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MEMPENGARUHI KEPUASAN SISWA TERHADAP  
MENU PROGRAM MAKAN BERGIZI GRATIS (MBG)  
DI UPT SMP NEGERI 4 PANCARIJANG

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**FACTORS INFLUENCING STUDENT SATISFACTION WITH THE MENU OF  
THE FREE NUTRITIOUS MEAL PROGRAM (MBG)  
AT UPT SMP NEGERI 4 PANCARIJANG**

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Received June 13, 2026; Revised July 22, 2026; Accepted July 25, 2026; Published July 27, 2026

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**ABSTRACT**

The Free Nutritious Meal Program (MBG) is a government intervention aimed at fulfilling the nutritional needs of school-age children. However, its success is not solely determined by nutritional adequacy, but also by student satisfaction as direct beneficiaries. This study aimed to analyze factors influencing student satisfaction with the MBG menu at UPT SMP Negeri 4 Pancarijang. A quantitative approach with cross-sectional design was employed. The population consisted of 181 students participating in the MBG program. Using Slovin's formula, 125 students were selected through stratified random sampling. Data were collected via questionnaire measuring knowledge, attitude, menu perception, and teacher support as independent variables, and student satisfaction as the dependent variable. Multiple linear regression was used for data analysis. Results showed that attitude ( $p = 0.033$ ) and menu perception ( $p = 0.000$ ) significantly influenced student satisfaction, while knowledge ( $p = 0.855$ ) and teacher support ( $p = 0.131$ ) did not show significant effects after controlling for other variables. Simultaneously, all four variables significantly influenced satisfaction ( $p = 0.000$ ), explaining 59.4% of the variation in student satisfaction. Menu perception was the most dominant variable, emphasizing that improvement of menu quality in terms of taste, variety, and appearance is the primary priority for enhancing student satisfaction with the MBG program.

**Keywords:** Attitude, knowledge, menu perception, student satisfaction, teacher support.

**INTRODUCTION**

Adolescents represent a strategically important age group in human resource development. The United Nations defines adolescents as individuals aged 10–19 years, with a global population reaching approximately 1.3 billion, or around 16% of the total global population. The World Health Organization (WHO) extends this definition to encompass individuals aged 10–24 years, while the Indonesian Ministry of Health defines adolescents as those aged 10–19 years who have not yet married. Adolescence is broadly characterized as a transitional phase from childhood to adulthood, coinciding with the onset of puberty and culminating in independence from parental figures. During this phase, the second greatest acceleration of physical growth and cognitive development occurs after infancy, resulting in substantially increased energy and nutritional requirements that must be adequately met to support optimal health and learning capacity. (WHO, 2025).

Despite growing nutritional needs, adolescents face increasingly complex health challenges driven by shifting lifestyles and social environments. The transition toward adulthood is often accompanied by changes in dietary patterns, reduced physical activity, and increased exposure to foods high in sugar, salt, and fat, which gradually shape nutritional imbalances. These conditions mean that health problems among adolescents are no longer limited to undernutrition but increasingly include overnutrition emerging as early as school age. WHO (2025) reported that in 2022, more than 390 million children and adolescents aged 5–19 years were overweight, including approximately 160 million who were obese a sharp increase from three decades prior when the proportion of overweight individuals in this age group was below 10%. This increase occurred similarly among male and female adolescents, indicating that lifestyle changes have broadly affected adolescent health across diverse contexts.

In Indonesia, these trends are reflected in national nutrition data. A review of Indonesia's 2018–2024 National Nutrition Programme reported that between 2018 and 2023, the prevalence of overweight and obesity among school-age children nearly doubled compared to 2018 levels, while the problem of thinness increased in certain age groups, particularly among children aged 5–12 years and adolescents aged 16–18 years. Data from the 2023 National Health Survey (SKI) further indicated that 11.9% of children aged 5–12 years were overweight and 7.8% were obese, demonstrating that nutritional problems emerge as early as elementary school age. Simultaneously, anemia prevalence in children aged 5–14 years decreased from 26.8% in 2018 to 16.3% in 2023, yet its co-occurrence with rising overweight rates illustrates the dual burden of malnutrition now facing Indonesia's school-age population where deficiency and excess coexist within the same cohort (UNICEF, 2025).

Looking further ahead, the trajectory of adolescent nutritional problems in Indonesia remains concerning. Jebeile et al. (2022) projected that by 2030, approximately 254 million children and adolescents aged 5–19 years will be living with obesity globally, with Indonesia ranked among the five countries with the highest number of cases. The long-term consequences of adolescent obesity extend beyond physical health, encompassing increased risk of non-communicable diseases including cardiovascular conditions and diabetes, as well as psychosocial impacts such as reduced concentration, diminished self-confidence, and heightened risk of stigma and bullying in school environments. In the Indonesian context, cardiovascular disease contributes 5.87% of total national mortality, while diabetes and kidney disease account for approximately 1.84% of deaths burdens closely linked to unhealthy lifestyle patterns established during childhood and adolescence (Kemenkes, 2024). These projections place Indonesia in a situation demanding serious and sustained attention to adolescent nutrition as a public health priority.

Schools represent one of the most strategic settings for nutritional intervention, as adolescents spend a significant proportion of their daily time in educational environments where dietary habits and lifestyle patterns are actively formed. Kadaryati et al. (2023) argued that school-based approaches enable nutritional interventions to be conducted in

a more structured, sustainable, and integrated manner compared to community-based approaches, as they provide consistent access to a defined population over extended periods. Beyond structural advantages, schools also offer a social context in which teacher guidance, peer interaction, and institutional norms collectively shape students' food-related attitudes and behaviors making the school environment uniquely positioned to influence both immediate food consumption and long-term dietary habits.

Evidence from multiple countries confirms the effectiveness of school feeding programs as a nutritional and educational intervention. Wang et al. (2021) demonstrated through a systematic review and meta-analysis that school feeding programs significantly improved student outcomes in low- and middle-income countries, with participating students experiencing average height increases of 0.32 cm, weight gains of 0.58 kg, and school attendance improvements of 2.6% after 12 months compared to control groups. Beyond physical outcomes, Lowe et al. (2023) found that students receiving school meals in Northwest Pakistan showed cognitive score improvements of 1.6 points at five months, increasing to 2.4 points at 12 months, demonstrating that adequate nutritional support contributes meaningfully to cognitive function and learning quality during school age.

In alignment with these global practices, the Indonesian government implemented the Free Nutritious Meal Program (MBG), coordinated through the National Nutrition Agency established under Presidential Regulation No. 83 of 2024. The MBG program aims to provide nutritious meals routinely in schools, targeting students at primary and secondary education levels. The program is intended to reduce inequality in access to nutritious food, particularly for students from economically disadvantaged families. (Ningsih, 2025)

However, improving nutritional adequacy alone is insufficient to ensure the success of the program if students are unwilling to consume the meals provided. Previous studies have consistently demonstrated that the effectiveness of school feeding programs depends not only on the nutritional quality of the meals but also on menu quality and recipient satisfaction. Students' acceptance of institutional meals is strongly influenced by sensory attributes, including taste, appearance, aroma, texture, menu variety, and the cleanliness of food presentation (Sinambela, 2022).

Menus that better reflect students' preferences are more likely to be consumed completely, thereby reducing food waste and increasing nutrient intake. Conversely, when menu quality does not meet students' expectations, nutritionally adequate meals may still be rejected, limiting the effectiveness of the MBG program in achieving its nutritional and educational objectives. Therefore, continuous evaluation and improvement of menu quality are essential to enhance student satisfaction, optimize meal consumption, and maximize the overall impact of the MBG program.

Although several previous studies have evaluated the implementation of the MBG program, most have primarily focused on nutritional outcomes, program implementation, food consumption, or overall satisfaction without comprehensively examining the behavioral determinants underlying student satisfaction. Furthermore, studies integrating Lawrence Green's behavioral framework to simultaneously assess the roles of knowledge,



attitude, menu perception, and teacher support remain limited. Therefore, this study offers a novel contribution by applying Green's Theory of Behavioral Determinants within the MBG context to identify the relative influence of predisposing, enabling, and reinforcing factors on student satisfaction, while also determining the most dominant factor affecting satisfaction with the MBG menu (Gasper et al., 2025).

These issues were also observed during the implementation of the MBG program at UPT SMP Negeri 4 Pancarijang. Preliminary field observations conducted by the researcher prior to data collection, supported by informal information obtained from teachers responsible for supervising the program, revealed that on several implementation days a number of students did not consume the meals provided or left substantial portions unfinished. According to the teachers, uneaten meals were sometimes discarded, used as animal feed, or given to school staff and nearby community members who were not the intended beneficiaries of the program. These observations indicate that the main challenge in the implementation of the MBG program at the study site lies not in food availability, but in students' acceptance of the menu provided. This situation highlights a clear gap between the nutritional objectives of the MBG program and its actual implementation, emphasizing the need to identify the factors influencing student satisfaction with the provided menu.

Based on this background, this study aimed to examine the influence of knowledge, attitude, menu perception, and teacher support on student satisfaction with the MBG menu among students at UPT SMP Negeri 4 Pancarijang.

## RESEARCH METHOD

This study employed a quantitative approach with an observational analytic design using a cross-sectional method. A cross-sectional design was selected because it enables the simultaneous measurement of the independent variables (knowledge, attitude, menu perception, and teacher support) and the dependent variable (student satisfaction) at a single point in time, making it appropriate for examining the relationships among these variables within the MBG program. The study was conducted at UPT SMP Negeri 4 Pancarijang, located at Jalan Pangkajene Km. 4 Rappang, Kelurahan Kadidi, Kecamatan Panca Rijang, Kabupaten Sidenreng Rappang, South Sulawesi Province. This location was selected because the school had been implementing the MBG program and preliminary observations revealed that a portion of students were not optimally consuming the provided menu, making it directly relevant to the research focus. Data collection was carried out from February 25 to April 20, 2026.

The study population comprised all 661 active students at UPT SMP Negeri 4 Pancarijang who were participating in the MBG program, consisting of 59 students in Grade VII across two classes, 49 students in Grade VIII across two classes, and 73 students in Grade IX across three classes. All students were selected as the population because they directly received and experienced the MBG program, making them relevant sources of data for assessing knowledge, attitude, menu perception, teacher support, and satisfaction levels. The sample size was determined using Slovin's formula with a 5%

precision level, yielding 125 respondents. Stratified random sampling was applied to ensure proportional representation across grade levels, resulting in 41 students from Grade VII, 34 from Grade VIII, and 50 from Grade IX. Respondents within each stratum were selected randomly to minimize selection bias.

Inclusion criteria were: (1) actively enrolled students at UPT SMP Negeri 4 Pancarijang; (2) participating in the MBG program; (3) willing to be respondents and complete the questionnaire; and (4) capable of completing the questionnaire. Exclusion criteria included absence during data collection, unwillingness to participate, and illness or conditions preventing questionnaire completion.

Data were collected using a structured questionnaire consisting of items measuring knowledge, attitude, menu perception, teacher support, and student satisfaction with the MBG menu. Prior to data collection, the questionnaire was tested for validity and reliability using responses from 30 students. Item validity was assessed using Pearson's product-moment correlation, with all questionnaire items demonstrating correlation coefficients greater than the critical value ( $r > 0.361$ ;  $p < 0.05$ ), indicating that all items were valid. Instrument reliability was evaluated using Cronbach's alpha, yielding a coefficient of 0.867, which exceeded the acceptable threshold of 0.70 and indicated good internal consistency. Therefore, the questionnaire was considered valid and reliable for use in this study. The collected data were subsequently analyzed using multiple linear regression.

The research instrument was a structured closed questionnaire developed based on the study's variables and indicators. Knowledge was measured using 10 multiple-choice questions, each scored 1 for a correct answer and 0 for an incorrect answer, yielding a total score range of 0–10. A higher score indicated better student knowledge of MBG goals, nutritional benefits, and the importance of consuming the provided menu. Attitude, menu perception, teacher support, and student satisfaction were each measured using 10 statement items on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with total score ranges of 10–50 for each variable. Higher scores on each variable indicated more positive attitudes, better menu perceptions, stronger teacher support, and higher student satisfaction respectively. Prior to the main data collection, instrument validity was assessed using item-total correlation, with all 50 items confirmed valid ( $r\text{-count} > r\text{-table} = 0.361$ ). Reliability was established using Cronbach's Alpha, with all variables yielding values  $\geq 0.70$ , confirming instrument consistency.

Data processing involved four sequential stages: editing to ensure completeness and consistency of respondent answers; coding to assign numerical values to each response category; data entry into the SPSS version 16 statistical software; and cleaning to verify the absence of data entry errors prior to analysis. Data analysis was conducted at three levels. Univariate analysis was performed to describe the distribution and characteristics of each research variable through mean, standard deviation, minimum, and maximum values. Bivariate analysis was conducted using simple linear regression to examine the individual influence of each independent variable on student satisfaction. Multivariate analysis was conducted using multiple linear regression to examine the simultaneous and

partial influences of all independent variables on student satisfaction, preceded by classical assumption tests comprising the Kolmogorov-Smirnov normality test, multicollinearity test using Tolerance and Variance Inflation Factor (VIF) values, and heteroscedasticity test using the Glejser method supported by scatterplot analysis. Statistical significance was set at  $p < 0.05$  for all analyses.

## RESULTS AND DISCUSSION

### Characteristics of Respondents

A total of 125 respondents participated in this study. The distribution of respondent characteristics based on gender, age, and class is presented in Tabel 1.

Tabel 1. Characteristics of Respondents at UPT SMP Negeri 4 Pancarijang

| Variable | Category     | n   | %    |
|----------|--------------|-----|------|
| Gender   | Female       | 63  | 50.4 |
|          | Male         | 62  | 49.6 |
|          | Total        | 125 | 100  |
| Age      | 12 years old | 3   | 2.4  |
|          | 13 years old | 34  | 27.2 |
|          | 14 years old | 44  | 35.2 |
|          | 15 years old | 41  | 32.8 |
|          | 16 years old | 2   | 1.6  |
|          | 17 years old | 1   | 0.8  |
|          | Total        | 125 | 100  |
|          | VII          | 41  | 32.8 |
| Grade    | VIII         | 50  | 27.2 |
|          | IX           | 50  | 40.0 |
|          | Total        | 125 | 100  |

Source: Primary Data, 2026

Based on Tabel 1, the distribution of respondents by gender was relatively balanced, with 63 female students (50.4%) and 62 male students (49.6%). This near-equal distribution reduces the potential for gender-related bias in assessing menu satisfaction, ensuring that evaluations of the MBG program reflect the perspectives of both male and female students proportionally.

In terms of age, the majority of respondents were aged 14 years (35.2%), followed by those aged 15 years (32.8%) and 13 years (27.2%), while respondents aged 12 years, 16 years, and 17 years accounted for smaller proportions of 2.4%, 1.6%, and 0.8% respectively. The concentration of respondents in the 13–15 year age range is consistent with the typical age profile of junior high school students and reflects the early-to-mid adolescence phase, a developmental period characterized by heightened sensitivity to food preferences, peer influence, and sensory experiences that are directly relevant to how students perceive and evaluate institutional food programs (Jebeile et al., 2022).

Regarding class distribution, the largest proportion of respondents came from Grade IX with 50 students (40.0%), followed by Grade VII with 41 students (32.8%) and Grade VIII with 34 students (27.2%). This distribution is consistent with the proportional



stratified random sampling applied in this study, where the number of respondents from each grade level was determined based on the ratio of each stratum to the total population.

### 31 Descriptive Statistics of Research Variables

The descriptive statistics for all research variables are presented in Tabel 2.

Tabel 2. Descriptive Statistics of Research Variables at UPT SMP Negeri 4 Pancarijang

| Variable                  | N   | Mean  | SD    | Min | Max |
|---------------------------|-----|-------|-------|-----|-----|
| Knowledge (X1)            | 125 | 8.87  | 1.853 | 2   | 10  |
| Attitude (X2)             | 125 | 37.32 | 7.254 | 16  | 50  |
| Menu Perception (X3)      | 125 | 36.72 | 6.846 | 13  | 50  |
| Teacher Support (X4)      | 125 | 38.23 | 6.236 | 24  | 50  |
| Student Satisfaction (X5) | 125 | 36.15 | 6.762 | 15  | 50  |

Source: Primary Data, 2026

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The knowledge variable showed a mean score of 8.87 out of a maximum of 10, indicating that most students had good understanding of MBG goals and benefits. The attitude variable had a mean of 37.32 out of 50, suggesting a generally positive attitude toward MBG menus, though with considerable variation (SD = 7.254). Menu perception showed a mean of 36.72, indicating moderately positive evaluations of menu quality including taste, variety, and appearance, with a wide range between minimum (13) and maximum (50) scores reflecting significant differences in perception among respondents. Teacher support yielded the highest mean among independent variables at 38.23, suggesting that students generally perceived teacher involvement in the MBG program as adequate. Student satisfaction recorded a mean of 36.15 out of 50, indicating moderate satisfaction levels with room for meaningful improvement.

### 15 Multiple Linear Regression Analysis

Before performing the multiple linear regression analysis, 17 classical assumption tests were conducted to ensure that the regression model met the required assumptions. The results of the normality, multicollinearity, and heteroscedasticity tests are presented in Tables 3–5.

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Tabel 3. Normality Test Results

| Variable                | N   | Kolmogorov-Smirnov Z | Sig.  | Description          |
|-------------------------|-----|----------------------|-------|----------------------|
| Unstandardized Residual | 125 | 1.141                | 0.148 | Normally distributed |

Source: Primary Data, 2026

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As shown in Tabel 3, the Kolmogorov–Smirnov test produced a significance value of 0.148, which exceeded the significance threshold of 0.05. Therefore, the residuals were normally distributed, indicating that the normality assumption for multiple linear regression was satisfied.



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Tabel 4. Multicollinearity Test Results

| Variable             | Tolerance | VIF   | Interpretation       |
|----------------------|-----------|-------|----------------------|
| Knowledge (X1)       | 0.826     | 1.211 | No multicollinearity |
| Attitude (X2)        | 0.474     | 2.112 | No multicollinearity |
| Menu Perception (X3) | 0.505     | 1.979 | No multicollinearity |
| Teacher Support (X4) | 0.705     | 1.419 | No multicollinearity |

Source: Primary Data, 2026

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Tabel 4 shows that all independent variables had tolerance values above 0.10 and VIF values below 10. These findings indicate that 9 multicollinearity was detected among the independent variables, confirming that each variable contributed independently to the regression model.

Tabel 5. Heteroscedasticity Test Results (Glejser Test)

| Variable             | B      | t      | Sig.  | Interpretation        |
|----------------------|--------|--------|-------|-----------------------|
| Knowledge (X1)       | -0.084 | -0.570 | 0.570 | No heteroscedasticity |
| Attitude (X2)        | 0.019  | 0.373  | 0.710 | No heteroscedasticity |
| Menu Perception (X3) | -0.018 | -0.357 | 0.722 | No heteroscedasticity |
| Teacher Support (X4) | -0.071 | -1.499 | 0.137 | No heteroscedasticity |

Source: Primary Data, 2026

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Based on the Glejser test presented in Tabel 5, all independent variables showed significance values greater than 0.05, indicating the absence of heteroscedasticity. This result was further supported by the scatterplot, which demonstrated a random distribution of residuals without any discernible pattern. Therefore, the regression model satisfied the homoscedasticity assumption.

Overall, the results of the normality, multicollinearity, and heteroscedasticity tests indicate that all classical assumptions were fulfilled. Therefore, the multiple linear regression model was considered appropriate for examining the effects of knowledge, attitude, menu perception, and teacher support on student satisfaction with the MBG menu.

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Tabel 6. Multiple Linear Regression and Partial Test Results (t-test)

| Variable             | B      | t      | Sig.  | Description     |
|----------------------|--------|--------|-------|-----------------|
| (Constant)           | 4.765  |        |       |                 |
| Knowledge (X1)       | -0.043 | -0.183 | 0.855 | Not Significant |
| Attitude (X2)        | 0.170  | 2.159  | 0.033 | Significant     |
| Menu Perception (X3) | 0.573  | 7.093  | 0.000 | Significant     |
| Teacher Support (X4) | 0.114  | 1.519  | 0.131 | Not Significant |

Source: Primary Data, 2026

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Tabel 7. Simultaneous Test Results (F-test)

| Model      | Sum of Squares | df  | Mean Square | f      | Sig.  |
|------------|----------------|-----|-------------|--------|-------|
| Regression | 3367.405       | 4   | 841.851     | 43.871 | 0.000 |
| Residual   | 2302.707       | 120 | 19.189      |        |       |
| Total      | 5670.112       | 124 |             |        |       |

Source: Primary Data, 2026

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Tabel 8. Coefficient of Determination (R Square)

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1     | 0.771 | 0.594    | 0.580             | 4.381                      |

Source: Primary Data, 2026

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Based on the multiple linear regression results presented in tabel 6, the regression equation obtained was:

$$Y = 4.765 - 0.043X_1 + 0.170X_2 + 0.573X_3 + 0.114X_4 + e$$

The regression equation indicates that student satisfaction is influenced by knowledge, attitude, menu perception, and teacher support. The constant value of 4.765 represents the baseline satisfaction score when all independent variables are assumed to remain constant.

The coefficient for knowledge was negative and statistically insignificant ( $B = -0.043$ ;  $p = 0.855$ ), suggesting that variations in students' knowledge levels did not contribute meaningfully to differences in satisfaction after controlling for other variables. This finding implies that cognitive understanding of the program alone may not be sufficient to determine how satisfied students feel with the meals provided.

Attitude demonstrated a positive and statistically significant effect on student satisfaction ( $B = 0.170$ ;  $p = 0.033$ ). This result indicates that students who possessed more favorable attitudes toward the MBG program tended to report higher satisfaction levels. Positive attitudes may encourage students to appreciate the benefits of the program and evaluate their dining experiences more favorably.

Among all independent variables included in the regression model, menu perception emerged as the strongest predictor of student satisfaction, as indicated by the highest regression coefficient and t-value ( $B = 0.573$ ;  $p < 0.001$ ). This finding suggests that students evaluate the MBG program primarily through their direct eating experiences rather than through their knowledge of the program or external encouragement from teachers. Attributes such as taste, aroma, texture, appearance, and menu variety are immediately experienced during meal consumption and therefore have a more substantial influence on satisfaction. Even when students understand the nutritional benefits of the program or receive encouragement from teachers, dissatisfaction may still occur if the meals do not meet their sensory expectations. Consequently, improving menu quality based on students' preferences may represent the most effective strategy for enhancing satisfaction and increasing meal consumption within the MBG program.

Teacher support showed a positive but statistically insignificant relationship with student satisfaction ( $B = 0.114$ ;  $p = 0.131$ ). Although teacher involvement may contribute indirectly to program acceptance, its direct influence on satisfaction appears to be weaker than factors associated with the food itself.

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As presented in Tabel 7, the simultaneous test produced an F-value of 43.871 ( $p < 0.001$ ), indicating that the four independent variables collectively exerted a significant influence on student satisfaction. Tabel 8 further shows that the coefficient of

determination ( $R^2 = 0.594$ ) indicated that 59.4% of the variation in student satisfaction could be explained by knowledge, attitude, menu perception, and teacher support. The remaining 40.6% may be attributable to other factors not examined in this study, such as peer influence, family environment, food preferences, socioeconomic conditions, and previous eating experiences.

The correlation coefficient ( $R = 0.771$ ) indicates a strong overall relationship between the independent variables and student satisfaction. This finding suggests that the proposed model possesses substantial explanatory power and provides meaningful insights into factors associated with student satisfaction toward the Free Nutritious Meal Program.

### Effect of Knowledge on Student Satisfaction

This study found that knowledge did not significantly influence student satisfaction with the MBG menu ( $B = -0.043$ ,  $p = 0.855$ ), meaning the null hypothesis is accepted. This finding reflects the knowledge-attitude-practice gap (KAP gap): students may understand that the menu is nutritious and beneficial, but cognitive understanding does not automatically generate satisfaction when actual consumption experiences regarding taste, variety, and appearance fail to meet expectations. Knowledge operates in the cognitive domain while satisfaction emerges from direct sensory experience, meaning both constructs function in fundamentally different domains (Violita, 2022).

The absence of a significant effect of knowledge on student satisfaction suggests that understanding the objectives and nutritional benefits of the MBG program does not necessarily translate into positive evaluations of the meals provided. Satisfaction is an affective response that develops from direct consumption experiences rather than cognitive understanding alone. Students may recognize that the MBG program is beneficial for their health, yet still express dissatisfaction if the meals do not meet their expectations regarding taste, appearance, texture, or variety. Therefore, knowledge appears to function as a supporting factor rather than a direct determinant of satisfaction.

This aligns with Lawrence Green's Theory of Behavioral Determinants, which positions knowledge as a predisposing factor that prepares individual cognitive tendencies before behavior occurs, but does not operate in isolation. Green emphasized that predisposing factors always interact with enabling and reinforcing factors simultaneously. When enabling factors such as menu quality are inadequate, knowledge loses its driving force toward satisfaction regardless of how well students understand the program's purpose (Gasper et al., 2025).

This interpretation is consistent with the findings of Nafi (2023), who reported that knowledge was not significantly associated with food consumption behavior after environmental and contextual factors were taken into account, as well as Baroroh (2023), who found that nutritional knowledge and meal satisfaction influenced food waste through different pathways. Similar evidence has also been reported in more recent studies. In a broader context, Jiang et al. (2024) similarly found through structural equation modeling among thousands of adolescents in China that knowledge about



healthy food contributed positively to attitudes but did not always directly determine actual consumption practices.

Likewise, Zulfani et al. (2026) found that school meal programs successfully improved students' nutritional knowledge; however, greater knowledge did not automatically increase acceptance or satisfaction with school meals. Instead, students' evaluations were more strongly determined by their direct eating experiences, particularly the perceived quality and acceptability of the meals provided. Collectively, these findings reinforce the present study's conclusion that knowledge alone is insufficient to enhance student satisfaction unless it is supported by favorable menu characteristics and positive eating experiences.

### **Effect of Attitude on Student Satisfaction**

Attitude significantly influenced student satisfaction ( $B = 0.170$ ,  $p = 0.033$ ), meaning the alternative hypothesis is accepted. Every unit increase in attitude score corresponded to a 0.170-unit increase in satisfaction, confirming that students with more favorable dispositions toward the MBG program consistently reported higher satisfaction levels. Attitude functions not only as a reflection of emotional tendency toward an object, but also as an evaluative lens that filters and gives meaning to experiences received directly. Students who approach the MBG program with openness and acceptance tend to evaluate their consumption experience more positively even when the menu does not perfectly align with personal preferences. Conversely, students carrying negative predispositions tend to report dissatisfaction even when menu quality is objectively reasonable (Violita, 2022).

Within Green's behavioral determinant theory, attitude is classified as part of predisposing factors reflecting the evaluative tendency of individuals in responding to objects or situations. Unlike knowledge which operates in the cognitive domain, attitude operates in the affective domain, directly influencing how individuals give meaning to their experiences (Gasper et al., 2025). These findings align with Hadi (2023), who found that students with positive attitudes toward healthy food tended to consume it more frequently and rate it more favorably. Choirunisa et al. (2024) similarly demonstrated that consumer orientation toward food products significantly influenced satisfaction levels in an institutional food context. Natasha et al. (2025) further found that interventions successfully shifting student attitudes in a positive direction were consistently followed by improvements in actual consumption behavior, reinforcing attitude as a critical bridge between cognitive predisposition and behavioral outcomes in school-based nutrition programs.

### **Effect of Menu Perception on Student Satisfaction**

Menu perception was the most dominant factor influencing student satisfaction, yielding the largest regression coefficient in the model ( $B = 0.573$ ,  $p = 0.000$ ), meaning the alternative hypothesis is accepted. Every unit increase in menu perception score corresponded to a 0.573-unit increase in satisfaction, demonstrating that improvements



in how students perceive menu quality translate most powerfully into overall satisfaction gains. The dominance of menu perception is theoretically grounded in the nature of satisfaction itself. In a program where students cannot freely choose their meals, the only available source of satisfaction is the quality of what is served. Students' evaluations of taste, variety, appearance, portion adequacy, and cleanliness of presentation constitute the totality of their consumption experience, making these perceptions the most proximate determinants of satisfaction (Choirunisa et al., 2024; Huo et al., 2024).

Within Green's framework, menu perception represents an enabling factor that facilitates or hinders optimal consumption behavior when perception is positive, psychological barriers to eating diminish and satisfaction rises proportionally; when perception is poor, even strong knowledge and positive attitudes cannot compensate for the inadequacy of the sensory experience (Gasper et al., 2025).

Sriwiyanti et al. (2023) found that 85.9% of boarding school students who reported low menu variety showed correspondingly lower satisfaction despite acceptable scores on other quality dimensions, highlighting that satisfaction is not formed from a single aspect but from the combination of multiple menu dimensions evaluated simultaneously. Huo et al. (2024) confirmed that perceptions of food quality consistently emerged as the strongest predictor of consumer satisfaction in constrained-choice environments. Similarly, an evaluation of the MBG program in West Java found that students' perceptions of menu quality were more strongly associated with meal consumption behavior than nutritional knowledge (Kiwari, 2025).

Comparable findings were reported by Ningsih (2025), who demonstrated that consumer satisfaction with the MBG program was primarily influenced by menu attributes, including taste, appearance, menu variety, and cultural appropriateness, whereas dissatisfaction with these attributes contributed to lower meal acceptance and increased food waste. Likewise, Choirunisa et al. (2024) found that food taste and presentation were among the strongest determinants of consumer satisfaction, highlighting the importance of sensory quality in shaping positive eating experiences. Collectively, these studies consistently indicate that individuals evaluate meal programs primarily through their direct experiences with food quality rather than through cognitive factors alone. These findings reinforce the present study, in which menu perception emerged as the most influential determinant of student satisfaction with the MBG program.

### **Effect of Teacher Support on Student Satisfaction**

Teacher support did not significantly influence student satisfaction ( $B = 0.114$ ,  $p = 0.131$ ), meaning the null hypothesis is accepted. Despite maintaining a positive direction, the effect was not statistically meaningful after other variables were accounted for in the model. This finding is explained by the indirect nature of teacher support in shaping satisfaction. Teachers accompany, direct, and supervise the meal process, but do not control the menu aspects most determinative of satisfaction namely taste, variety, and appearance. When menu perception is held constant in the model, the remaining

contribution of teacher support becomes negligible because students' evaluations of the food itself already capture the most influential layer of their satisfaction experience.

In Green's framework, teacher support is classified as a reinforcing factor one that strengthens or sustains already-formed behaviors, rather than directly shaping satisfaction judgments. Green emphasized that reinforcing factors work most effectively when enabling factors are already adequate; if menu quality as the enabling factor is suboptimal, teacher support as a reinforcing factor lacks sufficient foundation to produce meaningful satisfaction (Gasper et al., 2025). Malla et al. (2025) confirmed this pattern, finding that institutional support for the MBG program at SMA Negeri 2 Bitung was very high, yet actual student satisfaction with the menu did not correspondingly follow. This does not diminish the importance of teacher roles in program implementation; rather, it underscores that teacher support cannot substitute for fundamental improvements in menu quality. Kiwari (2025) similarly found that teacher involvement in meal supervision was not strongly correlated with consumption rates what mattered more was how students assessed the menu itself. These findings do not diminish the importance of teacher roles in program implementation; rather, they underscore that teacher support functions most effectively as a complementary strategy alongside, not as a substitute for, fundamental improvements in menu quality.

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#### **Simultaneous Effect of All Variables on Student Satisfaction**

The simultaneous analysis confirmed that all four variables collectively and significantly influenced student satisfaction ( $F = 43.871$ ,  $p = 0.000$ ,  $R^2 = 0.594$ ), meaning the alternative hypothesis is accepted. The strong overall relationship ( $R = 0.771$ ) indicates that the four variables together constitute a robust explanatory model for understanding student satisfaction in the context of an institutional school meal program.

This finding is consistent with Green's integrated PRECEDE-PROCEED model, which asserts that behavior including evaluation responses like satisfaction is never shaped by a single factor but always results from the interaction of predisposing, enabling, and reinforcing factors simultaneously (Gasper et al., 2025; Kim et al., 2022). In this study, knowledge and attitude functioned as predisposing factors, menu perception as an enabling factor, and teacher support as a reinforcing factor each contributing within an interconnected system that collectively determined student satisfaction.

The remaining 40.6% unexplained variance suggests the influence of factors outside this study's scope, such as peer influence, prior eating habits, family socioeconomic background, and individual psychological characteristics during meals. Sari et al. (2025) found that peer support significantly shaped food selection behavior among junior high school students, while Daumi et al. (2026) and Kiwari (2025) similarly found that satisfaction and consumption behavior in MBG programs were shaped by combinations of internal student factors and program service quality simultaneously, with no single factor capable of comprehensively explaining satisfaction variation. These findings reinforce the need for holistic program evaluation that addresses menu quality,

student attitudes, and institutional support in an integrated manner.

The relatively high coefficient of determination ( $R^2 = 0.594$ ) indicates that the proposed model has good explanatory power in understanding student satisfaction toward the MBG program. The novelty of this study lies in its application of Lawrence Green's Behavioral Determinants Theory to comprehensively examine student satisfaction with the MBG program by simultaneously integrating predisposing (knowledge and attitude), enabling (menu perception), and reinforcing (teacher support) factors within a single analytical framework, an approach that remains rarely applied in MBG-related research despite growing evidence elsewhere that theory-based frameworks such as PRECEDE-PROCEED meaningfully strengthen the design and evaluation of school-based nutrition interventions (Arshad et al., 2023). While previous studies have primarily emphasized nutritional adequacy, meal acceptance, or overall program implementation, this study identifies the relative contribution of each behavioral determinant and demonstrates that menu perception is the most influential predictor of student satisfaction, a gap consistent with recent policy evaluations noting that the MBG program still lacks integration with nutrition education or behavior-based interventions and has no established mechanism for capturing beneficiary feedback (Suprpto et al., 2025).

These findings provide new evidence that the success of school feeding programs depends not only on nutritional quality but also on students' behavioral responses to the meals provided. This is consistent with evidence showing that food waste in institutional meal services functions as a behavioral indicator of recipient satisfaction, with higher satisfaction consistently associated with lower amounts of leftover food, and with a recent systematic review indicating that meal participation and overall program success are closely tied to how favorably students respond to and consume the meals provided, rather than to nutritional content alone (Spill et al., 2024).

## CONCLUSION

This study examined the influence of knowledge, attitude, menu perception, and teacher support on student satisfaction with the Free Nutritious Meal Program (MBG) menu among students at UPT SMP Negeri 4 Pancarijang. The findings revealed that attitude and menu perception significantly influenced student satisfaction, whereas knowledge and teacher support did not show significant effects after controlling for other variables. Menu perception emerged as the most influential factor, indicating that students' evaluations of menu quality, including taste, variety, appearance, portion, and cleanliness, play a central role in shaping satisfaction. Simultaneously, the four variables significantly explained student satisfaction, supporting Lawrence Green's Behavioral Determinants Theory that satisfaction is influenced by the interaction of predisposing, enabling, and reinforcing factors. These findings suggest that improving menu quality should be the primary priority for strengthening student satisfaction and optimizing the effectiveness of the MBG program, while future studies should explore additional factors that may contribute to student satisfaction.



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