable X increases, then Variable Y also increases. While the value of Std. *The Error of the Estimates* of 6.621 illustrates the magnitude of the average prediction error of the regression model, where the lower this value, the better the model's ability to make predictions. Overall, models with predictors of free nutritious feeding policies have a strong ability to explain and predict dependent variables (student learning stamina).

The results of this study also support the theory of learning stamina put forward by Sardiman (2018, p. 75), which states that learning stamina is greatly influenced by the physical and psychological conditions of students. Students whose physiological needs are met tend to have better attention, concentration, and learning engagement than students who experience fatigue or lack of energy. In addition, these findings reinforce the behavioristics theory put forward by Skinner (1957, p. 48), who explains that learning behaviour is influenced by external stimuli. In the context of this study, the provision of nutritious food is a positive stimulus that increases students' physical readiness so as to produce a better learning response. Students who obtain adequate nutritional intake show more active learning participation and higher motivation in participating in learning activities.

The findings of this study are consistent with various previous studies. Florence, Asbridge, and Veugelers (2008, p. 213) found that the quality of diet was positively related to students' academic performance and concentration ability. Chakraborty and Jayaraman (2019, p. 252) show that school lunch programs in India are able to improve students' reading and mathematics skills by 10–20%, while Aurino et al. (2020, p. 1025) report that school feeding programs in Ghana increase literacy, learning participation, and readiness of students to follow learning. These results are reinforced by Wang et al. (2021, p. 12) and Lowe et al. (2023, p. 1769) who conclude that school feeding programs have a positive impact on student attendance, cognitive development, concentration, and learning outcomes.

The determination coefficient value of 53% shows that the MBG policy is a fairly dominant factor in explaining the variation in students' learning stamina, although there are still 47% who are influenced by other factors such as individual health, sleep patterns, family environment, intrinsic motivation, physical activity, and learning quality. Overall, the results of this study confirm that the Free Nutritious Meal Program is an effective policy in increasing the learning stamina of elementary school students and is an important part of efforts to improve the quality of education through meeting the nutritional needs of students.

5. CONCLUSIONS

Based on the results of the research, it can be concluded that the Free Nutritious Meal Program (MBG) has a positive and significant effect on the learning stamina of grade III students of State Elementary Schools in Banten Province. This is shown by a significance value of 0.001 ($p < 0.05$) and a correlation coefficient of 0.728 which shows a strong relationship between the MBG program and students' learning stamina. This program has been proven to help improve students' focus, concentration, learning motivation, and physical endurance during the learning process. The determination coefficient value of 53% indicates that most of the variation in student learning stamina can be explained by the implementation of the MBG Program. These findings support the theory of nutritional science, the theory of learning stamina, and behaviouristic theories that affirm that the fulfillment of physiological needs plays an important role in learning success. Therefore, the Free Nutritious Meal Program can be one of the important strategies to improve the quality of health and education of students and be the basis for the government in developing a policy to fulfill nutrition in schools.

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