



Effectiveness of the Free Nutritional Meal Program on Junior High School Students' Nutritional Status in Palembang City

Ammar Januar¹, Meirizal Usra^{2*}, Reza Resah Pratama³

¹²³Master Program in Physical Education, Faculty of Teacher Training and Education, Universitas Sriwijaya, South Sumatra, Indonesia

e-mail: ammarjanuar@gmail.com; meirizalusra@fkip.unsri.ac.id; rezaresah@fkip.unsri.ac.id

Abstract

School meal programs may improve students' access to nutritious food, yet implementation quality and short-term anthropometric outcomes do not necessarily move at the same pace. This study evaluated Indonesia's Free Nutritious Meal Program in two public junior high schools in Palembang and examined changes in students' nutritional status. A comparative program-evaluation design was used, guided by the Context, Input, Process, and Product model. Participants were 133 students (66 from SMP Negeri 13 and 67 from SMP Negeri 1), 20 teachers, and 27 parents. Data were obtained through observation, questionnaires, interviews, documentation, and body-mass-index-for-age assessment. Descriptive statistics summarized implementation and stakeholder perceptions, while paired-samples t-tests assessed pre-post differences. Observation scores reached 100% for all four evaluation components in both schools. Stakeholder ratings were also favorable: 78.4% among students, 80.8% among teachers, and 80.2% among parents. The number of students in the normal nutritional-status category increased from 40 to 53 at SMP Negeri 13 and from 46 to 54 at SMP Negeri 1. However, the reported paired tests were not statistically significant in either school ($p = .320$). The program was therefore operationally effective, but the available short-term data did not establish a significant anthropometric effect. Its principal contribution is showing why implementation performance and health outcomes should be evaluated as related but distinct dimensions. Longer exposure, repeated anthropometric measurement, and control of household diet, attendance, and physical activity are required for a stronger estimate of impact.

Keywords: CIPP evaluation; free nutritious meals; nutritional status; program evaluation; school nutrition

corresponding author: meirizalusra@fkip.unsri.ac.id

Artikel Info:

Submitted: 17/08/2026

Revised: 20/08/2026

Accepted: 05/09/2026

Published: 05/09/2026

How to Cite: Januar, A., Usra, M., Pratama, R. R. (2026). Effectiveness of the Free Nutritional Meal Program on Junior High School Students' Nutritional Status in Palembang City. *Journal Coaching Education Sports*, 7(3), 489-494.

Author's Contribution: a) Desain Penelitian; b) Pengumpulan Data; c) Analisis Statistik; d) Penyusunan Naskah; e) Pengumpulan Dana



Journal Coaching Education Sports is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

A. Introduction

Adequate nutrition during early adolescence supports growth, cognitive development, concentration, and participation in learning. When students regularly attend school without sufficient dietary intake, the consequences extend beyond health: fatigue, reduced attention, and unequal access to learning may also emerge. School-based meal programs are therefore increasingly used as combined nutrition and education interventions.

Indonesia's Free Nutritious Meal Program (*Makan Bergizi Gratis*, MBG) was introduced to expand access to balanced meals among students and other priority groups. In schools, the program is expected to provide safe and nutritious food, strengthen daily learning readiness, and contribute to longer-term human-capital development (Agustini, 2025; Ardhana et al., 2026; Melani et al., 2026). These ambitions, however, depend on more than meal delivery. Menu composition, hygiene, facilities, supervision, attendance, and coordination across implementing actors may shape both uptake and outcomes (Hastuti et al., 2026).

Existing discussions of MBG have largely emphasized policy relevance, implementation challenges, or expected nutritional benefits. Less attention has been given to the relationship between implementation quality and observed anthropometric change at school level. Treating these as interchangeable can lead to an overly optimistic or overly negative conclusion: a well-managed program may require more time before body composition changes, while favorable anthropometric change alone does not demonstrate that the delivery system is sustainable.

The Context, Input, Process, and Product (CIPP) model offers a suitable framework for addressing this distinction. Context evaluation concerns needs and program relevance; input concerns resources and implementation strategies; process concerns actual delivery; and product

concerns outputs and outcomes (Stufflebeam & Zhang, 2017; Turmuzi et al., 2022). Used alongside nutritional-status measurement and stakeholder evidence, the model enables a more balanced assessment of how the program works and what it has achieved.

Accordingly, this study evaluated MBG implementation at SMP Negeri 13 Palembang and SMP Negeri 1 Palembang and examined students' nutritional status before and after program exposure. It asked: (1) how effectively were the context, input, process, and product components implemented; (2) how did students, teachers, and parents perceive implementation; and (3) did students' nutritional status change significantly? The study contributes a school-level evaluation that separates operational effectiveness from short-term anthropometric effectiveness while interpreting both within one analytical framework.

B. Methods

Design and Setting

This comparative program evaluation used a cross-sectional implementation assessment together with pre-post nutritional-status data. The CIPP model structured the evaluation of program relevance, resources, delivery, and immediate results. Data were collected during the 2025/2026 academic year at two public junior high schools in Palembang. SMP Negeri 13 had received MBG since approximately September 2025, whereas SMP Negeri 1 had received it since approximately November 2025. The difference in exposure duration was retained as contextual information rather than treated as a controlled experimental condition.

Participants and Sampling

The student sample comprised 133 MBG recipients: 66 from SMP Negeri 13 and 67 from SMP Negeri 1. Proportionate stratified random sampling was used to represent class strata. Questionnaire

respondents also included 20 teachers and 27 parents. Interviews involved principals, teachers, nutrition personnel, managers of the Nutrition Fulfilment Service Unit (Satuan Pelayanan Pemenuhan Gizi, SPPG), and parents. Participation across these groups enabled triangulation of direct observation, stakeholder experience, documents, and anthropometric data.

Measures and Data Collection

Implementation effectiveness was assessed through observation, questionnaires, interviews, and documentation. The observation checklist used a four-point scale and covered five context indicators, six input indicators, eight process indicators, and five product indicators. Operational indicators included the suitability and timeliness of food distribution, menu quality, hygiene, supervision, student acceptance, and the availability of supporting facilities. Questionnaire scores were converted to percentages and interpreted using the categories applied in the original study.

Nutritional status was derived from body-mass-index-for-age measurements and summarized as normal or non-normal. The non-normal category combined underweight, overweight, and obesity. Because combining clinically different categories reduces interpretive detail, the

binary summary was used only to reproduce the available dataset; future evaluations should retain the full age- and sex-standardized categories.

Data Analysis

Descriptive statistics summarized CIPP scores, stakeholder ratings, program receipt, and nutritional-status distributions. Paired-samples t-tests, with $\alpha = .05$, were used in the original dataset to compare coded pre-post nutritional status. Interview and observation evidence was organized by CIPP component and used to explain the quantitative pattern. The analysis interpreted statistical significance separately from descriptive movement and did not infer causality from the uncontrolled pre-post comparison.

C. Result and Discussion

Result

Program exposure was high but not complete. At SMP Negeri 13, 54 of 66 students (81.8%) were reported to have received meals throughout the observation period, while 12 missed meals because of absence. At SMP Negeri 1, the corresponding figures were 57 of 67 students (85.1%) and 10 students. Attendance-related variation is relevant because inconsistent exposure may attenuate measurable nutritional change.

Tabel 1. Nutritional Status Before and After MBG

School	Normal (pre)	Normal (post)	Non-normal (pre)	Non-normal (post)
SMP Negeri 13	40 (60.6%)	53 (80.3%)	26 (39.4%)	13 (19.7%)
SMP Negeri 1	46 (68.7%)	54 (80.6%)	21 (31.3%)	13 (19.4%)

Source: Primary data processed by the authors (2026).

Table 1 shows a favorable descriptive shift in both schools. The normal-status group increased by 13 students at SMP Negeri 13 and by eight at SMP Negeri 1. Percentages were recalculated using each school's stated

sample size because the percentages in the source table did not correspond to the reported counts. The descriptive pattern is encouraging, but it does not by itself demonstrate that MBG caused the change.

Table 2. Reported Paired-Samples Test

School	n	Before	After	t	df	p
SMP Negeri 13	66	1.68	1.69	-1.000	65	.320
SMP Negeri 1	67	1.68	1.69	-1.000	66	.320

Source: Primary data processed by the authors (2026).

The reported paired tests yielded $p = .320$ for both schools; therefore, the null hypothesis of no mean difference was not rejected at $\alpha = .05$. This inferential result should be interpreted cautiously because the nutritional categories appear to have

been numerically coded and the summary statistics are identical despite different category movements. A paired categorical test, such as McNemar's test, would be more appropriate if individual transition data were available.

Table 3. CIPP Observation Scores

Component	Indicators	Max.	Score	%	Category
Context	5	20	20	100	Very good
Input	6	24	24	100	Very good
Process	8	32	32	100	Very good
Product	5	20	20	100	Very good

Source: Primary data processed by the authors (2026).

Observation results classified every CIPP component as very good. Context evidence included adequate eating areas, hand-washing facilities, clean water, operating procedures, and a supportive school environment. Input evidence included hygienic kitchens and equipment, personal protective equipment for food handlers, food-grade containers, fresh

ingredients, and menus aligned with balanced-nutrition principles. Process evidence concerned timely and orderly delivery, teacher supervision, hand washing, meal consumption, and plate-waste recording. Product evidence reflected student acceptance and immediate perceived benefits.

Table 4. Stakeholder Ratings by CIPP Component

Component	Students (%)	Teachers (%)	Parents (%)
Context	77.6	79.2	79.0
Input	79.4	82.2	80.6
Process	80.4	84.2	81.4
Product	76.6	77.2	79.6
Overall	78.4	80.8	80.2

Source: Primary data processed by the authors (2026)

Stakeholder ratings were consistently favorable, with process receiving the highest score in all three groups. Students valued regular access to meals during the school day; teachers emphasized orderly distribution and supervision; and parents described the program as reducing the practical burden of preparing school meals. The lower product ratings, particularly among students and teachers, suggest that perceived outcomes were more cautious than assessments of daily implementation.

Discussion

The central finding is a clear separation between operational success and demonstrated nutritional impact. CIPP observation and questionnaire results indicate that the schools had established a strong delivery environment. This is consistent with the CIPP model's emphasis on understanding the conditions and mechanisms that support a program, rather than judging it from a single outcome measure (Stufflebeam & Zhang, 2017). Similar uses of CIPP in educational settings show that resource readiness, process fidelity, and feedback are essential for interpreting outcomes (Asril et al., 2023; Antariksa et al., 2022).

The favorable change in the distribution of nutritional-status categories is practically relevant, particularly because the number of students classified as normal increased in both schools. Nevertheless, the available paired tests did not establish statistical significance. School meals may improve dietary access and healthy food intake, but anthropometric outcomes are influenced by exposure duration, baseline status, household diet, illness, physical activity, puberty, and attendance. Consequently, a short implementation window may be sufficient to detect satisfaction and delivery quality but insufficient to isolate changes in body-mass-index-for-age (Vik et al., 2019).

The uniformly perfect observation

scores deserve careful consideration. They may reflect genuinely strong implementation, but they can also arise when an instrument focuses on the presence of required procedures rather than their variation, consistency, or quality over time. Repeated unannounced observations, inter-rater agreement, plate-waste measurement, menu nutrient analysis, and food-safety records would provide a more sensitive test of process fidelity. Combining these measures with stakeholder ratings would reduce the risk of ceiling effects.

This study also has methodological limitations. It included only two schools, lacked a comparison group, used different program-start dates, and did not report individual transitions among underweight, normal, overweight, and obese categories. The apparent use of a t-test for a coded binary or ordinal outcome may not match the measurement scale. These limitations mean that the findings support an implementation conclusion, not a causal claim about nutritional effectiveness. Future research should use a longer longitudinal design, age- and sex-standardized z-scores, repeated measures, appropriate paired categorical or mixed-effects models, and adjustment for household and behavioral covariates.

Even with these constraints, the study offers a useful practical lesson: MBG monitoring should operate on two linked tracks. The first should assess delivery fidelity menu quality, safety, timing, attendance, consumption, and waste. The second should assess outcomes dietary diversity, concentration, attendance, and anthropometric indicators at intervals long enough for change to be plausible. This two-track approach prevents effective logistics from being mistaken for proven health impact while still recognizing implementation as a necessary foundation.

D. Conclusion

The Free Nutritious Meal Program was implemented effectively at SMP

Negeri 13 Palembang and SMP Negeri 1 Palembang according to the CIPP observation and stakeholder-perception data. Both schools showed a descriptive increase in the number of students with normal nutritional status, but the reported paired analyses were not statistically significant. The evidence therefore supports strong operational performance while remaining inconclusive about short-term anthropometric impact. Continued implementation should be accompanied by longer follow-up, individual-level nutritional tracking, repeated process observations, and analysis that accounts for attendance, household diet, physical activity, and baseline nutritional status.

E. Acknowledgments

The authors thank Universitas Sriwijaya; the leadership, teachers, students, and parents of SMP Negeri 13 Palembang and SMP Negeri 1 Palembang; and the nutrition personnel and SPPG managers who supported data collection.

F. Conflict of Interest

The authors declare no conflict of interest

References

- Agustini, N. P. (2025). Analisis kebijakan Program Makan Bergizi Gratis dalam perspektif pembangunan sumber daya manusia. *Jurnal Kebijakan Publik Daerah*, 8(1), 45–56.
- Ahsan, J., Umar, A. T., & Sibarani, C. G. G. T. (2026). Evaluasi ketercapaian indikator kinerja Program Makan Bergizi Gratis: Analisis dampak pada pendidikan. *Educational: Jurnal Inovasi Pendidikan dan Pengajaran*, 6(2), 112–125.
- Antariksa, W. F., Fattah, A., & Utami, M. A. P. (2022). Evaluasi program pendidikan pesantren mahasiswa model CIPP (Context, Input, Process, Product). *Jurnal Evaluasi*.
- Ardhana, D., Setyowati, E., Sujarwo, & Safitri, N. (2026). Implementasi Program Makan Bergizi Gratis dalam mendukung ketahanan pangan dan kesejahteraan masyarakat. *Jurnal Jendela Pendidikan*, 5(1), 15–28.
- Asril, C. M., Amiruddin, & Lamada, M. (2023). Evaluasi Program Merdeka Belajar Kampus Merdeka menggunakan model CIPP. *Jurnal MediaTIK*, 6(2), 120–131.
- Habib, M. R., Pratiwi, L. G., Hardiansyah, H., Rosidin, U., & Handoko. (2025). Evaluasi implementasi Program Makan Bergizi Gratis di Sekolah Dasar X Kota Bandar Lampung. *Didaktika Dwija Indria*, 13(1), 25–38.
- Hastuti, R., Hariyadi, A. M., & Hariyadi. (2026). Implementasi Program Makan Bergizi Gratis di sekolah: Tinjauan literatur terhadap tantangan tata kelola dan implikasi kebijakan. *Pro Health Jurnal Ilmiah Kesehatan*, 8(1), 55–67.
- Melani, Y., Mulyaningsih, T., & Dahi, M. (2026). Dampak Program Makan Bergizi terhadap status gizi anak sekolah di Indonesia. *Indonesian Journal of Nutrition and Dietetics*, 14(1), 22–34.
- Stufflebeam, D. L., & Zhang, G. (2017). *The CIPP evaluation model: How to evaluate for improvement and accountability*. Guilford Press.
- Turmuzi, M., Ratnaya, I. G., Al Idrus, S. W., Paraniti, A. A. I., & Nugraha, I. N. B. S. (2022). Literature review: Evaluasi keterlaksanaan Kurikulum 2013 menggunakan model evaluasi CIPP. *Jurnal Basicedu*, 6(4).
- Vik, F. N., et al. (2019). School-based free meal provision and healthy food intake among children.