

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

Prof. Dr. Sudadio, M.Pd¹, Ilmi Solihat², Adi Nestiadi³, Etika Khaerunnisa⁴, Aan Angsori⁵

ABSTRACT: This study investigates the impact of the Free Nutritious Meals policy on student fitness in the context of learning engagement among elementary school students in Banten Province, Indonesia. Employing a survey with a correlational design, data were collected from 75 teachers selected through purposive sampling across 15 elementary schools in Serang City, Cilegon City, and Serang Regency. A Likert-scale questionnaire was used to measure relevant variables, and data were analyzed using the Spearman correlation test. The findings indicate a statistically significant moderate correlation between the MBG policy and various dimensions of student fitness: physical, mental, and emotional balance ($r = 0.614$, $p < 0.01$); mental strength/concentration ($r = 0.525$, $p < 0.01$); cognitive endurance ($r = 0.456$, $p < 0.01$); emotional balance ($r = 0.536$, $p < 0.01$); and information processing speed ($r = 0.529$, $p < 0.01$). These results suggest that the MBG policy contributes positively to multiple aspects of student fitness that are essential for effective participation in learning activities

KEYWORDS: Free Nutritious Meal Policy, Student Fitness, Correlation, Learning

INTRODUCTION

The implementation of the Free Nutritious Meal (MBG) program in primary schools is a key policy initiative by the Indonesian government aimed at enhancing human capital, particularly through improvements in education and child health. The program seeks to deliver long-term benefits by supporting the development of a healthier, more productive, and cognitively capable younger generation. As part of a broader strategy to combat malnutrition—an issue that continues to affect various regions of Indonesia, including Banten Province, MBG addresses nutritional deficiencies that hinder learning outcomes and overall student well-being. By improving students' health and physical fitness, the program is expected to enhance their engagement and performance in school, ultimately contributing to better educational attainment and future productivity.

In Banten Province, as in many other regions of Indonesia, disparities in access to nutritious and balanced meals remain a significant concern. Economic constraints prevent many families from consistently providing adequate nutrition for their children, which adversely affects students' health and physical well-being. These conditions, in turn, limit their ability to fully engage in the learning process. The MBG program is designed to address this issue by fostering a more supportive environment for student health. Through improved access to nutritious food, the program aims to enhance students' concentration, immune function, and cognitive performance during instructional activities (McKinney et al., 2018:237).

Despite the implementation of the MBG program across various regions in Indonesia, including Banten Province, empirical research specifically examining its impact on students' physical fitness and learning engagement remains limited. This gap highlights the need for systematic investigation to assess the extent to which the program contributes to improvements in students' physical well-being and the quality of their educational experience (Liu et al., 2019:133).

Student fitness encompasses multiple interrelated dimensions, including physical, mental, and emotional well-being. Physically healthy students tend to have greater stamina to engage in classroom activities, while strong mental and emotional fitness enhances their ability to concentrate, sustain attention during prolonged learning sessions, and process information efficiently. As such, the provision of free nutritious meals is expected to support the development and balance of these dimensions of student fitness (Becker et al., 2019:49).

However, the implementation of this policy presents several challenges, including the logistics of food distribution, the consistency and quality of meals provided, and the coordination among key stakeholders such as schools, parents, and government agencies. The overall effectiveness of the program depends significantly on the ability to address these issues. Accordingly, this study aims to assess the impact of the Free Nutritious Meals policy on student fitness and to identify the primary

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

challenges encountered during its implementation.

This study aims to make a meaningful contribution by evaluating the effectiveness of the MBG policy in enhancing student fitness and offering evidence-based recommendations for stakeholders, including local governments and education authorities, to improve program implementation (Ramachandran et al., 2020:118).

In line with the issues identified, this study is guided by the following research questions:

1. To what extent is there a relationship between the physical, mental, and emotional balance supported by the MBG policy and student fitness?
2. Is there a relationship between mental strength, cognitive endurance, emotional balance, and information processing speed and student fitness?
3. What is the impact of the MBG policy on student participation in learning activities in elementary schools in Banten Province?
4. What challenges are encountered in the implementation of the MBG policy in Banten Province, and how do these challenges influence the program's effectiveness?

THEORETICAL FRAMEWORK

Concept and Objectives of Basic Education Policy

Basic education plays a critical role in national education systems, serving not only as the foundation for academic knowledge but also as a key stage in the development of character and essential life skills. In the Indonesian context, basic education encompasses early childhood education through to the elementary and junior secondary levels. It represents the cornerstone of lifelong learning and is fundamental to the development of a competitive and capable human resource base.

Basic education policy refers to the set of decisions and strategies formulated by the government and relevant stakeholders to ensure the effective delivery of foundational education to all children. One of the core dimensions of this policy is access—defined as the ability of every child, regardless of socioeconomic status, geographic location, or social background, to receive a quality basic education. Ensuring equitable access remains a persistent challenge. The government must guarantee that children in both urban and rural settings have equal opportunities to attend school. This involves not only providing sufficient physical infrastructure but also ensuring that learning environments and resources are responsive to the diverse needs of students (Mulyasa, 2017:12).

Another essential objective of basic education policy is relevance. This refers to the alignment of the curriculum with the advancement of science and technology, as well as with the evolving demands of the labor market. As societies face rapid changes driven by globalization and digital transformation, basic education must equip students with the competencies needed to navigate an increasingly complex world. This includes the development of 21st-century skills such as critical thinking, digital literacy, and collaborative problem-solving. It is the responsibility of policymakers to ensure that the curriculum fosters these competencies and remains responsive to the demands of contemporary society (Sukmadinata, 2017:25).

Motivation Theory in Physical Fitness

Motivation in physical fitness plays a critical role in understanding how individuals sustain engagement in regular physical activity. A prominent framework in the fields of sport psychology and physical education is Self-Determination Theory (SDT), developed by Deci and Ryan. SDT focuses on the degree to which human behavior is self-motivated and self-regulated, offering valuable insights into how individuals can be supported to engage in activities out of personal interest rather than external pressure (Deci & Ryan, 2017:14).

Within the context of physical education, SDT provides a framework for educators to foster internal motivation by supporting three basic psychological needs: autonomy, competence, and relatedness. Autonomy refers to the individual's sense of volition and ownership over their actions; competence involves the perception of effectiveness in achieving desired outcomes; and relatedness reflects the experience of meaningful social connections. When these needs are met—for example, when students are given choices in activities, receive constructive feedback, and experience a sense of belonging—their intrinsic motivation is likely to increase. This, in turn, promotes sustained participation and the development of long-term, health-enhancing physical activity habits (Ntoumanis et al., 2017:255).

Nutritional Science in Education

Nutrition education plays a vital role in shaping healthy eating behaviors from an early age. It is essential that children and adolescents not only acquire knowledge about nutrition but also develop the attitudes and skills necessary to make informed dietary choices. Contento (Contento, 2016:176) argues that purely informational approaches are insufficient. Effective nutrition education must integrate cognitive, affective, and behavioral dimensions to facilitate meaningful and sustained behavioral change.

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

The cognitive component involves imparting knowledge about food groups, nutrient functions, and the health risks associated with poor dietary habits. The affective dimension addresses the development of positive attitudes and values, such as an appreciation for nutritious foods and a heightened awareness of bodily health. The behavioral aspect focuses on practical competencies, including the ability to read nutrition labels, make informed food selections, and prepare simple, healthy meals (Fahrizki, & Dwiriani, 2024:4). By addressing these three dimensions in a coordinated manner, nutrition education can more effectively support the development of long-term healthy eating practices among students.

Learning Theory

Kolb's Experiential Learning Theory (2015:8) conceptualizes learning as a transformative process grounded in direct experience. According to this model, effective learning occurs through a cyclical process involving four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This framework is particularly well-suited to fitness and nutrition education, as it emphasizes active participation and real-world application rather than passive reception of information (Kolb, 2015:9).

The initial stage, concrete experience, engages learners in firsthand activities that provide a basis for deeper understanding. For instance, students might engage in light physical exercise while measuring their heart rate before and after the activity. Such tasks offer tangible experiences that form the foundation for meaningful learning, enhancing engagement and personal relevance (Yagcioglu, 2017:30). The second stage, reflective observation, prompts students to analyze and interpret their experiences. In a nutrition education context, students may complete a food diary and subsequently evaluate whether their intake aligns with dietary guidelines. This reflective process is crucial in developing self-awareness and fostering critical thinking about personal health behaviors (Kolb, 2015:32).

RESEARCH METHOD

This study employed a survey research design with a correlational approach to examine the relationships between key variables. Correlational research, as defined by Sugiyono (2016:120), aims to identify the degree of association between two or more variables, providing a basis for understanding patterns and making predictions. This design is appropriate for exploring the extent to which components of the Free Nutritious Meal (MBG) policy are related to student fitness outcomes.

The study population consisted of elementary school teachers in Banten Province, Indonesia. A purposive sampling technique was used to select 75 teachers from 15 elementary schools, with five schools each from Serang City, Cilegon City, and Serang Regency. Data collection was conducted in April 2025. A structured questionnaire was administered to gather data on teachers' perceptions of the MBG policy, specifically regarding its impact on students' physical, mental, emotional, and overall fitness. Responses were recorded using a Likert scale to quantify perceptions across these domains. The collected data were analyzed using SPSS. A normality test was performed to assess data distribution, followed by Spearman's rank-order correlation to examine the strength and direction of relationships between variables.

Table 1. Likert Scale of Variable X

le	Information
1	No Implications (TB)
2	Implications (BI)
3	Good Implications (BB)
4	Very Good Implications (BBS)
5	Very Good Implications (BSBS)

Table 2. Variable Y Likert Scale

le	Information
1	Not fit, not cheerful (TB)
2	Not fit and quite cheerful (CBCC)
3	Fit and cheerful (BCS)
4	Fit and very cheerful (SBSCS)

The data that has been processed and ready to be analyzed will be tested using a normality test to determine whether the data distribution follows a normal distribution pattern or not. This test is very important to determine the advanced statistical tests that will be used in the correlation analysis. After data processing is complete, the next step is data analysis. To test the

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

hypothesis that has been formulated in this study, two types of statistical tests are used, namely the normality test and the Spearman Rank correlation test.

Normality Test

Before conducting a correlation analysis, the first step taken is to test the normality of the data using the Kolmogorov-Smirnov test. The normality test aims to determine whether the collected data is normally distributed or not.

Hypothesis

H_0 : data comes from a normally distributed population

H_1 : the data does not come from a normally distributed population

The basis for decision making is based on P-value or Sig.

If the significance value < 0.05 then H_0 is rejected.

If the significance value ≥ 0.05 then H_0 cannot be rejected.

If the data is normally distributed, then the Pearson correlation test can be used. However, if the data is not normally distributed, as in this study, then the Spearman Rank correlation test which is more suitable for ordinal data or data that is not normally distributed, will be used.

Spearman Rank Correlation Test.

The data collected in this study were not normally distributed, so the Spearman Rank correlation test was used to analyze the relationship between the free nutritious meal policy variables (variable X) and student fitness (variable Y). This test measures the strength and direction of the relationship between the two variables, where a higher correlation coefficient (r) value indicates a stronger relationship between the two variables.

Hypothesis 1:

H_0 : There is no relationship between the balance (physical, mental, emotional) of the free nutritious meal policy and student fitness.

H_1 : There is a relationship between the balance (physical, mental, emotional) of the free nutritious meal policy and student fitness.

Hypothesis 2:

H_0 : There is no relationship between mental strength and student fitness.

H_1 : There is a relationship between mental strength and student fitness.

Hypothesis 3:

H_0 : There is no relationship between cognitive endurance and student fitness.

H_1 : There is a relationship between cognitive endurance and student fitness.

Hypothesis 4:

H_0 : There is no relationship between emotional balance and student fitness.

H_1 : There is a relationship between emotional balance and student fitness.

Hypothesis 5:

H_0 : There is no relationship between information processing speed and student fitness.

H_1 : There is a relationship between information processing speed and student fitness.

Basis for decision making

If the significance value < 0.05 then there is a correlation

If the significance value > 0.05 then there is no correlation

Table 3. Range of correlation coefficient values

Correlation coefficient	Information
0.00 - < 0.2	The relationship is very small and can be considered to have no correlation.
$\geq 0.2 - < 0.4$	Little/loose relationship
$\geq 0.4 - < 0.7$	Moderate/moderate relationship
$\geq 0.7 - < 0.9$	Close relationship
$\geq 0.9 - < 1.00$	Very close relationship

Source : Ruhiat, et al (2024)

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

RESEARCH OF RESULTS

The study involved data collection from 75 elementary school teachers from three regions in Banten Province, namely: 25 teachers from 5 elementary schools in Serang City, 25 teachers from 5 elementary schools in Serang Regency, and 25 teachers from 5 elementary schools in Cilegon City. Each teacher provided information related to the impact of the free nutritious meal policy on students' fitness in participating in learning activities in elementary schools.

Before further analysis is conducted on the relationship between mental strength, cognitive endurance, emotional balance, and information processing speed and student fitness, the collected data is first processed to ensure its suitability with the required statistical assumptions. One of the first steps taken is the normality test of the data obtained.

Table 4. Normality Test Results

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
mental strength	.341	75	.000	.803	75	.000
cognitive endurance	.342	75	.000	.805	75	.000
emotional balance	.299	75	.000	.783	75	.000
information processing speed	.298	75	.000	.841	75	.000
fitness	.340	75	.000	.700	75	.000
a. Lilliefors Significance Correction						

(Data Source: SPSS 25)

After conducting a normality test on the collected data, it was found that the data of all variables in this study were not normally distributed. This means that the assumption of normal distribution required for the use of parametric correlation tests, such as Pearson correlation, is not met, so the hypothesis test is continued using nonparametric tests.

Therefore, to test the research hypothesis regarding the relationship between the free nutritious meal policy and student fitness, a non-parametric Spearman correlation test was conducted. The Spearman correlation test was used because this method does not assume the normality of data distribution, and is suitable for measuring the relationship between two ordinal or continuous variables that are not normally distributed.

Spearman's correlation test measures the strength and direction of the relationship between data ranks on both variables. Thus, this test allows us to explore whether there is a significant correlation between balance (physical, mental, and emotional) with student fitness in participating in learning activities.

Table 4. Results of Hypothesis Test I

Correlations				
			Balance (physical, mental, emotional)	fitness
Spearman's rho	Balance (physical, mental, emotional)	Correlation Coefficient	1.000	.614**
		Sig. (2-tailed)	.	.000
		N	75	75
	fitness	Correlation Coefficient	.614**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 4, the output of the Spearman correlation test results, regarding the relationship between balance (physical, mental, emotional) (variable X) and student fitness (variable Y). The results of this analysis provide an overview of the significance of the relationship, the level of strength of the relationship, and the direction of the relationship between the two variables. The following explanation details the results obtained from the SPSS output

1. Significance of the Relationship between Balance Variables (physical, mental, emotional) and Student Fitness.

Based on the SPSS output, the significance value (Sig. 2-tailed) obtained is 0.000. Because this value is smaller than 0.05 (0.000 <

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

0.05), it can be concluded that there is a significant relationship between (physical, mental, emotional) and student fitness. This means that this policy has a significant impact on student fitness in participating in learning activities.

2. Level of Strength (Closeness) of the Relationship between Balance Variables (physical, mental, emotional) and Student Fitness.

From the SPSS output results, a correlation coefficient value of 0.614 was obtained. This value indicates a moderate or moderate relationship between the two variables. The higher the coefficient correlation value, the stronger the relationship between the variables. With a value of 0.614, it can be concluded that the relationship between balance (physical, mental, emotional) and student fitness is at a moderate level of relationship strength.

3. Direction (Type) of Relationship between Balance Variables (physical, mental, emotional) and Student Fitness.

Based on the correlation coefficient obtained, which is 0.614, which is positive, it can be said that the relationship between the two variables is unidirectional. This means that the higher the balance (physical, mental, emotional), the higher the level of student fitness in participating in learning activities.

Relationship between Mental Strength/Mental Concentration (X1) and Fitness (Y)

Spearman's correlation test measures the strength and direction of the relationship between data ranks on both variables. After the data is inputted into SPSS, then use the analyze menu, then select correlate bivariate, then select the Spearman test. The results of the Spearman correlation test using SPSS are presented in Table 5

Table 5. Results of Hypothesis Test 2

Correlations

			mental strength	fitness
Spearman's rho	mental strength	Correlation Coefficient	1.000	.525**
		Sig. (2-tailed)	.	.000
		N	75	75
	fitness	Correlation Coefficient	.525**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 5, the output of the Spearman correlation test results, regarding the relationship between mental strength (variable X) and student fitness (variable Y). The results of this analysis provide an overview of the significance of the relationship, the level of strength of the relationship, and the direction of the relationship between the two variables. The following explanation details the results obtained from the SPSS output:

1. Significance of the Relationship between Mental Strength Variables and Student Fitness.

Based on the SPSS output, the significance value (Sig. 2-tailed) obtained is 0.000. Because this value is smaller than 0.05 ($0.000 < 0.05$), it can be concluded that there is a significant relationship between mental strength and student fitness.

2. Level of Strength (Closeness) of the Relationship between Mental Strength and Student Fitness From the SPSS output results, a correlation coefficient value of 0.525 was obtained. This value indicates a moderate or moderate relationship between the two variables. The higher the coefficient correlation value, the stronger the relationship between the variables. With a value of 0.525, it can be concluded that the relationship between mental strength and student fitness is at a moderate or moderate level of relationship strength.

3. Direction (Type) of Relationship between Mental Strength Variable and Student Fitness Based on the correlation coefficient obtained, which is 0.525, which has a positive value, it can be said that the relationship between the two variables is unidirectional. This means that the higher the mental strength, the higher the level of student fitness in participating in learning activities.

Relationship between Cognitive Endurance (X2) and Fitness (Y)

Spearman's correlation test measures the strength and direction of the relationship between data ranks on both variables. After the data is inputted into SPSS, then use the analyze menu, then select correlate bivariate, then select the Spearman test. The results of the Spearman correlation test using SPSS are presented in Table 6:

Table 6 Results of Hypothesis Test 3

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

Correlations

		Cognitive Endurance		fitness
Spearman's rho	Cognitive Endurance	Correlation Coefficient	1.000	.456**
		Sig. (2-tailed)	.	.000
		N	75	75
	fitness	Correlation Coefficient	.456**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 4.4, the output of the Spearman correlation test results, regarding the relationship between cognitive endurance (variable X2) and student fitness (variable Y). The results of this analysis provide an overview of the significance of the relationship, the level of strength of the relationship, and the direction of the relationship between the two variables. The following explanation details the results obtained from the SPSS output

1. Significance of the Relationship between Cognitive Endurance Variables and Student Fitness

Based on the SPSS output, the significance value (Sig. 2-tailed) obtained is 0.000. Because this value is smaller than 0.05 ($0.000 < 0.05$), it can be concluded that there is a significant relationship between cognitive endurance and student fitness.

2. Level of Strength (Closeness) of the Relationship between Cognitive Endurance and Student Fitness.

From the SPSS output results, a correlation coefficient value of 0.456 was obtained. This value indicates a moderate or moderate relationship between the two variables. The higher the coefficient correlation value, the stronger the relationship between the variables. With a value of 0.456, it can be concluded that the relationship between cognitive resilience is at a moderate or moderate level of relationship strength.

3. Direction (Type) of Relationship between Cognitive Endurance Variables and Student Fitness.

Based on the correlation coefficient obtained, which is 0.456, which is positive, it can be said that the relationship between the two variables is unidirectional. This means that the higher the cognitive endurance, the higher the level of student fitness in participating in learning activities.

Relationship between Emotional Balance (X3) and Fitness (Y)

Spearman's correlation test measures the strength and direction of the relationship between data ranks on both variables. After the data is inputted into SPSS, then use the analyze menu, then select correlate bivariate, then select the Spearman test. The results of the Spearman correlation test using SPSS are presented in Table 7

Table 7 Results of Hypothesis Test 4

Correlations				
			Emotional Balance	Fitness
Spearman's rho Emotional	Balance	Correlation Coefficient	1.000	.536**
		Sig. (2-tailed)	.	.000
		N	75	75
	Fitness	Correlation Coefficient	.536**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 4.5, the output of the Spearman correlation test results, regarding the relationship between emotional balance (variable X) and student fitness (variable Y). The results of this analysis provide an overview of the significance of the relationship, the level of strength of the relationship, and the direction of the relationship between the two variables. The following explanation details the results obtained from the SPSS output

1. Significance of the Relationship between Cognitive Endurance Variables and Student Fitness.

Based on the SPSS output, the significance value (Sig. 2-tailed) obtained is 0.000. Because this value is smaller than 0.05 ($0.000 < 0.05$), it can be concluded that there is a significant relationship between cognitive endurance and student fitness.

2. Level of Strength (Closeness) of the Relationship between Cognitive Endurance and Student Fitness.

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

From the SPSS output results, a correlation coefficient value of 0.456 was obtained. This value indicates a moderate or moderate relationship between the two variables. The higher the coefficient correlation value, the stronger the relationship between the variables. With a value of 0.456, it can be concluded that the relationship between cognitive resilience is at a moderate or moderate level of relationship strength.

3. Direction (Type) of Relationship between Cognitive Endurance Variables and Student Fitness.

Based on the correlation coefficient obtained, which is 0.456, which is positive, it can be said that the relationship between the two variables is unidirectional. This means that the higher the cognitive endurance, the higher the level of student fitness in participating in learning activities.

Relationship between Information Processing Speed (X4) and Fitness (Y)

Spearman's correlation test measures the strength and direction of the relationship between data ranks on both variables. After the data is inputted into SPSS, then use the analyze menu, then select correlate bivariate, then select the Spearman test. The results of the Spearman correlation test using SPSS are presented in Table 8

Table 8 Results of Hypothesis Test 5

Correlations				
			Information Processing Speed	Fitness
Spearman's rho	Information Processing Speed	Correlation Coefficient	1.000	.529**
		Sig. (2-tailed)	.	.000
		N	75	75
	Fitness	Correlation Coefficient	.529**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 4.3, the output of the Spearman correlation test results, regarding the relationship between information processing speed (variable X4) and student fitness (variable Y). The results of this analysis provide an overview of the significance of the relationship, the level of strength of the relationship, and the direction of the relationship between the two variables. The following explanation details the results obtained from the SPSS output

1. Significance of the Relationship between Information Processing Speed Variables and Student Fitness

Based on the SPSS output, the significance value (Sig. 2-tailed) obtained is 0.000. Because this value is smaller than 0.05 ($0.000 < 0.05$), it can be concluded that there is a significant relationship between information processing speed and student fitness.

2. Level of Strength (Closeness) of the Relationship between Information Processing Speed and Student Fitness.

From the SPSS output results, a correlation coefficient value of 0.529 was obtained. This value indicates a moderate or moderate relationship between the two variables. The higher the coefficient correlation value, the stronger the relationship between the variables. With a value of 0.529, it can be concluded that the relationship between information processing speed and fitness is at a moderate or moderate level of relationship strength.

3. Direction (Type) of Relationship between Information Processing Speed Variable and Student Fitness.

Based on the correlation coefficient obtained, which is 0.456, which is positive, it can be said that the relationship between the two variables is unidirectional. This means that the higher the speed of information processing, the higher the level of student fitness in participating in learning activities.

CONCLUSION

This study examines the relationship between the free nutritious meal policy and student fitness in elementary schools in Banten Province. From the results of the Spearman correlation test, it can be concluded that there is a significant and moderate relationship between these two variables. This reflects the importance of the free nutritious meal policy in supporting students' physical fitness, which in turn affects the ability to participate in learning activities more optimally.

Based on the results of the SPSS analysis, a significance value (Sig. 2-tailed) of 0.000 was obtained, which is smaller than 0.05. This indicates that there is a significant relationship between the free nutritious meal policy and student fitness. In other words, this nutritious meal policy has an important impact on student fitness in participating in learning activities at school.

Providing nutritious food not only has an impact on students' physical well-being, but also affects students' cognition.

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

Several studies support this finding, one of which is Neuman and Rosenthal's (2016: 45) study, which shows that nutritious food policies significantly improve students' academic performance. Nutritious food intake, especially those containing sufficient carbohydrates, proteins, and vitamins, supports sharper concentration and thinking, which in turn improves students' ability to follow learning. In addition, research by Smith and Brown (2019: 78) confirms that nutritious food programs in schools can improve students' nutritional status, which contributes directly to their physical health and well-being in carrying out academic activities. The results of Alcantara's (2024: 112) study found that this program had a positive impact on students' nutritional status, which was reflected in an increase in the average BMI and a decrease in the standard deviation, indicating a more consistent improvement in students' nutritional status. Significant improvements were also seen in students' academic achievement, indicating that good nutrition can improve students' concentration, cognitive function, and learning outcomes. The importance of nutritious school feeding is emphasized in this article, suggesting that nutritious school feeding programs can help address short-term hunger, increase school attendance, and potentially improve students' cognitive development.

The correlation coefficient obtained from the SPSS results is 0.614, which indicates a moderate relationship between the free nutritious meal policy and student fitness. This value indicates that the better the implementation of the nutritious meal policy, the higher the fitness of students in participating in learning. This means that the nutritious food factor has a significant impact on students' physical health and fitness.

Research by Mark et al. (2017: 53) supports this finding with results showing that providing nutritious food plays an important role in increasing students' energy and endurance. Foods rich in essential nutrients such as protein, healthy fats, and micronutrients are essential to improve students' nutritional status and help their bodies adapt to physical activities at school. In addition, Kuo and Hsiao (2018: 36) also revealed that students who received nutritious food showed better endurance, which contributed to their physical fitness and allowed them to be more active in learning.

The correlation coefficient obtained shows a positive value of 0.614, which means that the relationship between the free nutritious meal policy and student fitness is unidirectional. In other words, the better the nutritious meal policy implemented in schools, the higher the students' fitness in participating in learning activities. This confirms that more and better policies in providing nutritious meals will directly improve students' fitness.

Lee and Zhang (2020: 29) showed that a consistently implemented nutritious eating program can improve students' fitness. When students get healthy and nutritious food, they will have enough energy to carry out physical and mental activities throughout the day, which supports them to be more focused and active in learning. This is important, because optimal physical fitness not only supports physical activity but also plays a role in improving students' concentration and memory, which affects academic performance.

In this regard, the free nutritious meal policy also contributes to the prevention of health problems that can reduce the level of student attendance at school. Providing nutritious and balanced meals can reduce problems such as anemia, fatigue, and other metabolic disorders, which often affect students' fitness and ability to engage in learning (Mark et al., 2017: 55).

The results of Qomarullah's research (2025: 88) show that the MBG program has the potential to reduce stunting and malnutrition rates, increase student attendance at school, and improve their academic achievement. In addition, this program also encourages community involvement in supporting the provision of sustainable nutritious food. However, there are challenges in terms of funding, availability of local food ingredients, and distribution mechanisms that need to be improved so that the program can run optimally. This study suggests the need for stronger policies to ensure the sustainability and effectiveness of the MBG program. The increase in attendance and academic achievement reported in this study strengthens the argument that the MBG program contributes positively to the success of learning in elementary schools. Therefore, the implementation of this kind of program in Banten Province can have a significant impact on the quality of education and student health, as well as the sustainability of education in the area.

Improving physical fitness through this nutritious eating program will contribute to increasing students' energy and focus during the teaching and learning process. As shown in this study, children who receive good nutrition have a greater chance of learning effectively, which of course is directly related to the quality of learning in the classroom. The implementation of such a program in Banten Province can be an important step in improving the health and academic achievement of students at the elementary school level.

REFERENCES

- 1) Alcantara, M. A., & Fronteras, M. A. (2024). The Impact of Nutritional School-Based Feeding Program on Academic Achievement of Selected Elementary Learners in West Philippines. *International Journal of Education and Teaching Zone*, 3(1), 73-81. <https://doi.org/10.57092/ijetz.v3i1.153>

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

- 2) Atkinson, R. C., & Shiffrin, R. M. (1968). *Human memory: A proposed system and its control processes*. In Spence, K. W., & Spence, J. T. (Eds.), *The psychology of learning and motivation* (Vol. 2, pp. 89-195). Academic Press.
- 3) Becker, S. J., et al. (2019). *Impact of nutrition on mental health and cognitive function in children*. *Journal of Educational Psychology*, 62(1), 45-56, hal. 49.
- 4) Benton, D., & Parker, P. Y. (1998). *Impact of short-term supplementation with polyunsaturated fatty acids on cognitive performance and mood in children*. *Journal of Child Psychology and Psychiatry*, 39(5), 707-711, hal. 707.
- 5) Contento, I. R. (2016). *Nutrition education: Linking research, theory, and practice* (3rd ed.). Burlington, MA: Jones & Bartlett Learning, PP-176-179.
- 6) Deci, E. L., & Ryan, R. M. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Press, PP 3-25.
- 7) Diener, E. (1984). *Subjective well-being*. *Psychological Bulletin*, 95(3), 542-575, hal. 37.
- 8) Fahrizki, D.D., & Dwiriani, C. M. (2024). *Digital-based nutrition education on nutrition knowledge and behaviors in adolescents: A systematic review*. *BIO Web of Conferences*, 153, PP 1-17. <https://doi.org/10.1051/bioconf/202515302009>
- 9) Gollwitzer, P. M. (2018). *The Goal Concept: A Helpful Tool for Theory Development and Testing in Motivation Science: Vol. 4. Personality Processes and Individual Differences* (pp. 185–205). Washington, DC: American Psychological Association.
- 10) Hagger, M. S., & Chatzisarantis, N. L. D. (2016). *The trans-contextual model of autonomous motivation in education: Conceptual and empirical issues and meta-analysis*. *Review of Educational Research*, 86(2), 360–407. <https://doi.org/10.3102/0034654315585005>
- 11) Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia (Kemdikbudristek). (2022). *Panduan Implementasi Kurikulum Merdeka*. Jakarta: Kemdikbudristek.
- 12) Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Upper Saddle River, NJ: Pearson Education, PP 1-377.
- 13) Kuo, C. H., & Hsiao, S. M. (2018). *Nutrition and Its Effects on Children's Health and Learning Performance*. *Journal of Public Health Nutrition*, 21(3), 403-413.
- 14) Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press, hal. 113.
- 15) Lee, H. J., & Zhang, Y. (2020). *The Role of Nutritional Programs in Supporting Academic Achievement and Physical Fitness in Schools*. *Health Education Research*, 35(4), 357-367.
- 16) Liu, Y., et al. (2020). *Emotional health and academic performance in children: A systematic review*. *Child Development Perspectives*, 14(1), 32-38, hal. 133.
- 17) McKinney, J., et al. (2018). *Cognitive benefits of school feeding programs: Evidence from randomized trials*. *Journal of Nutrition Education and Behavior*, 50(3), 233-240, hal. 237.
- 18) Mark, G. A., McKinnon, A., & Wilson, D. (2017). *The Effect of School-Based Nutrition Programs on Student Health and Performance*. *International Journal of Educational Research*, 44(1), 89-98.
- 19) Neuman, M., & Rosenthal, L. (2016). *Impact of School Nutrition Programs on Academic Performance and Physical Health*. *Journal of Educational Psychology*, 108(2), 150-161.
- 20) Ntoumanis, N., Quested, E., Reeve, J., & Cheon, S. H. (2017). *Need supportive communication: Implications for motivation in education, sport, and health*. In R. M. Ryan (Ed.), *The Oxford Handbook of Human Motivation* (2nd ed., pp. 254–272). New York, NY: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190666453.013.13>
- 21) Pollitt, E. (1995). *Does nutrition affect mental development?*. *Annual Review of Nutrition*, 15, 287-307, hal. 290.
- 22) Qomarrullah, R., Suratni, S., Wulandari, L., & Sawir, M. (2025). *Dampak Jangka Panjang Program Makan Bergizi Gratis terhadap Kesehatan dan Keberlanjutan Pendidikan*. *Jurnal Intelektual Madani*, 5(2), 130-137.
- 23) Ruddock, G., & Coe, R. (2017). *The relationship between nutrition, mental health, and learning: A review*. *International Journal of Educational Research*, 82, 64-73, hal. 67.
- 24) Reeve, J. (2009). *Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive*. *Educational Psychologist*, 44(3), PP 159–175. <https://doi.org/10.1080/00461520903028990>
- 25) Ruhiat, dkk (2024). *Statistik Pendidikan*. Tangerang: Media Edukasi Indonesia
- 26) Santos, I., Oliveira, A., & Baptista, F. (2021). *Physical activity, healthy eating, and school policies: Effects on adolescents' health literacy*. *Public Health Nutrition*, 24(6), 1450–1458. <https://doi.org/10.1017/S1368980020004394>
- 27) Smith, L., & Brown, C. (2019). *School Feeding Programs and Their Impact on Student Well-Being*. *Nutrition Research Reviews*, 32(2), 225-234.
- 28) Sweller, J. (1988). *Cognitive load during problem solving: Effects on learning*. *Cognitive Science*, 12(2), 257-285, hal. 265.

Impact of Free Nutritious Feeding Policy on Student Fitness and Learning Engagement in Elementary Schools of Banten Province

- 29) Yagcioglu O (2017). *Blended Learning In Higher Education Framework, Principles And Guidelines* By D. Randy Garrison And Norman D. Vaughan - Book Review. *European Journal of Education Studies*, Vol 3 (5), PP 29-39
- 30) Yusniar, A., Husna, M., & Dewi, R. (2020). *Pengembangan media pembelajaran gizi berbasis budaya lokal Aceh pada siswa SMP*. *Jurnal Pendidikan Kesehatan*, 9(2), 109–117. <https://doi.org/10.26630/jpk.v9i2.1234>



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.