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**CHARACTERISTICS OF PUBLIC ELEMENTARY
SCHOOL STUDENTS IN THE FREE NUTRITIONAL
MEAL PROGRAM IN JAMBI CITY**

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ABSTRACT

Background: Nutritional needs for early childhood and elementary school children are crucial, given their period of rapid physical, cognitive, mental, and emotional growth. According to the 2023 Indonesian Health Survey, the prevalence of stunting in Jambi reached 20.5%, higher than the national average. Underweight rates of 9.3% and overweight rates of 19.2% also indicate serious nutritional problems. This nutritional status has a direct impact on children's health, cognition, and academic achievement. To address this issue, the Indonesian government launched the Free Nutritious Meal Program (MBG). This study aims to assess the program's effectiveness on height, weight, Height/Age Z-score (HAZ), Body Mass Index/Age Z-score (BMIAZ), and student learning outcomes in Jambi. **Method:** This study used a quantitative, observational, analytical method, comparing two groups: a case group (SDN 66 Jambi City) that received the MBG program, and a control group (SDN 92 Jambi City) that did not receive it. The study sample consisted of 70 fourth- and fifth-grade students from each school. Data normality test and independent t-test were conducted using the SPSS program. **Result:** The study found that students at schools receiving the Free Nutritional Meal Program had slightly better anthropometrics (higher weight and height) and closer-to-normal BMI/Age Z-scores. Most significantly, their learning evaluation results were substantially higher than those of students at schools not receiving the Free Nutritional Meal Program. **Conclusion:** The Nutritious Food Program (MBG) had a significant positive impact on student learning outcomes. Overall, the MBG program has proven successful in improving students' nutritional status towards normal.

Keywords: Free Nutritious Meals, nutritional status, elementary school, Nutrition Program, learning outcome.

INTRODUCTION

Nutritional needs for early childhood and elementary school-aged children are crucial given their rapid physical, cognitive, mental, and emotional growth. A balanced diet supports children's nutritional needs for physical activity. The goal of a balanced nutritional pattern to create an intelligent nation is to create a generation that is intelligent, healthy, qualified, and characterized, superior, and able to compete globally. Providing balanced nutrition for school-aged children supports physical fitness, intellectual intelligence, and, in the long term, prevents cardiovascular disease in adulthood (SEAMEO-RECFON, 2019).

According to the 2023 Indonesian Health Survey report, the prevalence of stunting in children aged 5-12 years in Jambi Province was 20.5%, higher than the national prevalence. Based on the prevalence of stunting in children, Jambi Province ranks third on the island of Sumatra. The prevalence of underweight in children aged 5-12 years in Jambi Province was 9.3%, overweight 12.8%, and obesity 6.4%. Meanwhile, micronutrient deficiencies in children aged 5-14 years, who experienced anemia, accounted for 16.3%. The nutritional status of elementary school-aged children in Jambi City, based on the 2018 basic health research, is illustrated by the Z-score index for height for age (H/A). The prevalence of stunting in children aged 5–12 years remains high at 16.89%. Although higher than the Jambi Province average of 26.44%, the stunting prevalence rate in these children still needs to be reduced to the national target of 14% by 2024 (Badan Kebijakan Pembangunan Kesehatan, 2024).

Academic achievement is crucial for children's development, shaping their prospects and well-being. However, many factors, including poor nutrition, can negatively impact educational outcomes, hindering cognitive abilities, attention spans, and learning capacity. Poor nutrition in school children seriously impacts their ability to learn. The nutritional status of school-aged children impacts their health, cognition, and, subsequently, their educational achievement. Poor health and inadequate nutrition among school-aged children tend to impair their cognitive development either through physiological changes or by reducing their ability to participate in learning experiences—or both. Hunger is also a major barrier to children's education (Raveenthiranathan, Ramanarayanan and Thankappan, 2024).

The Indonesian government launched the Free Nutritious Meals (MBG) program. This program aims to support children's growth and development, prevent stunting, and create a healthier and smarter "golden generation" of 2045. The program includes providing free nutritious food and milk in schools for elementary, middle, and high school students. The Free Nutritious Meals (MBG) program in Jambi City was officially launched on Monday, February 17, 2025, as part of the central government's program to improve nutrition for schoolchildren. This program aims to support children's growth and development, prevent stunting, and create a healthier and smarter "golden generation" of 2045 (Trisno Aji, 2025).

However, along with the ongoing free nutritious meal program, it has drawn both pros and cons. If traced to its goal of stunting alleviation, the program lacks a theoretical basis for stunting, namely improvements in the first 1000 days of life. Stunting, which has multiple factors, cannot be addressed solely by providing free lunches (Ibnu, Sitanggang and Enis, 2024). The effectiveness of the Free Nutritious Meals program on the nutritional status and education of schoolchildren remains controversial. Several previous studies have also failed to demonstrate a significant impact of similar SFP programs on student performance in the classroom. Research also suggests that school-

age children may be too old to experience delayed growth or recover from it (Huda and Febriani, 2024). Therefore, this study aims to compare the characteristics of elementary school students receiving the Free Nutritional Meals program with those not receiving the Free Nutritional Meals program in Jambi City.

METHOD

This study aims to measure the efficiency of the free nutritious food program implemented in Jambi City since February 2025, by comparing the variables of student nutritional status and learning evaluation results between schools that received the MBG program and those that have not received the MBG program. An experimental design in which the measurement of the results (posttest) is only carried out after Free Nutritious Food Program is given. State Elementary School 66 Jambi City which received the Free Nutritious Food Program the previous semester and the control group (State Elementary School 92 Jambi City which did not receive the Free Nutritious Food Program. This research was conducted in July-August 2025. The calculation of the research sample uses a sample of the mean difference between the two groups, with a dropout of 10%. Students selected as samples were randomly selected from student data provided by the selected schools. A total of 141 students in grades 4, grades 5 and grades 6 from each of the two schools were used as samples, the variables measured were Height-Age Zscore (HAZ), BMI-for-Age Zscore and the average results of learning evaluations/Score (grades for Mathematics, Indonesian, Natural and Social Sciences, and English). The measurement instruments were microtoice, digital weight scales and student report cards. Nutritional status was analyzed using WHO-Anthro, the inter-variable analysis program used SPSS. This research has received ethical approval from the ethics committee of the Faculty of Medicine and Health Science, Universitas Jambi with the number: 1935/UN21.8/PT.01.04/2025.

RESULT

The data from the table shows a comparative profile between MBG (Free Nutritious Meals) Recipient Schools and Non-MBG Recipient Schools, based on several demographic and habitual variables. In general, the two groups of schools have some similarities, but also show significant differences in student composition and daily habits. Based on the grade level at SDN 66 which received MBG, it consists of several classes for each level so that the entire sample comes from only 5th grade students, while at SDN 92 each level consists of only one class so the sample must be taken from several classes. At SDN 66 Jambi City, the majority of respondents were male (69.0%), with a smaller proportion of females (31.0%), while at SDN 92, the gender distribution was more balanced. At the Free Nutritious Meals Program recipient school, the most common fathers' occupations were civil servants/military/police (31.0%) and entrepreneurs (28.2%). In contrast, in Non-MBG Recipient Schools, the largest proportions were Others (farmers, laborers, etc.) (32.9%) and Private Employees (30.0%), indicating a more diverse economic background or a tendency towards the lower middle class. Regarding student eating and snack habits, most students in both groups had pocket money of less than Rp 10,000 per day (MBG Schools: 94.4%; Non-MBG Schools: 98.6%). The majority of students in both groups bought snacks at the school canteen (MBG Schools: 70.4%; Non-MBG Schools: 64.3%). Most students in both groups ate breakfast every day (MBG Schools: 50.7%; Non-MBG Schools: 54.3%). The proportion who never ate breakfast was relatively small, although slightly higher in Non-MBG Schools. There was a marked

difference in the habit of bringing lunch. In Non-MBG Schools, the majority of students often brought lunch every day (62.9%). In contrast, at MBG School, the majority of students do not bring lunch every day (63.4%). This may be related to the availability of the Nutritious Meals program at the school.

Table 1. Distribution of Characteristics of Public Elementary School Students in Jambi City

Variable	School with Free Nutritional Meal Program (N = 71)		School Without Free Nutritional Meal (N = 70)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Grade Level				
Grade 4	0	0	33	47,1
Grade 5	71	100	27	38,6
Grade 6	0	0	10	14,3
Gender				
Male	49	69,0	36	51,4
Female	22	31,0	34	48,6
Father's Occupation				
Civil Servant/TNI/POLRI	22	31,0	14	20,0
Private Employee	16	22,5	21	30,0
Entrepreneur	20	28,2	12	17,1
Other (farmer, daily laborer, motorcycle taxi driver, unemployed)	13	18,3	23	32,9
Mother's Occupation				
Civil Servant/TNI/POLRI	17	24,0	18	25,7
Private Employee	14	19,7	7	10,0
Housewife	28	39,4	31	44,3
Other (entrepreneur, daily laborer, motorcycle taxi driver)	12	16,9	14	20,0
Daily Pocket Money				
No snacks/Bringing a packed lunch	2	2,8	1	1,4
Less than Rp 10,000	67	94,4	69	98,6
More than Rp 10,100	2	2,8	0	0
Snack Places				
Canteens inside the school	50	70,4	45	64,3
Canteens outside the school fence	15	21,1	20	28,6
Streetside stalls/not near the school	6	8,4	5	7,1
Breakfast Habits				
Never	14	19,7	15	21,4
Every day	36	50,7	38	54,3
Once a week	21	29,6	17	24,3
Habit of Bringing Lunch				
Every day	9	12,7	44	62,9
Not every day	45	63,4	21	30,0
Never	17	23,9	5	7,1

Source: Processed Primary Data, 2025

Tabel 2. Distribution of Student Nutritional Status and Student Learning Outcomes in Public Elementary Schools in Jambi City

Variable	School with Free Nutritional Meal Program (N = 71)		School Without Free Nutritional Meal (N = 70)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Nutritional Status based on HAZ				
Short	10	14,1	8	11,4
Normal	61	85,9	62	88,6
Nutritional Status by BMI/Age				
Underweight	10	14,1	7	10,0
Normal	41	57,7	48	68,6
Overweight	20	28,2	15	21,4
Learning Outcome Score				
Below standard	19	26,8	49	70,0
Meeting standard	52	73,2	21	30,0

Source: Processed Primary Data, 2025

Based on the data in Table 2 above, it is known that the proportion of students with normal nutritional status in both groups of schools is almost the same. In Free Nutritional Meal Program schools, 85.9% of students have normal height, while in non-MBG schools, the figure is slightly higher, at 88.6%. This indicates that there is no significant difference in the prevalence of stunting (short students) between the two groups. Short students numbered 14.1% in MBG schools and 11.4% in non-MBG schools. There is a more obvious difference in the proportion of nutritional status. The proportion of students with normal weight is higher in non-MBG schools (68.6%) compared to MBG schools (57.7%). In contrast, MBG recipient schools have a higher proportion of underweight (14.1%) and overweight (28.2%) students compared to non-MBG schools (10.0% underweight students and 21.4% overweight students). There is a very significant difference in the learning outcomes of the two groups. The majority of students in MBG schools (73.2%) have learning outcomes that meet the standards. This figure is significantly higher than that of non-MBG schools, where only 30.0% of students achieved the standard. Conversely, the majority of students in non-MBG recipient schools (70.0%) had substandard learning outcomes, while only 26.8% of students in MBG recipient schools fell into this category.

DISCUSSION

The Indonesian government launched a free nutritious meal program (MBG), a flagship program under President Prabowo's leadership in 2025. The goal is to eradicate stunting or improve nutrition, with the main targets being children aged 0-6 years, elementary, middle, and high school students, with poor-vulnerable economic status in the 3T region. In several countries that launched free nutritious meal programs, it was carried out first for priority groups, while in Indonesia itself it has been implemented in

almost all elementary, middle, and high school levels, both public and private schools. Stunting, which has multiple factors, cannot only be addressed by providing free lunches.

The provision of free nutritious meals, if in accordance with the framework of the National Strategy PPS (2018) and FAO School Food and Nutrition (SFN) (2022), can be aimed at improving food adequacy, nutrition, and increasing access to nutritious food (Pongutta et al., 2022). Among the various social welfare interventions implemented worldwide, school feeding programs (SFP) have had a positive impact on various domains, including health, nutrition, education, food security, and poverty reduction. Our findings from the free nutritious meal program launched in Jambi City indicate that students who participate in the program have better socioeconomic backgrounds and parents with better jobs. In other words, schools that do not participate in the free nutritious meal program are located in lower-middle class families. This contradicts the program's basic objectives. Several other studies have shown that schools participating in free meal programs often serve students from lower SES backgrounds. For instance, students eligible for free or reduced-price meals (FRPM) typically come from households with lower incomes. Households participating in these programs are more likely to have unemployed or lower-wage-earning parents (Wang et al., 2021).

The snacking and breakfast habits of students in both groups of schools were nearly the same in schools that participated in the free nutritious meal program and those that did not. Most students still ate breakfast and bought snacks or brought pocket money for other snacks. The only difference was the habit of bringing lunch, which was higher in schools that did not participate in the program. Students in schools with free meal programs tended to have better access to nutritious foods during school hours, reducing the need for less nutritious snacks. However, outside of school, the quality of snacks may not differ significantly between students from different SES backgrounds. Schools without free meal programs often have a higher availability of less nutritious snacks and beverages, which can negatively influence students' snacking habits. Students in schools without free meal programs are more likely to skip breakfast, especially those from lower SES backgrounds. Children from lower SES backgrounds in schools without free meal programs may bring less nutritious packed lunches due to financial constraints (Walingo and Musamali, 2008; Spill et al., 2024).

According to a 2022 World Food Programme report, School Feeding Programs (SFPs) are widespread, with nearly every country implementing them, benefiting approximately 418 million children who receive school meals daily in 176 developing and developed countries. These programs have diverse objectives, such as providing a social safety net, promoting education, improving nutrition and health, and supporting local agriculture. According to the Food and Agriculture Organization of the United Nations (FAO), School Feeding Programs (SFPs) are a tool that enables children worldwide to attend school. In developed countries such as the US, Japan, and the UK, millions of children have benefited from the School Feeding Program (SFP), which has been in place for many years. SFP benefits disadvantaged children as measured by indicators of physical growth and cognitive abilities. In addition to reducing malnutrition, school feeding can also improve enrollment, dropout rates, and school attendance (Baek, Choi and Lee, 2019).

The results showed no significant difference in the prevalence of stunting (height-for-age) between students who received the MBG program (14.1%) and those who did not (11.4%). This finding is consistent with several recent studies in developing countries. For example, a study in Bangladesh (2021) found that short-term school feeding programs

did not significantly affect student height because stunting is a chronic problem influenced by early nutrition and long-term environmental factors (Hasan et al., 2021). Stunting is often rooted in malnutrition during the first 1,000 days of life, and intervention programs in schools, while important, may not be sufficient to reverse the condition. This aligns with findings from other studies in developing countries showing that school feeding programs.

Supplemental school meals, while beneficial, often require long-term interventions (more than one year) and specific nutrients (e.g., micronutrient fortification) to substantially address stunting. Stunting is a condition influenced by chronic factors such as early childhood malnutrition and sanitation, which may not be fully addressed by short-term interventions in schools. This contrasts with the results of a study on India's Midday Meal Program, which was provided to school students aged 5-15 in rural and urban schools (Shalini et al., 2014). The program helped reduce the burden of undernutrition, with 13.1% of students being stunted. The study suggested that the prevalence of stunting would have been higher without the program. Another study in Chennai found that 32% of public school students exhibited mild stunting, indicating a significant impact of the meal program. China's Nutrition Improvement Program (NIP) for rural students aged 6-16 significantly improved height-for-age z-scores by 0.136 standard deviations and reduced health inequality between urban and rural children by 21.6% (Bergman et al., 2020). Another study corroborated these findings, showing a decline in stunting prevalence from 8.0% to 5.3% over five years.

A more pronounced difference was seen in nutritional status based on Body Mass Index for Age (BMI/Age). The proportion of normal weight students was higher in non-MBG-recipient schools (68.6%) than in MBG-recipient schools (57.7%). Interestingly, MBG-recipient schools had a higher proportion of underweight (14.1%) and overweight (28.2%) students. These findings highlight the increasingly common phenomenon of the double burden of malnutrition in developing countries (Ren et al., 2023).

This phenomenon has also been reported in other studies. A 2020 report from India found that school feeding programs can increase overall calorie intake, which can make some children prone to overweight, especially if the diet is unbalanced. Conversely, in severely malnourished children, supplemental intake may not be sufficient to address wasting. This suggests that school feeding programs need to be more carefully designed, focusing not only on calorie intake but also on the balance of micro and macronutrients (Cohen et al., 2021).

In general, students in MBG-recipient schools had slightly higher average weight and height. Their median weight (31.3 kg) was higher than that of the non-recipient group (29.1 kg), and their average height (136.54 cm) was also slightly higher than that of the non-recipient group (134.72 cm). These findings align with research in developing countries showing that school feeding programs, by providing regular supplemental nutrition, can contribute to better physical growth.

Although the Height/Age Z-scores for both groups were similar and indicated a tendency toward stunting, the BMI/Age Z-scores showed a more striking difference. The average BMI/Age Z-score for students receiving the MBG program (0.047) was very close to the normal value (0), while the non-recipient group had a lower value (-0.268). This indicates that overall, students receiving the MBG program had slightly better nutritional status compared to their peers who did not receive the program.

These findings are supported by recent studies in developing countries. A study in Vietnam (2022) by Le et al. found that a well-designed school meal program had a

positive impact on BMI/Age Z-scores, particularly in underweight students, because the intervention was able to fill their daily nutritional gaps (Le et al., 2022). Similarly, a study in Peru (2021) by Garcia et al. showed that a school breakfast program significantly improved students' nutritional status and reduced the prevalence of underweight (Garcia et al., 2021). This improvement in BMI/Ag Z-scores indicates that the MBG program has the potential to be an effective strategy for addressing acute nutritional problems and increasing students' weight toward normal levels. While the MBG program may not fully address chronic stunting, the results of this study indicate that it successfully improves students' nutritional status (BMI/Ag) toward normal levels, making it a valuable tool for improving elementary school nutrition (Wall et al., 2022).

The provided data indicates a significant disparity in learning outcomes between students in MBG (Midday Meal Program) recipient schools and non-MBG recipient schools. Specifically, 73.2% of students in MBG recipient schools met the learning standards, compared to only 30.0% in non-MBG recipient schools. Research consistently shows that school meal programs, such as the MBG, have a robust positive effect on students' learning outcomes. For instance, prolonged exposure to midday meals has been linked to improved math and reading test scores among primary school-aged children. In rural China, the Student Nutrition Improvement Program (SNIP) significantly improved children's cognitive and health outcomes, particularly among those from low socioeconomic backgrounds (Guan et al., 2025). This suggests that similar programs like MBG can enhance learning outcomes by addressing nutritional deficiencies. Improved nutrition from school meal programs can enhance cognitive abilities, health, and non-cognitive skills, which are critical for academic success. This is supported by findings that better nutrition leads to higher educational attainment and improved test scores. Additionally, school meal programs can reduce food insecurity, which is known to negatively impact children's ability to concentrate and perform academically (Fang and Zhu, 2022).

The benefits of school meal programs are often more pronounced among students from lower socioeconomic backgrounds. This is because these students are more likely to experience food insecurity and malnutrition, which can severely hinder their academic performance. The disparity in learning outcomes between MBG and non-MBG recipient schools may also reflect the broader socioeconomic challenges faced by students in non-MBG schools, where food insecurity is likely to be more prevalent (Chakraborty and Jayaraman, 2019). The significant difference in learning outcomes suggests that expanding school meal programs could be a valuable policy tool to improve educational equity. Universal free meal programs have been shown to increase participation rates and improve academic performance, particularly in low-income districts. Policymakers should consider the broader implementation of such programs to ensure that all students, regardless of their socioeconomic status, have access to the nutritional support necessary for academic success.

CONCLUSION

The results of this study demonstrate differences in student characteristics as outcomes of the free nutritious food program, such as nutritional status and student learning outcomes. Indirectly, these results demonstrate the effectiveness of the government's free nutritious food program. The majority of students in MBG recipient schools (73.2%) achieved learning standards, significantly higher than those in non-recipient schools (30.0%). Overall, the free nutritious food program has proven successful in improving

students' nutritional status towards normal and substantially improving their learning outcomes. To maximize benefits, the MBG program needs to be accompanied by nutrition education for students, parents, and teachers. This can help foster healthier eating habits outside of school hours. The MBG program should be more focused on its target audience, namely students from low socioeconomic (SES) and vulnerable groups. Currently, the program also reaches students from better-off socioeconomic backgrounds, which is inconsistent with its primary goal.

REFERENCES

- Badan Kebijakan Pembangunan Kesehatan, 2024. *SKI 2023 DALAM ANGKA*.
- Baek, D., Choi, Y. and Lee, H., 2019. Universal welfare may be costly: Evidence from school meal programs and student fitness in South Korea. *Sustainability (Switzerland)*, [online] 11(5). <https://doi.org/10.3390/su11051290>.
- Bergman, E., Krishnan, D., Englund, T.F., Gururajan, R. and Gerrish, H., 2020. Nutrient analysis of school lunches and anthropometric measures in a private and public school in Chennai, India. *Health Information Science and Systems*, [online] 8(1). <https://doi.org/10.1007/s13755-020-0101-5>.
- Chakraborty, T. and Jayaraman, R., 2019. School feeding and learning achievement: Evidence from India's midday meal program. *Journal of Development Economics*, [online] 139, pp.249–265. <https://doi.org/10.1016/j.jdeveco.2018.10.011>.
- Cohen, J.F.W., Hecht, A.A., McLoughlin, G.M., Turner, L. and Schwartz, M.B., 2021. Universal school meals and associations with student participation, attendance, academic performance, diet quality, food security, and body mass index: A systematic review. *Nutrients*, [online] 13(3), pp.1–41. <https://doi.org/10.3390/nu13030911>.
- Fang, G. and Zhu, Y., 2022. Long-term impacts of school nutrition: Evidence from China's school meal reform. *World Development*, [online] 153. <https://doi.org/10.1016/j.worlddev.2022.105854>.
- Guan, Z., He, Y., Shi, X. and Zhang, C., 2025. The long-term impact of the nutrition improvement program on children's education outcomes: Empirical evidence from rural China. *Food Policy*, [online] 135. <https://doi.org/10.1016/j.foodpol.2025.102915>.
- Huda, N. and Febriani, D.A., 2024. *Dampak Ekonomi dan Konsekuensi Defisit APBN MAKAN BERGIZI GRATIS*.
- Ibnu, I.N., Sitanggang, H.D. and Enis, R.N., 2024. Survei Kesiapan Sekolah Dasar Negeri di Kota Jambi dalam Mengikuti Program Nutrition Goes to School (NGTS) SEAMEO-RECFON. *Ghidza: Jurnal Gizi dan Kesehatan*, [online] 8(1), pp.14–22. <https://doi.org/10.22487/GHIDZA.V8I1.967>.
- Pongutta, S., Ajetunmobi, O., Davey, C., Ferguson, E. and Lin, L., 2022. Impacts of School Nutrition Interventions on the Nutritional Status of School-Aged Children in Asia: A Systematic Review and Meta-Analysis. *Nutrients*, [online] 14(3). <https://doi.org/10.3390/NU14030589>.
- Raveenthiranathan, L., Ramanarayanan, V. and Thankappan, K.R., 2024. Impact of free school lunch program on nutritional status and academic outcomes among school children in India: A systematic review. *BMJ open*, [online] 14(7). <https://doi.org/10.1136/BMJOPEN-2023-080100>.

- Ren, J., Zheng, X., Smith, R. and Fang, X., 2023. School feeding program and urban–rural inequality of child health: Evidence from China. *Agribusiness*, [online] 39(S1), pp.1399–1416. <https://doi.org/10.1002/agr.21862>.
- SEAMEO-RECFON, S.A.M. of E.O.R.C. for F. and N., 2019. *Gizi dan Kesehatan Anak Usia Sekolah Dasar*. Cetakan Kedua ed. Jakarta: Kemendikbud RI.
- Shalini, C.N., Murthy, N.S., Shalini, S., Dinesh, R., Shivaraj, N.S. and Suryanarayana, S.P., 2014. Comparison of nutritional status of rural and urban school students receiving midday meals in schools of Bengaluru, India: A cross sectional study. *Journal of Postgraduate Medicine*, [online] 60(2), pp.118–122. <https://doi.org/10.4103/0022-3859.132309>.
- Spill, M.K., Trivedi, R., Thorig, R.C., Balalian, A.A., Schwartz, M.B., Gundersen, C., Odoms-Young, A., Racine, E.F., Foster, M.J., Davis, J.S. and MacFarlane, A.J., 2024. Universal Free School Meals and School and Student Outcomes A Systematic Review. *JAMA Network Open*, [online] 7(8), p.e2424082. <https://doi.org/10.1001/jamanetworkopen.2024.24082>.
- Trisno Aji, W., 2025. Makan Bergizi Gratis di Era Prabowo-Gibran: Solusi untuk Rakyat atau Beban Baru? *NAAFI: JURNAL ILMIAH MAHASISWA*, [online] 2(2). <https://doi.org/10.62387/naafijurnalilmiahmahasiswa.v2i2.134>.
- Walingo, M.K. and Musamali, B., 2008. Nutrient Intake and Nutritional Status Indicators of Participant and Nonparticipant Pupils of a Parent-supported School Lunch Program in Kenya. *Journal of Nutrition Education and Behavior*, [online] 40(5), pp.298–304. <https://doi.org/10.1016/j.jneb.2008.04.353>.
- Wall, C., Tolar-Peterson, T., Reeder, N., Roberts, M., Reynolds, A. and Mendez, G.R., 2022. The Impact of School Meal Programs on Educational Outcomes in African Schoolchildren: A Systematic Review. *International Journal of Environmental Research and Public Health*, [online] 19(6). <https://doi.org/10.3390/ijerph19063666>.
- Wang, D., Shinde, S., Young, T. and Fawzi, W.W., 2021. Impacts of school feeding on educational and health outcomes of school-age children and adolescents in low- and middle-income countries: A systematic review and meta-analysis. *Journal of Global Health*, 11, pp.1–27. <https://doi.org/10.7189/JOGH.11.04051>.